

Digital transformation in the Public Service Delivery after COVID
pandemic in Nepal – A case of Transport Management Office,
Ekantakuna.



Research Report

submitted to

Research and Consulting Service Department (RCSD), NASC

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May 2021

Acknowledgement

We express our gratitude to the Research and Consulting Service Department (RCSD), NASC for providing the opportunity to perform this research work. We are grateful to Prof. Dr. Shree Krishna Shrestha, Dr. Hari Dhungana, and Dr. Prakash Chandra Bhattarai for providing their valuable feedback and insights to improve the research work. We are also grateful to the Executive Director of NASC Dr. Rajan Khanal and other faculties for their valuable observations and feedback to improve the research. We are also thankful to the officials from various ministries of Government of Nepal (GoN) and people who participated in the interview face-to-face, online, or through telephone to provide their valuable views.

Declaration

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Abstract

Public service delivery is a mechanism by which the public institutions at local, municipal or federal level deliver services to the public. The paradigm of public service delivery in Nepal has changed in a span of 70 years. The change of regime, political upheaval, and technological advancements are the major factors affecting the changes. The outreach to the other countries' news and activities of development and practice of good governance through the internet, people started to become aware of the citizens-centric services in other countries. COVID pandemic that started towards the end of 2019 affected the whole world. The governments across the world imposed lockdowns to contain the spread of the virus. This affected the public service delivery of Nepal too. During the lockdowns, people used the internet and mobile devices to stay connected and aware of the situations. Both the public and private organizations started work from home modality of operation. The online activity increased largely. The public sector of Nepal tried to use this opportunity to bring the services in the online platform. The lack of a strong base of data, use of old technology, lack of interoperability and non-uniformity in the system development hindered the process. The pandemic has highlighted the importance of use of technology in the public service. It is now time for the government to develop solutions to make the public service delivery resilient, versatile, and sustainable at present and the future crisis. Nepal is a developing country going through political and structural changes. There has to be a shared-vision among the government at various levels for the organizations to cooperate and coordinate. The lens of digital transformation is necessary in public service delivery to counter the uncertainty that looms in future. We have considered the Transport management office (TMO) as our case study area to view through the lens of new process adoption for digital transformation.

Key-words: - public service delivery, COVID-19, digital transformation, leadership

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List of Abbreviations

ADB	Asian Development Bank
ARPC	Administrative Reorganization Planning Commission
ATM	Automated Teller Machine
CAN	Computer Association Nepal
COVID	CoronaVirus Disease
DoIT	Department of Information Technology
DoTM	Department of Transport Management
DT	Digital Transformations
EDL	Electronic Driving License
EGDI	E-Government Development Index
E-GMP	Electronic Government Master Plan
e-Government	Electronic Government
GEA	Government Enterprise Architecture
GoN	Government of Nepal
ICT	Information and Communication Technology
IT	Information Technology
MoCIT	Ministry of Communication and Information Technology
MoPIT	Ministry of Physical Infrastructure and Transport
NITC	National Information Technology Centre
NPC	National Planning Commission
PHEIC	Public Health Emergency of International Concern
PSC	Public Service Commission
TMO	Transport management Office
VRS	Vehicle Registration System
WHO	World Health Organization

1 Introduction

Public service is a total cycle of ‘design and delivery’ of public commitments through public provisioning. People judge the quality of governance through the quality of the public service delivery received from the public sector as it is the service provided by the government to the people either directly or through other means (Pokharel et al., 2018). Public service delivery is a mechanism by which the public institutions at local, municipal or federal level deliver

services to the public, which are underprovided by the market (S. Kharel, 2018). The effectiveness of public service delivery depends in large part on the capability, resources and inputs, and the motivation of the frontline service providers at the local level (World Bank, 2014). The evolution of public service in Nepal started after 1950s after overthrowing the monopolistic Rana regime, with the establishment of Public Service Commission (PSC) 1951, the Buch Commission 1952, Administrative Reorganization Planning Commission (ARPC) 1952, first five-year plan 1956-1961, and Civil Service Act and Regulations 1956 (Pokharel et al., 2018). The practices and the incidents that followed the political upheavals of 1951, 1990, and 2006 were to establish organizations, policies, and acts to upgrade public service delivery in order to fulfill the goal of the formulated constitution. The Decentralization Act of 1982 and Regulation of 1984 provided rights to the local panchayats to serve the people (Pokharel et al., 2018). The tenth plan (2002-2006) interpreted 'ineffective public service delivery and lack of access of poor people to the service delivered by the private sector' as the cause of slow decline of poverty. The Eleventh Plan (2007-2011) emphasized on increasing access to public services of marginalized and disadvantaged groups through an affirmative action and decentralization of public services to local units for making public services effective and accessible. The Twelfth Three-Year Plan (2010/11- 2012/13) identified 'strengthening democratic system by making public services effective' as one of the major challenges of the entire development process. The Privatization Act of 1990 was an important attempt to invite the private sector in taking state's business. The Public Private Partnership Policy 2015 further strengthened the presence of private sector in 'roads, bridges, airports, modern means of communication, drinking water, irrigation, electricity, railways, cable car and ropeway' to 'make assets of public utility and operation of public services less costly, effective and reliable' (Pokharel et al., 2018). Not only the political changes but the technological changes also started in Nepal during the early 1990's, with the establishment of Computer Association of Nepal (CAN) in 1992, establishment of Ministry of Science and Technology in 1996, and announcement of "IT Policy" in 2000 (Pariyar, 2007). Government established the National Information Technology Center (NITC) in 2001 for the overall development and implementation of the e-Government system in Nepal to enhance the public service delivery. The government also has taken steps to draft policies and acts like Electronic Transaction Act 2007, IT Policy 2010 and ICT Policy 2015. The government also released the consulting document for E-Governance Master Plan (eGMP) in 2007 and eGMP-2 in 2015. GoN executed the ICT Development Project supported by the Asian Development Bank (ADB) from 2008 -2014, which included development of rural e-community (wireless broad bands, tele-centers), government network (GIDC,

groupware), e-Government Applications (GEA, NID, PSC Recruitment MS, Land Record MS, VRS and Driving License), and HR Development (awareness and training). GoN also released other strategic documents like 10 Year Master Plan 2011 initiated by NTA taking into account telecom acts, ICT in Education Master Plan 2013-2017, ICT Umbrella Act (2014), National IT Roadmap (2015), Broadband Policy 2071, and Digital Nepal Framework 2019 (Kirat Rai, 2021). The use of Information and Communication Technology (ICT) enhances the public service delivery, as ICT tools have been profoundly developed and simplified. Electronic Government (e-Government) systems are ICT based systems that facilitate government service delivery through digital platforms. These systems work 24x7, where the citizens can communicate with the government at their convenience. The use of technology and innovation in the public services have modified the operation mechanism of the traditional government system.

The World Health Organization (WHO) declared COVID-19 that came into notice in 31 December 2019 in Wuhan, Hubei province as a Public Health Emergency of International Concern (PHEIC) on 30 January 2020, and later declared pandemic in 11 March 2020 (*Timeline of WHO's Response to COVID-19*, 2021). Government of Nepal (GoN) imposed a lockdown to fight and reduce the effect of ongoing COVID-19 from March 24, 2020. The lockdown extended phase wise up to September 16, 2020 completely shutting down all the social and economic activities. This affected both the economic and social life of people in a worse possible way. Responses from both the government and private sectors were feeble as there were many unknown unknowns. GoN imposed the first lock down lockdown from 24 March 2020 that extended up to 16 September 2020. The second phase of lock down was in effect from 29 April 2021 that is still in effect with the phase wise moderated opening of various service and production sectors. Educational sector, tourism sector, international traveling, entertainment sector and social gathering are still under scrutiny. The public and private organizations are providing services in a moderated way, where the frontline workers are still in danger. In many public organizations, operating at the time of pandemic there seems to be difficulty to maintain the health safety measures. This is mainly due to too many physical contacts with the service receivers before actually rendering the services, presence of intermediaries, and lack of understanding in the technological intervention in the service design. The world may head towards the new normal situation after the COVID pandemic where the things that were aspirations before, like widespread touchless service, remote working, and telemedicine have become reality out of necessity (Wei & Oakes, 2020). The

public service organizations have to stand up with new policies and service delivery models to respond to this crisis and the unknown crisis that may arise in future. The COVID-19 pandemic has accelerated the digitization of the government services around the world with large-scale innovations rolled out at unprecedented speed by scaling digital infrastructures, creating more digital public workforce, and investing in citizen connectivity (Sullivan et al., 2021). The public service delivery got affected at the time of the crisis with the existing governance structure and technology that came into prominence after the worldwide spread of COVID-19 pandemic (Wei & Oakes, 2020). This happened in Nepal too despite the use of ICT in rendering the public services. People had to be in queues for the vaccination, paying taxes, renewing documents, and making documents without proper health safety measures. In the situation where the pandemic has accelerated, the digital transformation and the government around the world are looking for ways of resilient, versatile, and sustainable public service delivery the Government of Nepal (GoN) has to identify the digital transformation strategy to upgrade the public service delivery.

