EFFECTIVENESS AND BARRIERS OF E-GOVERNANCE IN PUBLIC SERVICE DELIVERY OF KATHMANDU METROPOLITAN CITY

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DECLARATION

I, SHIVA KHADKA, declare that this thesis entitled EFFECTIVENESS AND BARRIERS OF E-GOVERNANCE IN PUBLIC SERVICE DELIVERY OF KATHMANDU METROPOLITAN CITY submitted to the Programme of Public Policy, Governance and Anti-corruption Studies is my original work unless otherwise indicated or acknowledged in the thesis. The thesis does not contain materials that have been accepted or submitted for any other degree at the university or other institution. All sources of information have been specifically acknowledged by reference to the author(s) or institution(s).

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LETTER OF RECOMMENDATION

This thesis entitled EFFECTIVENESS AND BARRIERS OF E-GOVERNANCE IN PUBLIC SERVICE DELIVERY OF KATHMANDU METROPOLITAN CITY has been prepared by Mr. SHIVA KHADKA under my guidance and supervision. I, hereby, recommend it in partial fulfillment of the requirements for the Degree of MASTER OF ARTS in PUBLIC POLICY, GOVERNANCE AND ANTI-CORRUPTION STUDIES for the final examination.

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LETTER OF APPROVAL

We certify that this thesis entitled EFFECTIVENESS AND BARRIERS OF E-GOVERNANCE IN PUBLIC SERVICE DELIVERY OF KATHMANDU METROPOLITAN CITY submitted by SHIVA KHADKA to the Programme of Public Policy, Governance and Anti-corruption Studies, Faculty of Humanities and Social Sciences, Tribhuvan University, in partial fulfillment of the requirements for the Degree of MASTER OF ARTS in PUBLIC POLICY, GOVERNANCE AND ANTI-CORRUPTION STUDIES has been found satisfactory in scope and quality. Therefore, we accept this thesis as a part of the said degree.

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ABSTRACT

Digital technologies are transforming global society, leading to rapid growth in e-governance, which governments increasingly accept as a crucial tool for improving service delivery and achieving good governance. This study aims to evaluate the effectiveness of e-governance in KMC in public service delivery, identify key barriers citizens face accessing e-services, and analyze the relationship between e-governance and demographic characteristics. Data was collected with 403 using self-administered questionnaires from nonprobability samples drawn from the service receivers in 32 wards of Kathmandu Metropolitan City and Structured interviews were conducted with 9 service providers. The study used measurement scales from previous research to construct the variables under investigation. Data was analysed using MS Excel, SPSS, and the R Program for descriptive and inferential statistics.

The study found that the reliability, assurance, and satisfaction of KMC services suggested high levels of effectiveness in e-governance. The logit model analysis highlights that ICT skills, age, and gender significantly influence perceptions of e-governance effectiveness, with strong ICT skills and older age groups linked to higher perceived effectiveness. The maximum number of respondents suggests a belief that technological advancements could significantly smooth processes and reduce delays. The study reveals that e-governance techniques have achieved moderate success. However, for continued improvement, a comprehensive approach is necessary. This strategy should tackle both technical and non-technical challenges, with a particular emphasis on enhancing citizens' digital literacy skills. While this study has limitations, its findings suggest areas for future research to improve governance.

Key-words: E-governance, KMC, effectiveness, Public service delivery, ICT

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ACRONYMS AND ABBREVIATION

ANOVA	Analysis of Variance
B2B	Business-to-Business
B2C	Business-to-Consumer
C-Service	Citizen Service
E-administration	Electroni Administration
E-Agriculture	Electronic-Agriculture
E-ballots	Electronic ballots
EDGI	E-government Development Index
E-Education	Electronic-Education
E-governance	Electronic governance
EGMP	E-Governance Master Plan
EGMP2	E-government master plan Second
E-government	Electronic government
E-health	Electronic-Health
E-Kiosks	Electronic Kiosks
E-mail	Electronic Mail
E-services	Electronic services
E-society	Electronic society
E-Tourism	Electronic-Tourism
G2B	Government-to-Business

G2C	Government-to-Citizen
G2C2G	Government to Citizen / Consumer to Government
G2E	Government to Employees
G2G	Government-to-Government
HLCIT	High-Level Commission for Information Technology
IBM	International Business Machines
ICT	Information and Communication Technology
IMF	International Monetary Fund
IT	Information technology
ISM	Interpretive Structural Modeling
KMC	Kathmandu Metropolitan City
KIPA	Korea Invention Promotion Association
NID	National ID
NITC	National Information Technology Centre
NGO	Non-governmental organisation
S.D	Standard Deviation
UN	United Nation
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
VI	Very Ineffective
WB	World Bank

CHAPTER I

INTRODUCTION

1.1 Background of the study

An outline of the research is provided in this chapter. The background of the study along with its problem statement, research questions, and aims are all discussed in this chapter. The importance and context of the research are often properly explained and understandable. This study investigates the effectiveness of e-governance in promoting good governance through public service delivery. It aims to address the challenges associated with service delivery and examines the impact of information and communication technology (ICT) skills on the efficiency of these services. The section encompasses the historical context, relevant issues, and significance of the study, thereby facilitating a deeper exploration of the research topic.

In general, governance refers to the systems and practices of governing. Moreover, Good governance involves providing fair, just, effective, accountable, and open opportunities and services to the people (Subramanian, 2012). Likewise, E-governance can be defined as providing government services and information to businesses and citizens via the Internet, utilizing digital information technology (IT) to improve service delivery mechanisms in the public sector (Singh & Kapila, 2020).

Public administrations worldwide recognize the potential of Information and Communication Technology (ICT) to boost efficiency and minimize the cost-of-service delivery to citizens (Bhuiyan, 2011).

The ongoing progress in digital technologies is increasingly interconnecting our global society. E-Governance is rapidly growing in today's digital world. As the world becomes a technologically connected global village, governments are realizing the need for e-governance in improving service delivery and achieving good governance. A profusion of research suggests both developed and developing countries use e-governance to improve the standard of public service delivery (Heeks, 2001).

The primary reason for any popularly elected government to exist is to provide public services. As a result, each government undertakes a variety of measures to effect change within its current traditional and process-oriented administrative systems, as well as to gain the trust and support of its population in the course of providing effective public services. It is widely agreed that traditional government structures and systems are no longer able to fulfil the demands of rising public aspirations, and as a result, e-governance has evolved. Heeks, (2001) also highlights three major contributions of e-governance: enhancing government operations (e-administration), connecting citizens (e-services), and fostering external contacts (e-society).

Lindgren and Jansson, (2013) conceptualize that e-service means that ‘e’ refers to electronic or can be linked to electric artefacts and ‘service’ represents something non-physical – a process in which value is created for someone. It is becoming more important in customer satisfaction.

1.2 Statement of the Problem

Changing public service delivery requires adapting to a new, unfamiliar environment. In such cases, relying only on those previous ideas or theories may not result in a successful transformation. Civil officials are made to accept the reform to ensure effective service delivery, and their digital literacy levels are significantly improved through appropriate in-service training (Inakefe et al., 2023). The suggested change design should undergo a more in-depth evaluation. Governments must take advantage of the unique potential to communicate with the public effectively. They should use information technology to bring public services and the government to the citizens' doors. Citizens should be able to access and use information technology freely.

According to the constitution of Nepal (2015), Nepal transitioned to a federal framework from a centralized and unitary system. With the aspiration to provide services at citizens' doorsteps and connect people the state political and administrative system is currently being reformed; from a centralized and unitary system, we are transitioning to a federal framework. Nepal government has set up e-service at their local level as part of the e-governance scheme. Before the implementation of e-governance, public services were supplied traditionally, with no regard for connecting residents and doorstep services being completely ignored and referred to as a centric model of public service or C-Service.

In the digital era, Nepal's government has attempted to supply services through e-service from the local government. The growth of technology and system improvements are essential for leadership to move from an underdeveloped to a developing state. However, political instability and ineffective leadership have hampered growth in Nepal (Shakya, 2018).

Nepal has different strategies for developing an E-governance system. After the ICT policy, in 2015 Government of Nepal introduced a digital Nepal framework to improve the service delivery for all three levels of government. It has eight key sectors—digital and eight digital initiatives each with specific goals and action plans. On the other hand, the parallel development of the three tries of government leads to a challenge in developing nations. Hence, the major problem is to develop and implement an e-governance framework at the local level and simultaneously with the ICT policy.

As a result, e-service centres cannot encourage close collaboration across various government departments, corporate organisations, and citizens to achieve the intended results. Thus, an ideological divide has developed between the government and its primary stakeholders, or citizens. This divide is gradually expanding and citizens are losing trust in the government. This condition leads to a government that is incapable of developing decent governance. This research is being done to examine the efficiency of service delivery, evaluate the barriers to e-government technology while receiving service, and explore its impact on e-governance based on ICT skills and other social demographics.

1.3 Research Questions

The study mainly deals with the ability of Kathmandu metropolitan city to deliver public services and to find and develop links between e-governance and good governance. Therefore, the research study is carried out with the following research questions.

1. How effectively does KMC provide the services to the citizens?
2. What are the key barriers the citizens face while receiving service through e-governance?
3. What is the relationship between e-governance and demographic characteristics?

1.4 Research Objectives

The goal of the study is to establish a connection between the factors that contribute to good governance and those that create an environment helpful for the implementation of e-governance. Thus, the case study of Kathmandu metropolitan city to attain the following objectives:

1. To examine the effectiveness of e-governance of Kathmandu metropolitan City in public service delivery.
2. To identify the main barriers citizens encounter when accessing e-governance services.
3. To analyze the relationship between e-governance and demographic characteristics.

1.5 Significance of Study

There are several research studies have been conducted, focused on various aspects of e-government. However, very few of these are researched from a local government perspective; even in Nepal, research work is in the single digits. Therefore, it is observed that very little attention has been given to e-governance about the effectiveness of service delivery. This study examines the efficacy of e-governance and the research intended to identify the challenges of e-governance in service delivery. Moreover, it examines e-governance ineffective public service delivery based on ICT skills and other socio-demographics. Lastly, this study attempts to address a gap in the literature on e-governance and public service delivery from a local perspective.

This study contributes to a better understanding of how e-governance can be used to promote good governance through effective service delivery. It examines e-governance, practices, and service delivery in the target area. It evaluates the governance system and offers actionable recommendations. The research has significance for academia, particularly in education, and practical applications in governance and public administration. It can serve as a reference for future studies in these fields. This is useful in predicting the future of e-governance in local governments.

1.6 Scope and Limitation of the Study

This study also has its limitations Like other research. The study focuses completely on the inter-active service models of e-governance. To understand public service delivery, a

citizen-centric perspective must be used instead of an agency-centric one. The study is also confined to studying the e-service sphere, excluding the other e-governance domains such as e-administration and e-society. Furthermore, the study focused on Government-to-Citizen (G2C) types of e-government, whereas Government-to-Government (G2G) and Government-to-Business (G2B) are distinct and require additional investigation. The sample size of the study is 403 of the total population is very small due to time and other financial limitations, all wards of KMC have been selected for the study and the study is focused on the e-service of those wards.

1.7 Organization of Study

This thesis report is organized into five chapters. The first chapter provides an overview of the study's background, outlines the problem statement, and discusses the rationale behind the research. It details the research objectives and questions, as well as the scope and limitations of the study. The chapter concludes with an outline of its structure.

The second chapter presents a review of the relevant literature and provides context for perspectives related to e-governance. It covers the conceptual framework, theoretical background, and empirical evidence on e-governance.

The third chapter describes the research methodology, providing a brief overview of the subject area, data source, data collecting, data processing, and data analysis.

The fourth chapter provides a comprehensive overview of the study's research design and methodology. This chapter presents the study's results through data presentation, analysis, and interpretation using various SPSS techniques in descriptive statistics. It also includes a logit model analysis of effectiveness in e-governance which is highly based on ICT skills and the other three socio-demographics.

The fifth chapter presents the suggestions and a brief overview of the study. The study includes a model of variable linking and a summary of data analysis. It also proposes a public service delivery model.

CHAPTER II

LITERATURE REVIEW

2.1 Background

There are many Studies have been conducted in both developed and developing nations to explore the components that lead to good governance. This chapter tries to deal with a review of the literature on e-governance enhancing good governance through public service delivery where some of the theoretical and empirical overview and review the existing literature. The objective of this chapter is to provide a broader perspective of several aspects of E-Governance.

2.2 E-Governance: Conceptual Framework

E-governance refers to electronic governance, which is the incorporation of Information and Communication Technology (ICT) in all processes, to modernize public service by enhancing transparency, effectiveness, and efficiency. It utilizes electronic tools to improve communication between people or citizens and government institutions. E-governance aims to provide an easy service delivery process, saving time and cost.

2.2.1 Defining E-Governance

E-governance is the use of information and communication technology (ICT) to assist public services, government administration, democratic processes, and connections between citizens, civil society, the private sector, and the state which brings Simple, Moral, Accountable, Responsive, and Transparent (SMART) governance (Heeks, 2001). Moreover, Sapru & Sapru, (2014) defined that e-governance is all about the remake of governance facilitated by the visionary use of ICT. Different organizations and institutions define e-governance in their word according to their objectives.

There is always a debate between e-governance and e-government. Most people argue that both have the same meaning whereas some scholars disagree. E-Governance is the use of ICT in upgrading the range and quality of information and services efficiently provided to the public. However, E-Government refers to the use of ICT to support government operations, raise awareness, and provide services to citizens (Sharma, 2018).

As discussed by E-Governance Ahmed and Zehra, (2022) the online delivery of governmental services to citizens through technology, helps the government fulfil its responsibilities to the people and gives citizens more control. Moreover, E-governance embraces electronic voting, electronic democracy, and direct constituent participation in political activities that go beyond government (Sharma, 2020).

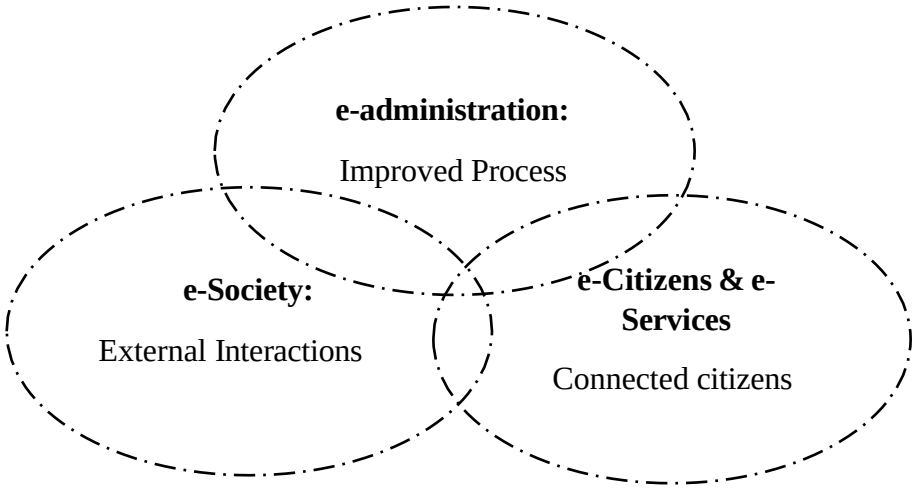
2.2.2 Domain of E-governance

The innovative use of ICT to provide e-governance has the power to revolutionize interactions between various government agencies, corporations, and citizens. Heeks, (2001) identified the three main domains of e-governance.

1. **E-administration:** Enhancing government process
2. **E-services:** Connecting individual citizens to their government
3. **E-society:** building interactions with and within the civil society

Figure 2.1

Overlapping domains of E-government



Source: Adapted from Heeks,(2001)

These above three domains have their separate purpose. The main scheme of e-administration is to enhance the internal working of the public sector by reducing cost, improving performance, and establishing strategic relationships between government bodies. E-Service mostly focuses on improving the relationship between the government and its citizens via improving information flow and service level. The third one e-society

initiatives focuses on building relationships between public agencies, commercial sector service providers, non-profits, and community organizations, as well as civil society groups. These three domains of e-governance are hardly ever discrete in their practical implementations; in fact, they pertain to activities that overlap within the same initiative. To emphasize, the effectiveness of e-government initiatives needs to consider all three domains (Heeks, 2001). This research focused on the e-service aspects of e-governance that ensure good governance.

2.2.3 Interactions in E-Governance

The different scholars identified the different interaction groups of e-governance. It can be categorized into the following groups: Government to Government (G2G), Government to Citizens (G2C), and the relationship between Government and Business (G2B). Moreover, the external strategic objectives deal with citizens, businesses, and interest groups, while the internal objectives aim at the government itself (Backus, 2001).

Moreover, In e-commerce, abbreviations like B2B (business-to-business) and B2C (business-to-consumer) are used to identify the key groups involved. Figure 2.2 depicts typical group interactions in e-governance. The three Table 2.1 explains the abbreviations in the figure: G2C, G2B, and G2G.

