E-GOVERNANCE IN NEPAL: THE CHALLENGES IN THE IMPLEMENTATION OF THE NATIONAL IDENTITY CARD IN NEPAL

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ABSTRACT

The advent of e-revolution and extensive use of ICTs in business had created a world of e- business. The e-Government is representing the world's most developed countries today and the subject matter is getting the attention of people around the globe. There has been a significant development in the ICT sector of Nepal and the government has introduced a number of ICT related e-services including the National Identity card of Nepal. The advancement in the use of mobile technologies and smartphones over the past few years has led the citizens of the nation more inclined towards the use of e-services, thereby making the e-Governance the hot cake topic. The use of the internet and social media is increasing exponentially in Nepal and therefore compelling the government to introduce and apt the e-Governance model and services to ease the daily life of the people. A proper vision, strategy, and planning must be done in order to implement the e- Governance system in Nepal and the major challenges obstructing the system must be neutralized in order to develop the atmosphere for the efficient implementation of e- Governance in Nepal.
Keywords: e-Governance, Information Technology, E-Governance Master Plan, Business Process Reengineering.

1   Introduction

EG is the use of a variety of information technologies by government agencies in order to renovate their public services in the course of improving the efficiency and effectiveness of their service delivery. A number of policy and regulatory frameworks governing the ICT sector provide a foundation for the DNF. For example, the National ICT Policy introduced in 2015 seeks to enhance the vision of transforming Nepali society into knowledge and information-based society by harnessing rapid advances in the ICT sector. Similarly, the National Broadband Policy announced in 2016 puts forth a framework for stimulating broadband access and availability across the country. Among others, policy emphasis that has been placed on effectively leveraging Universal Service Access Funds as a means of bridging digital divide will provide a strong mechanism for expanding broadband access to communities beyond urban areas if implemented effectively (Kautish et al, 2008, 2012, 2013, 2020).

Nepal gained considerable success in cyber adoption as compared to its neighboring countries, which has been evident from the country's growth trend over the following few years. The fast-developing status of social media is a prime achievement factor for cyber adoption in Nepal. Facebook users in Nepal are at the count of millions and the number of users sharing videos on social media has increased tremendously (NTA, 2017).

The GoN has highlighted the importance of changing capability of ICTs and putting these technologies within the larger perspective of its far-reaching development objectives premised around poverty reduction, as the main principal goal. Due to this, countries, private sector individuals and people that find the resources to become more proficient will advance and flourish. Among others, ICTs hold the potential to help create environments for better governance, with more transparent and well-organized civil services. (Ministry of Information and Communications, 2015). Apart from opportunities, the changing nature of ICTs offers many challenges from policy views. As a result, the existing policy provision in Nepal has to be amended with the trivial of dynamism that characterizes the arena. For instance, the faster shifting technological innovation in ICT domain yields successive results that are far-reaching policy implications, which the earliest policy formulation approaches, failed to

handle properly. The GoN has the chance to create a distinction by adopting and exploitation ICT as a tool on the market to scale back the event divide and increase the probabilities of up the standard of lifetime of the voters. (Ministry of Information and Communications, 2015)

The GoN has introduced the ICTD program a long time ago, as a part of the EG Master Plan. The program aimed at providing better access to information to all the Nepalese citizens living in the terai, hilly and mountainous regions. The information related to market, job opportunities, health, education, and policies were made accessible to all by establishing proper ICT facilities and internet connectivity around the country. (Adhikari, 2012).

Even though Nepal is at a trivial stage in ICT development when compared with the global scenario, there has been significant progress in the communication sector. There has been remarkable progress in telecommunication sector with the increased use of smartphones. The colleges and universities today are producing capable technical human resources within the country. The use of electronic as well as print media increased exponentially that enabled access to reach to general people around the country. The facilities of internet, emails, and computers are gaining popularity and used rigorously today. Telecom service providers and ISPs are widening their outreach; as a result, several EGov applications were introduced. The GoN is now thoughtful and dedicated to promoting EGov for implementation of various G2G, G2C and G2B plan defined under relevant importance areas (P. Pariyar, 2007).

1.1   Background of the Study

Digitalization of civic services today is a key priority of GoN. The government has undertaken numerous footsteps in this direction, because of which the EGov Development Index of Nepal has progressed from 165th in 2014 to 117th in 2018. (F&S, 2019).

Centenarian Bhagawati Devi Bhandari, a resident of Phidim Municipality-4, acquired the first national ID card in the country from Minister for Home Affairs Ram Bahadur Thapa in Panchthar district. The 101-year-old was brought to the program venue on a vehicle belonging to Phidim Municipality from her residence about 3km away. A total of 2,429 national ID cards have reached Panchthar while others are being printed. Beginning on June 19, data on some 52,000 people were collected in the district by Sunday evening in preparation for the ID card. In the pilot phase, authorities plan to issue the cards as replacement of the existing paper documents to 117,000 people in Panchthar and the civil servants working at Singha Durbar. The authority plans to distribute 3.5 million cards in 15 other districts in the second phase. Plans are for issuing the IDs in 25 districts next fiscal year and in 36 districts in the fiscal 2020-21. The electronic card has biometric data of each eligible Nepali citizen along with a unique identification number. It contains the family name, given name, address, father's name, mother's name, photo and four fingerprints of both thumbs and two index fingers. Ten years since its inception, the National ID Management Centre under the aegis of the Home Ministry started printing the cards in November with support from the Asian Development Bank. (Gautam, 2018)

1.2 Problem Statement

Even though there is an intense use of mobile technologies, internet and social media the country is still not ready for the EG. The EGDI status of Nepal shows that the country is still in its premature stage for EG implementation. Moreover, there persists very limited awareness among the people regarding the concept, use, and principal of EG. Besides, there exists even the more reluctant behavior of government officials with the verge of fragile political instability. Therefore, these remain as the major problem for the EG implementation in Nepal.

1.3 Purpose of the Study

The roadmap to EGov is not easy and straight, rather it is too difficult especially when it comes to developing countries context. There is no doubt that there exist very limited prospects and many challenges for the development of EGov in Nepal. There are also several hurdles, problems, and challenges present in the country obstructing the EG implementation that must be overcome to attain Nepal's EGov dream. Hence, the purpose of this research is to find out the major barriers for EG

implementation in Nepal and to find out the critical success factors supporting the implementation of EG in the near future.

1.4   Objectives of the Study

The major objectives of this research are as follows:

1. To study the AS-IS status of EG in Nepal.

2. To identify challenges and barriers obstructing EG success in Nepal.

3. To find out the critical success factors, which facilitates the hassle-free implementation of EG in Nepal, with respect to the National Identity Card (NID) System of Nepal.