Digital transformation is redesigning of the business practices to incorporate digital technology within all facets of its functioning areas. The latest data as per McKinsey shows that 20% to 50% economic gains and 20% to 30% increase in client satisfaction can be achieved with the help of digital transformation. Therefore, the modern world is looking forward to digital transformation to address the need in a prompt and easy way. As well as in public service delivery, digital transformation has played a vital role in various developed countries. In simple words, Digital Transformation Strategy is a detailed roadmap of the methods an organization plans to adopt in order to digitally transform their business seamlessly with ease and tackle any challenges organization faces on the path towards the transformation.

The study attempts to contribute to the knowledge base by exploring the existing strengths of GoN in digital transformation. The study examines the steps taken by the governments successful in deploying digital transformations in their public service delivery. Understanding the existing situation of GoN and examining the success of other governments, the study will formulate a digital transformation strategy that can be a knowledge base for the GoN to start making the public service delivery resilient, versatile, and sustainable.

1.1 Background of study

The paradigm of public service delivery in Nepal has changed in a span of 70 years. The change of regime, political upheaval, and technological advancements are the major factors affecting

the changes. The outreach to the other countries' news and activities of development and practice of good governance through the internet, people started to become aware of the citizens-centric services in other countries. The development of ICT and its uses in public administration supported the citizen-centricity, where people can request for public services at any time from any place (Manolopoulos et al., 2012; Nograšek & Vintar, 2015; Sang & Lee, 2009). The availability of mobile phones at considerable cost and internet access through internet service providers, and telecommunication companies has connected a larger population to the internet. Many service sector companies are using the online platform to render their services. People are becoming used to such services where they buy goods/services through an e-commerce site from home. People are also demanding a similar service system in the public service delivery. The e-Government initiatives of Nepal have brought most of their services in online platforms. The various phases of e-Government development and technological advancement has provided some thrust in the use of technology to provide citizen-centric service delivery. However, the lack of whole of a government approaches in developing such systems, lack of vision of leadership in incorporating the technological changes, and lack of investment in the ICT infrastructure development are some of the reasons the public service delivery is yet to be digitized fully (Kirat Rai, 2021; Kirat Rai et al., 2020). Nepal is still facing challenges to implement the e-Government initiatives in a fruitful way by developing a strategic plan towards the use of ICT in public administration (Dhami & Futó, 2010; Kirat Rai, 2021; Shrestha et al., 2015). At a time when GoN was trying to get into the track of digital transformation through the implementation of Digital Nepal Framework 2019, COVID pandemic grabbed the whole world including Nepal. New situations like social distancing, strict lockdown, work from home, and virtual learning came into prominence accelerating the digital transformations. The health safety measures strictly demanded social distancing and the only way of staying in connection with each other was technology. GoN imposed a strict lockdown in two phases extending to a much longer period. In between various public and private organizations started to operate by maintaining the safety measures. The physical presence in receiving the service exposed the danger of COVID spreading and many organizations agreed to work from home systems. The educational institutes took their teaching into the virtual platform to fulfill their academic calendar. The situation demanded the necessity of digital services in the public services delivery mechanism. The COVID pandemic indicated the need of digital transformation in the public service delivery mechanism so that the services are not disturbed at the time of crisis and people can easily access the services through the online systems.

1.2 Statement of the problem

Public service delivery is the most visible means of delivering governance benefits to the citizens. The political changes in Nepal are making the public service delivery directed towards citizens. The introduction of ICT in public service delivery has made it citizen-centric through empowerment and decentralization. The ongoing COVID pandemic has accelerated the use of ICT in many sectors including the public service. A digital transformation strategy is necessary to make the public service delivery resilient, versatile, and sustainable at present and the future crisis.

1.3 Objective of the Study

The main objective of the research is to identify the digital transformation strategy necessary to render public services with ease post COVID situation for GoN.

1.4 Research Questions

The major question in this study is “How can GoN digitally transform public services to achieve resilience, versatility, and sustainability post COVID situation?”

The following sub-questions help to answer the main research question.

- What are the imperatives of GoN to move towards digital transformation?
- What is the existing situation of digital infrastructures?
- How can the government enhance digital infrastructure?
- How can the government enrich the citizens' connectivity?
- What is the role of organizational leaders in digital transformation?
- How can the private sector support digital transformation?

2 Literature Review

One of the major tasks of the government is to provide the public services in an easier way. In Nepal the public service delivery is supply driven, which has not been able to bring remarkable changes in the domain of public service delivery due to the existing culture of bureaucracy (Bhattarai, 2017). People are becoming aware of themselves and demanding the services to be citizen-centric, not only in terms of the service but in terms of service delivery mechanism too. The paper-based working mechanism and the structure of government is responsible for increment in the time of service delivery, which has been slowly converted into online systems for increasing the access (Giri et al., 2018; Kirat Rai, 2021; Rai et al., 2021). The reduction in

time of service delivery and minimum physical contact between the service provider and the receiver is possible with the implementation of the e-Government systems, which needs to be developed with a whole of a government approach (Fletcher & Griffiths, 2020; Shaanika & Iyamu, 2015; Talukder, 2015). The effectiveness of public service delivery depends on the capability, resources, and motivation of the government in providing the service at every level (World Bank, 2018). In Nepal, the public service delivery happens through the combined effort of line agencies, and local bodies at the district, municipal, and village level. Therefore, the digital transformation of the organization should be able to develop systems that can connect the government at every level and physical contact of the citizens with the government organizations or employees remains minimum, which is the need after the COVID pandemic (Fletcher & Griffiths, 2020).

The public service delivery of Nepal has improved gradually through the political, social and technological changes, but still people are facing problems due to cultural practices, political instability and disjointed red tapes for decades (*Improving Public Service Delivery in Nepal*, 2019; Pokharel et al., 2018). E-Government systems aims to provide services to a larger population maintaining transparency and accountability, which is yet to establish at a larger extent in case of Nepal (Aritonang, 2017; Basyal et al., 2018; Giri et al., 2018; Sodhi, 2016). As per the Layne and Lee e-Government maturity model the e-Government systems of Nepal are still to achieve the horizontal and vertical integration completely (Kirat Rai & Moktan, 2021). Therefore, the systems used in the public service delivery do not communicate with each other. This has not allowed the single window system in the public service. The digitization has occurred in every organization but the transformation in service delivery is yet to achieve.

The COVID pandemic situation created a different scenario throughout the world. As the pandemic was completely new to the world, practice of the measures like social distancing, wearing masks, regular sanitization, and strict lockdown started throughout the world. This affected the economy of all the nations and people started adopting technology to work from home, especially the video conferencing applications that came to rise. The situation affected Nepal too as the inadequate health system and the rapid increase in the number of new cases and death raised alarm to the government of Nepal for imposing shut down in every sector including the factories, production units, public and private organizations, and education institutions where there are crowd (Panthee et al., 2020). The lockdown created an eerie situation restricting people from movement. The government halted all transportation systems

to stop the spread of the virus. During the lockdown, people panicked and the government was just a bystander to watch the suffering. The lockdown affected the social life of the people and they started to get involved in online activity with the surge in the use of internet-based activities in city areas. As the length of the lockdown started to increase people started to shift the physical activities in the online platforms. They started to search for alternative ways of utilizing the online platform to perform their tasks. Organizations started using Google Meet, Zoom, Microsoft Teams or other available online platforms to perform back office activities. Even though the government permitted work from home modality, most of the official procedures of Nepal are still paper based, due to which there is demand for physical presence of service seeker and provider. Considering the ongoing pandemic, the GoN have to look into the practices going throughout the world to minimize the physical presence so people can demand and receive services through the online platforms. This demands a whole of a nation approach in the area of technology implementation in the organizational business process. The private organizations have been successful to a certain extent to achieve the transformations using the technology, which is not in the case of public organizations. Acceptance of technology is one of the dimensions to be explored, where the factors such as performance expectancy, effort expectancy, facilitating condition affects the attitude of the user, other factors like awareness among leadership, commitment from leadership and transparency affects the behavioral intention to use the system (Kirat Rai et al., 2020). The COVID situation has pointed out that it is now high time to develop a public service delivery system, which will be resilient, versatile and sustainable and the digital transformation is a way to achieve this (Sullivan et al., 2021; Wei & Oakes, 2020).

The introduction of digital transformation is inevitable. There are researchers, which shows the need for strategic alignment of the organization with the technological interventions for better outputs (Bhattacharya, 2011; Flak & Nordheim, 2006; Henning, 2016; Qian, 2011). Government have to create awareness in the public and government agencies about the e-Government systems for public services and employ skilled human resources and experts for the sustainability and growth of the system so a complete transformation can be achieved (AA et al., 2015; Basyal et al., 2018; P. Kharel & Shakya, 2012; Shrestha et al., 2015). The government has to be futuristic in the use of technology so that public service delivery in the crisis will not be difficult. Digital technologies have been able to change the behavior of the consumers who have ubiquitous access to information through social media and mobile

devices. The changes in the information consumption culture of the citizens demands the organizations to be transformative in their service delivery approach too.