Table 2.1

Main group interaction in E-governance

	e-democracy	**e-government**
External		
G2C: Government to Citizen	X	X
G2B: Government to Business		X
Internal		
G2G: Government to Government		X

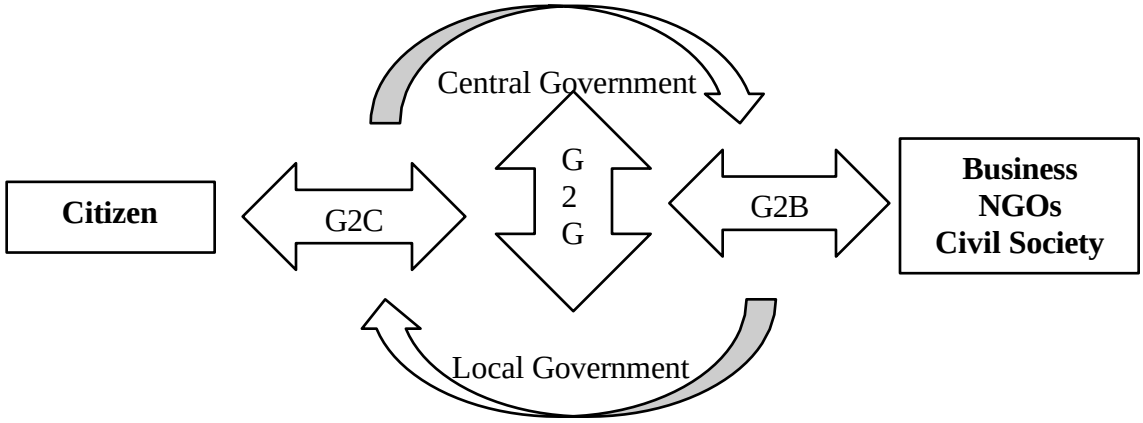
Source: This table is adapted from Backus, (2001)

Backus (2001) conceptualized e-governance as a framework to enhance three crucial relationships: fostering citizen-government engagement (G2C), streamlining inter-governmental coordination (G2G), and optimizing government-business interactions

(G2B), all through the strategic use of digital technologies. The below figure 2.2 shows the Interactions between the main groups in e-governance.

Figure 2.2

Interaction between main groups in e-governance



Source: Adapted from Backus, (2001)

Government to Government (G2G): In this interaction, Information and Communication Technology (ICT) is utilized in the interchange of the information between government and government agencies or departments as well as enhance the information flow and services between varied institutions. This type of interaction occurs with different government agencies and different functional domains which are horizontal or within different government levels like central, provincial, and Local government as well as which is vertical. The main objective of this interaction is to enhance efficiency, output, and accuracy.

Government to Citizen (G2C): As the name reflects, It maintains the relationship between the government and citizens of the country. The G2C model aims to facilitate citizen interaction with the government by providing quick, convenient access to government information and services through multiple channels. This framework increases the availability and accessibility of public services while boosting service quality. It can overcome time and geographic barriers, allowing citizens to complete transactions such as certifications, fee payments, and benefit applications. It offers the potential to promote

citizen participation in government, provide feedback concerning policy and rules, and improve service quality overall.

Government to Business (G2B): This interaction refers to the exchange of information between the government and businesses (G2B). The primary objective of this interaction is to remove red tape, save time, reduce operating costs, and promote a more transparent commercial environment when engaging with the government. In this interaction, e-governance solutions have the goal of supporting businesses that provide goods and services to easily connect with the government.

Government to Employees (G2E): The G2E denotes the relationship between the Government and its employees. It establishes a two-way communication system for its staff members to communicate with one another. The goal of this connection is to support employees by providing online services such as applying for yearly leave, monitoring leave balances, and reviewing salary payment records, among other things.

2.3 Good Governance: Conceptual Framework

The concept of Good Governance originated in the mid-1980s and it was mostly related to economic issues, such as rising debt, ineffective public sector, poverty, and corruption (Vymětal, 2008). The term 'governance' was first used in a 1989 study, "Sub-Saharan Africa: From Crisis to Sustainable Growth," published by the World Bank to underscore institutional reform and improvement of public sector efficiency in Sub-Saharan countries (Tripathi, 2017). In the recent era, the term good governance become a buzzword for political and administrative reform in developing countries and is synonymous with sound development management.

The definition of Good Governance According to the World Bank good governance definition is a multidimensional idea. It is connected to transparent, coherent, and consistent policies, as well as an effective, competent, accountable, and transparent bureaucracy, strong executive leadership, active civil society engagement, and all stakeholders maintaining the rule of law. Governance is the management of economic, political, and administrative power to regulate a country's activities at all levels. It includes systems, processes, and institutions that allow persons and groups to express their views, exercise their legal rights, fulfil their legal obligations, and resolve their disagreements

(Blunt & Rondinelli, 1997). Kulmie and Mohamed, (2023) argued that Good governance is essential for increasing public trust and confidence in government because it gives a practical foundation for creating a society in which citizens feel empowered, engaged, and safe. Good governance refers to identifying and carrying out effective choices.

The different organizations and different scholars identify the different types of features of good governance. According to the World Bank, the five components of good governance were identified they are: Public sector management, Competitive private sector, Structure of government, Civil society participation and voice, and Political accountability. The IMF advocates good governance principles to enhance the economic level while tackling issues related to development. The principles of IMF are Public sector accountability and transparency, Institutional reform to maintain private sector confidence, Improved efficiency and support public growth, and Rule of law (IMF,1997).

Moreover, the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) discovered the eight characteristics of good governance which is based on an inclusive approach that ensures the participation of all actors in decision-making, including minorities and vulnerable groups. The Characteristics of Good Governance mentioned by (UN.ESCAP,2009) are participation, rule of law, transparency, responsiveness, consensus-oriented, equity and inclusiveness, effectiveness and efficiency, and accountability.

The World Bank and IMF view governance primarily through an economic lens, focusing on how it can promote its financial goals. These institutions aim to transform the private sector's role by encouraging privatization and market-oriented policies. In contrast, the United Nations sees governance as a more inclusive concept. The UN definition emphasizes democratic principles, highlighting the importance of joint decision-making that involves not just the government, but also market forces and civil society organizations.

2.4 E-Governance: Theoretical Background

In developing countries, the models of digital governance are still gradually developing. A Few general models have shaped up, which are finding greater identification and are reconstructing. These models are mainly based on the essential features of Information and communication technology (ICT) such as supporting equal access to information for

everyone and connecting all sources of information. The local situation and the governance functions are carried out through these models. The models are completely based on the book (PRABHU, 2013)

2.4.1 Broadcasting/ Wider Dissemination Model

The model is based on the mass dissemination of better governance to related information that is already available in the public domain into the wider public domain through the use of ICT and convergent media. The concept of the model is to enhance citizens' understanding of ongoing governance processes and government services available to them, as well as how they might profit from them. It provides correct information individually and equally that will ensure that the agenda and form of governance are not biased.

It promotes the access and flow of information to all sectors of the society. By using appropriate technology this model could reduce the information failure situation. The applications related to this model are putting government laws and legislation online, providing online key information related to government plans, budgets, expenditures, performance, and key court judicial statements/judgments that are valuable to common citizens, and Making available online local government official name, mobile number, contact address, and E-mail.

2.4.2 Critical Flow Model

This model depends on broadcasting information of critical value to the targeted audience or wider public domain by using ICT and other tools. The model demands foresight to recognize the value of a specific information set and utilize it strategically. It may also include locating users who could gain significantly from access to specific sets of information, thus contributing to good governance. The benefit of this framework is that when information is kept on a digital network, the concepts of 'distance' and 'time' become unnecessary.

Once available on the digital network, the information might be used effectively, either by rapidly delivering the important information to its user group located anywhere or by making it freely available in the larger public domain. This model could be applied to provide information on corruption in a particular government ministry or government

official to it’s the concerned regulatory body (e.g. website of the Central Vigilance Commission) and provide NGOs and concerned citizens with records of human rights violates and criminal accusations against government officials.

2.4.3 Comparative Analysis Model

The comparative analysis model is the least popular e-governance model which has the most potential for developing countries. This model empowers people by contrasting scenarios of bad governance with those of good governance and identifying specific aspects of bad governance, the reasons and people behind them, and how the situation can be improved. To determine the effectiveness of an intervention, a comparison between two distinct conditions or over a longer time can be used to provide a picture of the current and former circumstances. This model mostly helps the watch guard and monitor groups to continuously track the government's previous information and performance and compare it with different information sets.

The application of this model can be learned from different things like learning from the government policy and action of the past and deriving learning lessons for future policy-making. It evaluates the performance and track record of a particular decision-maker or ministry.

2.4.4 Mobilization and Lobbying Model

This model is also known as the E-advocacy model which is the most frequently used digital governance model. This model has sometimes come to the help of civil society organizations in underdeveloped nations to influence international decision-making processes. It is based on setting up a planned, coordinated information flow to Create powerful virtual allies that complement real-world efforts. This model encourages real-world processes by including opinions and concerns communicated by virtual communities. This model's strength lies in the wide range of the virtual community, as well as the ideas, knowledge, and resources shared through virtual networking.

The application of this model can be used in cultivating public discourse on global issues, upcoming conference themes, and treaty topics. It is also used the encourage wider participation in the decision-making process. Moreover, this application creates a pressure group to put pressure on decision-makers to think about their mutual problems.

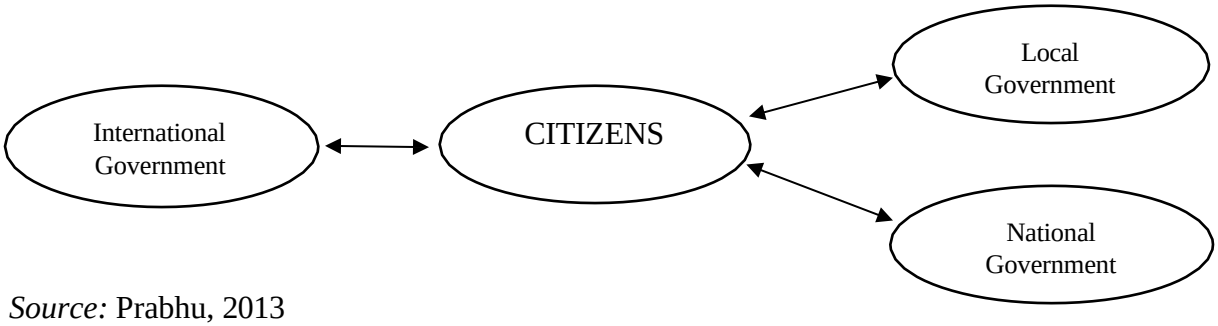
2.4.5 Interactive Service Model

The interactive service model is the unification of the other digital governance models and allows individuals to participate in the governance process through one-to-one and self-service options. The participation is directly accessible not through the representative. This approach completely captures the potential of ICT and utilizes it for better participation, efficiency, and transparency in the operation of government, as well as reducing the cost and time of decision-making. It offered various services by the government to be directly accessible to the Citizens in several aspects of governance channels facilitated like in an interactive Government to Citizen / Consumer to Government (G2C2G). The application of this model is to establish an interactive communication channel with important policymakers and planning commission members. It conducts electronic ballots (e-ballots) for the election of public officials and other office bearers, as well as conducting public debate or opinion polls on issues of wider concern before formulation of policies and legislative frameworks.

This model is widely used in developed countries and has been advocated for replication in developing countries. In comparison to the other models, this one relies completely on technology. Replicating this model in developing nations without secure ICT access is challenging. This paper examines the interactive service model of e-governance.

Figure 2.3

Interactive Service Model



Source: Prabhu, 2013

2.5 E-Governance: Service Delivery Approach (Citizen-Centric)

In the era of technology, the government provides public service delivery through digitization, and the priority of the government is the transformation into citizen-centric approaches at the core of public sector reform. According to Malik et al., (2014), Citizen-centricity seeks to prioritize service delivery through the eyes of citizens (need of citizens first), instead of focusing solely on the operational needs of government. This approach will enable the government to accomplish critical efficiency gains and increase service delivery standards. It also helps to improve the citizen satisfaction with the government and improve the quality of life. To reap the full benefits of e-governance, governments have to implement a citizen-centric approach to service delivery if they are to improve service delivery to individuals, lower government service delivery costs, and better accomplish public policy objectives Gupta, (2008) it also motivates citizens to use the citizen portal's e-services. Firstly, it should offer citizens easy and affordable access; second, it should encourage them to take advantage of the various services available on the citizen portal; and third, it should build trust in them that the e-Kiosks offer reliable services.

Citizen-centric e-government may also help reduce duplication and overhead through common services and infrastructure. A citizen-centric government involves far more than simply a collection of agencies that provide services to citizens. It involves reassessing, from the perspective of the citizen, the entire system of service delivery across every single agency and level of government. Furthermore, user needs usually overcome government levels and organizational systems. Therefore, an integrated plan that is valued by all governmental levels is necessary for a true citizen focus. The study is concerned with a citizen-centric approach as an e-governance model of public service delivery.

2.6 Context and Content Related to Nepal

Nepal's government has been persistently working to enhance the quality of services provided to its citizens. The subsequent section will examine Nepal's e-governance development and analyze the main components of key policies, including the IT Policy 2015, the E-Governance Master Plan (EGMP), and the proposed Umbrella Act.

2.6.1 E-Governance Evolution in Nepal

Nepal pioneered the adoption of information technology in its public sector relatively early compared to other developing nations. The development of ICT and E-governance in Nepal has been a gradual process spanning over a century. It began in 1913 with the introduction of telecommunication services in Kathmandu. The country's first significant application of IT in government operations occurred during the 1971/1972 census, which utilized an IBM1401 computer for data processing (Shakya, 2018). Although the initial development of ICT industries didn't meet optimal expectations, several initiatives were introduced to boost the sector. The 1980s marked the beginning of private sector involvement, with the first overseas investment in software development in 1982 and the distribution of personal computers in 1985. The 1990s were crucial for policy development, witnessing the liberalization of equipment imports, the establishment of the Computer Association of Nepal, and the introduction of the Internet in 1993. The 9th periodic plan (1997-2002) implemented policies to promote computer education in schools, provide technical training for higher studies, and establish an IT park. A significant milestone was the introduction of the IT Policy 2000, which marked the beginning of strategic computer use in government operations. These measures aimed to revitalize and accelerate the growth of Nepal's ICT sector.

Since the turn of the millennium, Nepal's government has launched various e-government initiatives to advance its ICT sector. Major milestones in Nepal's ICT development include the establishment of the National Information Technology Centre (NITC) in 2001, the Formation of the High-Level Commission for Information Technology (HLCIT) in 2003, the Introduction of the Electronics Transaction Act (2004), and in 2006 Implementation of a five-year e-governance action plan (E-GMP) for 2007-2011. The 2000s and 2010s saw a rapid acceleration in ICT initiatives, with the establishment of an IT Park, the enactment of the Electronic Transaction Act, and the formation of various regulatory bodies.

This period also saw the development of comprehensive plans and policies, such as the ICT Development Project (2008-2014), the 10-Year Master Plan (2011-2020), and the ICT in Education Master Plan (2013-2017). The most recent years have focused on creating a digital framework for the country, culminating in the "Digital Nepal Framework" policy

introduced in 2019. This timeline reflects Nepal's continuous efforts to embrace and integrate digital technologies into its governance and society.

Nepal has been taking steps to implement e-government through various policy initiatives. While overall progress remains below expectations, recent years have seen notable advancements. The United Nations e-government survey reflects this improvement, with Nepal's e-government development index (EDGI) ranking rising from 132nd in 2020 to 125th in 2022. This upward shift indicates positive momentum in the country's digital governance efforts, despite ongoing challenges in achieving satisfaction with the pace of progress.

Moreover, Nepal has made notable strides in implementing e-government services across various sectors. Key achievements include the Public Service Recruitment System, as well as digital platforms for tax collection, company registration, procurement, and judicial data management. Citizens can now access electronic services for vital event registration, passports, land management, and driver's licenses. The National ID card project is nearing completion, further demonstrating progress. Following Nepal's 2015 constitutional change, which established a three-tiered government system, this study concentrates on evaluating the effectiveness of e-governance in service delivery at the local government level.

2.6.2 IT Policy 2015

The IT Policy 2015 of Nepal set forth an ambitious vision to transform the country into an information and knowledge-based society and economy. This policy, which replaced the 2010 version, aimed to enhance e-governance, improve service delivery, and boost digital literacy across various sectors including agriculture, tourism, health, education, and business. Key objectives included providing internet access to the entire population, offering 80% of citizen-facing government services online, and achieving 75% digital literacy by 2020. The policy emphasized developing human resources, improving telecommunication infrastructure, and fostering public-private partnerships in ICT. It also focused on creating accessible public access points, promoting e-commerce, and enhancing the national ICT infrastructure. However, as this policy was formulated before Nepal's 2015 constitution, it does not address the roles and responsibilities of the newly established

provincial governments in implementing these initiatives, highlighting the need for policy amendments to align with the country's new federal structure.