1.5   Research Questions

What are the major barriers for EGov implementation in Nepal and what are the critical success factors that could assist the government to implement EG in the near future? The below questions indicate the area of the research.

    i.   What is the AS-IS perception of EG in Nepal?

    ii.   How to identify the challenges and barriers obstructing EG success in Nepal?

    iii.   How the critical success factors are identified in order to facilitate the hassle-free implementation of EG in Nepal, with respect to the National Identity Card (NID) System of Nepal

1.6   Scope and Limitation of the Study

The scope of this research is to find out the major barriers for EG implementation in Nepal and to find out the major critical success factors that support its implementation in the near future. This research aims towards analyzing the non-technical factors that influence the acceptance of the EG system in the context of Nepal, the technological factors such as hardware, software as well as the networking equipment is excluded in this research.

1.7   Significance of the Research

The research aims to expose the difficulties faced by the public, in terms of their hardship in information access through government portals and offices. The research aims to produce a beneficial output in terms of ease of accessibility to the public with uncovering the benefits of EG implementation in Nepal. This research provides the window of expectation sought by the Nepalese citizens on how they respond to the use and application of EG in Nepal. The result would also demonstrate the dynamics that Nepalese citizens desire to get, in relation to the use of EG application. The study also tries to present the citizen's anticipation from EG services that in turn will help in the future to identify the major implementation gaps which could be sealed for full fledge EG implementation. For the knowledge workers, the outcome of this thesis aims to supplement a new dimension in order to provide a platform towards the implementation possibility of full-fledged EG system in Nepal. The scholar community, doing researched on EG in Nepal, could further add ideas and new concepts into their research works and devise new factors that are equally important in the adoption of EG in Nepal. This research work will further help into a diagnosing problem related to EG implementation and helps to enhance services and support that ease the system implementation in the future.

1.8   Definition of e-Government and e-Governance

EGov is all about the delivery of national or local government information and services within the reach of the internet or other digital or social media to the hands of the citizens, businesses and other governmental organizations. EGov permits the status quo of standard authorities' facts in the electronic form to provide ease to people in an apt way. It also aids better service provision to citizens,

empowerment of the humans through access to information and getting rid of the manual paper forms with improvements in productivity and cost savings while doing business and allowing participation in public policy selection- making (Sharma, 2015).

According to the World Bank (2000) – EGov is the all about the use of ICT services by government agencies in order to promote associations between citizens, businesses, and other arms of the government. This serves as a tool to many aspects including better delivery of government services to citizens, improved communications with businesses and citizen empowerment made available through the ease of information available along with proficient management. The consequential benefits are decreased bribery, better transparency, more accessibility, growing revenue, and reduced cost."

AOEMA report of the United Nations defines - EGov is the process of using the internet and the world-wide-web for distributing government information and services to citizens.

The UNESCO definition (www.unesco.org) - EG is the use of ICT with the objective of improving information and service delivery to the public sector, encouraging public participation in the process of policymaking and making the government more liable, effective and translucent. EGov involves innovation in leadership, policies making and finding new ways of accessing education and open ways of listening to citizen's voice in order to organize and deliver services to the public. EGov is a broad concept since that bring changes in the way of interaction of citizens and government. EG may stimulate new concepts regarding citizenship, the prime objective of which is to involve, support and empower the citizens of the nation.

EGov is a tool of knowledge that aids in the development of government activities along with their effective and efficient transformation. The EGov Index of Nepal shows its low ranking compared to other neighboring countries. Nepal has many challenges for the implementation of EGov systems, which starts from the low literacy rate to the lack of infrastructure and human resources (Purusottam Kharel, 2012).

EG is all about using the ICT services for delivering government services and systems integration between government-to-citizens (G2C), government-to-business (G2B), government-to-government (G2G) as well as implementing the administrative procedures and communications within the entire government framework. (Nasrulla khan k, 2016) EG envisioned by Dr. APJ Abdul Kalam in the Indian perspective is "A clear smart EG with continuous access, secure and authentic flow of information crossing the inter- departmental obstruction and providing a fair and unbiased service to the citizen." (Snehal C. Sapkale, 2015)

2 Related Work

2.1 The history of e-Governance activities in Nepal

The first IT policy of the GoN was drafted in 2000. The IT policy 2000 underwent numerous amendments and changes; coming up to the IT Policy 2015. The major problem with the implementation of IT policy 2000 was majorly the political and social instability (Lawoti, 2003). Several infrastructures and institutions namely HLCIT, NITC, MoEST, MoIC, MoGA, and MoF initiated the eGMP. The report was then prepared by KIPA (KIPA, 2006). The ETA 2008, which was considered the outstanding success in IT regulation in Nepal was crucial for the implementation of EG. The right to information act, 2007 also supported implementation of EG (Karki, 2007). The establishment of GIDC under NITC was possible with the assistance of KOICA (KIPA, 2006). The construction of IT Park in Banepa close to the capital became additional institution formed under this policy however the plan was not so much successful (MartinChautari, 2014).

The government-owned NTA later privatized and changed into NTC and named Nepal Telecom (Gautam, 2016). The IT policy of 2010 was enacted following the failure of IT policy 2004. Further to the eGMP, the draft of the wireless broadband master plan 2012 was prepared by ITU for the powerful use of broadband generation in Nepal and that stands today as the strongest strategic planning of EG in Nepal (ITU, 2012). Until date, there are lots of policies, acts and regulations being published in Nepal for the betterment of ICT services, however, the IT policy of 2015 is still latest policy in implementation. The policy was proposed to withstand the foundation for the vision of Digital Nepal

(Ministry of Information and Communications, 2015).

2.2   The current situation of e-Governance in Nepal

Nepal IT Policy 2000 aims to interlink all ministries, departments, and offices with the GoN with internet to provide services online. The eGMP Consulting Report prepared by KIPA was figured alongside the most feasible government projects. The mission of the report was to provide value-added quality service through ICT. (KIPA, 2006) In addition, the policy highlighted the use of e-commerce and distant education with having EG at the facilitator role for the government.

ADB reinforced "transformation" program that has prioritized twenty-two services including NID, driving-license, LRMS and rural e-community (Illawara Technology, 2007). In the words of Bekkers, EG is the major action plan to improve Nepal's fragile government. Since the outcomes on the use of ICTs in public organizations are specific and situation-dependent, there is a significant need for recording evidence of some pilot EG program implementations for future reference. (Bekkers, 2007).