2.1 Digital Transformations

Digital Transformation consists of two words, Digital and Transformation, which indicates the “process of adoption of digital tools and methods by an organization to create new or modify existing business process, culture and customer experience to meet the changing business and market experience(*Digital Transformation - Observatory of Public Sector Innovation Observatory of Public Sector Innovation*, 2021; *What Is Digital Transformation? Why Is It Important - Salesforce.Com*, 2021)”. The use of digital technology is increasing in every sector for quick access to information and online services. It has affected not only personal life but also the organizational working culture of both the public and private organizations. The use of technology mainly aims at reducing the human burden in performing a task. With the introduction of computers, people started using them for repetitive monotonous tasks of data entry, calculations, and storage. The features of a computer like diligence, versatility, reliability, and memory made it suitable to perform the repetitive tasks. The development of network technology enabled connection of computers through networking devices and communication media. With the increasing capacity of computers, development of application software and the internet, digital technology has found its way into the organizations. From the various researches we can understand that DT is a process where digital technologies play a central role in creation and as well as reinforcement of disruptions taking place at the society and industrial level. The disruptions trigger strategic responses from the part of organizations that occupy the central role in the transformation. Organizations use digital technologies to alter the value creation paths they previously followed to remain competitive. The organizations have to go through structural changes and overcome barriers that hinder the transformation efforts. The transformation done in a thoughtful and strategic way leads to positive impact to the organizations, in some cases for individuals and society too, although they can be associated with undesirable outcomes too. (Sebastian et al., 2017) refers to the digital technologies that play a major role in the transformations as SMACIT (social, mobile, analytics, cloud, Internet of Things [IoT]) technologies that provide game-changing opportunities. The other digital technologies also include internet, software, and blockchain that are combined together to obtain the desired digital transformations (Vial, 2019). Digital technologies have been able to change the behavior of the consumers who have ubiquitous access to information through social media and mobile devices. The changes in the information

consumption culture of the citizens demands the organizations to be transformative in their service delivery approach.

2.2 Digital technologies as source of disruptions

Various literatures on digital technologies reveal it as disruptive, that has been able to change the behavior of consumers and the operational method of the industries and organizations (Karimi & Walter, 2015). There are three different types of disruption caused by digital technology: consumer behavior and expectations, competitive landscape, and the availability of data (Vial, 2019).

Altering consumer behavior and expectations

In the modern context, the consumers are very much aware and well informed with the access of information readily available with the access of the internet through mobile devices. The availability of information affects consumer behavior as they can participate actively in dialogue between the service/ product provider. The consumers are not only the passive receivers but they are very much involved in voicing their expectations too. Therefore, the service providers should anticipate the expectations of the consumers in their strategic planning and orientation.

Disrupting the competitive landscape

Digital technologies have introduced disruptions in the existing markets. New services have emerged creating new markets and society has moved towards the service-oriented from the product-oriented market. The way people buy products have changed; various e-commerce platforms are providing competitive digital shopping services. Blockchain is a generic and extensible technology that enables the creation of decentralized digital infrastructures. The digital infrastructures are useful in domains like banking, contract management and can substitute the traditional centralized institutions (e.g., peer to peer exchange of funds rather than through authoritative intermediaries) (Vial, 2019).

Increasing the availability of data

The use of digital technologies not only provides services but also generates data in the form of digital traces with the use of mobile devices. Many firms use the data for their own benefit

and sometimes benefit by selling it to third parties. Business firms can draw useful insights on the needs of customers and products using analytics to the data that helps the business.

Strategic responses to digital disruptions

Digital technologies provide “both the game changing opportunities for and existential threats to – companies”. To counter these every organization should have digital business strategy and digital transformation strategy. Digital business strategy is an organizational strategy formulated and executed by leveraging digital resources to create differential value, which focuses on future states (Mithas et al., 2013). Digital transformation is focused on the transformation of products, processes and organizational aspects owing to new technologies, which is a blueprint that supports companies in governing the transformations that arise owing to the integration of digital technologies, as well as in their operations after a transformation (Matt et al., 2015).

2.3 Leveraging digital technologies to uncover new path for value creation

Digital technologies adds value to an organization by providing digital support to the human resources in performing the regular work of an organization. To create greater value changes with the use of digital technologies organization changes is also necessary.

Transforming the value creation process – In order to incorporate digital transformation organizations should be ready to revise and re-define their business models.

Structural changes required for changing the value creation process – In order to incorporate digital transformation there is a necessity of structural changes within the organization. The changes are required in organizational structure, organizational culture, leadership, and employees roles and skills.

2.4 Digital Transformation Strategy – Conceptual Framework

In order to achieve the digital transformation in an organization the various components has to be addressed which includes

- System Implementation
- Social Network Amplification
- New Process Adoption
- New Technology Adoption

- Change Agile Leaders

In order to achieve digital transformation in a public organization the implementation of digital transformation strategy is evident. In this research, we have considered the model of digital transformation strategy as reviewed and developed by (Mitroulis & Kitsios, 2019). A conceptual framework as shown in figure 1 explains the basic research framework, where we are analyzing the existing situation of public service delivery provided by the Transport Management Office (TMO) and Department of Transport Management (DoTM). We are performing this research from the perspectives of new process adoption for the digital transformation.

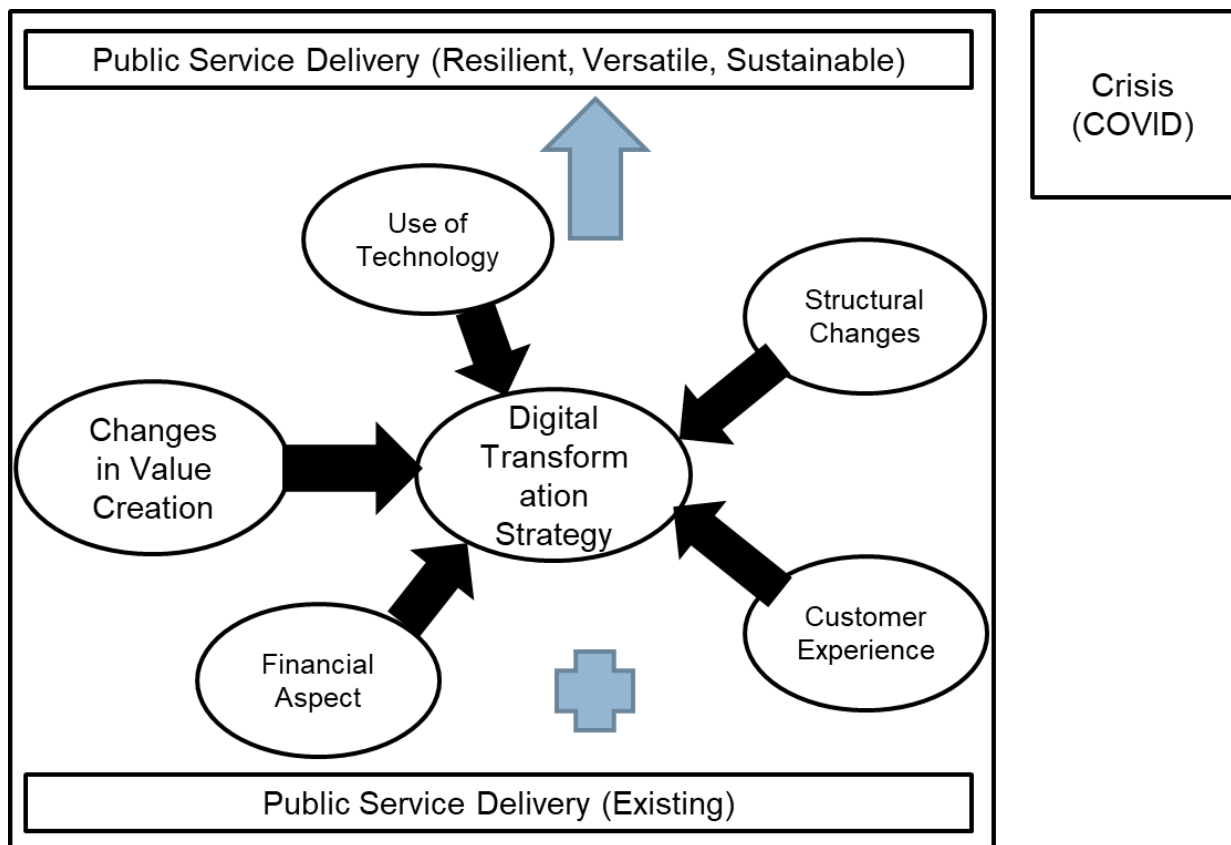


Figure 1 Conceptual Framework

As per the adopted conceptual framework of (Mitroulis & Kitsios, 2019) the research will look into the dimensions of use of technology, structural changes, customer experience, financial aspect, and changes in value creation considering new process adoption in the public service delivery. It is necessary to look into the new process adoption in public service delivery as most of the government investment is on new technologies and systems rather than looking into the existing process and considering the process change. The COVID event has clearly reflected that only technological change is not going to provide the government with desired changes. It is a temporary solution. As the situation has eased from the previous scenario, both the government and citizens have returned to their old process of service delivery. The lessons learnt during the COVID can be reflected to upgrade the process of public service delivery to obtain resilience, versatility, and sustainability, which vividly will use technology in public service delivery. Before jumping into the development and implementation of technological systems now, it is necessary to strategically frame new process adoption for digital transformation.