2.6.3 E-Governance Master Plan

The e-government master plan in Nepal has evolved since its first version in 2006, which was developed with help from KIPA. This initial plan aimed to improve people's lives and promote socio-economic development through transparent, ICT-enabled government services. It proposed 33 projects across various sectors, with eight priority projects including government systems, national identification, and e-education. However, only a few of these projects, such as the integrated data centre and official portal, were successfully implemented.

In 2015, the second e-government master plan (EGMP2) was developed to address technological advancements and changing needs. EGMP2 focused on key sectors like e-agriculture, e-education, e-health, and e-tourism, with goals to improve government efficiency, enhance service delivery, and promote information sharing between government bodies. The plan emphasized sustainability, capacity building, and supporting Nepal's new federal structure. Its strategies included continuing ongoing e-government projects, starting pilot projects with local expertise, improving local ICT capabilities, and focusing on services that benefit citizens and businesses. Despite these plans, implementing many e-government initiatives in Nepal has been slow, with some projects existing only on paper.

2.6.4 Digital Nepal Framework 2019

The Digital Nepal Framework 2019 is a strategic initiative by the Government of Nepal aimed at leveraging digital technologies to drive economic growth and societal development. The framework outlines eight key sectors—digital foundation, agriculture, health, education, energy, tourism, finance, and urban infrastructure— and eight digital initiatives each with specific goals and action plans. It emphasizes enhancing digital infrastructure, improving digital literacy, and promoting innovation across these sectors to support Nepal's transition to a digital economy. The framework envisions a digitally empowered society with better access to services, improved governance, and increased

economic opportunities, ultimately contributing to Nepal's vision of becoming a middle-income country by 2030.

Nepal's e-governance journey, from the 2006 e-government master plan to the 2019 Digital Nepal Framework, presents innovative plans for using digital technology to improve government and advance socioeconomic development. However, Implementation always falls behind planning, and many programs exist only on paper. The evolution of these plans reflects a growing recognition of sector-specific needs and the importance of digital infrastructure and literacy. Yet, challenges such as resource constraints, limited local capacity, infrastructure hurdles, and political instability have hindered progress. As Nepal strives to become a middle-income country by 2030, bridging the gap between digital strategies and their effective implementation remains crucial. Future success will depend on addressing systemic barriers, building local expertise, and adapting initiatives to Nepal's unique context and federal structure.

2.7 Empirical Studies: E-Governance for Good Governance

Several studies have been conducted in developed and developing nations to evaluate the effectiveness of e-governance programs promoting good governance. Here is an overview of previous research that has been done and relates to this study.

2.7.1 E-Governance and Effective Public Service Delivery

Ridwanullah et al., (2019) argue that using e-governance improves the standard of civil administration operations. The goal of this study is to qualitatively explain how e-governance is being utilized to improve the standard of civil administration services provided by the public sector. It was conducted in West Java, Indonesia the Local Office of Population and Civil Registration of Bogor City within one month of May 2019. The study combines primary and secondary data and has a descriptive and qualitative approach. The implementation of e-governance indicates a good result by the means and Based on the transparency, accessibility, and competency of the e-governance implementation, the public views all aspects of it as good. The recommendation provided based on this study is to continuously improve e-governance implementation and Improve civil administration service quality through effective e-governance implementation.

A study carried out by Bhuiyan, (2011) explored the modernization of Bangladesh's public administration through e-governance. This paper aims to critically examine the role that e-governance can play in the modernization of public administration for efficient and effective service delivery to the citizens of Bangladesh, as well as its potential to control corruption and reduce poverty. The analysis is secondary sources based on four particular sources. The agenda for modernizing public administration through e-governance is a contemporary phenomenon in many countries as this promises a people-centric, accountable, and transparent government, and lessens transaction costs. And Suggested that e-governance can play a significant role in corruption control and poverty reduction, and thus offers opportunities for cost-effective service delivery to citizens, a daunting task of modern public administration.

The paper on E-governance for improved public sector service delivery in India, Ethiopia, and Fiji examines the possibilities of e-governance applications in three countries. The Survey was over 918 citizens from three countries people. The methods of the sampling are random sampling and the structured questions focused on citizen perception about corruption, poor service, and how e-governance can reduce corruption. Singh et al., (2010) in India, Ethiopia, and Fiji evaluated the potential of e-governance initiatives, finding that while benefits are similar to developed countries, potential benefits remain untapped due to excessive use. E-governance positively impacts government, citizen relationships, and corruption reduction.

2.7.2 Barriers to E-Governance in Service Delivery

The implementation of e-governance initiatives, particularly in developing countries like India, faces numerous challenges despite its potential benefits. This study examines the key barriers to e-governance implementation as identified and analyzed in the article by (Gupta et al., 2019). E-governance projects in developing countries face high failure rates, with 85% failing. Barriers in India's National e-Governance Plan hinder the effective implementation of planned projects. The study utilized Interpretive Structural Modeling (ISM) to analyze barriers in e-governance, creating a hierarchical model highlighting their influence and dependencies. The study utilized Interpretive Structural Modeling (ISM) to analyze barriers in e-governance, creating a hierarchical model highlighting their influence

and dependencies. The study found that lack of political will is the most significant driving barrier in e-governance implementation, according to the ISM-based hierarchical model.

In an article entitled “Challenges and Factors Affecting E-governance Practices in Nepal” Shrestha et al., (2015) identified the main barriers to the effective implementation of e-governance were a lack of policies, training, and knowledge transfer needs, and opposition to change (e.g., governmental reforms). The research methodology Combines primary data which are collected from interviews and semi-structured questionnaires with 80 government officials and employees in various ministries and agencies including the High-Level Commission for Information Technology as well as secondary data from websites, annual reports, Journals, and government official publications to provide comprehensive critical scrutiny of E-governance practices in Nepal. This study concludes that the implementation of E-Governance in Nepal is still in a developing phase, with only about half of the government agencies in the country having so far adopted E-Governance services. This study recommended awareness education, learning, knowledge sharing, transformation with local context in the picture, and political and financial support to see a good implementation of E-governance in Nepal.

Shakya, (2018) explored the reason behind Nepal's limited advancement in e-governance implementation, despite favourable government policies, ongoing support from international organizations, and a growing ICT industry in the country. The study is based on interviews, secondary sources, and the analysis of the changed scenario. The study concluded that the political instability and socio-economic challenges, including the digital divide, hindered e-Governance implementation, despite the political transition and lack of government leadership, over-reliance on development agencies, and lack of vision and responsiveness are the reasons that have made Nepal fail to capitalize on the potential of m-Governance for any major developmental change. The inability of this country to do so will be laid at the doorstep of its leadership.

Nepal faces challenges in citizen-centric e-governance due to traditional governance, lack of political leadership, technology adoption, digital divide, change management, insufficient ICT infrastructure, and IT human resource strategic planning Rai, (2022). This study tries to explore the current status of e-governance implementation in Nepal and

identify the key issues and challenges in making e-governance more citizen-centric. This qualitative study examines e-governance challenges in developing countries, focusing on Nepal's governance systems, political leadership, technology adoption, and citizen involvement, aiming to improve e-governance initiatives. It concludes that organizations should adopt an organic approach to technological development and modify their traditional beliefs. It recommended that the main aim of e-governance is a citizen-centric approach and citizens should be in the center. Once they are in the center developing an e-Government system will lead to a more citizen-centric approach.

2.7.3 E-governance for Good Governance

As discussed, good governance through e-governance Sharma, (2018) concludes that E-governance promotes government transparency and informs the public about its policies. Good governance will propel and sustain economic growth in India and It can restore the trust of citizens in governments and make governments accountable to them. The objective of this paper is to analyze whether E-Governance serves as a model of Good Governance in India. This study involves data collection from secondary sources from published sources like websites, research papers, case study books, periodicals, and newspaper reports.

The paper attempts to discuss and explore e-governance versus good governance and the obstacles of civil service within public service delivery in Nepal. The technique of this research is qualitative and the survey method is used for data generation with different provincial level civil servants. This research concludes that without implementing e-governance, it is impossible to believe in good governance. For the implementation of effective e-governance, there are lots of huddles like the Information Technology Act, insufficient budget, lack of government will, and Poor infrastructure in IT (Giri, 2019).

Ahmed and Zehra, (2022) explored the role of e-governance in good governance and the level of satisfaction of rural areas people towards e-service which was conducted in Poonch District, Khidmat centres. The role of the Khidmat Center is to connect the government e-project and the nation's development. The data is collected from both source primary and secondary and the primary data is collected from the Khidmat centres with structured Questioners and the respondents are from both sides. They argue that modern governments

experience service delivery challenges, but ICT tools play a role in improving transparency, accountability, and efficiency. These tools ensure, especially in rural areas, aid in achieving good governance and addressing service delivery issues.

This study has explored the potential of new information and communication technologies in achieving good governance and identifies key factors and barriers to effective e-governance implementation, proposing a strategic policy framework for excellent governance in Punjab, a developed Indian state. The methods of this studies descriptive statistics, perception gap analysis, ANOVA, and factor analysis to identify key good governance factors, public e-service priorities, and policymakers' perspectives on achieving good governance through e-governance. The study highlights Punjab citizen's belief in the ability of Information and communication technology (ICT) and want to use e-governance services. The study finds that the major factors that are obstacles to getting services from different departments are excessive waiting times, multiple visits even for small services, inadequate public infrastructure, and maintenance in government offices. According to citizens, the most important factors for the success of e-governance services are overall convenience and experience of citizens; reduction in corruption levels by improving the transparency of government functioning; and awareness about the availability of service amongst the general public (Kalsi & Kiran, 2015).

Batool et al., (2021) E-governance has enabled governments to provide more services to more people, thereby enhancing the overall service provision and facilities available to the common people. They argued that Pakistan's E-governance system is only 22 years old, yet it has made significant progress in implementing ICT across government sectors. The purpose of this study is to improve Pakistan's standing as a digital country by developing an e-governance system. The study uses a qualitative approach to investigating the growth of e-governance in Pakistan, drawing on primary and secondary data from government official websites. Pakistan's governments are committed to IT sector development despite challenges. Accessible, affordable, reliable, universal, and high-quality ICT services are needed, with IT literacy extended to remote areas.

2.8 Research Gap

This research is a unique initiative, there have been numerous researches at the international level related to E-governance. The E-Government Development Index (EDGI) shows the quality of e-governance in comparison to the ranks of countries at the global level. In Nepal, few types of research have been done on e-governance practices, Implementation barriers and challenges, Models of e-government service, a framework for good governance through e-governance, etc. However, at the local level, e-governance assessment, effectiveness, and barriers have not yet been done while taking into consideration the uniqueness and specificity of each local government unit. Through the literature review, I identified the following research gaps in the subject of e-government under Nepal's federal system of governance.

E-Governance relates study in a federal system of Nepali governance had not been done sufficiently, especially at the local government. The comprehensive assessment of e-governance effectiveness and service delivery has not been done by every local government. Moreover, there are very few researches in the Nepali context have been done about E-governance understanding of Citizen perspective. To explore, explain, and assess the gap existing in knowledge and practice relating to E-governance at the local level of government in newly introduced federal democratic Nepal.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Background

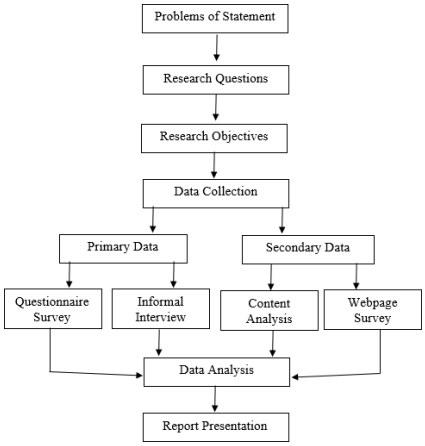
This chapter describes the research design, study region, and the technique used for the investigation. It discusses the research plan, approach, study population, data collection instruments, and data analysis methodologies.

3.2 Research Design

Research technique is a systematic approach to solving research problems through thorough inquiry (Kothari, 2004). This study is carried out based on a descriptive research design for the effectiveness and barriers of e-governance in public service delivery. This study investigates the efficacy of E-governance systems, employing logistic regression analysis to examine the relationship between e-governance and demographic characteristics. Moreover, the objective of the study is to explore the effectiveness of E-governance in Kathmandu Metropolitan City, and the Barriers to E-Governance in public Servicer Delivery of KMC. In this regard, it is exploratory research. Additionally, the study aims to analyse the relationship between ICT skills and three other socio-demographic factors on the efficiency of e-governance initiatives. Thus, this is both a descriptive and inferential analysis.

Figure 3.1

An overview of the research design and its components

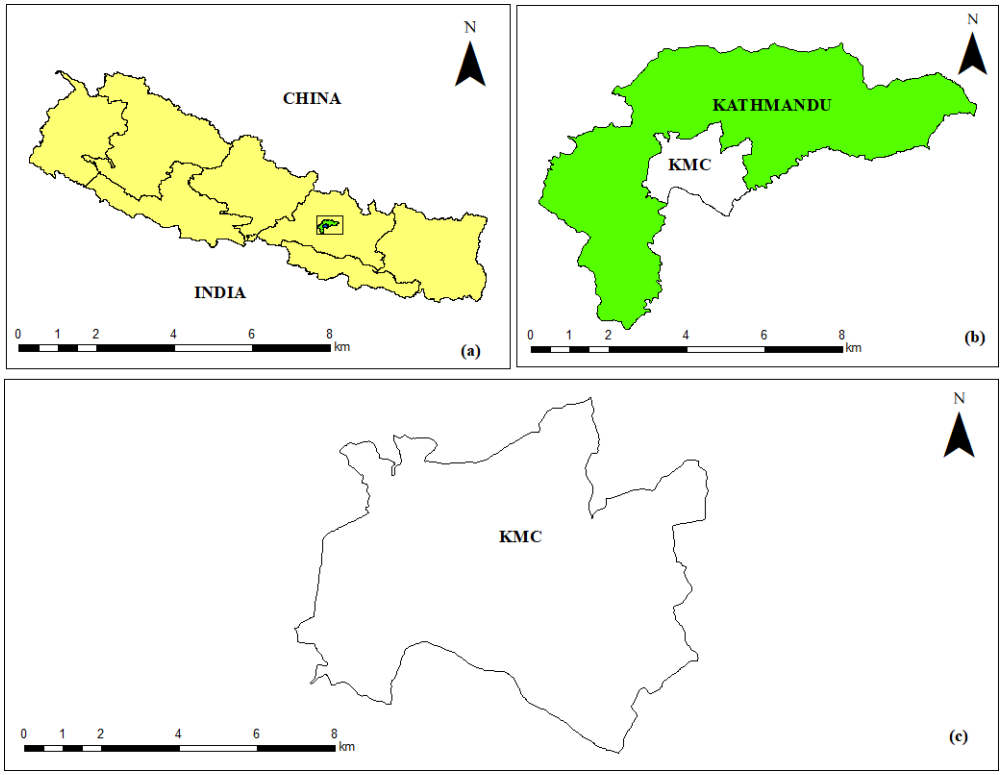


3.3 Study Area

Kathmandu Metropolitan City is in Kathmandu District, Bagmati Province of Nepal. It was designated as the country's first and only metropolis only 20 years ago, although the current Kathmandu Metropolitan Office (KMC) had its beginnings in 1919. For the management of public administrative functions, the metropolitan city was compressed into 32 administrative wards from 35 in 2017. It is situated within the geographic coordinates 27°38'32" to 27°45'7" North latitudes and 85°16'5" to 85°22'32" East longitudes. The city lies at an average altitude of 1,350 meters above sea level. According to the national population census of 2078 BS, Kathmandu metropolitan city is home to a population of 862,400 individuals, consisting of 438,256 males and 424,144 females has been categorized under various factors such as age, language, ethnicity, and caste. KMC accommodates 238,966 households, resulting in a population density of 17,440 people per square kilometre.

Figure 3.2

Map of Study Area



Source: This Map is developed by author

In this research, out of 753 local governments of Nepal Kathmandu Metropolitan City has been selected to study. KMC was selected as the study area due to its diverse population representing various socioeconomic groups. As the capital, Kathmandu generally has better technological infrastructure than other parts of Nepal. By focusing on Kathmandu Metropolitan City, the study can provide a comprehensive understanding of how e-governance can improve good governance and service delivery, potentially offering a model that can be replicated in other parts of the country.

3.4 Source of data

This study focused on primary sources of data and information connected to research aims and research questions. However, it also used secondary data sources and qualitative and quantitative information to identify research gaps. The data is collected from all wards of KMC. There are two types of data collection procedures for this research primary and secondary data.