The availability of updated and trustworthy information in the government websites (Rani and Kautish, 2018) (Kaur and & Kautish, 2019) are lagging a lot. The innovative strategies in the EG projects hence ensure that the government services are not impacted by poor delivery services, this is done by equipping the surveillance devices over resident's personal and private information. (Thomas, 2012)

The citizen-oriented data made available on the internet and activities made available on the smartphones have accumulated a heavy amount of data in unstructured form. Hence, Nepal EGov services can initiate using the Big Data and Data Mining technologies to resolve many governmental services that are getting problems due to data inconsistencies. (Shakya, 2018)

2.3   E-Readiness in Nepal

ER is a measure of a country's readiness and willingness to attain benefits, which arise from the ICT activities (Kautish et al, 2016, 2018, 2019). ER is widely used to measure ability of a country to take part in e- activities. ER indicators provide an outline of a country's situation and can easily form baseline for comparison and future planning. It also helps in the improvement and identifying the areas where support is required. It is also one of the useful tools to measure the minimum required levels of infrastructure, education, training, and supportive government policies to cater to benefit from ICT (Dada, 2006).

Nepal's ER has significantly improved from the world ranking of 135 in the year 2016 to the world ranking of 117 in the year 2018 with the improvement of EGDI score of 0.4748 in 2018 in comparison to EGDI score of 0.3458 in 2016. This indicator shows the improvement of Nepal's EG index ranking thereby putting the country towards a significant development in ICT. (UN, 2018).

Similarly, the E-Participation Index of Nepal has jumped tremendously into the world ranking of 55 in 2018 in comparison to that of 89 in 2016. The E-Participation Index (EPI) score has improved from 0.5085 in 2016 to 0.7809 in 2018. This shows that the e- Participation in the country has increased significantly. This indicates that Nepal is getting better in terms of technology implementation and usage, which shows that there is a very favorable environment of the implementation of EG in the country. (UN, 2018).

2.4   Interactive-Service model of e-Governance

This model also called the government-citizen-government model (G2C2G) is the framework developed by scientists whereby the government provides services to its citizens with having a proper consultant with them about the new services. The government takes upon public opinion before launching the new services for their citizens. This is moreover a win-win situation created by the combined decision of both the parties.

Applications of G2C2G

- Submission of grievances and queries by the public to the government

- Establishment of the comprehensive communication channels for support

- Used in carrying out transactions into the online platform for the provision of filing taxes and

payment

2.5   Major challenges with e-Governance implementation in Nepal

Nepal is one of the fast-growing developing countries in Asia with having the latest ICT image of the first 4G service hosting Asian country in the world. Despite having abundant growth in the use of IT and mobile devices, the country remains behind in the light of darkness while it comes to its development in front of western countries; this is strict because of the low literacy rate of the country. The per capita is too low and the poverty is still pulling back the development of the nation. The ever-fluctuating political instability, corruption and tough geographical vegetation of the country standstill causing the EG implementation in Nepal to face intense challenge. Nepal is yet to develop its infrastructure and ability to incorporate full-fledged EG.

Below listed are some of the major challenges for EG implementation in Nepal:

1. Literacy

The literacy rate of Nepal was only around 64.66% in 2015 ("Nepal | UNESCO UIS," n.d.) which is very low in comparing to its neighboring countries. With the presence of multiple languages and religion in the country, there also exist language issues. English cannot be considered the third language as most of the population even could not speak and understand the National language due to illiteracy. (Chapagain, 2006).

2. Lack of human resources

Today the national economy of Nepal is persistent with the remittance of Nepali migrant workers staying and working abroad in the Gulf countries. The education system is not so good and assurance of getting good opportunity is very low in the country, which has affected the flow of competent human resources outside the country. This has ultimately created the situation of human resource lagging in the multiple fields of business. On the other hand, the government personnel selected nationally lags the minimal computer knowledge requirements leading into their reluctance towards use of technology.

3. Political Uncertainty

Political uncertainty is the biggest challenge for Nepal. The undeterminable changes in the country's political representation have negatively impacted many infrastructure developments projects in the past and still today the same problem persists uniformly as the situation never improved in the last decade. The implementation of EG is still lacking which is evident from the case of NID card itself as the project is getting extended from last few years and despite the distribution in some part of the country, the project is still in the phase of public acceptance.

4. Lack of Coordination

The lack of coordination and senior guidance is one of the biggest challenges ever in Nepal. (Kharel, 2012). There are very few leaders in Nepal who remained certain with their views and deeds, the country has a lot of political influence that resulted in low participation of the experts in coordinating activities. Therefore, the Implementation of EG requires strong leadership without which the implementation is impossible.

5. Weak Infrastructure

Nepal has the most dangerous roads connecting the mountains, hills and terai. Due to the geographical imbalance of landscape and hardship in transporting the goods around the country, the minimal infrastructure requirement is also not fulfilled. Most of the government organizations still are using outdated hardware and equipment to accomplish their daily transactions. The lack of telecommunication infrastructures also stands as the major challenge for the implementation of EG. In Nepal, most of the government organizations are still using poor and outdated network devices and equipment. According to eGMP, the government organizations must develop the infrastructures in order to achieve the goal, vision, and objectives of EGov. (Purusottam Kharel, 2013)

2.5.1   Barriers associated with e-Governance implementation in Nepal

The below listed major factors stand as the challenge for EG implementation in Nepal.

1. **Building Infrastructure:** In order to enjoy the benefits of EG, more EGov projects must have to be implemented by constructing sufficient level of infrastructure particularly in rural areas and regions across the country including Tarai, Hills, and Mountains.
2. **Comprehensive Policy and Legitimate Framework:** Updating the ancient meaningless Byelaws and supreme legitimate power functioning, the generalization of procedures to avoid administrative blockages and establishment of single window delivery system procedure must be introduced in order to ensure speedy disposal of legal cases. Besides this there is also the need of:

   - Civil protection laws.

   - Cyberlaw enactment policies.

   - Information rights laws and policies.

   - Single window policy.

   - Legalization for digital payments.
3. **Publicly applicable technologies and integrated management:** Updating of data in the local language, incorporation of the local language and local content on the internet in a substantial manner, standardization in all area like encoding, application logic for common application formulating data dictionaries.
4. **Capital:** The move towards excessive R&Ds, funds, budget allocation, lack of review on organizational capacity building, non-availability of proper' skilled human resources creates major problem in formulating the policies for EG system.
5. Official negligence, lack of coordination and positive attitude on part of government officers and officials impede the progress of the application of EG in Nepal.
6. Training for conveying skills & inculcating motivation among government as well as non-government officials are very essential for EG implementation.

2.5.2   Critical Success Factors for e-Governance implementation in Nepal

There are some essential components, which must be followed for the right implementation of EGov in Nepal, which is listed below:

1. **Announcement and Consciousness**

   The success of EGov system implementation highly depends on the announcement and consciousness to the public about the program of development and implementation of EGov.
2. **Regular and Periodic Evaluation**

   The GoN has been investing significant cost and means towards the study of the implementation of EG policy and procedures. Therefore, regular and periodic evaluation of the progress and index of performance needs to be monitored and recorded for the future.
3. **Capacity Building**

The capacity-building strategies should be taken into account considering the fact that Nepal is a geographically diverse country with having different districts are at different levels of altitude from Terai basin, Hilly basin up to Mountainous region. Therefore, the role of the capacity building team is at the program level to provide leadership and vision including policy formulation, preparing roadmaps, prioritization, preparing frameworks and guidelines, monitoring progress including the capacity management.