3 Research Method

Research methods are the methods or techniques used by the researchers to conduct the research. In this research, we collected and obtained data through previously published research works, historical records, and existing web sites as a form of library research methods. We performed non-participant direct observation, participant direct observation, opinionnaire, personal interviews, and case studies as field research methods (Kothari, 2004). We have used purposive sampling method. The goal of purposive sampling is to sample the cases or participant in a strategic way such that those sampled are relevant to the research questions and provide information in every possible manner (Bryman, 2016). This is particular case of TMO, Ekantakuna so we selected interviewee in such a manner that we could gather the required information for the research. We also observed the activities at TMO, Ekantakuma from at 8AM to 3PM. During the period, we observed the activities of the service seekers, the intermediaries, and the service providers. We collected the views from the service seekers and the intermediaries who were in the queue through an informal interview. We observed and followed the people who took the support of the intermediaries to get the service.

We explored the existing ICT based systems of GoN in use for public service delivery, reviewed the strategy documents for technology implementation and interviewed with the leaders of the organizations responsible for digital transformation to understand and map the existing situation and digital strength. We interviewed the senior officials from Ministry of Communication and Information Technology (MoCIT) to understand the current vision of the ministry and departments in the implementation of technology at respective departments and offices for service delivery. We also explored successful and unsuccessful cases of countries that have tried digital transformations in their public service delivery to establish the knowledge base and determine the necessary steps in digital transformation.

We have used the thematic data analysis tool for analyzing the data where we presented the data under theme and sub-theme as per the research question. In the thematic analysis we devised the themes to collect the basis for theoretical understanding of the collected data that can make a theoretical contribution to the literature on which research is focused and helps to build the codes identified in transcripts and the field note (Bryman, 2016). We did not confine only on thematic analysis but also performed content analysis of various government documents for quantifying the content in terms of themes identified before.

3.1 Theoretical framework and research flow diagram

The pandemic affected public service delivery. Despite the use of ICT in public service delivery and the digitization initiatives in GoN, which could have eased the public service delivery by maintaining the health safety norms during pandemic. The public organizations and the systems gave weak performance and people wondered at times, where private sectors has been successful in using ICT in education, training, banking, online shopping, working from home, and many other alternate activities. Therefore, the research looks into the current ICT based systems of GoN in public service delivery. It collects data from the people seeking services at the time of pandemic, interviews the organization leaders, looks into the successful and unsuccessful case studies of other practitioners and comes to the conclusion on how to catch up with the digital transformation post COVID era in Nepal.

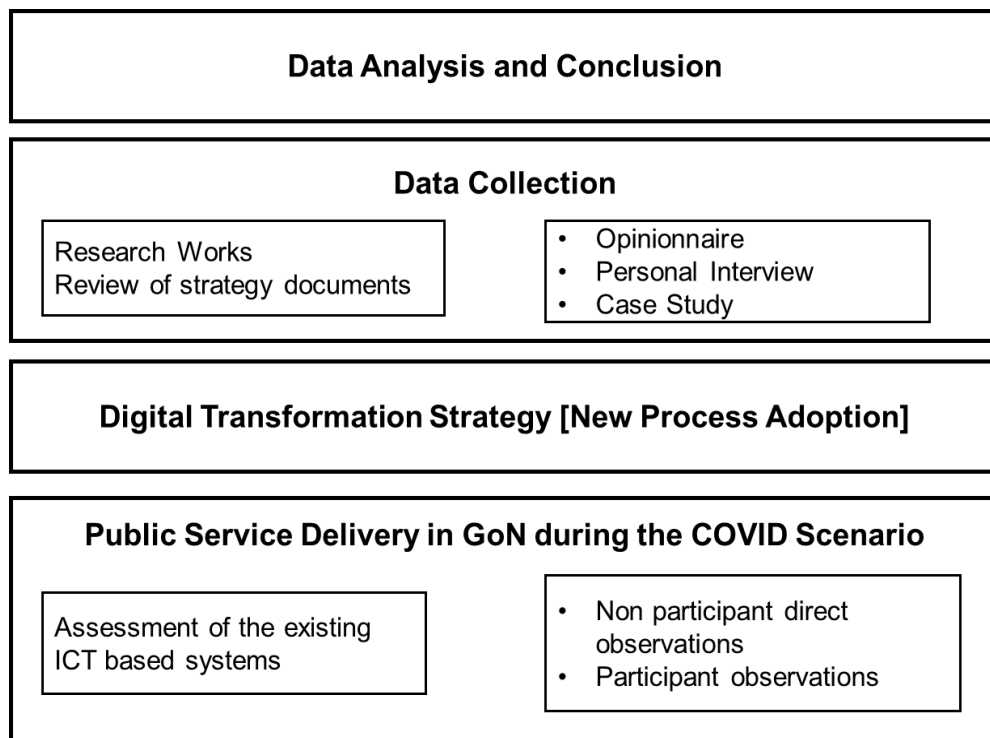


Figure 2 Research Flow Diagram

3.2 Data Source

We have centered our study in the public service delivery of service through the Transport Management Office (TMO), Ekantakuna and Department of Transport Management (DoTM), Minbhawan. These organizations are major actors in license renewal and printing services. The researchers have done the field based observations of the TMOs and DoTM. The team has used the data collected from the organization websites, and previous research. The team interviewed the senior level officials from Department of IT (DoIT), Ministry of

Communication and Information Technology (MoCIT), IT officials of Department of Transport management (DoTM), and section officers from Transport Management Office (TMO) to understand the current scenario and their views towards use of technology in public service delivery. The team also studied the Electronic Driving License (EDL) - Vehicle Registration System (VRS) provided by the Department of Transport (DoT) to the Transport Management Offices (TMOs). The team has also taken opinion and interviewed a few service receivers who came to the TMO for service.

4 Findings

4.1 Public Service Delivery during COVID-19

Public service delivery was largely affected by lockdowns imposed by the government during the pandemic. Both the service provider and receiver were afraid of the unknown situation, where people were unable to get proper medical attention and were losing lives. The situation did not allow for the 100% of operation even when the offices resumed. The government offices did not have any plan ready or necessary infrastructure to counter the situation. They resumed their services following the health protocols as set by the government. In the Transport Management Office (TMO), Ekantakuna they tried to maintain the health protocol by serving 100 people a day for license renewal. Prior to the pandemic, the office administered the online registration for driving license. There was no online system regarding license renewal. All the activities were manual, where the applicant had to go to the office and request for the service. This consumed 4-5 hours. During or after the pandemic too the situation seems to be the same. In order to apply for the service and pay the tax one had to stay in the queue for more than 5 hours. The situation of intermediaries was the same during the pandemic too, operating as usual. Besides license renewal, there were people for other services: vehicle pollution testing, new license, and correction. During the pandemic people shifted their activities to online platforms. Offices started operating by implementing work from home modality. The online banking and payment systems came to rise. The government could not provide online service delivery avenues to the people, so to pay tax too people had to risk their lives and go to the government offices physically.

4.2 Digital Transformation Strategy of Government of Nepal (GoN)

The GoN released Digital Nepal Framework in 2019 as the digital transformation strategy of the government. The framework was released to catch up the opportunity developed with the increase in the use of internet and mobile penetration rate in Nepal. As per the framework, “The

Digital Nepal program is designed to enable Nepal to harness its growth potential by leveraging disruptive technologies and driving socioeconomic growth.” The framework provides a roadmap of digital initiatives and its contribution to economic growth, find innovative ways to solve major challenges society is facing in a shorter period with limited resources, and identify opportunities for Nepal to participate in the global economy. The framework emphasizes 8 sectors and 80 digital initiatives that support the socio economic growth of Nepal. The eight sectors identified in the framework are digital foundation, agriculture, health, education, energy, tourism, finance, and urban structure. Among the eight identified sectors, digital foundations and finance includes the initiatives that are essential for the digital transformations of the government services. Some of the initiatives identified and important for digital transformations of public service under the digital foundation and finance are-

- Establish the Internet as an essential service
- High-speed internet connectivity for efficient delivery of Public services
- Special economic zones for ICT sector
- Government of Nepal App
- Use of Government Enterprise Architecture (GEA)
- Paperless government to promote collaboration
- Public Wi-Fi Hotspots
- National Cyber Security Center
- Provincial Data Center Establishment
- National Language Computational Resource Pack
- National Biometric ID Card
- Digital Signature
- Digital Innovation and Co-creation Hub
- Digital Skill Development Initiative
- Government eLearning Platform
- ICT in Education
- National Payment Gateway
- Mobile Wallet Services
- Encourage digital payments in Nepal
- Digital Payments Campaign

These initiatives are the base of digital transformation. It requires policies, necessary infrastructure in place, well designed software systems, security infrastructures, necessary

institutions, and capable human resources. Without the necessary digital foundation an individual, organization or a country cannot move towards the desired digital transformations.