3.4.1 Primary Data

The Primary Data was collected through the Structures Questionnaire survey from the service receiver of KMC where the questionnaire was close-ended. The survey was conducted among the 403 general service seekers or receivers from 32 wards of KMC. The key information interview is open-ended questions to understand the present status of e-governance effectiveness, the Challenges or Barriers of e-governance, and the suggestion of e-governance policy related to e-governance in public service delivery with the service provider of KMC.

3.4.2 Secondary Data

The secondary source of data gathered from the content analysis from the research article, UN reports, World Bank reports, municipal reports, government websites, literature review, and finding research gaps in the field of e-governance.

3.5 Sample Size and Sample Methods

The population size of the research was unknown. The sample size has been taken based on unknown population size. The total size of the research is (n= 403). The sample size is 384 for an unknown population size and 5% (19) is the respondent error. In this research, a nonprobability sampling method was used for the sampling collection technique because

it is hard to reach the exact population of service receivers in a whole fiscal year as well as the limited time and funds for research. A purposive sampling method has followed for respondent selection. In this step, 403 respondents from the 32 wards of Kathmandu Metropolitan City were selected. The respondents who took part as persons who received any services from any one ward of the Kathmandu Metropolitan City.

3.5 Data Collection Tools, Techniques, and Procedure

The research applies a mixed-method approach, collecting information using both quantitative and qualitative methods. For gathering data, the survey questionnaire and interview questionnaire are self-administered. The primary data was collected by providing a structured questionnaire (Appendix I) to service receivers and asking a series of questions (Appendix II) during expert interviews with service providers. Secondary information and data were collected from different publications, policies, government laws and regulations, reports of various organizations, and the Kathmandu Metropolitan City, among other sources to identify research gaps and conduct a literature study. A questionnaire-based survey was conducted among municipal offices, ward offices, and the local community.

In the structured questionnaire (Appendix I) the first section of the survey questionnaire asked for socio-demographic information and the rest of the questions were categorized by indicator. Many items meant to assess the same variable were given the same response categories, and each item was scored equally using five response categories (scoring 1 to 5). The Likert Scale Table number 3.1 illustrates the effectiveness of e-service and the Barriers to E-governance service measured by attributes of satisfaction and contingent factors of good governance by the way of public service delivery.

Table 3.1

Five Points of the Likert Scale for Assessing the KMC Service

Scale	Effectiveness	Barriers
5.	Very Effective	Strongly Agree
4.	Effective	Agree
3.	As Usual	Natural
2.	Ineffective	Disagree
1.	Very Ineffective	Strongly Disagree

Moreover, in the set of questions (Appendix II) interviews with the service providers were conducted through open-ended questions to understand the present status of e-governance and major issues related to service providing.

3.6 Model Design

Seven models were developed using ICT skills, age, education, and gender to evaluate e-governance effectiveness, primarily focusing on ICT proficiency. The dependent variable is the Effectiveness of E-Governance which has five indicators (Assurance, Cost of Saving, Reliability, Satisfaction and Responsiveness) which are measured in Very Effective and Effective "1" and Very Ineffective, Ineffective and as usual "0". The Independent variables are ICT skills, Age, Gender, and Age.

The equation of the model is given below:

Model (1) effectiveness of E-Governance for all five indicators

$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$ ..... (I)

Where, Y= (=1) (Effectiveness of E-Governance for all five indicators)

X_1 = ICT Skills,

X_2 = Age,

X_3 = Education,

X_4 = Gender,

Model (2) effectiveness of E-Governance for Assurance, Cost of Saving and Reliability

$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$ ..... (II)

Where, Y= (=1) (Effectiveness of E-Governance for Assurance, Cost of Saving and Reliability)

X_1 = ICT Skills,

X_2 = Age,

X_3 = Education,

X_4 = Gender,

Model (3) Effectiveness of E-Governance for Assurance Only

$Y= \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4$ ..... (III)

Where, Y= (=1) (Effectiveness of E-Governance for Assurance Only)

X_1 = ICT Skills,

X_2 = Age,

X_3 = Education,

X_4 = Gender,

Model (4) Effectiveness of E-Governance for Cost of Saving Only

$Y= \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4$ ..... (IV)

Where, Y= (=1) (Effectiveness of E-Governance for Cost of Saving Only)

X_1 = ICT Skills,

X_2 = Age,

X_3 = Education,

X_4 = Gender,

Model (5) Effectiveness of E-Governance for Reliability Only

$Y= \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4$ ..... (V)

Where, Y= (=1) (Effectiveness of E-Governance for Reliability Only)

X_1 = ICT Skills,

X_2 = Age,

X_3 = Education,

X_4 = Gender,

Model (6) Effectiveness of E-Governance for Satisfaction Only

$Y= \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4$ ..... (VI)

Where, Y= (=1) (Effectiveness of E-Governance for Satisfaction Only)

X_1 = ICT Skills,

X_2 = Age,

X_3 = Education,

X_4 = Gender,

Model (7) Effectiveness of E-Governance for Responsiveness Only

$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$ ..... (VII)

Where, Y= (=1) (Effectiveness of E-Governance for Responsiveness Only)

X_1 = ICT Skills,

X_2 = Age,

X_3 = Education,

X_4 = Gender,

3.7 Tools of Data Analysis

All of the collected data from the paper base sampling and Kobotoolbox are recorded in Kobotoolbox. The recorded data were arranged into Excel texts to ease the data analysis and then data were further interpreted through the SPSS and R Programming software. The data was analyzed by using simple and suitable mathematical and statistical tools like tabulation, frequency, percentage, arithmetic means, and standard deviations using the SPSS (Version 27) and R program. The result was presented using tables, charts, figures, graphs, etc. for quantitative data. An analysis of the research purpose and questions was conducted, leading to a conclusion.

3.8 Measuring Effectiveness of E-Governance

E-Governance is the use of information and communication technology (ICT) for offering public services. It can enhance governmental efficiency. To evaluate the impact of e-government initiatives, assess citizen expectations, and justify related investments, countries employ various measurement tools. In this study the effectiveness of e-governance performance through e-service delivery, which is one of three e-governance domains alongside e-administration and e-citizen participation. The assessment of e-service based on five indicators they are Assurance, Cost saving, Reliability, Satisfaction, and Responsiveness. Each indicator was evaluated using two questions in a survey. Responses were collected using a five-point Likert scale, where participants rated the effectiveness of e-governance through e-service or service delivery. Five points of scale marked as very effective (5), effective (4), as usual (3), ineffective (2) and very ineffective (1).

CHAPTER IV

DATA PRESENTATION AND ANALYSIS

4.1 Background

This Chapter presents the research data from several perspectives, using the method developed in the previous chapter. Variables are currently concerned with the analytical framework. The chapter focuses on answering research questions based on quantitative and qualitative methodologies. The present study analyzed the effectiveness of e-governance through service delivery in Kathmandu Metropolitan City. In this study, a questionnaire survey based on the indicator, key information interview, content analysis, and webpage survey method has been followed.

4.2 Demographic Profiles: Descriptive Statistics

The study was conducted during the period from Ashad 2081 to Sharwan 2081. The descriptive statistics were focused on summarizing the data collected from the sample target population of the wards. The total respondents were 403 from all wards of Kathmandu Metropolitan City (KMC), Nepal.

Table 4.1

Service Receivers Demographic Profile

Gender		**Percentage**	
Male		56.1	
Female		43.9	
Age Groups	**Percentage**	**Education Level**	**Percentage**
16-25	22.3	No Education	3.0
25-35	32.8	Below SLC (Primary Level)	10.9
35-45	20.1	Intermediate (Secondary Level)	29.0
45-55	13.9	Bachelor	41.7
55 and Above 55	10.9	Masters and above	15.4

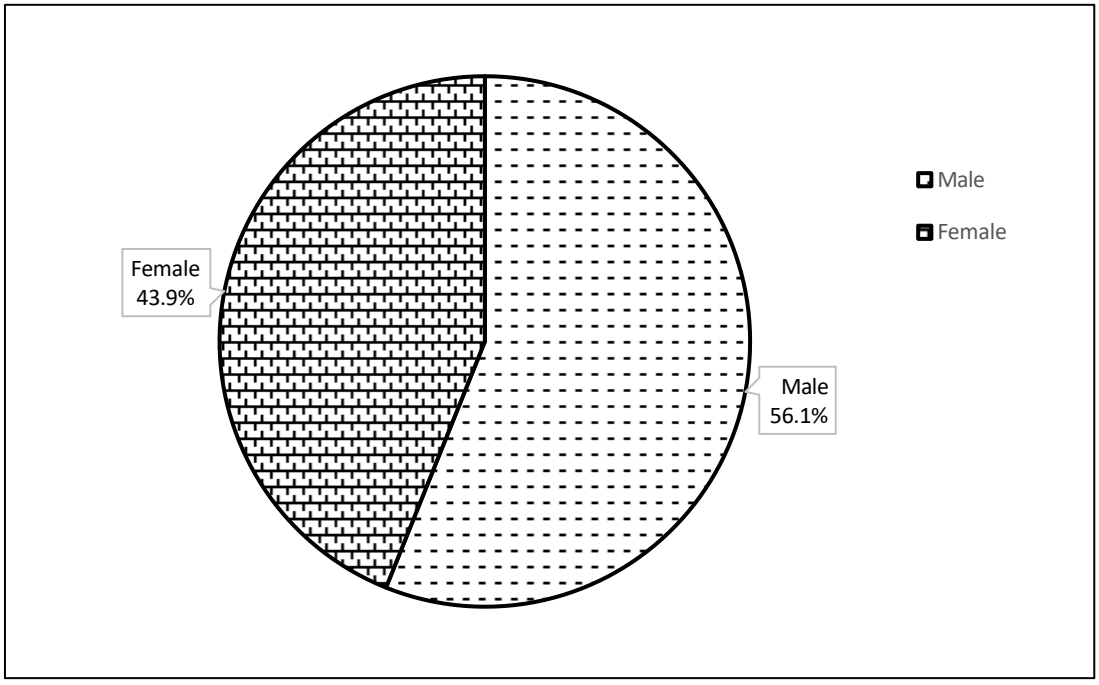
Source: Field Survey, 2024

4.2.1 Gender Distribution

The Subsequent table (Table 4.1) indicates the respondent age groups and the level of education and Gender. Figure 4.1 shows that among the 403 respondents, 226 (56.1%) respondents are male, whereas female respondents are 177 (43.9%) of total respondents.

Figure 4.1

Gender Distribution



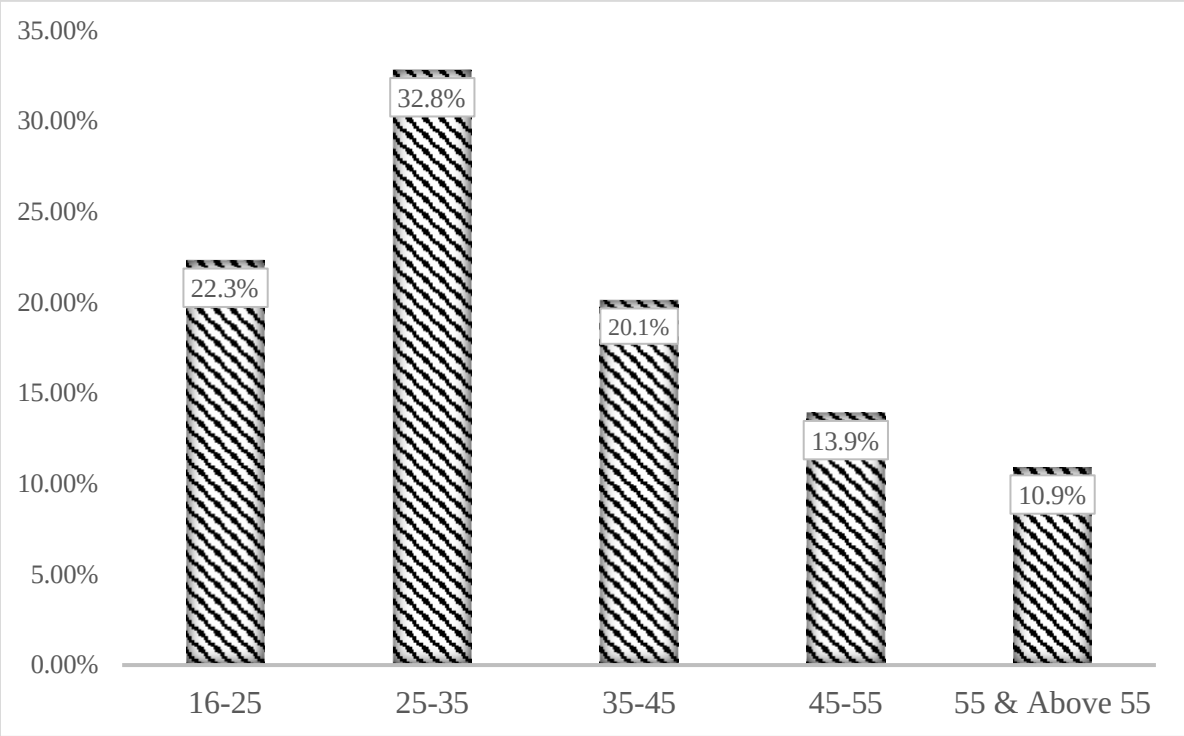
Source: Field Survey, 2024

4.2.2 Distribution of Age Groups

The below Figure 4.2 Shows the distribution of age groups among a given population, with the y-axis indicating the percentage and the x-axis indicating the age groups. The age groups are categorized as follows: 16-25, 25-35, 35-45, 45-55, and 55 and above. The 16-25 age group makes up 22.3% (90) of the 403, age group 25-35 is the largest age group, comprising 32.8% (132) of the total sample population. The 35-45 age group accounts for 20.1% (81), and the 45-55 represents 13.9% (56) of the total sample of the population. Age Groups 55 and Above 55 are the smallest, making up 10.9% of the 403 Sample.

Figure 4.2

Distribution of Age Groups



Source: Field Survey, 2024

Moreover, the maximum number of respondents was 32.8% within the 25-35 years age group while 10.9% were within the 55 and above 55 years age group is the smallest number of respondents. Overall, the majority of the population studied is young, with 55.1% of participants being under 35 years old.

4.2.3 Education and ICT Skill

Table 4.3 illustrates the status of Education and ICT Skills of the respondents. The respondents' educational background showed that they are well educated, as seen by the majority of them having a bachelor's degree (41.7%) followed by intermediate level (29%), and so on. Moreover, The results show that the majority of respondents, 229 people (56.8%), identified their ICT abilities as good. 77 people (19.1%) saw their skills as Very Good. Only 17 people (4.2%) ranked their ICT abilities as Excellent. On the low end of the spectrum, 60 people (14.9%) rated their ICT abilities as poor, and 20 people (5.0%) rated them as very poor.

Table 4.2

Cross-tabulation of Education and ICT skill

		ICT SKILL					
		Very Poor	Poor	Good	Very Good	Excellent	Total
EDUCATION	No Education	10	2	0	0	0	12
	Below SLC (Primary Level)	4	17	22	1	0	44
	Intermediate (Secondary Level)	4	31	66	15	1	117
	Bachelor	1	8	109	42	8	168
	Masters and Above	1	2	32	19	8	62
Total		20	60	229	77	17	403

Source: Field Survey, 2024

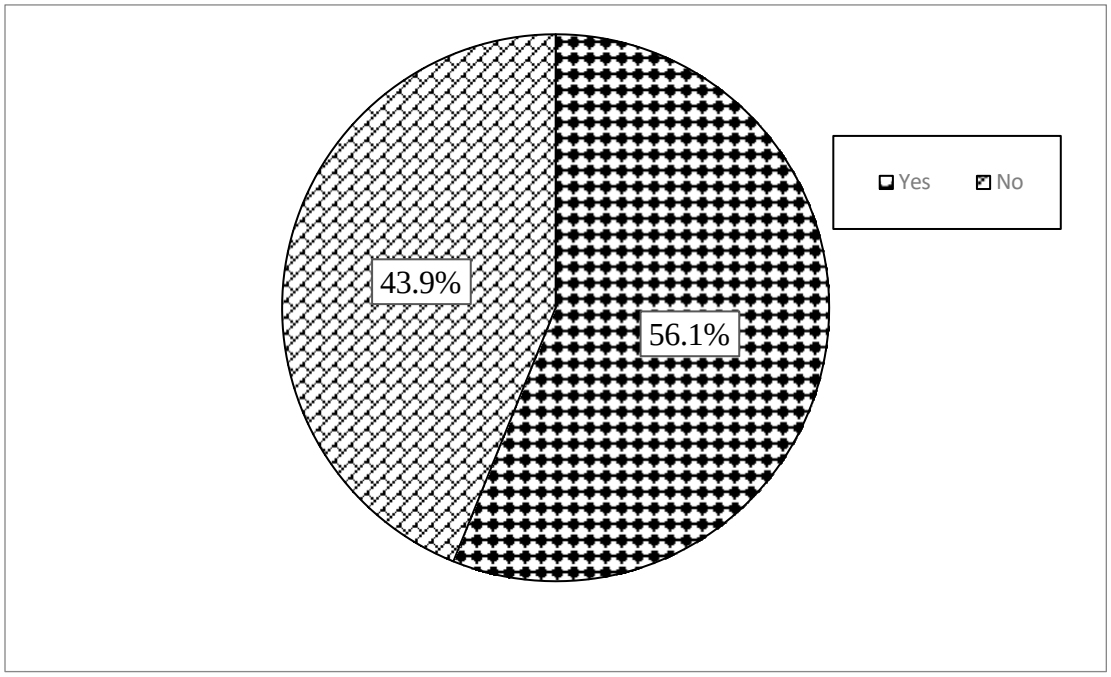
Overall, Education level is positively correlated with ICT skill levels. As education levels grow, there is a general tendency towards increased ICT skills. In contrast, persons with no or only primary school have extremely poor to bad ICT skills. This trend highlights the importance of focused ICT skill development initiatives, particularly for lower education levels, in bridging the digital gap and promoting equal digital literacy.