4. **Technology and Infrastructure**

Technology and Infrastructure, both provide support to the Department of Information Technology in implementing the EG project. Hence, both of these needs to be adequately available for use.

5. **Monitoring & Evaluation**

The Program Management Unit (PMU) for National EG project must develop a comprehensive Monitoring & Evaluation MIS system at the program level in order to track the physical and financial progress of the project.

6. **Project and Commercial Evaluation**

Project and Commercial Evaluation is the chamber, which identifies resources to provide assistance in project conceptualization, development, and implementation to various implementing zones and areas within the country.

7. **Research and Development**

The EG Research and Development team provides consultancy and research inputs in the areas of EG. The Technical Standards including interoperability standards, Government Enterprise architecture (GEA) frameworks, NeGIF framework, Information Security Policy, and Procedures, etc. are governed though the nationalEG R&D Teams at GIDC and also at Ministry of Information and Communications.

2.6   Successful e-Governance practices around the world

The advent of technological development has fueled many countries worldwide to adopt numerous EG services (Tahrani, 2010). EG is a revolutionary service tool serving multiple departments within the governments around the world (Nour, 2008), and the scale of activity increased tremendously (Smith, 2008). The majority of organizations around the world introduced online services with the help of their own websites (UN, 2010). The online services are used very often for jobs, tax filing and renewing licenses (West, 2004). The telecommunication sector has the strongest adoption of e-services as mobiles technologies being the alternate means of communication, especially in LDCs. (ITU, 2012).

It is to be understood that not all the EGov applications around the world are only successful. During the study of international reports and case studies, many cases of failures were identified. One of the surveys projected that among the number of the EGov initiatives undertaken by various countries only few of them were considered successful implementation (Heeks, 2006). According to the UN, only few countries achieved progressive development in terms of EG implementation. The number of EGov initiatives failed globally due to a lack of awareness and over-ambitious planning (M.P. Gupta and D. Jana, 2003; Heeks, 2002).

It is evident that most of the nations around the world adopted ICT in their service administration providing the most essential services to its citizens. In the context of India also, most of the service sector is being impacted by EG, especially with the implementation of *"Rashaan Card".* Consequently, Govt. of India has launched the initiatives of EG providing most of the essential services by electronic means as much as possible (Nagaraja, 2016).

3   RESEARCH DESIGN AND METHODOLOGY

3.1   Research Methodology

The research methodology is one of the principal tools while conducting the research. It incorporates the fundamental philosophy of research methodology, the research approach, strategy, choice and time period. The research philosophy, approach, strategy, data collection and analysis techniques that were used in this research are discussed in this chapter.

3.2   Research Plan and Design

The use of both descriptive as well as explanatory research is being conducted during the preparation of this thesis. The finding of this research is based on the primary data collected from the questionnaire survey. The results are based on the data analyzed out of the filled- up questionnaires. The study made the use of various statistical tests including Mean, Median, Mode, Frequency Analysis, Standard Deviation, Chi-Square Testing, and the Cronbach's Alpha testing. The SPSS analysis tool and MS Excel were used in order to evaluate and interpret the quantitative data. The reliability of scales is analyzed using Cronbach's alpha as it is the most popular test for inter-item consistency and reliability.

3.3   Description of Sample

The questionnaire survey was used for the collection of the data; the entire survey and study are conducted based on the objectives set in the first chapter. The study was conducted in order to distinguish the perception of Nepalese citizens towards EGov services that are getting abundant popularity in the other neighboring countries including India. The respondents of the research are the citizens of Nepal who are continuously on the verge of gaining electronic services from the government in order to ease their living standards. The level of understanding of the respondents was considered the crucial factor while designing the sample because the significant result shall only be generated with actual data from the people who have the proper understanding on the subject matter. The total of 300 questionnaires has been distributed among which 150 were online questionnaires and 150 were offline, however, only 121 responded which included 48 respondents, who answered online while remaining 73 respondents filled up the questionnaire by hand.

3.4 Instrumentation

The questionnaire was the primary source key tool used in data collection. The secondary source of data for this thesis work has been the use of the internet, books, journals, research articles and newspaper. There are 32 questions in the questionnaire form. The earliest part of the questionnaire includes age, gender, and level of education, which are demographics. The second part deals with the various factors and tools of EG. The questionnaire contains convenience sampling questions. The third part deals with the perception of people on the use of EG and for this, the categorical scale (Likert Scale) has been used. The scale has been categorized into the range from **"strongly agree"** to **"strongly disagree"**.

3.5 Questionnaire Development

The questionnaire delimited close-ended questions with an objective to complete it in less time answering the questions. Mostly the close-ended questions were prepared using the convenience sampling method and for perception related questions a five (5) scale Likert scales are used so that the respondents could answer the questionnaires easily with their general understanding and experience. The questionnaire was then, distributed to the respondents.

3.6 Pilot Study

This study was conducted to understand how the respondents understood and responded to the questionnaire. The set of questionnaires was sent to targeted respondents as per convenience and were distributed randomly. Some feedbacks were collected from them for review and the questionnaire was adjusted accordingly.

3.7 Data Collection Procedure

3.7.1 Data collection

The process of data collection is primarily descriptive in nature with the support from the study of related works, online sources and free opinion submitted by the respondents into the questionnaires. The data collection is done with the following two sources:

3.7.1.1 Primary Data

The primary data collection is conducted with the help of the following tools:

- **Questionnaire:** Participants are supplied the questionnaire to collect their views and expressions on the subject matter. The questionnaire included the perception, awareness, and factors affecting the daily life of people and the governmental processes, and also including the effect of EG on the government services.
- **Observation:** The site observation has been done for understanding the actual working of the EG system, which is currently implemented at NIDMC. The participation of the officers, employee, and public in the actual implementation of the system has been observed and the questionnaires have been filled.

3.7.1.2 Secondary Data

The secondary data collection is conducted with the help of the following tools:

- **Reference Books:** Various books and references related to EG has been studied with an objective to collect the relevant data and their respective source and origins.
- **Journals & Newspapers:** Few research papers and journals were studied to drag out relevant information.
- **Internet Source:** Various internet sources have been accessed to collect information related to government policies, scope, and schemes.
- **Government and Non-Government Reports:** Many Government & Non- Government reports have been witnessed to understand government policies for the implementation of EG.

  Descriptive research was conducted and the primary data was collected using a questionnaire survey and was managed to obtain quantifiable data. Both the paper-based survey and electronic survey were conducted for timely data collection and ease of access.