The success of Digital Nepal Framework largely depends on its emphasis on implementation. The Government of Nepal needs to focus on the following priority areas to create an enabling environment for the success of Digital Nepal initiatives:

Table 1 Priority Area for success of Digital Nepal Framework (GoN, 2018)

Technology and Infrastructure	Entrepreneurship/Public Private Partnership (PPP)	Talent and Skills Development
Digital connectivity needs to be a key priority. Possible actions include: ● Make Internet access a fundamental right for every citizen ● Improve the availability of spectrum to the operators to enhance service coverage and quality ● Take leadership in driving 5G adoption in South Asia ● Establish a nationwide fiber network	Encourage private sector participation. Possible actions include: ● Digitally streamline PPP application system to mobilize private investment ● Tax holidays and incentives for investment in Digital Nepal program ● Startup accelerator program to build a strong ecosystem for nurturing innovation and entrepreneurship	Improve digital education. Possible actions include: ● Compulsory IT education in schools and colleges ● Increase the education system's capacity to impart advanced ICT education ● ICT literacy programs for rural communities and underprivileged Nepalese ● Ongoing communication and celebration of digital stories of success
Facilitate the development of a robust financial ecosystem. Possible actions include: ● Encourage digital payments ● Attract investments in fintech by encouraging the	Encourage foreign direct investment in priority areas. Possible actions include: ● Fast-track FDI applications for Digital Nepal initiatives	Making public servants digitally ready will be essential. Possible actions include ● Digital skills training for public sector employees

growth of startups and telecom companies to offer services to drive financial inclusion	● 100% FDI and easier repatriation of funds for Digital Nepal initiatives	
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4.3 Transport Management Office (TMO) and Department of Transport Management (DoTM)

The Department of Transport Management (DoTM) is one among the four departments under the Ministry of Physical Infrastructure and Transport (MoPIT). There are five sections including;

- Administration, Planning, Monitoring and Evaluation Section
- Vehicle monitoring, Criteria formulation and Transportation management, Inter provincial coordination, Research section
- Information Technology section
- Vehicle testing, Inter country transportation management, Transportation and Vehicle Criteria provisioning section
- Public transportation, road safety and transportation improvement section

DoTM operates at the federal level whereas there are Transportation Management Offices (TMOs) operating at the provincial level under the Ministry of Physical Infrastructure and Development (MoPID). The TMOs look after the license and vehicle related activities at the province level. Under the new federal structure of Nepal, TMOs of respective provinces look after the public services related to the vehicle and license. These offices have to work in coordination with the DoTM at the central government. The TMOs use the Electronic Driving License (EDL) and Vehicle Registration System (VRS) developed, maintained, and upgraded by the DoTM.

4.4 Service Delivery Process

Public service delivery is becoming demanding as people are becoming aware with access to information at hand. The rapid development of Information and Communication Technology (ICT) has made it possible. People are becoming aware of their needs and rights. With the easy access of information, people are looking for government services at their hand. Nepal is still in the phase of political instability, which contributes to a larger extent to the dissatisfaction of the current public service delivery (S. Kharel, 2018). COVID-19 affected the pace at which the

world was moving ahead, it not only changed the way of living but also affected the methods of public service delivery. The availability of technology and the pragmatic vision of leadership took the public service delivery to another height at the era of COVID-19 uncertainty in various countries (Wei & Oakes, 2020). The uncertainty of COVID-19 has not been resolved and more of them remain hidden at the heart of the future. It is now time to capitalize on the experience of the past and prepare for the uncertainty that lies ahead in the path of public service delivery. Considering the experience, it is now time to think through three dimensions of resilience, versatility, and sustainability to determine which solution to end, which to evolve and which to expand as standard practice (Wei & Oakes, 2020). This is applicable for Nepal too as we have experienced a need for a different course of action for public service delivery.

Resilience in service delivery is necessary to understand whether there is a difference in service delivery or not. COVID-19 has taught us a lesson that we have to be ready to do things differently and develop resilience for any uncertainty that approaches us in future. Versatility in the service delivery is necessary to do things differently to serve the citizens by innovating the traditional ways of service delivery. Sustainability in service delivery is necessary to understand whether the developed solution can become standard practice with the existing resources. In Nepal, many customer-based services went to an online system. People started using the online payment and shopping service to fulfill their needs. At some points, GoN took the service delivery mechanism to an online platform. This helped to maintain social distance and reduce the crowd. The services like requesting for vaccine and vaccination cards through online forms, educating through online platforms, and online pre-enrollment form of the Nation Identity Card. However, with the ease in COVID-19 restrictions and vaccination drive the public service delivery of Nepal is going back to the former modality. The transformation in the public service delivery seen, felt and expected during the time of COVID-19 did not translate into realization after the ease of pandemic situation. The post pandemic era strategy needs to look into the concept of resilience, versatility and sustainability for a better public service delivery.

4.5 Government response and the current scenario

The government shut down the offices and imposed social distancing to fight against COVID-19, which affected the public service delivery. People felt difficult in paying their taxes, applying and renewing their licenses. Once the situation slowly started to ease, the offices started their operation in moderation limiting the number of people in a day. The services were closed, when the situation again worsened. This happened until the vaccination started. This

created a situation of havoc at transport offices. We have studied at the Transport Management Office (TMO), Ekantakuna. The major services provided by the office are license renewal, trial examination, vehicle pollution examination, and license distribution. In order to renew their license people were standing in the queue from early morning 5AM. During that time, the office limited the number of service receivers to 100 per day, which forced people to come and stay in the queue way earlier than the office opened. While observing the service delivery process at the office, we noticed that the intermediaries tried to manipulate the service receivers in the entrance of the office, despite the presence of the security personnel. In addition, they tried to manipulate the people in the queue by numbering themselves and asking them not to stay in the queue saying the token of the day had finished. The intermediaries also stayed in the queue as proxy for the service receiver coming later. This created a situation of havoc until the employees arrived at 10 AM, after which only the actual token of the day was distributed. The employee distributed the day's token with the support of the security personnel who identified the real service receivers through their actual identity. Then the actual process started where the people had to get their information printed from the first window and go ahead for biometrics and eye testing in the queue maintained by the token number. All of these activities were in a single room where the employees at each terminal checked the biometrics and picture of the applicant. The applicant moved ahead for eye testing after ensuring the biometrics. Then the applicant moved ahead for the verification and payment process in another window. The process took as long as all the applications accumulated here, the task was manual and only one person was there. From there as the applicant's turn comes the applicant moves ahead to the bank counter to pay the necessary tax and to the receipt counter to submit the payment receipt who records the receipt details and provides information when to contact for receiving the license. This finishes the process of license renewal and if everything is intact then the time to apply for the process is about 6 hours, from the start to end of the process. Most of the people who did the process themselves took around 5-6 hours. Sometimes, people with special contact and intermediaries were also receiving services through informal channels. Anyone can imagine the situation where one has to stay in queue without proper social distancing during the pandemic situation. The transport office did nothing to ease the situation other than limiting the numbers of service receivers and shutting down the offices when needed, which increased the number of people seeking the service.

The service seekers were not only terrified of COVID-19 but they had to face the challenge of staying away from the intermediaries who tried to lure them of easy access to service.

Sometimes they were not sure whether they would get service as the intermediaries influenced the queue system and had access to the employees even though they were restricted to be in the office premises. The renewal of license cannot happen without the physical presence of the applicant but still people were coming there through special contacts and intermediaries. This shows the mentality of people towards public service. They might have a busy schedule due to which they are unable to stay in the queue for such a long time in the terror of COVID-19, or they are used to work through intermediaries or contact who can facilitate them the services in short time.

The education related activities occurred online during the pandemic situation. This eased the situation where the students were able to receive their education from home. Government did not act on other public service delivery systems where the service seekers can request or receive the services by staying at home. The people staying in the queue were concerned why the office was not seeing the opportunity to use the online platform to facilitate the appointment and queue system in the pandemic situation. This would reduce the crowd of the people and they will arrive in the office only at their prescribed time. The service seeker seemed to be aware about the use of technology to facilitate the service delivery as they expected the office to develop such systems for them so there will not be tyranny of early queuing and intermediaries. People seem to be in a hurry or unaware about the service delivery process, so they are involved with the intermediaries. The people who are relying on the intermediaries are paying extra to get service, which is not necessary. During COVID-19, the government enforced the norms of social distancing to avoid the spread of virus. Social distancing was not visible in the transport office as hundreds of people were staying in the queue from early morning, eagerly waiting for the office to open. Due to the limitation of space, crowds were there and even the security personnel could not maintain the proper norms of social distancing. The digital record keeping system of the transport management office has helped in quick processing of the request. Not all the records are digitized so still some of the records have to be verified manually, which is a time consuming and compromising process.