4.2.4 KMC Smart App

Kathmandu Metropolitan City has a KMC smart app that aims to provide digital services to maximize their service easily which was launched on the 28th KMC day on 12th December 2022. In this research KMC app also focused on knowing the digitalization of KMC to the service receiver. In this research, the results show that the majority of respondents, 226 people (56.1%), identified they know about the KMC App. However, out of 403, the remaining 177 people (43.9%) did not know about the KMC app. Figure 4.3 shows the pie chart of the KMC app Known and Unknown Percentage of the respondents of Kathmandu Metropolitan City.

Figure 4.3

KMC Smart App



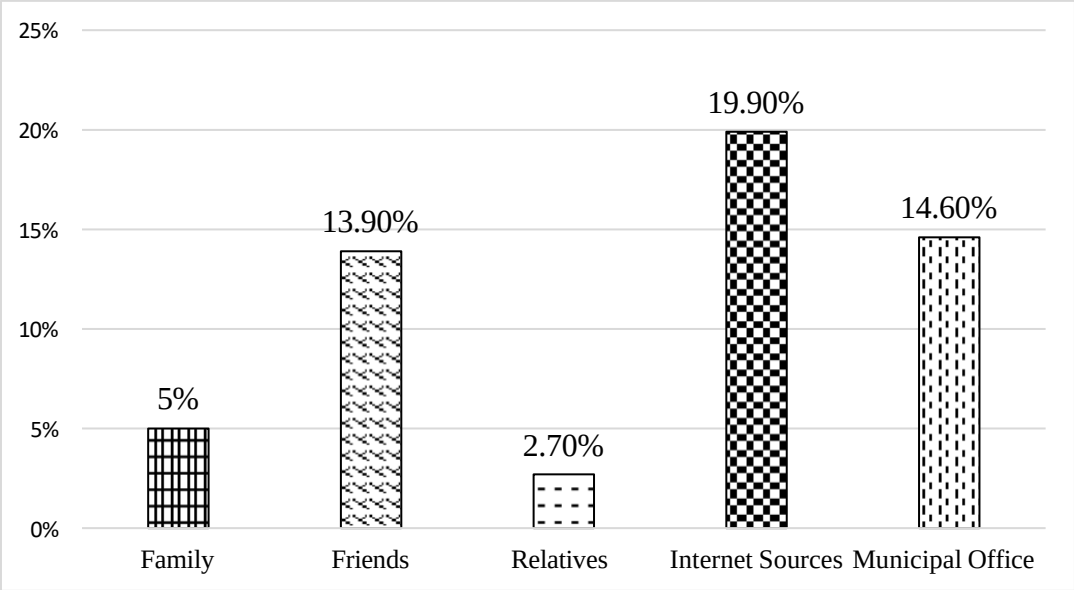
Source: Field Survey, 2024

Moreover, in this research, Figure 4.4 the bar diagram displays the percentage breakdown of how people learned about the KMC SMART APP from different sources. The respondents found to know about the KMC SMART APP from the internet source (35.40%) which is the most common source, indicating that online platforms and digital marketing were the most effective in spreading awareness about the app. The second-highest source is the Municipality office (26.11%) suggesting that local government offices played a significant role in promoting the app and effectively providing information about the app. Word-of-mouth through friends (24.7%) is the third most common source, highlighting the importance of social networks in app adoption. Family (8.85%) members contributed to app awareness, but to a lesser extent compared to friends and official sources. Relatives (4.87%) are the least common source among the options presented.

Overall, This data provides insights into how different channels contribute to spreading awareness about the KMC SMART APP. It showed that Internet sources and the municipality play a vital role in information about the KMC Smart APP.

Figure 4.4

Source to Known the KMC SMART APP



Source: Field Survey, 2024

4.3 Effectiveness of E-Governance: Findings and Analysis

In this step of the analysis, the effectiveness of the e-governance service was investigated by the five indicators (Assurance, Cost of Saving, Reliability, Responsiveness and Satisfaction) with service receivers from the Kathmandu Metropolitan City (KMC) ward.

4.3.1 Descriptive Statistics

In this stage, descriptive statistics analysis of Assurance, Cost of Saving, Reliability, Responsiveness and Satisfaction has different questions each indicators have two questioners. The analysis of each indicator questionnaire is below and In every indicator, keys are denoted by VI 'Very Ineffective', Inef 'Ineffective', Au 'As Usual', Effe. 'Effective', VE 'Very Effective', and S.D 'Standard Deviation'.

1) Assurance

Based on the questionnaire; I have chosen a total of two (2) assurance-related questions, which are taken for the measurement of the significance of the service provider assurance of e-governance through service delivery, among the data collected within the respondent's size of 403. Below presented are the two assurance questionnaires' frequency analysis.

Table 4.3

Effectiveness of E-Governance in Assurance

Statement	VI %	Inef. %	AU %	Effe. %	VE %	Mean	S.D
a) Effectiveness of accessing service delivery process information.	5.7	7.9	29.8	36.2	20.3	3.58	1.075
b) Effectiveness of accessing additional service charge information.	8.2	15.4	30	33.7	12.7	3.27	1.120

Source: Field Survey, 2024

The result of Table 4.3 shows that both aspects have been trending towards positive effectiveness, as their mean values are higher than the midpoint of 3. In the effectiveness of accessing service delivery process information result shows that more than half of the respondents found it either Effective or Very Effective. Only 13.6% found it Ineffective or Very Ineffective. This aspect is rated positively, with a mean score of 3.58. This suggests that most people find it relatively easy to access information about service delivery processes.

Regarding the additional service charge information 46.4% of respondents found it either effective or very effective, 30% responded that as usual which indicates it is not improved, and 23.6% considered it ineffective or very ineffective. Although still viewed positively, this aspect is perceived less favourably, with a mean rating of 3.27. This indicates more difficulty in accessing service charge information compared to service delivery process information. The standard deviations of Accessing information and additional charges of information (1.075 and 1.120) indicate a moderate spread of opinions. The slightly greater standard deviation for additional service charge information reflects different experiences or views when collecting it.

As per the result, some areas of improvement are needed Although these features are generally positive, there is the possibility of improvement, especially for accessing additional service charge information. The higher percentage of negative responses for service charge information (23.6% vs 13.6%) suggests this area might need more attention. The reason for the negative responses is that the service receiver did not follow the digital

citizen charter board that clearly explains the service taking time and charge. Kathmandu Metropolitan City appears to be doing a reasonably good job in providing access to both types of information, there's a clear opportunity to improve, particularly in making service charge information more readily accessible and understandable to Service recipients.

2) Cost of Saving

The effectiveness of E-governance is improving the input-output ratio by cutting financial costs or time costs. Automation reduces costs and boosts efficiency by replacing expensive human labour with cheaper technology. The objective of these questions is to find out whether the e-governance minimises service receivers' costs while taking the service.

Table 4.4

Effectiveness of E-governance in Cost of Saving

Statement	VI	Inef.	AU	Effe.	VE	Mean	SD
a) Effectiveness of the system leads to significant cost savings in service delivery.	5.7	20.6	29.3	32.5	11.9	3.24	1.086
b) Effectiveness of the system in minimizing middleman costs	7.4	13.6	24.3	32.8	21.8	3.48	1.187

Source: Field Survey, 2024

Table 4.4 shows that a significant portion of respondents (32.5%) found the system effective in cost savings, with 11.9% considering it very effective in cost saving for service delivery. However, there's a significant spread of opinions, with 20.6% finding it moderately ineffective, and 5.7% finding it very ineffective. The mean is 3.24, suggesting a moderately positive perception of the system’s effectiveness in achieving cost savings. The standard deviation (SD) of 1.086 indicates some variability in responses but is relatively close to the mean, suggesting that most respondents are centred around the "average" and "effective" categories.

Moreover, A stronger majority of respondents (32.8%) said the approach was effective in reducing middleman costs, with 21.8% saying it was highly effective. Nevertheless, 13.6% thought about it as lightly ineffective, while 7.4% found it highly ineffective and 24.3% rated the system as average in minimizing middleman costs. The mean score is 3.48, indicating a more favourable perception of the system’s effectiveness in minimizing

middleman costs compared to cost savings. The higher standard deviation of 1.187 shows slightly more variability in responses compared to cost savings.

Overall positive perception in both aspects shows mean scores above 3, suggesting that e-governance is perceived as moderately effective in improving public service delivery, particularly in minimizing middleman costs. Middleman cost reduction appears to be a stronger benefit of e-governance compared to overall cost savings in service delivery. The data suggest that the system is generally perceived as effective in both cost-saving and minimizing middleman costs, with more favourable views on the latter. However, the presence of a substantial number of average or negative responses in both areas indicates that while the system has strengths, there are still gaps that need addressing to enhance its overall effectiveness.

3) Reliability

The Philosophy of Reliability in E-Governance is to the consistency, dependability, and stability of the e-governance systems in providing services to the public. reliable e-governance system is one that consistently performs its functions correctly, without failures, and meets the expectations of the users. Table 4.5 shows the reliability of Kathmandu Metropolitan City e-governance reliability in public service delivery.

Table 4.5

Effectiveness of E-governance in Reliability

Statement	VI	Inef.	AU	Effe.	VE	Mean	SD
a) Effectiveness of the system in reducing error rates	7.9	11.7	27.5	35.5	17.4	3.43	1.142
b) Effectiveness of the system in monitoring progress	4.7	18.9	30.8	32	13.6	3.31	1.072

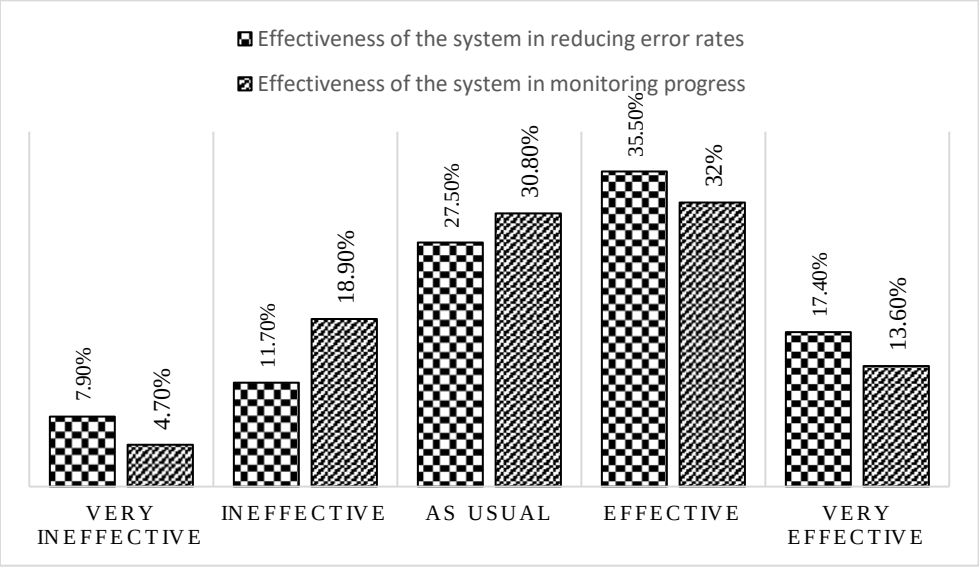
Source: Field Survey, 2024

The data provided offers insights into the perceived effectiveness of an e-governance system in two key areas: reducing error rates and monitoring progress. For error rate reduction, The majority of respondents (52.9%) rated it as either "Effective" (35.5%) or "Very Effective" (17.4%) and (7.9%) of respondents evaluated the system as extremely ineffective, indicating that only a small percentage of users believe the method fails to significantly reduce errors. However, a notable proportion (27.5%) remained neutral,

selecting "As Usual" (AU), implying that more than a quarter of respondents see the system's performance as neither particularly good nor bad. The effectiveness of the e-governance system in reducing error rates was evaluated by respondents, resulting in a mean score of 3.43 with a standard deviation of 1.142. This indicates that the majority of respondents perceive the system as being somewhat effective in this area, though there is considerable variation in responses.

Figure 4.5

Effectiveness of E-governance in Reliability



Source: Field Survey, 2024

Furthermore, Regarding the system's effectiveness in monitoring progress, the mean score is slightly lower at 3.31 with a standard deviation of 1.072. This suggests a perception of moderate effectiveness, with less variation in responses compared to error reduction. The combined percentage of "Effective" and "Very Effective" ratings (45.6%) shows that a significant proportion of users are satisfied with its ability to monitor progress and the negative assessments combined (23.6% for "Very Ineffective" and "Ineffective"). The respondents rated 30.8% of the system as usual, suggesting that nearly a third of users find the system's performance to be middling.

Both items show a similar pattern of responses, with the highest percentages in the "Effective" category, followed by "Average Usefulness." The slightly higher mean and

standard deviation for error rate reduction suggest that this aspect of the system may be perceived as more effective, albeit with greater variability in opinions. These findings indicate that while the system is generally viewed positively for both functions, there is room for improvement, particularly in its progress monitoring capabilities.

4) Satisfaction

Satisfaction is considered an 'experience-specific effect' that results from examining expectations with actual events. In the context of E-Governance Service, satisfaction with the service accessibility, service delivery performance and user experience helps to enhance the effectiveness of service delivery. In the context of this study user experience measured between 1 to 5 scale in easy service delivery satisfaction and overall performance of e-governance through public service delivery.

Table 4.6

Effectiveness of E-Governance in Satisfaction

Statement	VI	Inef.	AU	Effe.	VE	Mean	SD
a) Effectiveness of Easy Service Delivery Satisfaction	4	13.9	28	39.7	14.4	3.47	1.027
b) Effectiveness of Overall Service Delivery Performance Satisfaction.	4.5	14.6	33	34.7	13.2	3.37	1.030

Source: Field Survey, 2024

Table 4.6 illustrates that there are two questions are measured under the variable of Satisfaction. Regarding the effectiveness of easy service delivery satisfaction, a majority of respondents rated it as Effective (39.4%) and Very Effective (14.4%). Only 17.9% found it Ineffective (13.9%) and Very Ineffective (4%). The mean score of 3.47 indicates that, on average, respondents lean towards being satisfied with the ease of service delivery provided by e-governance. This score suggests a moderate level of satisfaction. The standard deviation of 1.027 suggests a relatively moderate spread in responses, indicating that while many respondents are satisfied, opinions vary widely.

In the Effectiveness of overall service delivery performance satisfaction, the mean score of 3.37 is slightly lower than that of easy service delivery, indicating a slightly lower level of satisfaction with the overall performance of service delivery. The respondents are more evenly distributed across the categories, with a higher percentage of As Usual or Netural

responses (33%). The percentage of respondents who find the service delivery effective (34.7%) is slightly lower compared to the easy service delivery satisfaction. However, 14.6% and 4.5% of respondents found it ineffective and Very Ineffective. The standard deviation of 1.030 is similar to the first statement, indicating a similar level of variability in responses.

The overall effectiveness of both aspects demonstrates mean scores above the midpoint (3.0), indicating a generally positive perception of service delivery satisfaction. The ease of service delivery is perceived slightly more positively than overall performance. The data suggests that while there is general satisfaction with e-governance in public service delivery, particularly in terms of ease of service delivery, a significant proportion of the population is either neutral or dissatisfied. This indicates opportunities for policy-makers and service providers to focus on improving overall service delivery performance to achieve higher levels of satisfaction

5) Responsiveness

Responsiveness" refers to the quality or state of being quick to react positively to stimuli, situations, or individuals. In public administration where faster responsiveness means citizens' satisfaction, it is an important factor of modern governance or e-governance. For this paper, the effectiveness of e-governance focuses on measuring the responsiveness of a customer's demand towards a public service delivery which may provide the citizens perceptions of service delivery of E-governance and effective service delivery of Kathmandu Metropolitan City.