3.8   Data Collection Limitations

- When using the questionnaire, the participants were restricted to the options given in the questionnaire only.
- When using the questionnaire, the answers might not be fair enough if the correspondence has filled up the questions anonymously.

3.9   Data Collection Assumptions

- The participants were randomly chosen to represent the IT sector of Nepal.

- The participants were selected with having IT background and minimal knowledge to the research domain.

3.10 Reliability and Validity

The questionnaire was developed only after consultation and discussion with the supervisor and the seniors. The questions have been designed carefully to meet the research objectives. The basic purpose of conducting the validity and reliability analysis of data was to determine the trustworthiness of facts. Few precautionary measures were undertaken while collecting the samples in order to assure the validity of the samples. To enrich the legitimacy of the content, a general literature review was done to understand the variables that could affect the perception of people.

The P-value for a correlation has been compared in terms of 0.01. The data collected in the research was evaluated for correlation and the resultant p-value which is less than 0.01 has been accepted. The reliability test here in this thesis is measured against the questionnaire that represents the people's perception towards EG. The questions are from 20 to 32 in the distributed questionnaire.

Table 1: Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	**No. of Items**
.834	**13**

Table 3.2 Cronbach's alpha collected as reliability statistics for data is 0.834 that shows internal consistency of the questionnaires and the data collection is assumed to be reliable and valid. It can be concluded that the questionnaire prepared was consistent for the study as the total Cronbach's Alpha was 0.834 (Number of items = 13).

3.11 Analysis Plan

The data analysis was done after gathering the responses from all the questionnaires given to the respondents, and then the SPSS data analysis and Excel are used for final analysis. Based on the type of questions both Convenience sampling scale and Likert scale questionnaire were used to collect the

data. Finally, the collected answers from questionnaires were tabulated into SPSS for analysis. For data presentation, various tables, charts, and diagrams have been produced for the purpose of explanation. The mean, median, mode, and standard deviation have been calculated for the descriptive study. The significance testing has been conducted to make the results more effective, using the Chi-Square measurement and Correlation Analysis also including the One-Way ANOVA testing. All the findings and relationship variables have been interpreted to drag out important conclusions.

3.12 Analysis & Interpretation

The analysis and interpretation of the data were conducted using the various statistical tools including the frequency analysis, mean, median, mode and standard deviation and the reports have been generated with the help of graphs, comparison charts, and diagrams. The expert guidance of senior data analyst has also been pursued in order to analyze the data.

4   DATA ANALYSIS AND INTERPRETATION

4.1.1   Respondent's Background

The analysis of demographic profile from the primary data collected through questionnaires is done by the interpretation of the responses collected from the respondents. The respondent's profile is then categorized according to their age, gender, education, level of awareness, etc. The respondents of the research are only the citizens of Nepal.

The survey respondents selected for this study have forwarded the questionnaires through emails, social media, and personal visit. The total of 121 answered questionnaires has been collected out of the 300 questionnaires that have been distributed to the respondents. The total of 150 online and 150 manuals (printed form) questionnaires were distributed for the data collection of which only 48 responses collected online and 73 responses were collected manually in fill up forms. The response percentage was 39.66% via online survey and the rest of others via manual survey questionnaire in written form.

4.2   Analysis of Data

4.2.1   Awareness Related Questionnaires - Frequency Analysis

Based on the questionnaire; we have chosen a total of four (4) awareness related questions, which is taken for the measurement of significance of the respondent's awareness on the subject matter of EG, among the data collected within the respondent's size of 121.

Below presented are the four awareness related questionnaires' frequency analysis.

1.   Do you know about EG?

The majority of the respondents answered that they have knowledge of EG while few respondents answered no and maybe. Only 17 out of the 121 respondents answered no, meaning they do not have an idea of EG. The tabular representation below demonstrates the distribution of 121 respondents based on their knowledge of EG along with their percentage distribution.

Table 2: Frequency Analysis of EG Awareness

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	80	66.1	66.1	66.1
	No	17	14.0	14.0	80.2
Valid	May Be	24	19.8	19.8	100.0
	Total	121	100.0	100.0	

The above table shows that out of the 121 respondents, 80 respondents, which is equal to 66.1% of the total population, are very aware of EG. Similarly, 24 respondents are not sure about the total awareness of EG resulting in 19.8% of the total population. Finally, 17 respondents resulting in 14% of the total population is completely unaware of the EG. The graphical representation of the awareness of respondents towards EG is shown below:
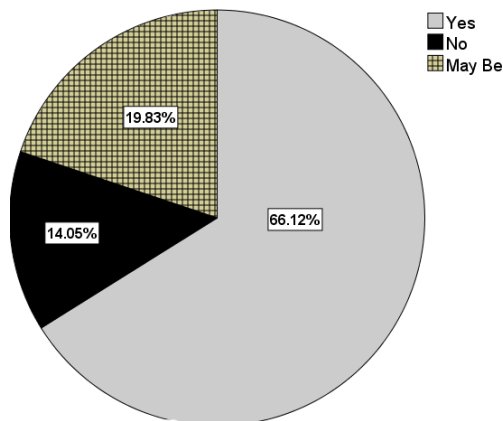

Figure 1: Do you know about EG - Frequency Distribution

2. Have you ever used services related to EG in Nepal?

The majority of the respondents answered that they have not used the services related to EG, also a group of 42 seems confused in either they have used the services or not. While few respondents answered that, they have used the services related to EG. The tabular representation below demonstrates the distribution of 121 respondents based on their usage of EG services along with their percentage distribution.

Table 3: Frequency Analysis of the usage of EG Services

		Frequency	Percent	Valid Percent	Cumulative Percen
Valid	Yes	34	28.1	28.1	28.1
	No	45	37.2	37.2	65.3
	May be	42	34.7	34.7	100.0
	Total	121	100.0	100.0	

The above table shows that out of the 121 respondents, only the 34 respondents, which is equal to 28.1% of the total population, have used some sort of EG services. On the other hand, 45 respondents did not use any of the services related to EG resulting in 37.2% of the total population. Finally, 42 respondents resulting in 34.7% of the total population is completely unaware of their use of EG services. The graphical representation of the awareness of respondents towards EG service usage is shown below:
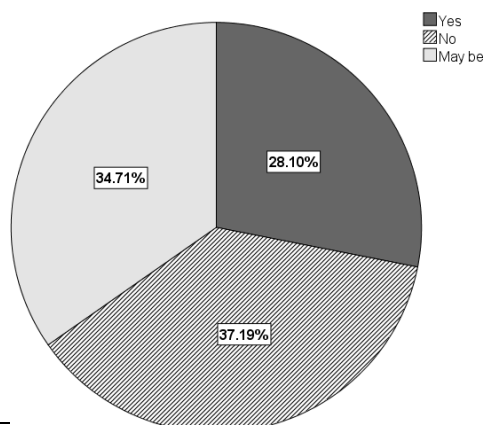
Figure 2: Usage of EG Services - Frequency Distribution

3.   Do you know that the GoN has implemented the National Identity (NID) card system in Nepal?

Based on the data collected regarding the knowledge of NID card implementation by GoN, it seems half of the population has the knowledge while the other half are completely unaware of the implementation of the NID card system. The tabular representation below demonstrates the result of 121 respondents based on their knowledge about the implementation of the NID card system by GoN, along with their percentage distribution.