The provincial TMOs are using the Electronic Driving License and Vehicle Registration System (EDL-VRS) procured by the DoTM with a centralized database system. Therefore, there is still dependency in the use of the software system and printing of the smart licenses. The genesis of the system was in 2059 BS where the requirement was a database system to keep the records and perform the online billing. GoN procured and implemented the system with the help of an external vendor, as the government did not have expertise on system

development. This created dependency towards the vendors. The VRS is the old system that keeps the records of the vehicle. The new component added to the system is the EDL system. In two decades of the genesis of the system, there has been rapid growth in the area of system development, new technology, and hardware. GoN has recruited computer engineers and officers to look after the need and management of IT based systems in the organizations. The change in the field of technology is rapid compared to the bureaucratic approach of government working. Government agencies recognized the rise of technology but could not address its structure and process, mainly due to the political instability of the period and structure of bureaucracy. Government agencies could not update most of the software systems to address the change happening in technology and the external world. This did not support the establishment of a strong digital record keeping, which is the base of every software system. The software systems will perform only when they have enough and proper amount of data. Therefore, while upgrading into a new system the agencies are facing problems, which is mainly due to the lack of proper digital record system, relationships with vendors, lack of vision for the technical human resources of the organization, and proper coordination among the concerned stakeholders.

Above all, there is a lack of consensus and will at the political level. In the last two decades Nepal there have been major political changes that have shaped the current governance structure. In the book, *Leading Public Sector Innovation* by Christian Bason, it has been mentioned, “New Public Management is dead. Long live Digital-Era Governance”. This hints that there is no other option for the digital transformation of the government services. The author has come up with an ecosystem of public sector innovation. As per him, without innovation the public sector will not thrive. Technology will support innovation and to lead public sector innovation, public managers and staff must develop and master our interrelated dimensions. These dimensions are Consciousness, Capacity, Co-creation, and Courage, which reinforce each other and together form an integrated approach. These components are mutually dependent and cannot flourish without each other. Digital transformation is an innovation in the public sector that has both the barriers and potentials. The leadership should have consciousness (awareness) on both the sides of the digital transformations, there should be enough capacity (structure) in place to implement the transformations, there is need of co-creation (processes) among the related stakeholders (inter/intra) to implement and sustain the transformations, and need of courage (leadership) to understand and implement the digital transformation.

4.6 Importance of Technology in Service Delivery

COVID-19 not only posed a threat to the countries and humankind but also it lighted the area of opportunities. It highlighted the importance of technology, development of new working standards, and readiness of the leadership to cope up with the changing context. During the pandemic, the culture of work from home emerged, which was already in practice in the IT companies for a long time. In Nepal, both the public and private service sector implemented the work from home modality in service delivery during the lockdown. The pandemic enforced the adoption of new processes in most of the sectors, in which technology played an important role. The online banking and payment systems gained prominence in Nepal during the pandemic and the trend continues after the pandemic situation too. The public wanted to receive services through online platforms at the wake of the pandemic, where there were too many uncertain situations, no vaccine and a situation of panic. Government works in a defined structure and process. During the pandemic situation, the government brought their service process to an online platform so they could use the online platform to request for the service delivery. This process is useful not only during the pandemic situation but also during the normal situation. The public service delivery dropped to null at the time when the government imposed lockdown. As the situation started to ease and get better the crucial offices reopened and started their service in physical mode. People started coming to the transport management office for license renewal. Even though the license is an electronic one the process of applying and renewing is manual. People have to stay in the queue for at least 5 hours, or they have to take the help of intermediaries who are not in the system. People wonder why the government has not been able to change the existing manual system so they can request for the service online and come at their convenience at the given time.

This is a task of queue management in the transport office. For this people should be aware that they have to book a time and request for a particular service prior to going to the office. Nepal is a developing country; we are still in a phase where people have less belief in technology-based system. In addition, due to the lack of telecommunication infrastructure and consistent power supply, the internet is not easily and cheaply accessible to the people at every economic level. Government has not established service centers from where people can request for the services before actually visiting the office in person for the actual service delivery. This largely reduces the unnecessary queue and the unwanted role of intermediaries that has been hampering the service seekers. In addition, this will establish a minimum time of service delivery to the applicant as all the necessary data and request will be made prior to coming to

office. This will allow the feature of single window service delivery where people receive service through a single point of contact. This requires a base of proper digital record keeping system, cooperation and coordination among the government agencies acquiring and storing such digital records.

To achieve this use of technology is must. Use of technology without the change in the existing structure and process will not yield desired results. It will only automate the existing system and move the system into the transient phase of the digitization. This phase can burden the users (service providers and seekers) if we only aim for automation. The burden of the extra work is due to the existing and well-established way of operation. Introducing technology also demands business process reengineering. This will provide a new way of performing the same task with the support of technology. Automated Teller Machines (ATM) removed the need of people going to the bank to withdraw money. Similarly, with the introduction of technology there should be some benefit to both the service provider and receiver. There has to be reduction in the process of service delivery, which demands understanding the existing job process and redesign of jobs to receive the benefit of use of technology. This might lead towards the structural changes in organization. While doing this we need to understand the financial aspect of the change, which covers the expenditure in system development and implementation. It should also cover the financial aspect to keep on running the system. The use of technology and change in structure that incurs financial burden to the government should make the people feel the changes in value creation. People will feel the improvement in service delivery if they receive service in time. People do not have good experience of public service delivery in most of the government offices. It is time to change the stereotyping in public service delivery by bringing the changes in the customer experience of the service receivers. Private sectors are thriving through the goodwill of customer experience. Public sectors also need to look into their customer experience to improve the quality of public service delivery, which contributes to establishing a good governance system.

4.7 System Thinking Approach

Sometimes not understanding the system as a whole also is a problem. In between when the government office re-opened for service delivery, there was no proper mechanism where people can pay their taxes through the online platform. They had to be present physically at the time of the pandemic with fear of COVID to pay the taxes. Therefore, while incorporating the digital system solution for transformation, government actors should use the system thinking approach towards the transformation. This requires a collective effort from the concerned

stakeholders to develop a co-creative environment. A constant effort from the leadership is necessary to move towards the result of system implementation despite differences in ideology. The leadership will put effort if they are reform-minded and their self-interest is high towards transformation. The transformation should save time, energy and cost. It is time to think in a different way where all the related systems can interoperate to fetch the desired data and perform required operation. Sometimes the domestic and external situation also influences the implementation process. The leadership has to take suitable steps in such a situation. The domestic situation provides the current need of the nation and people, the external influence helps to project for the future need. As a leader, one has to strike a balance between demand and supply. System development without any future planning and coordination will soon make the system absolute, as there is rapid change in the sector of technology.

The improvement observed in the functioning of DoTM is accumulation of the efforts from leaderships of respective time. The improvement are in the form of technological upgradation, where the major activities of the department is converted to digital systems. Electronic Driving License (EDL) does the digital record keeping of the licenses, which in turn will be used to print smart license. Things seems to be simple but it is dependent on the perception of the leadership towards the reform. The acceptance of technology both from the service provider and receiver end has to be tested before implementing a system. It is not only about developing and implementing the system, but there has to be plan for sustaining the system. The development of technology is happening at a rapid pace. We have observed that the introduction of smartphone has disrupted many services. A stratum of people wants the services delivered through the technological platforms. Yet there are people who are not in the reach of technology. Government has challenge to address both types of service seekers. The way is always ahead, global trend also shows that the world is moving towards digital transformations. COVID-19 has again reinforced the importance of technology in human life. Nothing resurrects overnight in government service. There is necessity of leadership drive. The drive gives rise to a vision, based on which a government or organization makes strategic plans to achieve it. The plans can be short term or long term, which the respective leadership executes. Finally, the vision is achieved with the proper execution of the plans. The vision will push forward the organization by enhancing its operation. Everyone involved in executing the vision from the leadership to the management level to the implementation level have to be aligned for the proper execution of the vision. Peter M. Senge, explains this as Shared Vision in his book *The Fifth Discipline*. For an organization to perform in a sustainable way, it has to be a Learning