Table 4.7

Effectiveness of E-Governance in Responsiveness

Statement	VI	Inef.	AU	Effe.	VE	Mean	SD
a) Effectiveness of KMC in Providing Timely Responses to Inquiries.	5	17.6	31.8	30.8	14.9	3.33	1.083
b) Effectiveness in Addressing User Feedback and Concerns on Time.	6.7	21.3	26.6	33.5	11.9	3.23	1.116

Source: Field Survey, 2024

The data presented reflects respondents' perceptions of the effectiveness of Kathmandu Metropolitan City (KMC) in providing timely responses to inquiries and addressing user feedback and concerns. Effectiveness of KMC in Providing Timely Responses to Inquiries Responses indicate a varied perception among the participants. A small proportion of respondents (5%) rated KMC as "Very Ineffective" in providing timely responses to inquiries, while a more significant portion (17.6%) found it "Ineffective." The majority of respondents rated KMC as either "Average" (31.8%) or "Effective" (30.8%), with a smaller segment (14.9%) considering it "Very Effective. The mean score is 3.33 which suggests that, on average, respondents view the effectiveness of KMC in this regard as slightly above average, leaning towards effective. The standard deviation of 1.083 indicates a moderate level of variability in the responses, implying that while many respondents see KMC as effective, there are varying opinions on the extent of this effectiveness.

Effectiveness in Addressing User Feedback and Concerns on Time data shows a similar distribution pattern as the previous statement. Here, 6.7% of respondents rated KMC's effectiveness in addressing feedback and concerns as "Very Ineffective," with 21.3% rating it as "Ineffective." A significant portion (26.6%) viewed the performance as "Average," while 33.5% rated it as "Effective," and 11.9% as "Very Effective." The mean score of 3.23 is slightly lower than the previous metric, indicating that respondents generally perceive KMC's effectiveness in addressing user feedback as closer to average. The standard deviation of 1.116 suggests a slightly higher variability in responses compared to the previous statement, indicating a broader range of perceptions among the respondents.

Overall, Both aspects show mean scores slightly above the midpoint (3.0), indicating a moderately positive perception of effectiveness. The mean scores of 3.33 and 3.23 suggest room for improvement in both areas. Timely responses to inquiries are perceived somewhat more positively than addressing user feedback and concerns, but not overwhelmingly positive. This analysis highlights the need for KMC to focus on improving consistency in its response times and the handling of user feedback to enhance overall satisfaction. Addressing the concerns of the segments of the population that perceive KMC's effectiveness as inadequate could lead to a more universally positive perception of its e-governance initiatives.

Table 4.8

Summary Table of Five Indicators

Variables	Number (N)	Minimum	Maximum	Mean	Std.	Std. Error of Mean
Assurance	403	1.00	5.00	3.4243	.95865	.04775
Cost of Saving	403	1.00	5.00	3.3610	.94726	.04719
Reliability	403	2.50	4.50	3.6551	.53615	.02671
Satisfaction	403	1.00	5.00	3.4206	.92365	.04601
Responsiveness	403	1.00	5.00	3.2779	.98417	.04903

Source: Field Survey, 2024

Table 4.8 shows a statistical summary table for five different variables: Assurance, Cost, Reliability, Satisfaction, and Responsiveness. The total number of valid responses for each variable is 403. The mean represents the average score for each variable where Reliability has the highest mean (3.6551), while Responsiveness has the Lowest mean (3.2779). The Standard Error of Mean indicates the precision of the mean estimate. Lower values suggest more precise estimates. It also shows that reliability is the best indicator of the effectiveness of e-governance in service delivery. Standard Deviation (Std. Mean) measures the spread of data around the mean. Reliability has the smallest spread (0.53615), while Responsiveness has the largest (0.98417). The Minimum and Maximum show the range of responses. Most variables range from 1.00 to 5.00, except for Reliability which ranges from 2.50 to 4.50. Overall, this table provides a comprehensive statistical overview of these five variables, likely from a survey. Reliability has the highest mean score and the lowest standard deviation, suggesting it's rated most positively and consistently. Responsiveness has the lowest mean score and highest standard deviation, indicating more varied and generally lower ratings.

4.4 Barriers to Accessing E-governance Services

This stage helped in identifying the barriers to accessing e-governance service including nine major questions which may pose barriers to receiving services in the E-governance of public service delivery in KMC and also identifying the key barriers that may affect the easy service delivery of KMC. The study conducted a comparative analysis. Barriers and

Opportunities are the two sides of the coin. The illustration not only represented present practices, however it also highlighted the concerns and obstacles related to e-governance. The data analysis and findings are detailed in the following sections, which reflect challenges and barriers based on respondents' answers to the questions. This research is based on nine questions and the survey involved 403 respondents. The rates were (1: Strongly disagree, 2: Disagree, 3: Neutral, 4: Agree, and 5: Strongly Agree) which is evaluated by the respondents. The table below shows the Mean, Standard deviation (Std.) and Standard error of the respondents' mean.

Table 4.9

Barriers to accessing E-governance Service

Statements	N	Min	Max	Mean	Std. Error of Mean	Std.
The public finds the KMC service and KMC app to be not easy to use.	403	1	5	2.88	.059	1.186
The Public finds online service is not user-friendly.	403	1	5	2.83	.056	1.127
The public finds the language of communication hard to understand.	403	1	5	2.44	.060	1.202
The public finds the behaviour of service providers is a hassle/ Problem.	403	1	5	2.66	.063	1.255
The public finds a lack of budget for public awareness of online service delivery	403	1	5	3.06	.057	1.146
The public finds a lack of trust and less protection of user rights in service delivery	403	1	5	2.99	.056	1.122
The public can unable communicate with their Service provider through the online system beyond office time.	403	1	5	3.13	.058	1.173
The public finds a shortage of ICT for service delivery	403	1	5	2.97	.057	1.140
The public experienced technical problems (e.g., website crashes, and slow loading times) when trying to access e-services	403	1	5	3.47	.063	1.268

Source: Field Survey, 2024

Table 4.9 data shows that by identifying the main types of barriers citizens encounter when accessing e-governance services, the data analyse the mean scores for each statement. Higher mean scores indicate more significant barriers the discussion of obstacles as per

them in order of importance. The mean scores ranged from 2.44 to 3.47, with standard deviations indicating a moderate spread of opinions across all items. The most significant barrier appears to be technical problems, with a mean score of 3.47 and the largest standard deviation is 1.268 for technical problems like website crashes, and slow loading times. This indicates that a wide range of users faced severe technical issues, others may have had better experiences. The Key Informant Interview (KII) revealed that server crashes stem from the central government's control of all systems. To address this, Kathmandu Metropolitan City (KMC) working to establish its server system. The respondents found the second major barrier is the inability to communicate with service providers outside office hours with a mean value of 3.13 and a Standard Deviation is 1.173. This raises concerns about the 24/7 availability of e-governance systems, which is one of its primary benefits.

Moreover, The public finds a lack of budget for public awareness of online service delivery statements mean value is 3.06 which is the third highest barrier of KMC service receiver. It also means that not enough resources are allocated to promote and educate the public about e-governance services. Inadequate public awareness regarding e-governance can lead to Increasing the digital divide as well as increase the trust and burden in traditional service channel. Several hurdles to e-governance services are linked, resulting in compounded effects. For example, the modest scores for ease of use (2.88) and user-friendliness (2.83) are likely to contribute to trust difficulties (2.99), as difficult-to-navigate systems can make consumers concerned about their security and reliability. Also, a lack of ICT infrastructure (2.97) may be creating the technical issues identified (3.47), implying that increasing infrastructure could improve overall system reliability. Finally, while language difficulties received the lowest score (2.44), it nevertheless degrades user experience, making it difficult for users to navigate the services effectively. Addressing these interrelated hurdles could significantly increase the overall effectiveness of e-governance. The data indicates probable demographic differences, however, they are not mentioned. Older people or those who are less familiar with technology could be dealing with user experience difficulties. They may find the technology difficult to use or understand.

Additionally, language barriers could disproportionately affect non-native speakers or less educated segments of the population. These individuals may have difficulty understanding the instructions or content, which could hinder their ability to fully utilize the technology.

In conclusion, this analysis indicates a complex interaction of technical, and interpersonal factors hindering the effective implementation of e-governance. Overcoming these issues requires an integrated strategy that covers both the technical aspects of service delivery and citizens' diverse necessities. By managing these issues systematically, Kathmandu Metropolitan City can work toward more accessible, effective, and reliable e-governance systems.

4.5 Relation between E-governance and Demographic Characteristics

To evaluate the factors that affect the effectiveness of e-governance systems, this study uses the Logit model, a type of logistic regression designed for binary outcomes. Given that the dependent variable in this study the effectiveness of e-governance is binary (i.e., evaluated as effective or ineffective), the Logit model is particularly matched. This model allows for the examination of how various independent variables, particularly ICT skills, Age, Education and Gender contribute to the probability of e-governance systems being perceived as effective by service receivers.

Table 4.10

Description of the Variables Used in the model

Dependent Variable	
Effectiveness of E-Governance	Assurance
	Cost of Saving
	Reliability
	Satisfaction
	Responsiveness
Independent Variables	
ICT Skill	The skill of ICT is Excellent, Very Good is denoted by Excellent Group, very poor and Poor are Poor and Good is the Based of analysis.

Age	The Age Groups 16 to 25 (Young), 25-35, 35-45, (Mid) based group, and 45-55 55 and 55 Above (Old)
Education	The education Higher is Bachelor, Master and Above, Primary is Below SLC and No education Group and the Intermediated is Based.
Gender	The Female is Based

Table 4.10 illustrates that the dependent variable is the Effectiveness of E-Governance which has five indicators (Assurance, Cost of Saving, Reliability, Satisfaction and Responsiveness) which are measured in Very effective and effective "1" and Very Ineffective, Ineffective and as usual "0". The Independent variables are ICT skills, Age, Gender, and Age.

Table 4.11

Effectiveness of E-Governance for Five Indicators

Model 1: Effectiveness of E-Governance for Five Indicators			
Dependent Variable 1= Effectiveness of e-governance for Five Indicators			
Variables		**Estimate**	**Odd_ratio**
ICT Skills	Excellent	0.586**	1.798
	Poor	-0.069	0.908
Age	Old	0.711*	2.037
	Young	-0.502**	0.605
Education	Higher	0.322	0.724
	Primary	-0.188	0.828
Gender	Male	-0.528**	0.589
R^2		0.12	
Log-likehood2		-248.70 (df=8)	
Chi-square (χ^2)		20.55 (0.004)	

*Source:*Author's Calculation based on Survey Data, 2024

Table 4.11 demonstrates that the model indicates that individuals with Excellent ICT skills are significantly more likely to perceive e-governance as effective (Estimate = 0.586, Odds Ratio = 1.798, $p < 0.01$). This suggests that those with Excellent or Very Good ICT skills are more likely to find e-governance effective compared to those with good skills. However, Poor ICT skills negatively impact the perception of e-governance effectiveness, although this result is not statistically significant. The results reveal that the "Old" age group is significantly more likely to perceive e-governance as effective. This indicates that older individuals are more likely to view e-governance positively compared to those in the mid-age group. The reason for their satisfaction might come from the perceived progress and modernization of public services. On the other hand, the "Young" age group is significantly less likely to perceive e-governance as effective compared to the mid-age group. They may become dissatisfied with slow technological adoption or poor systems. They frequently anticipate smoother, faster digital solutions in many aspects of life. The results demonstrate that males are significantly less likely to perceive e-governance as effective. This suggests that males are less likely to find e-governance effective compared to females. The reason the males found it ineffective is that they might have higher expectations for technological solutions, influenced by their experiences with other advanced digital services. The model's goodness-of-fit is evaluated using the R^2 value, which is 0.12, indicating that the independent variables explain 12% of the variance in the effectiveness of e-governance. The log-likelihood value is -248.70 with 8 degrees of freedom, and the Chi-square (χ^2) statistic is 20.55 ($p = 0.004$). The Chi-square value indicates that the model is a good fit, meaning that the independent variables have a statistically significant impact on the success of e-governance.

Overall, This logit model analysis underscores the critical role of ICT skills, age, and gender in shaping perceptions of e-governance effectiveness. Specifically, Excellent ICT skills and being in the old age group are associated with higher perceived effectiveness, while being Young or male is associated with lower perceived effectiveness. The findings highlight the importance of improving ICT skills across age categories and addressing gender inequities to increase the effectiveness of e-governance initiatives.

Table 4.12

Effectiveness of E-Governance for Assurance, Cost of Saving and Reliability

Model 2: Effectiveness of E-Governance for Specific Three			
Dependent Variable 1= If Effectiveness of e-governance for Assurance, Cost of Saving and Reliability			
Variables		**Estimate**	**Odd_ratio**
ICT Skills	Excellent	0.991***	2.695
	Poor	-0.488	0.613
Age	Old	0.811**	2.252
	Young	-0.450*	0.637
Education	Higher	-0.564**	0.568
	Primary	-0.433	0.648
Gender	Male	-0.508**	0.601
R^2		0.136	
Log-likehood2		-262.48 (df=8)	
Chi-square (χ^2)		31.61 (0.000)	

Source: Author's Calculation based on Survey Data, 2024

According to the table, the logit model examines the effectiveness of e-governance (assurance, cost of saving and reliability) by considering various independent variables such as ICT skills, age, education, and gender. The logit model uses these three indicators among the five to measure the effectiveness of e-governance. The uses of the SERVQUAL model to determine the effectiveness of its service delivery by measuring service quality. It has five common factors and among the five two of the factors are selected (Assurance and Reliability) which is developed by (Parasuraman et al., 1985). The reason for selecting another indicator 'cost of saving' is that The European Commission launched the E-Government Economics project (e-GEP) in 2005, aiming to measure cost-effectiveness in service delivery, based on various public administration paradigms, to ensure effective service delivery.

The model shows a positive and statistically significant effect of ICT skills on the effectiveness of e-governance. It indicates that individuals with excellent ICT skills are

significantly more likely to perceive e-governance as effective than the base group of ICT skills. However, the negative estimate is shown in the poor ICT skills, which are less likely to find e-governance effective than the base group. The positive estimate of 0.811 with an odds ratio of 2.252 implies that older individuals are more likely to perceive e-governance as effective than the base group ('Mid' age group of 25-45). In contrast, the younger age group (16-25) demonstrates a negative perception, less likely to view e-governance as effective, with an estimate of -0.450 and an odds ratio of 0.637 compared to the mid-aged group. Higher education levels negatively impact the perception of e-governance effectiveness, with an estimate of -0.564 and an odds ratio of 0.568 compared to the intermediate-level group. Individuals with primary education also view e-governance less positively, with an estimate of -0.433 and an odds ratio of 0.648 compared to those with intermediate education. Compared to the base group (females), males show a negative estimate of -0.508 and an odds ratio of 0.601. This indicates that males are less likely to perceive e-governance as effective than females.

The R^2 value of 0.136 suggests that the model explains only a small portion of the variance in the perceived effectiveness of e-governance, indicating that other unaccounted factors may influence this perception. The log-likelihood of -262.48 and the significant chi-square statistic of 31.61 ($p < 0.05$) suggest that the model overall is statistically significant and fits the data well. The analysis highlights the significant role of ICT skills and age in influencing perceptions of e-governance effectiveness. Specifically, excellent ICT skills and older age positively impact the perception of e-governance effectiveness, while higher education and being male negatively affect it. Despite the significance of these variables, the model's low R^2 suggests that additional factors should be explored to fully understand the determinants of e-governance effectiveness in the context of assurance, cost-saving, and reliability.

Table 4.13

Effectiveness of E-Governance for Assurance

Model 3: Effectiveness of E-Governance for Assurance			
Dependent Variable 1= If Effective or Very Effective in accessing information or additional charge information			
Variables		**Estimate**	**Odd_ratio**
ICT Skills	Excellent	0.88***	2.42
	Poor	0.031	0.92
Age	Old	-0.042	0.95
	Young	-0.253	0.77
Education	Higher	-0.67**	0.511
	Primary	-0.018	0.98
Gender	Male	-0.503	0.60**
R^2		0.04	
Log-likehood2		-252.21 (df=8)	
Chi-square (χ^2)		20.97 (0.003)	

Source: Author's Calculation based on Survey Data, 2024

According to the above table, Showa the logit model evaluates the effectiveness of e-governance in assuring citizens, particularly in accessing information or additional charge-related information. The dependent variable is binary, where a value of 1 indicates that the respondent finds the system effective or very effective. The assurance indicator has two questions one of them is considered effective or very effective which is assumed in the logit model. An increase in ICT skills to the "Excellent" level significantly increases the likelihood of finding e-governance effective, which suggests that those with excellent ICT skills are likely to perceive e-governance as effective compared to those with good ICT skills. Those with poor ICT skills are less likely (odd ratio of 0.92) to find the system effective than those with good ICT skills, although the effect is not statistically significant. Individuals with higher education are significantly less likely to find e-governance effective. This finding suggests that those with higher education levels have higher expectations or are more critical of the e-governance systems. Those with primary

education have a similar likelihood (0.98) of finding the system effective compared to those with intermediate education, with no little difference. In comparison, men are much less likely than women to think the system is effective. The statistically significant negative estimate indicates that gender affects the effectiveness of e-governance, with females possibly finding it to be more so. The model explains only 4% of the variance in the dependent variable, indicating that other factors not included in the model may be influencing the effectiveness of e-governance.