Table 4: Frequency Analysis of knowledge of NID Card implementation

		Frequency	Percent	Valid Percent	Cumulative Percen
	Yes	63	52.1	52.1	52.1
Valid	No	58	47.9	47.9	100.0
	Total	121	100.0	100.0	

The above table exhibits that half of the people know about the implementation of the NID card system while the other half is completely unaware. This has been recorded with the data collection, as 52.1% respondents know that the NID card has been implemented in Nepal while the other 47.9% respondents have no idea in this matter. The graphical representation of the awareness of respondents towards the implementation of the NID card system by GoN is shown below:

Figure 3: Knowledge of NID Card implementation - Frequency Distribution
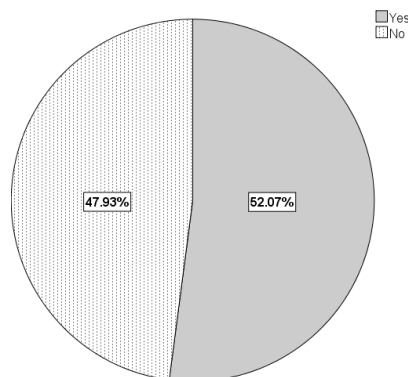
4.   Do you think that the NID system will ease the business process and general activities of the citizens of Nepal?

Based on the data collected to know the opinion of respondents about the ease of the business process and general activities of the public through the implementation of NID Card system in Nepal, all the respondents seem optimistic, as no one selected the no answer. However, more than 50% answered maybe, meaning they are not certain about the upcoming facilities that EG system might have to offer to the public. The tabular representation below exhibits the frequency list of 121 respondents on their opinion about the ease of the business process and general activities of the public through the implementation of NID Card system in Nepal, along with their percentage distribution.

Table 5: Frequency Analysis - ease of the business process and general activities

		Frequency	Percent	Valid Percent	Cumulative Percen
	Yes	56	46.3	46.3	46.3
Valid	May be	65	53.7	53.7	100.0
	Total	121	100.0	100.0	

The above table exhibits that more than the half of the respondents (i.e. 53.7%) answered maybe meaning they are quite optimistic and don't know about the future ease of the business process and general activities that they will be going to leverage through the Governments' successful NID card system implementation. On the other hand, almost half (i.e. 46.3%) respondents answered yes meaning they are sure that the NID card system implementation will definitely ease the business process and general activities of the public. It is wonderful to see that no one answered no, which means that overall all respondents are optimistic in their thoughts. The graphical representation of the awareness of respondents with having positive expectation towards the possibility of ease of the business process and general activities of the public through the implementation of NID Card system in Nepal is shown below:

4.2.2　Implementation Related Questionnaires - Frequency Analysis

Based on the questionnaire; we have chosen four (4) implementation-related questions, which is taken for the measurement of significance of the respondent's expectation towards the implementation of the EG system, among the data collected within the respondent's size of 121.

Below presented are the four implementations related to questionnaires' frequency analysis.
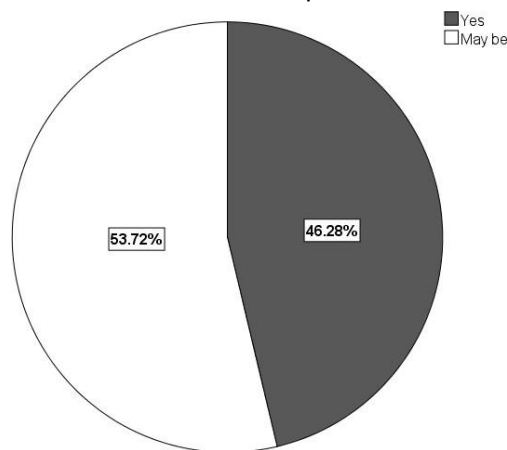

Figure 4: Ease of business process and general activities - Frequency Distribution

1.　Do you think it is possible to implement the e-based system instead of the current paper-based system in governmental organizations?

The majority of the respondents answered that yes for this question. Only two (2) respondents answered maybe while none of the respondents selected no option, which means the respondents are sure about the fact of the e-based system is possible to substitute with the existing paper-based system. The tabular representation below demonstrates the frequency list of 121 respondents based on their expectation towards the implementation of e-based system instead of existing paper-based, along with their percentage distribution.

Table 6: Frequency Analysis - possibility to implement an e-based system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	119	98.3	98.3	98.3
	May be	2	1.7	1.7	100.0
	Total	121	100.0	100.0	

The above table shows that out of the 121 respondents; almost all the respondents choose yes which counts 119 in total contributing to 98.3% of the total population. We can see that none of the respondents selected no as the answer, meaning all the respondents are expecting to get the e-based

service from GoN. On the other hand, only two (2) respondents answered maybe, meaning they are not sure that the government should switch from an existing paper-based system to e-based systems. The graphical representation of the respondent's expectation towards the implementation of the e-based system instead of the existing paper-based system is shown below:
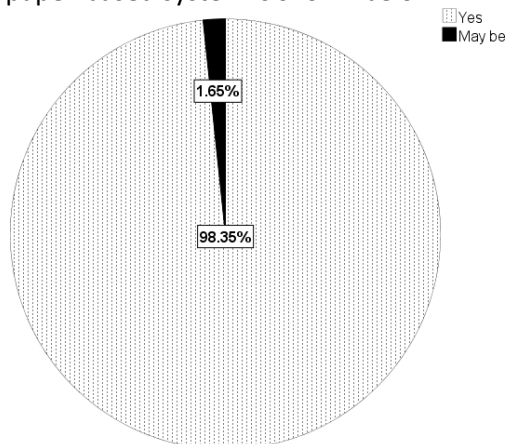

Figure 5: Possibility to implement an e-based system - Frequency Distribution

2. Do you think there is a need for implementing EG in Nepal?

It is very interesting to note that every one of the respondents answered that there is a need to implement EG in Nepal. None of the respondents chooses no for this option, which means that the public is waiting to get the EG system being implemented in Nepal at the soonest possible. The tabular representation below demonstrates the distribution of 121 respondents based on their expectation towards the need for implementation of EG in Nepal, along with their percentage distribution.