Organization. The public organizations of Nepal face a constant mobility of officials at every level. The mobility is high at the leadership level. Thus, the organizations are not able to improve their systems to enhance service delivery processes. To build a learning organization Senge has identified five core disciplines: System Thinking, Personal Mastery, Mental Models, Shared Vision, and Team Learning. As per him, everything in nature seems to be disjoint but they are connected with a pattern. Similarly, government is not a stand-alone component. It is a system formed by combination and connection of the ministries. Ministries are systems formed by the combination and connection of departments, centers and offices. In those individual components there are people working with individual skill and knowledge sets. These people have different mental models to organize and perform. Their personal mastery and mental models should be converged at the organizational level by shared vision and team learning effort to develop a system thinking in them. Until and unless there is not a system thinking approach at organizational level, then the organization will not be able to achieve the effect they are planning to achieve by implementing the technological systems. A system will only perform through coordination and cooperation. Similarly, it is impossible to improve the service delivery mechanism of one government office on a stand-alone basis. Government has broken down the service delivery component into various pieces for efficiency and effectiveness. This is a decentralized effort and is good. However, the government lacks a system thinking approach and each of these components are performing independently in silos. At present, the government organizations are implementing the technology-based system to enhance their service delivery. Here also they are working in silos developing their own systems that cater their service. These systems require running on the same database. It is not the case in Nepal; every government organization are creating their own database. There is no or very less exchange of data or information and the individual systems are not interoperable too. The culture on which the government is functioning contributes to this situation. The leaders of the organizations are the product of the existing government culture, which does not change overnight. The legacy of the government system has been modeling the leaders with the same old mental model. The leaders have not been able to think out of the box or think of the government system as a whole. This has led towards development of stand-alone systems, which cannot contribute in the enhancement of service delivery. Rather, such systems can bring down the efficiency of the organization and government. Currently, Nepal is in such a situation where there are technology-based systems but the service delivery has not improved. In case of the DoTM, systems are there to keep the record of driving license and print the smart driving license. The TMOs, at the province level, are responsible for the license related activities.

People have to go to the TMOs for renew their license and vehicles. The central department is maintaining and running the EDL-VRS software system and provincial TMOs operate the system. Based on the technology available two-decades earlier the system has such an old architecture, which is difficult to upgrade in current context. The leadership is not able to make decisions to either bring down the system or develop a new one with the available technology now that is sustainable for some period. The current leaderships at political and institutional level are not aware of making decisions related to the use of technology at government and organizational level. Even the human resources of Information Technology (IT) and Engineering, seems to be less cared. The IT firms through competitive bidding develop most of the government systems. These IT firms do have expertise in IT-based system development, but they are not process experts. The leaders of government offices are unable to differentiate between the process expert and system development expert. Therefore, they are relying on the technology expert to develop a system that will only automatize their existing process but will not enhance the efficiency in the service delivery that people are looking for. Government recruits computer engineers and officers, but the current structure of the government system does not utilize their capability and expertise. Right from the education a technical education is specialized education. The education gives highly skilled and specialized human resources. The computer engineers and officers can use their specialized skills to envision the system and technology need. They are also involved in the design and development of the system. In the current structure of the government, these human resources are limited to support the procurement unit in procuring the desired systems, operation of the existing systems, and performing the office tasks. Above all, they will be transferred from one organization to another, when they have just been trying to understand the process flow of the organization. In the government organizations of Nepal, there is no mechanism of capturing the individual knowledge and pass-on to another. Therefore, every time they move from one organization to another organization they have to start everything from scratch. In addition, the current structure does not have enough space for vertical development. After a few transfers, they stop focusing on developing and sharpening their specialized skills. Their job design and the role given to them do not motivate them after some time. Despite being a specialized human resource, they are not able to perform in the government organizations compared to them working in the private sector or abroad. Therefore, they choose a different career path after some time, which is a loss for the government. It is now time for both the political and bureaucratic leaders to review the structure of the government so that these specialized human resources can get the opportunity to display their skills and knowledge. The COVID-19

pandemic has highlighted the need and role of technology. Being dependent on the technology developed by others and developing their own technology is different. We cannot develop resilient, versatile, and sustainable systems based on the technology developed by others. It is now time for the government to invest in research and innovation with a vision of digital transformation. This is only achievable through the system thinking approach for which consciousness, capacity, co-creation and courage is necessary.

People are reluctant towards change, they do not want to get out of their comfort zone and learn new things. In case of technology shift, people usually rely on the IT professionals. Most of the time people look others for any change rather than starting from self. In reality the changes in an organization is a combined effort of all the people involved in the organization. To generate a combined effort organization need to create an environment of communication among the people within the organization. If the voices of all the people in an organization are included then the initiatives taken will move towards positive direction. To bring about technological changes in an organization there has to be a strategic lens for holistic involvement. The employees of an organization perceive introduction of a new technology or as a major threat to their sense of security, stability, and purpose. The employees will be looking a purpose to use the system. They look towards how the use of technology or adoption of new process is going to affect their way of operation. The employees require a clear value proposition from the technological and process change. Organization has to know the need of their customer too. The attitude “I know everything about the customer” does not help the organization to create a required solution. Human factor plays a crucial role in changing the existing situation of service delivery. Government employees understand the need of technology at this hour for the public service delivery. However, they are less willing to go through the process of change due to the factors like performance expectancy and effort expectancy that influence their attitude towards behavioral intentions in using the system (Kirat Rai, Ramamritham, & Jana, 2020).

4.8 Digital Transformation Strategy

During the interview, the officials working at various levels and even the general people, are positive towards the use of technology in public service delivery. The initiatives of using technology started more than two decades earlier but the government has not achieved the desired result. COVID-19 highlighted the need for solutions that have to be resilient, versatile, and sustainable to counter any unknown situation. Therefore, now it is time for government organizations to work for a unified approach towards service delivery. Government should

work out a way to achieve the best output of digital transformation. Yearly, the government spends a large amount developing software solutions. These investments should generate a desired effect of digital transformation. In the case of Nepal, the adoption of new processes is very much difficult as the existing legacy system stands as a high resistance. We interacted with the officials to understand their view on how the government can move ahead to come up with the digital transformation strategy in terms of the new process adoption. We have considered new process adoption as a component of digital transformation as the government runs in a bureaucratic environment. The introduction of technology in public service delivery will not be effective unless there is modification in the existing process of service delivery. If the process remains the same then it is just automation of the existing system by digitization, which can make the new system more difficult to handle. Hence, there has to be a new business process to obtain the benefit of use of technology. We have looked into the four components as explained by (Mitroulis & Kitsios, 2019).

1. Structural Changes

In the context of Nepal, structural changes are necessary to achieve the digital transformation. The existing bureaucratic structure hinders, as it is process oriented and takes more time to make decisions. In addition, the current structure does not allow the human resource from technology background to function as an expert. There is also conflict in the autonomy of rights among various levels of governments and organizations. Therefore, political and bureaucratic leadership should bring the structural changes that support the transformation.

2. Customer Experience

In the context of Nepal, customer experience is not valued much. Most of the systems have been designed from the perspectives of service providers. Therefore, it is necessary to involve the customer experience in the digital transformation, which can pave a pathway for co-creation.

3. Financial Aspect

Any changes without finance is not possible so digital transformation has a cost. To obtain the maximum benefit of the expenditure, shared vision is necessary to have a common mental map and awareness among the leadership at various levels.

4. Changes in Value Creation

The leaders implementing the changes should always ask what change in value creation the change has bought. The answer should be substantial and convincing that focuses on the improvement of public service delivery. If there is no change in value creation towards public service delivery then the change might be undesirable or unnecessary.

5. Use of Technology

Technology in modern times is frequently upgrading. Technology is becoming absolute in a short span of time. Therefore, the government should be aware of those things and keep on upgrading both the technology and human resources to address the changes.

5 Discussion and Conclusion

At present, people are staying in queue at the TMOs to pay their tax and renew their concerned documents. There is lack of a strong digital database that can identify and verify a person. Due to this, the offices have not been able to reduce the unnecessary queue system and influence of the intermediaries. The level of awareness in the use of technology among the people is low in Nepal. In addition, the organizations that have been providing services digitally have not been able to provide service consistently. This has added distrust in using such systems. Therefore, the service receivers are reluctant to use the technology-based system. The government employees enjoy the legacy of bureaucracy and they are not making any substantial effort to change the status quo. This is evident in the public procurement process where most of the time the government organizations have selected vendors that have been able to deliver the desired outcomes. There is a lack of communication, coordination and cooperation among the various units of a single organization. This hampers the efficiency of the organization. Similar, scenario exists among the organizations of government to maintain their autonomy. The top-level leadership needs to yield courage to establish a process where the concerned stakeholders will come together to create a solution together. For this awareness and capacity is vital at all level. The pandemic has indicated uncertain situations for which the government should be ready to respond. Technology is the only solution in such a situation as we practiced work from home, online education, and electronic-commerce. The government has to improve the public service delivery with the lesson learnt from the pandemic. It is unnecessary to create a crowd in offices, which attracts unwanted activities from the intermediaries. Queuing system with the help of a token or other mechanism should be trustworthy. Organizations should aim to provide the

service at any time feature, where a service seeker can request an appointment for service at their time of convenience. The appointment system for the services can help to manage the crowd by providing the specific time slot for the service receivers based on availability of time slot. The organizational leadership should push these initiatives so that people will be forced to use the system and become aware about the system. This is an intervention in the existing process. To achieve changes in service delivery by adopting technology in their process there is a need of new process adoption. Adoption of technology with the existing process will only digitize the system, which cannot provide the benefit of use of technology. The digital transformation is only possible if any system can serve its purpose to its fullest level to enhance the public service delivery. As Christian Bason has rightly pointed out the need of consciousness, capacity, co-creation and courage in the public sector to drive any transformation.