The results reveal that ICT skills, education, and gender significantly impact perceptions of e-governance effectiveness, with excellent ICT skills positively influencing effectiveness ratings, while higher education and male gender have negative effects. However, the low R^2 value indicates that there are other important factors not captured by this model that affect the perception of e-governance effectiveness.

Table 4.14

Effectiveness of E-Governance for Cost of Saving

Model 4: Effectiveness of E-Governance for Cost of Saving			
Dependent Variable 1= If Effective or Very Effective in Cost Saving or minimizing middleman cost			
Variables		**Estimate**	**Odd_ratio**
ICT Skills	Excellent	0.941***	2.56
	Poor	-0.951***	0.386
Age	Old	0.394	1.48
	Young	-0.514	0.597
Education	Higher	-0.295	0.744
	Primary	0.552	1.73
Gender	Male	-0.338	0.713
R^2		0.053	
Log-likehood2		-245.14 (df=8)	
Chi-square (χ^2)		27.68 (0.000)	

Source: Author's Calculation based on Survey Data, 2024

According to the table, people with Excellent ICT skills are more likely to identify e-governance as effective. The estimate of 0.941 ($p<0.01$) suggests that those with excellent ICT skills view e-governance as effective compared to those with good ICT skills (the base group). On the other hand, People who aren't good with technology are much less likely to think online government services work well. The results indicate that respondents with poor ICT skills are less likely to view e-governance as useful than those with good ICT skills. Their limited digital literacy can lead to frustration, longer processing times, and an overall negative experience, making them perceive e-governance as less effective in meeting their needs. The R^2 value is 0.0530, which indicates that the model explains approximately 5.3% of the variance in the dependent variable. This model highlights the critical role of ICT skills in determining the perceived effectiveness of e-governance in cost-saving and minimizing middleman costs. Specifically, those with excellent ICT skills are significantly more likely to find e-governance effective.

Table 4.15

Effectiveness of E-Governance for Reliability

Model 5: Effectiveness of E-Governance for Reliability			
Dependent Variable 1= If Effective or Very Effective in reducing error rate or monitoring the progress of the system			
Variables		**Estimate**	**Odd_ratio**
ICT Skills	Excellent	1.231***	3.42
	Poor	-0.357	0.699
Age	Old	0.753*	2.123
	Young	-0.284	0.752
Education	Higher	-0.236	0.789
	Primary	-0.511	0.597
Gender	Male	-0.321	0.725
R^2		0.051	
Log-likehood2		-241.64 (df=8)	
Chi-square (χ^2)		26.43 (0.000)	

*Source:*Author's Calculation based on Survey Data, 2024

The current study used a logistic regression model to examine the success rate of e-governance in reducing error rates or monitoring the progress of the system. Represents respondents with very good or excellent ICT skills group shows a significantly positive impact on the effectiveness of e-governance, with an estimate of 1.231. It also indicates that persons with strong ICT abilities are more likely to accept e-governance as effective in decreasing errors. The coefficient for poor ICT abilities is negative, indicating that persons with a lack of technology are less likely to see the system as useful than those with good skills. Older respondents (aged 45 and above) are more drawn to rate the e-governance system as effective. The positive coefficient and significant p-value ($p < 0.05$) indicate that older age groups are very likely to think of the system as reliable, with an odds ratio of 2.123, suggesting that they are more likely to consider the system as effective than the intermediate age group (25-45 years). The study found that younger people tend to think the system is a bit less effective compared to the Intermediate age group. However, this difference is small and not statistically significant. This means that Young people of KMC might place more importance on different aspects of the system, such as user interface design or speed, rather than on error reduction or monitoring features.

The model's R^2 value is 0.051(5.1%), indicating a relatively low proportion of the variance in the dependent variable explained by the independent variables. The log-likelihood value of -241.64 and a chi-square value of 26.43 ($p < 0.001$) suggest that the model is statistically significant overall.

The summary based on this logit results in a model that asserts that ICT skills are influential in determining perceptions of the effectiveness of e-governance. The likelihood of perceiving e-governance as effective increases with higher skills. Education and gender, but not age, manifest significant influences in the model. This model seems to suggest that building ICT skills among users will likely be a key strategy for enhancing users' perceived effectiveness of e-governance systems.

Table 4.16

Effectiveness of E-Governance for Satisfaction

Model 6: Effectiveness of E-Governance for Satisfaction			
Dependent Variable 1= If Effective or Very Effective in easy service delivery or overall service delivery performance			
Variables		**Estimate**	**Odd_ratio**
ICT Skills	Excellent	0.795***	2.215
	Poor	-0.285	0.751
Age	Old	0.054	1.05
	Young	-0.454	0.634
Education	Higher	-0.339	0.71
	Primary	-0.008	0.99
Gender	Male	-0.369*	0.690
R^2		0.03	
Log-likehood2		-255.18 (df=8)	
Chi-square (χ^2)		15.03 (0.03)	

Source: Author's Calculation based on Survey Data, 2024

The logit model investigates the effectiveness of e-governance in terms of user satisfaction, focusing on how various independent. Strong ICT skills among a population are positively correlated with the effectiveness of e-governance. The estimate suggests that individuals with excellent ICT skills are significantly more likely to find e-governance effective. The odds ratio indicates that their likelihood of satisfaction is more than that of those with good ICT skills, who serve as the base group. People with Poor ICT skills are less likely to find electronic governance effective than those with good ICT skills. This group shows a negative relationship with e-governance satisfaction, indicating a lower probability of considering e-governance systems useful. Being male is associated with a significantly lower likelihood of perceiving e-governance as effective. Men are less/ likely than women to find e-governance systems efficient. This gender difference is statistically significant, with women serving as the baseline group for comparison. The R^2 value of 0.03 (3%)

suggests that the model explains only a small portion of the variability in the dependent variable.

ICT skills strongly influence e-governance satisfaction, with highly skilled users being most satisfied. Age and education have modest effects, while women tend to view e-governance more favourably than men. However, the model's low explanatory power suggests other unexplored factors also impact e-governance satisfaction.

Table 4.17

Effectiveness of E-Governance for Responsiveness

Model 7: Effectiveness of E-Governance for Responsiveness			
Dependent Variable 1= If Effective or Very Effective in timely response to an inquiry or addressing feedback concern on time			
Variables		**Estimate**	**Odd_ratio**
ICT Skills	Excellent	0.065	1.068
	Poor	-0.257	0.773
Age	Old	0.835**	2.306
	Young	-0.143	0.866
Education	Higher	-0.289	0.748
	Primary	0.129	1.138
Gender	Male	-0.405*	0.67
R^2		0.02	
Log-likehood2		-269.26 (df=8)	
Chi-square (χ^2)		13.16 (0.06)	

Source: Author's Calculation based on Survey Data, 2024

The provided Logit model evaluates the relationship between several independent variables (ICT skills, age, education, and gender) and the dependent variable, which measures the effectiveness of e-governance in timely responding to inquiries or addressing feedback concerns. Older individuals (aged 45 and above) are more likely to find e-governance responsive than the mid-age group (25-45). The significant positive estimates suggest that older service receivers are more likely to perceive e-governance systems as effective. On the other hand, Young adults, aged between (16-25), are somewhat less likely to view e-

governance as effective compared to the mid-age group. This group shows a slightly negative relationship with e-governance satisfaction. The old age group was found more effective than the remaining two age groups cause Older users may interact with e-governance services less often, potentially leading to a stronger positive impression when they do use these efficient systems, which could result in higher perceived responsiveness. Males are less likely to find e-governance systems responsive than females. The significant negative estimate indicates that males may perceive e-governance systems as less effective in responsiveness.

The value of R^2 (0.02) suggests that the model explains only 2% of the variance in the effectiveness of e-governance for responsiveness. This indicates a relatively low explanatory power. The Log-likelihood is -269.26 with 8 degrees of freedom, and the Chi-square (χ^2) value is 13.16 with a p-value of 0.06. This suggests that the model is not a very strong fit, as the p-value is marginally above the common significance threshold of 0.05. Accordingly, it is established that older and less educated people consider e-governance systems to be more responsive. On the other side, males, younger people, and more educated persons are less likely to consider e-governance systems effective in terms of responsiveness. There is also a presence of influence from ICT skills, but compared to age or gender, this impact is not very strong. The overall feeling that filters from the model is about demographic factors influencing the perceived effectiveness of the e-governance systems in response to public inquiries and concerns.

4.6 Evaluating Service Satisfaction and Recommendations for Expedited Service Delivery

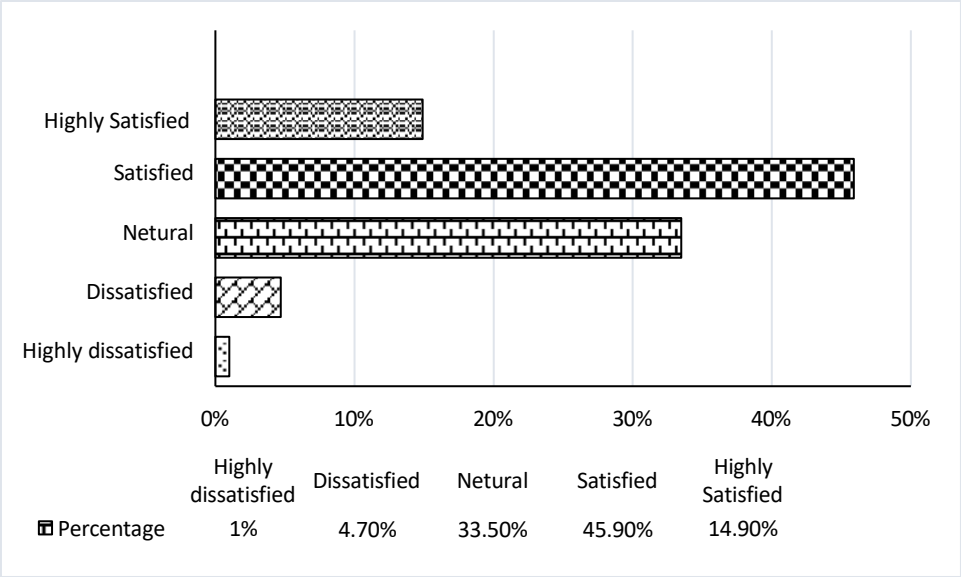
Evaluating service satisfaction is vital for improving public service delivery. This analysis explores how satisfied users are with current services and gathers their suggestions for speeding up delivery. By focusing on these two areas, the study aims to offer practical strategies for enhancing both the efficiency and quality of service delivery.

4.6.1 Evaluate the Satisfaction of Citizens from Service Delivery

This data provides insight into customer satisfaction levels regarding a service received. The sample size of 403 respondents offers a reasonable basis for analysis.

Figure 4.6

Satisfaction of Citizens from Service Delivery



Source: Field Survey, 2024

The above bar diagram Figure 4.6 Shows the predominantly positive trend in customer satisfaction. A significant majority of respondents reported being either "Satisfied" (45.9%) or "Highly Satisfied" (14.9%) with the service. This significant percentage suggests that the service effectively met the expectations of most respondents, reflecting positively on its quality and delivery. However, the satisfaction distribution is not uniform, as a substantial minority of respondents expressed varying levels of dissatisfaction. Specifically, 4.7% were "Dissatisfied," and 1% were "Highly Dissatisfied," totalling 5.7% of the respondents who had a negative experience. Interestingly, 33.5% of respondents remained "Neutral," indicating that a significant portion neither fully endorsed nor criticized the service.

Moreover, most of the natural percentage is that from the Good Skill of ICT. Those with "Good" skills might have higher expectations that aren't fully met, resulting in neither satisfaction nor dissatisfaction. To improve the effectiveness and satisfaction of e-service government should be focused on the mid-range ICT skill expectation.

Overall, while the service appears to have successfully satisfied a majority of respondents, the analysis highlights the importance of addressing the concerns of the dissatisfied

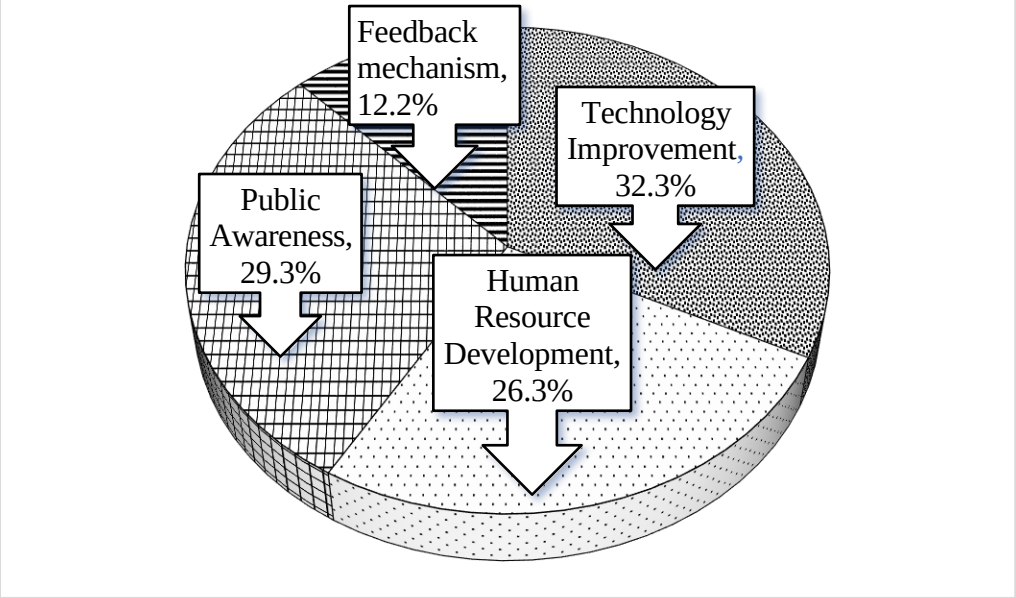
minority and converting neutral perceptions into positive experiences to achieve a more universally satisfying service outcome.

4.6.2 Evaluating the Recommendations for Expedited Service Delivery

The data presented provides insights into suggested strategies for improving service delivery speed. It categorizes responses into four main areas: Technology Improvement, Human Resource Development, Public Awareness, and Feedback Mechanism, offering a snapshot of preferences among 403 respondents.

Figure 4.7

Recommendations for Expedited Service Delivery



*Source:*Field Survey, 2024

Figure 4.7 indicates a pie chart of clear preference among respondents for technological solutions to enhance service delivery speed, with 32.3% favouring Technology Improvement. This suggests a belief that technological advancements could significantly streamline processes and reduce delays. However, it's noteworthy that Human Resource Development and Public Awareness follow closely, at 26.3% and 29.3% respectively, indicating a recognition that human factors and public engagement are also crucial for improving service delivery. The relatively low preference for Feedback Mechanism

(12.2%) is interesting and potentially concerning, as it may indicate an undervaluation of the role of customer input in service improvement.

Moreover, The highest number of respondents favoring Technology Improvement falls in the "Good" ICT skill category (75 respondents). This suggests that individuals with moderate to proficient ICT skills are most likely to see technology as a viable solution for service improvement.

Overall, this suggests that efforts to improve service through technological means might be most readily accepted and championed by those with moderate to good ICT skills. However, it also hints at the need for a balanced approach, as even those with excellent ICT skills don't universally see technology as the primary solution for faster service delivery.

4.7 Overview of Key Information Interview

Key informant interviews (KIIs) were conducted with nine municipal officials to gain deeper insights into e-governance initiatives from the perspective of service providers, adding valuable context to the research. The questionnaire of KII is based on Appendix II.

The metropolitan has adopted a dual approach to e-governance, employing both common and specially designed digital applications. Common applications, enforced across various departments, include the municipal website and social media platforms for public information dissemination, online systems for job and training applications, and E-Tippani for internal communication. Additionally, the implementation of a real-time Instant Payment System (IPS) via Connect IPS has enhanced the efficiency of financial transactions.

Specialized systems have been developed to address specific service needs. Notable among these is the Electronic Building Permit System (E-BPS), which has streamlined the process of obtaining building permits. The municipality has also implemented Electronic Fund Transfer (EFT) for chequeless payments, improving the security and efficiency of financial transactions. Furthermore, a Revenue Determine model is currently in its pilot phase.