Table 7: Frequency Analysis of need to implement EG in Nepal

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	121	100.0	100.0	100.0

The above table exhibits that out of the 121 respondents; all the respondents choose yes which counts 121 in total contributing to 100% of the total population. We can see that none of the respondents selected no as the answer, meaning all the respondents are expecting to get the EG service implemented in the organizations of GoN. The graphical representation of the respondent's expectation towards the need for implementation of EG in Nepal is shown below:
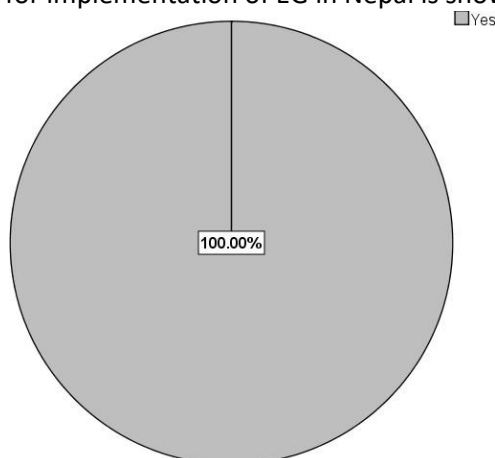

Figure 6: Need to implement EG in Nepal - Frequency Distribution

4.3   Descriptive Analysis

This analysis is done in order to find the significance and prominent factors affecting the EG implementation. The overall independent variables such as age, gender and education are being compared against the dependent variables such as challenge, awareness, barrier, and implementation as per the data analysis being conducted on these variables. The below figure is clearer to understand the analysis.
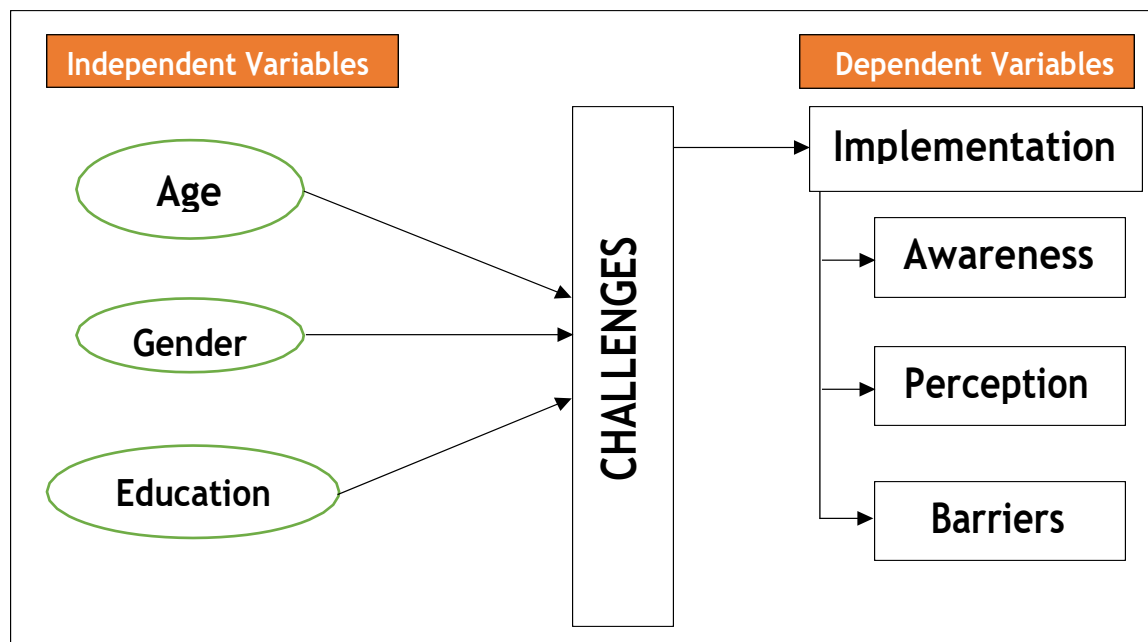

Figure 13: Independent and Dependent variables for e-Governance

4.4   Results

The result of the analysis opens up a wide space for the researchers to carry out the experiment in order to find out the critical success factors for the successful EG implementation in Nepal. Since the collected data shows younger age people of Nepal has much idea and experience with the use of electronic services, also the ER index of Nepal has increased to a significantly higher rank, there is a lot of opportunity in coming days for the successful implementation of e-services and promoting the use of EG services.

The study also focused on identifying the major challenges obstructing the EG implementation and finding out the critical success factors that facilitate the EG implementation in Nepal. The extensive usage mobile devices have been getting more demand and usage in Nepal, so there is a greater chance of getting the EG services being implemented very soon in Nepal. The evaluation of the four primary variables namely the awareness, implementation, barriers, and perception were chosen for the analysis which has produced a significant resultant output on the basis of which we have identified the possibility of the EG implementation in Nepal with due respect to the perception and demand of the public. The result from Pearson's chi-square test showed that the P-value of 0.000 compared to a significance level of 0.05, which proves that there is a high level of association among the younger age group and implementation of EG.

5   CONCLUSION AND RECOMMENDATIONS

5.1   Conclusion

The advent of ICT is getting its highest fleet around the world, especially with the intensive use of smartphones and advanced communication technologies. Nepal has seen the abundant development and progress in mobile communications with the increased access of internet and social media to the

people. The social media like Facebook, YouTube and TikTok are the most used application in Nepal and people are increasingly developing mass awareness and getting enlightened with the use of these applications and technologies. The government has introduced few e-based services in the country and the public is using those services very fluently with having the system accessible into their touchscreens. Nepal is very much close towards the digital adoption of EG in near future.

Based on the literature review and the gathered data, it is evident that the expectation for the adoption of EG is too high, although the ER level is low. Despite the fact, that Nepal's ranking globally has incremental values, the resultant is not so satisfactory in terms of e- service implementation, since the country is at its very early stage of adopting EG. The use of e-services in government is also increasing day by day.

5.2 Findings

The study has identified some significant factors affecting EG implementation. Based on the study, it is seen that the astounding political conflicts and fluctuated political coordination stand today in Nepal as the prime barrier for EG implementation. Digital divide used to be the major challenge a few years back but now with the advancement and extensive growth of mobile communication technologies, it is not anymore, the significant factor.

Objective 1:

To study the AS-IS status of EG in Nepal

Based on the data analysis performed to find out the AS-IS situation of EG in Nepal, the 121 respondents' data has been collected for analysis. The data stated that 100% of the respondents said yes for the question of the need for the implementation of EG in Nepal even though there are only 66.1% of the respondents who said they know about the EG. Apart from this, those respondents who chose may be in the same question has also answered yes for the need of EG implementation in Nepal. Hence, it can be said that there is a likelihood for the popularity of the concept and possibility of sooner implementation of the EG systems in Nepal. In support of this, more than half of the respondents answered that they know about Nepal Government's NID card implementation. Hence, it seems very much evident that the public is aware of the government's action on EG. The Chi-Square test also measured in terms of the education level and awareness, among the public shows relevancy of the information as it is below 0.005, and it seems completely relevant, as the value has been measured 0.000 with full compliance.