Research findings from key informant interviews reveal mixed sentiments regarding the progress of e-governance implementation in the department/KMC. While some

respondents acknowledge good practices and improvements, overall satisfaction levels appear low. The main reasons for dissatisfaction include the lack of an integrated maintenance system, user-unfriendly interfaces of new systems that reduce effectiveness, and a perception that e-governance exists more in name than in practice. Major challenges identified encompass ICT service issues, data centre and security concerns, and emerging technological challenges such as AI integration, software and hardware problems, and server-related issues. These insights suggest that while e-governance initiatives are underway, there are significant areas for improvement in terms of system integration, user experience, and technological infrastructure.

The several technical and human resource challenges in implementing e-services within the department/KMC. A primary concern is the lack of technical knowledge among staff, compounded by varying levels of IT expertise. This disparity is hindering the transition to full automation of work processes. The interviews also revealed a preference among many staff for traditional paper-based services, indicating resistance to digital transformation. Other identified issues include delays in work execution, degradation of work quality, poor communication, and obstacles in achieving organizational objectives due to technological limitations. Respondents suggested that e-service development should be prioritized as a key objective in service delivery. Additionally, there's a call for more targeted, course-based computer training for staff, addressing specific needs and demands rather than generic IT education. Notably, some respondents expressed concern that the current state of e-services is not meeting citizen expectations. These findings underscore the need for comprehensive strategies to enhance computer literacy, align human resources with technological requirements, and foster a culture of digital adoption to improve e-service delivery and citizen satisfaction.

Limited initiatives by the KMC and its departments to enhance digital literacy among citizens, with efforts primarily focused on improving user interfaces, creating promotional videos, and coordinating with government and stakeholders. Most departments are not actively engaged in digital literacy initiatives, with some only in the planning stages to address this gap, indicating a lack of comprehensive strategies to boost citizens' digital skills and promote e-governance tool adoption.

There is a Mixed perception of security in the current e-governance system at KMC, with several challenges identified at the local level. While some respondents believe the system is partially secure, others point to significant cybersecurity and information security concerns. The main challenges include the need for local servers to be connected with a centralized system, integration with a central government data centre, and ensuring that payment partners are government entities. Respondents also highlighted issues such as insufficient capacity for security management, unreliable power supply, vulnerability to hacking and information theft, and a lack of skilled manpower in cybersecurity. Despite these challenges, some interviewees noted that the use of the Nepal government's cloud infrastructure provides a level of security.

Several legal challenges in implementing e-governance at the Kathmandu Metropolitan City (KMC) level. A primary issue is the absence of a dedicated ICT act for local governments, with e-governance initiatives primarily guided by central government policies. This lack of local-specific legislation creates a gap in addressing unique municipal needs and challenges. Additionally, despite the push for digital transformation, there is a reported reluctance among government entities to fully accept e-signatures, digital documents, and services, indicating a disconnect between technological advancements and legal recognition. The interviews also revealed that existing cyber laws are primarily focused on the federal level, leaving a regulatory vacuum at the local level. KMC has not formulated its cyber procedures, potentially leaving it vulnerable to various cyber risks. Furthermore, issues surrounding data ownership, access, recovery, and maintenance were identified as areas of legal concern. These findings suggest a need for comprehensive legal frameworks tailored to local e-governance needs, enhanced recognition of digital processes, and clearer guidelines on data management to support effective e-governance implementation at the municipal level.

KMC is rarely aligned with the E-Governance master plan. Key informant interviews revealed a need for amendments to the e-Governance Master Plan (EGMP) at the local government level. Respondents note that while the EGMP is designed for all three tiers of government, it lacks sufficient input from local stakeholders. Prioritizing public service delivery in the EGMP is recommended, as it is currently seen as a challenge. However,

there is scepticism about the value of amendments since the plan is often viewed as existing mainly on paper, with limited implementation.

Mixed citizen feedback on e-governance services, primarily collected through a complaint hotline during office hours. Common issues reported include slow or non-functional systems, incomplete applications, and a need for regular updates. Some citizens view these new systems as a difficulty, particularly when dealing with development-related or legal matters. Notably, many still prefer traditional, non-digital methods due to the perceived lack of user-friendliness in e-governance services.

There are varied plans for enhancing e-governance initiatives in KMC's public service delivery. These include improving ICT quality through better resource management, developing new software like E-rental services, establishing a data centre, and expanding digital services such as a Digital Metro card. There's also a focus on employment-related training and overall digitalization efforts. However, most initiatives are based on yearly plans, with some departments lacking mid-term and short-term strategies.

Based on the KII, KMC and their department are also planning to make user-friendly and digitalization service delivery. They also manage complaints which helps to be transparent and accountable in their service delivery process. Overall, They seem to be doing the least they can from their place, but many things are missing. The suggestions as per the requirements are a need for more comprehensive, long-term planning to ensure sustained development of e-governance services across all municipal departments.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of the Findings

The primary goal of e-governance is to simplify and improve governance for all stakeholders, including the government, citizens, and businesses. The study's key objective is to examine the effectiveness of e-governance through public service delivery in Kathmandu Metropolitan City.

The effectiveness of e-governance service delivery by KMC is evaluated using five key indicators, each comprising two questions. These questions are rated on a Likert scale ranging from 1 (Very ineffective) to 5 (Very effective). The average score for each indicator is calculated based on its two associated questions. The findings of the result presented in Table 4.8, reveal that the effectiveness of e-governance in service delivery by KMC is moderate it is neither exceptionally poor nor outstanding. All five indicators average above 3.2 suggesting a level of performance approaching effectiveness. However, some major indicators surpass the mean value, indicating effective service delivery from the user's perspective. Thus, the current study demonstrates that KMC's e-governance service delivery is generally effective. The current result indicates a reasonably successful use of e-governance techniques in service provision, however, there is still potential for improvement.

To address the key barriers faced by citizens while receiving services through e-governance have nine questions. The analysis of these questions was also used similarly to research question one. The result of the findings is shown in Table 4.9, which presents the barrier to e-governance while taking service from KMC is more or less a barrier. The average of nine barrier questions is from 2.44 to 3.47 where 2.44 is less barriers and increases in ascending order. Citizens frequently experience technical issues such as website crashes and slow loading times when receiving e-services. These findings suggest that both technical and non-technical factors significantly impact the effectiveness of e-governance services, requiring a multifaceted approach to address these issues.

Moreover, The analysis was made in line with the analytical framework that identified four independent variables: ICT skills, Age, Education and Gender impact of the effectiveness of e-governance. It has been found that ICT skills play a critical role in shaping perceptions of the effectiveness of e-governance in public service delivery. In particular, citizens having excellent ICT skills believe much more in the effectiveness of e-governance. This study indicates that basic ICT skills insufficiently influence e-governance effectiveness perceptions, suggesting a need for advanced digital literacy to enhance the effective use of e-governance services. Demographic factors like age and gender also play significant roles, with older individuals and females more likely to perceive e-governance positively, potentially due to varied usage patterns and expectations. The model's R^2 value is 0.12, indicating that approximately 12% of the variance in the effectiveness of e-governance is explained by the independent variables in this model.

5.2 Conclusion

E-governance is the rapid growth of digital technology which transforming global society. The Nepal government is transitioning its services from paper-based to digital platforms, focusing on a shift towards technology-driven solutions. Additionally, the government is prioritizing citizen-centric services, ensuring that essential services are accessible through the 753 local governments and their respective wards. Kathmandu Metropolitan City also contributes to citizen-centric services through its e-governance initiatives.

The study has analysed the effectiveness of E-governance-based public service delivery and barriers to e-governance in terms of the service receiver's point of view. Data analysis revealed that assurance, reliability and satisfaction are associated with the effectiveness of e-governance. However, Service seekers found that cost saving and responsiveness are less effective than the other three indicators. The data shows that technical problems and the inability to connect outside office hours are the primary barriers encountered when accessing services. The fewer barriers found by the service receivers are language problems and easy-to-take KMC service.

This research attempted to investigate the interrelation between the efficacy of e-governance and socio-demographics especially focused on the ICT Skills of respondents. The study was carried out with Four independent variables. The study concludes that age

and digital proficiency influence perceptions of effectiveness, with older individuals and those possessing strong ICT skills reporting higher levels, while younger people and males tend to perceive lower effectiveness of e-governance in the KMC. There are numerous plans and programs have been implemented and some are in the pilot phase which makes more effective and transparent service from the KMC. They used an Instant payment system, Electronic fund transfer (EFT) etc. to enhance the efficiency of financial

transactions. However, there are legal issues for the local government to manage their systems and highly dependency with the central government in terms of e-governance system.

5.3 Recommendation

Based on the research findings, the primary recommendations for concerned authorities, future researchers, policymakers, and stakeholders are as follows:

5.3.1 Recommendations for Planning and Program Implementation

This section provides key recommendations for planning and implementing e-governance programs based on findings. They are below:

1. The indicators of responsiveness and cost of saving are less effective. KMC should prioritize improving the speed and efficiency of responses to service requests and enhance the awareness of cost-saving features.
2. The public finds a technical problem while receiving service in KMC. So, KMC must prioritize upgrading its technical infrastructure to ensure reliable, fast service delivery and make it user-friendly.
3. The effectiveness of e-governance is significantly influenced by ICT skills, making digital literacy crucial for citizens to access and fully benefit from e-services. KMC should launch targeted digital literacy programs to equip citizens with the necessary ICT skills.

5.3.2 Recommendations for Future Research

The research study may create an opportunity for further research. This Study only looked at the effectiveness and barriers of e-governance in public service delivery by Kathmandu Metropolitan City. Due to the requirement to complete the research within the specified

period. Therefore, additional research might be conducted while considering the following things.

1. This research has taken only one Municipality. Thus, Future research endeavours could expand the scope of this study by conducting comparative analyses across multiple municipalities, thereby providing a more comprehensive understanding of e-governance perceptions and effectiveness in diverse urban contexts.
2. To assess the full impact of e-governance initiatives, future studies should comprehensively examine its three key domains: e-administration, e-services, and e-society, providing a more holistic evaluation of e-governance implementation and effectiveness.
3. This type of research can be conducted on the different department of Nepal which provides e-services like the transportation Office, Passport Office, Tax Office and the effectiveness of the National ID card.

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APPENDIX I

Questionnaire For Service Receiver

Dear Respondents,

Namaste! I am Shiva Khadka, a Master of Public Policy, Governance and Anti-corruption Studies student at Tribhuvan University. This research is part of a master's thesis project to identify the "**Effectiveness and Barriers of E-Governance in Public Service Delivery of Kathmandu Metropolitan City**".

My survey is for academic research purposes only, and your participation is completely voluntary. You have complete control over whether or not to take part in this poll. All information you submit will be kept private and used solely for academic research. As a result, I respectfully urge that you freely participate and respond to the following questionnaire. Thank you for taking the time to complete my survey.

Please feel free to contact the researcher at +977-9867699455 or shiva1.777546@pgas.tu.edu.np for additional information about this study.

Section A: Personal Information (Socio-demographics) Date:2081/03/……..

Name of the Respondent .....(optional)

Gender: 1) Male 2) Female 3) Others

Age: a) 16-25 b) 25-35 c) 35-45 d) 45-55 e) 55 and above

Contact Number:.....(optional)

Education Level: a) No education -0 b) Below SLC-1 (primary level)
c) Intermediate-2 (Secondary level) d) Bachelor-3 e) Master and above -4

1. **How Would You Like to rate your ICT skill?**

   A) Very Poor B) Poor C) Good D) Very Good E) Excellent

2. **Do You Know the KMC Smart app of Kathmandu Metropolitan City?** Yes NO

If yes, how did you know Come to know about it

I) Family II) Friends III) Relatives

IV) Internet source (e.g., social media, Google) V) Municipality office

3. **How often do you apply for service online?**

   1. Rarely 2. Sometimes 3. Often 4. Very often

Section B: Effectiveness of e-governance in Service Delivery

Scale: 1) Very Ineffective**,** 2) Ineffective, 3) As usual, 4) Effective, 5) Very Effective

1. Assurance	**1**	**2**	**3**	**4**	**5**
a. How effective is it to access information about the service delivery process?					
b. How effective is it to access the information about the charges for particular services?					
2. Cost Saving					
a. How effectively does the system lead to significant cost savings in service delivery?					
b. How effectively does the system minimize the middleman costs in service receiving?					
3. Reliability					
a. In your opinion, how effectively does this system decrease the error rate?					
b. In your opinion, how effective the system is to monitor the progress?					
4. Satisfaction					
a. How effectively does it satisfy the service seeker through its easy service delivery?					
b. In your opinion, how effective it is to satisfy the service seeker through the overall performance of the service delivery?					
5. Responsiveness					
a. Do you agree that KMC effectively provides timely responses to your inquiries?					
b. Do you agree that they effectively address user feedback and concerns on time?					

Section C: Barriers of e-governance in Service Delivery

Scale: 1) Strongly Disagree 2) Disagree 3) Natural 4) Agree 5) Strongly Agree

The public finds the KMC service and KMC app to be not easy to use.	**1**	**2**	**3**	**4**	**5**
The Public finds online service is not user-friendly.					
The public finds the language of communication hard to understand.					
The public finds the behaviour of service providers is a hassle/ Problem.					
The public finds a lack of budget for public awareness of online service delivery.					
The public finds a lack of trust and less protection of user rights in service delivery.					
The public can unable communicate with their Service provider through the online system beyond office time.					
The public finds a shortage of ICT for service delivery					
The public experienced technical problems (e.g., website crashes, and slow loading times) when trying to access e-services.					

To what extent are you satisfied with the service you received?

1. Highly dissatisfied 2 dissatisfied 3 Neutral 4 Satisfied 5 Highly Satisfied

Please explain:

.....

What types of things do you suggest for the service delivery fast?

A. Technological Improvements

B. Human Resource Management

C. Public Awareness

D. Feedback Mechanisms

APPENDIX II

(Key Information Interview)

Dear Sir/ Madam,

Namaste! I am Shiva Khadka, a Master of Public Policy, Governance and Anti-corruption Studies student at Tribhuvan University. This research is part of a master's thesis project to identify the "**Effectiveness and Barriers of E-Governance in Public Service Delivery of Kathmandu Metropolitan City**".

My survey is for academic research purposes only, and your participation is completely voluntary. You have complete control over whether to participate in this poll. All information you submit will be kept private and used solely for academic research. As a result, I respectfully urge that you freely participate and respond to the following questionnaire. Thank you for taking the time to complete my survey.

Please contact the researcher at +977-9867699455 or shiva1.777546@pgas.tu.edu.np for additional information about this study.

Section A: Personal Information (Socio-demographics)

Date:2081/……./……..

Name of the Respondent …….

Gender: 1) Male 2) Female 3) Others

Age: ……. Contact Number **(optional): …….**

Designation: …….. Department: …….

Education Level: A) Below SLC-1 (primary level) B) Intermediate-2 (Secondary level)

C) Bachelor-3 D) Master and above -4

Questions:

1. What are the main e-governance initiatives currently implemented in your department/KMC for public service delivery?
2. Are you satisfied with the progress of e-governance implementation in your Department / KMC? What do you think about the main reason behind why you think it is satisfying or not?
3. What do you think, what are the problems in terms of technical aspects such as computer literacy and human resources to develop and provide e-services?

4. What Kinds of Initiatives are done by the KMC / your department to enhance the Digital Literacy Like Use of the KMC app for citizens?
5. How secure is the current e-governance system in KMC, and what are the main security (cybersecurity and information security) challenges at the local level?
6. Do you think there are any legal problems existing with the current e-governance system? Explain what can be the legal problem in implementing e-governance in the KMC.
7. Do you think any amendment is necessary for EGMP (e-governance master plan) or Digital Nepal Framework? What can these changes be if any and what can be the challenges of making these changes? (EGMP (e-governance master plan) Digital Nepal Framework?
8. What feedback have you received from citizens regarding these e-governance services?
9. What are the plans for expanding or enhancing e-governance initiatives in public service delivery?

Tribhuvan University
Faculty of Humanities and Social Sciences
Public Policy, Governance and Anti-Corruption Studies
Master's Programme
Kirtipur, Kathmandu, Nepal

Date: 10/09/2024

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in Partial Fulfillment of the Requirements for the Degree of MASTERS **OF ARTS in** Public Policy, **Governance and**

Anti-Corruption Studies By SHIVA KHADKA Roll No: 25/078 Regd. No: 6-2-37-1157-2017 Public Policy, Governance and Anti-Corruption Studies Kirtipur, Kathmandu, Nepal September, 2024 ABSTRACT Digital technologies are transforming global society, leading to rapid growth in e- governance, which governments increasingly accept as a crucial tool for improving service delivery and achieving good governance. This study aims to evaluate the effectiveness of e-governance in KMC in public service delivery, identify key barriers citizens face accessing e-services, and analyze the relationship between e-governance and demographic characteristics. Data was collected with 403 using self-administered questionnaires from nonprobability samples drawn from the service receivers in 32 wards of Kathmandu Metropolitan City and