Objective 2:

To identify major challenges and barriers obstructing EG success in Nepal

Based on the data analysis performed to find out the major challenges and barriers of EG implementation in Nepal, the 121 respondent's data has been collected for analysis. The variable named "implementation" has been devised in order to collect the significance of the challenges and barriers with the help of four (4) questions the data has been evaluated. It is seen that the major barrier obstructing the EG success is political instability and literacy rate of the country. The unavailability of the competent workforce and resistance to change of the governmental staffs stand as the prime barrier and challenge for the adoption of EG in Nepal. On top of this, the study and analysis showed that there is abundant level of human barriers being present in the context of Nepal that caused the obstruction due to their unwillingness towards a paradigm shift from old manual system into the new electronic system.

Objective 3:

To identify the critical success factors that facilitate the hassle-free implementation of EG in Nepal, with respect to the National Identity Card (NID) System of Nepal

Based on the data analysis performed to find out the Critical Success Factors of EG implementation in Nepal, the 121 respondents' data has been collected for analysis. The analysis shows that about 98.3% of respondents think it is possible to eliminate the ancient paper-based system and can be replaced with the e-based system. The 100% of the respondents agreed that there is a dreadful need of EG

implementation in Nepal and it seems the country is ready for the implementation which is also evident as the country's ER is significantly high in last 2 years from jumping into 20 plus ranking. Regarding the security of national government associated with EG, half of the respondents answered that they are not sure. This might be due to lack of information and governments' undeclared plans and policies, however, about the other half think that there might be security issues as the implementation parties might be the participants from the third country, as because the existing Nepalese firms have not been able to prove their expertise in this relevant field. Overall, it seems the information dissemination and PPP can be made transparent for the success of Nepal's EG.

Similarly, the research questions were also analyzed as shown below:

Research Question 1:

What is the AS-IS perception of EG in Nepal?

A total of 121 respondents' data has been collected. Based on that, we have analyzed the relationship of data with the major variables identified as the crucial determinant to answer the question. It has been seen that most of the respondent's response was genuine and based on that we found the significance of the questions asked. The awareness measured in terms of the respondent's age, gender and level of education has produced significant results that prove that Nepal is still in very premature stage for the implementation of EG. The result shows the lack of awareness as half of the respondents seem familiar with the term of EG while the other half is in confused state. However, due to the advent of mobile technologies and ability to connect to the world with the use of internet, people are learning through searching into the facts of recent developments in the world. This has led to the outcome of 100% respondents answering yes to the need for the implementation of the EG in Nepal. Hence, it is seen that the overall AS-IS situation of EG in Nepal is very good and growing.

Research Question 2:

How to identify the challenges and barriers obstructing EG success in Nepal?

The questionnaire related to challenges and barriers has been added into the questionnaires. About five (5) questions have been added in relevancy with the challenges and barriers for the EG implementation. The options of the questionnaire have been generated based on the most discussed issues and agendas that have been collected as the reference from the study of number of research articles and journals. The possible critical success factors are added as the choice of option to the respondents who chose the most relevant option while answering the questionnaire. The data then collected from that questionnaire has been analyzed for variation, mean, standard deviation and Chi-Square testing for relevancy check and the data extracted from the set of collected data to mark the most crucial CSF for EG implementation in Nepal. It is now evident from the data analysis that the major challenge obstructing EG success in Nepal has been identified as person barrier, which means the resistance to change behavior of the government staffs, which in turn is the cause of the staggering political instability and lack of coordination of the subordinates and delegate personnel.

Research Question 3:

How to identify the critical success factors in order to facilitate the hassle-free implementation of EG in Nepal, with respect to the National Identity Card (NID) System of Nepal

The questionnaire related to National ID Card system about the idea, knowledge and implementation factors for its implementation has been added into the questionnaires. The possible critical success factors are added as the choice of option to the respondents who chose the most relevant option while answering the questionnaire. The data then collected from that questionnaire has been analyzed using various available statistical tools for relevancy check and the data extracted from the set of collected data was marked with the most crucial CSF for EG implementation in Nepal. In relation to the CSF, there were about four (4) questions put into the questionnaire for collecting relevant information. The result collected from data analysis shows that the critical success factor for EG in Nepal is the education and awareness of the public, this is so relevant as the country's literacy rate is very low. Another determinant factor is the lack of infrastructure and the geographical boundaries

within the country for the purpose of access to reach the hilly and mountainous regions.

5.3 Future Recommendations

EG entails solicitation of ICTs in delivery of government services. The advancement of computer networks with the implementation of LAN, MAN, and WAN has played a major role in transforming government services using digital connections. These facilitate governance in the following three main domains of EG such as improving government processes, connecting citizens and building interactions with and within civil societies. (Karume, 2016)

All over the world, there have been many EGov initiatives, some of them are highly successful such as in North Korea and Estonia and some of them even have a bad history of failures. As per the experience collected from the global perspectives, there is a need for taking an aggregate view of the overall EG plans and activities across the country.

According to the ER index, Nepal has a lower position of e-Participation Index. There are numerous challenges for the implementation of EG in Nepal. Among those, many implementation-related challenges are still present in the country as discussed in detail in the literature review section of this thesis. (Purusottam Kharel, 2012)

5.4 Limitations

The possible limitation in the data that were gathered is that there could be a modification of data gathered within a short period. This is because all the participants in this research are Nepalese people and we are aware that EG system is yet to be introduced in Nepal in the future. Currently, we have no such systems being deployed in relation to EG system except the National ID Card, which is also not being distributed professionally and is still under the evaluation for acceptance. Therefore, this research work is limited to the challenges of implementation of National ID Card in Nepal only. Hence, the results and the developed framework might not be completely relevant to the other sectors.

5.5 Future Research

Several opportunities for future work remain. The validity of the findings in this study, the possibility of EG implementation in Nepal could be tested in a variety of contexts with the application of a wider range of tools and available technologies. Further statistical methods can be put into use in order to access the impact of EG on various facades.

Primarily, this study has been conducted to find out the existing barriers to EG implementation in Nepal through the readings and ideal exploration of various readers and knowledge workers around the world, whereas there is more space for further research.

Possibly, future research can explore these findings and maybe those can be replicated with other technologies and studies. In conclusion, the current study suggests that EG system can be implemented in Nepal if we could eliminate the existing barriers and add mediums, tools, and technologies to support the erection of EG pillar in the government as well as non-government bodies of Nepal, so that the combined effort of both shall aid towards effective implementation of EG.

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