COVID-19 is a wake-up call for the government to bring transformation in the public service delivery. It is now a high time for the leadership at both the political and bureaucratic level to understand and implement the system thinking approach towards the technological solutions. Even the leadership should be ready to change the organizational structure to deploy the specialized skills of the technological human resources. These human resources are necessary to generate solutions that will have resilience, versatility, and sustainability. We are in a time where everything is moving fast, and development of technology is one of the major reasons for this. Therefore, governments should think about ways to retain and use their brainpower to develop technology based solutions rather than being dependent on the solutions developed by others. The bureaucratic leadership have to reconsider the pros and cons of the legacy system of which they are also a part. The pandemic has indicated that staying in the status quo is not a solution at all. The leaders should be self-aware and have courage to make changes that has a meaningful impact. Therefore, in any organization everything starts with the vision of the leadership and the initiatives taken by the leadership to achieve the vision. In the government organizations of Nepal, there is regular transfer of the employee at certain interval. Due to this, many times the person could not finish the started initiatives. In addition, the person is unable to take charge of new initiatives. The knowledge transfer process is very weak in public organizations. The record keeping system is not strong as well as the documentation part is also weak. Therefore, whenever there is change in the person at some position the organizational memory goes along with the person. This affects another person resuming in the

same position to perform quickly. This was also evident in the DoTM and TMO where understanding the status for the new comer was challenge before going into execution.

The senior officials of GoN are aware of lack of system approach in developing the government systems that has to communicate with the systems of other organizations for information exchange or any actions. The systems are in silos, which hampers the information sharing among the organizations using different systems. The phase of system implementation in Nepal has showed the need of unified approach in system development. This requires personal mastery, mental modeling, shared vision, team working and system thinking approach as identified by Peter M. Senge in his book “The Fifth Discipline” that will bring all the stakeholders in a common platform to build a unified vision for developing systems of GoN. The role of leadership seems lacking in context of Nepal. Despite the formulation of Digital Nepal Framework and 15th Development Plan by the National Planning Commission (NPC), both the political and the bureaucratic leadership have not prioritized the use of technology in the development of Nepal. A unified vision is necessary; all the organizations focus on their rights and area of operation rather than cooperating and collaborating with each other to yield a desired effect.

The changes observed in the attitude of public service delivery at the time of pandemic is slowly going to the old track as the situation is going to normality. For this individual and institutional memory is necessary, which helps in maintaining the memory of the organization in further decision making process. This will convert the traditional organizations into a learning organization. Learning organizations are capable of converting the learning from crisis to opportunities. It is high time the public organizations have to act as learning organizations to establish their credibility in service delivery. The role and action of leadership is meaningful for this process. This also requires commitment from the political leadership. Therefore, looking at the implementation of a technology based-solution it seems that every activity have some connection. To understand the connections and develop sustainable solutions the government organizations have to come together for co-creation rather than fighting for their autonomy and rights. Digital transformation in public service delivery is achievable only if the governments at every level and the concerned organizations work together towards a shared vision. Digital Nepal Framework is a strategic document released by the government of Nepal to obtain the digital transformation in Nepal. It strategically points out various eighty initiatives under eight components to be carried out by various organizations to achieve the upper hand in digital transformations. COVID-19 has pointed to the acceleration of those initiatives so that

the service delivery can be transformed with the support of technology. The pandemic has pointed to technology as the only way out of any crisis. Therefore, the government should not falter to capitalize the experience of the pandemic and implement the system thinking approach in the development of technological solutions. It might demand courage from the leadership to challenge the existing legacy system, and become self-aware of the future of technology in public service. Then only the strategies developed to bring transformation in the public service delivery will bring some positive effect.

6 Limitations

Digital transformation is combined effect of system implementation, social network amplification, new process adoption, new technology adoption, and change agile leaders. In this research, we have only looked through the dimension of new process adoption to achieve the digital transformations in a single Transport Management Office (TMO).

7 References

- AA, A., MO, O., & SO, Y. (2015). Impact of E-Government on Governance Service Delivery in Nigeria. *International Journal of Advances in Management and Economics*, 4(3), 132–138.
- Aritonang, D. M. (2017). The Impact of E-Government System on Public Service Quality in Indonesia. *European Scientific Journal, ESJ*, 13(35), 99. <https://doi.org/10.19044/esj.2017.v13n35p99>
- Basyal, D. K., Poudyal, N., & Seo, J. W. (2018). Does E-government reduce corruption? Evidence from a heterogeneous panel data model. *Transforming Government: People, Process and Policy*, 12(2), 134–154. <https://doi.org/10.1108/TG-12-2017-0073>
- Bhattacharya, S. (2011). Study of E-Governance : The Attractive Way to Reach the Citizens. *IJCA Special Issue on “2nd National Conference- Computing, Communication and Sensor Network,”* 29–33.
- Bhattarai, P. C. (2017). *Reform in Public Service Delivery in Nepal : Demand or Supply Driven ?*
- Bryman, A. (2016). *Social Research Methods*. Oxford University Press.

<https://books.google.com.np/books?id=N2zQCgAAQBAJ>

Dhami, D. B., & Futó, I. (2010). Implementation Challenges of e-Governance in Nepal and Possible Steps. *International Conference on Applied Informatics, 1*, 433–445.

Digital Transformation - Observatory of Public Sector Innovation Observatory of Public Sector Innovation. (2021). <https://oecd-opsi.org/guide/digital-transformation/>

Flak, L. S., & Nordheim, S. (2006). Stakeholders, contradictions and salience: An empirical study of a norwegian G2G effort. *Proceedings of the Annual Hawaii International Conference on System Sciences, 4*(January). <https://doi.org/10.1109/HICSS.2006.436>

Fletcher, G., & Griffiths, M. (2020). Digital transformation during a lockdown. *International Journal of Information Management, 55*, 102185.
<https://doi.org/10.1016/j.ijinfomgt.2020.102185>

Giri, S., Shakya, S., & Pande, R. N. (2018). E-Governance implementation: Challenges of Effective Service Delivery in Civil Service of Nepal. *Global Journal of Computer Science and Technology: Interdisciplinary, 18*(3), 1–9.
<https://www.computerresearch.org/index.php/computer/article/view/1710/1694>

GoN, M. (2018). *2018 Digital Nepal Framework : Unlocking Nepal's Growth Potential*. Government of Nepal Ministry of Communication and Information Technology.
[http://mocit.gov.np/application/resources/admin/uploads/source/Others/Digital Nepal Framework Book updated.pdf](http://mocit.gov.np/application/resources/admin/uploads/source/Others/Digital%20Nepal%20Framework%20Book%20updated.pdf)

Henning, F. (2016). A theoretical framework on the determinants of organisational adoption of interoperability standards in Government Information Networks. *Government Information Quarterly, 35*(4), S61–S67. <https://doi.org/10.1016/j.giq.2015.11.008>

Improving Public Service Delivery in Nepal. (2019). Samriddhi Foundation.
<https://samriddhi.org/news-and-updates/simplex-model-improving-public-service-delivery-in-nepal/>

Karimi, J., & Walter, Z. (2015). The role of dynamic capabilities in responding to digital disruption: A factor-based study of the newspaper industry. *Journal of Management Information Systems, 32*(1), 39–81. <https://doi.org/10.1080/07421222.2015.1029380>

Kharel, P., & Shakya, S. (2012). e-Government Implementation in Nepal : A Challenges. *International Journal of Advanced Research in Computer Science and Software*

- Kharel, S. (2018). 9. PUBLIC SERVICE DELIVERY OF LOCAL GOVERNMENT IN NEPAL IN 2015 - Suman Kharel 9. *Research Nepal Journal of Development Studies*, I(1), 83–93.
- Kirat Rai, S. (2021). *Issues , Challenges , and Ways-ahead in developing citizen-centric E-Governance in Nepal* (Issue June).
- Kirat Rai, S., & Moktan, S. (2021). *Analyzing the Status of Improvement in Public Service Delivery through E-Government Implementation in Department Of Passport, Nepal*.
- Kirat Rai, S., Ramamritham, K., & Jana, A. (2020). Identifying factors affecting the acceptance of government to government system in developing nations – empirical evidence from Nepal. *Transforming Government: People, Process and Policy*, 14(2), 283–303. <https://doi.org/10.1108/TG-05-2019-0035>
- Kothari, C. R. (2004). *Research Nethodology - Methods and Techniques* (Second). New Age International.
- Manolopoulos, C., Sofotassios, D., Spirakis, P., & Stamatiou, Y. C. (2012). Public Sector Reform Using Information Technologies. In T. Papadopoulos & P. Kanellis (Eds.), *Public Sector Reform Using Information Technologies: Transforming Policy into Practice*. IGI Global. <https://doi.org/10.4018/978-1-60960-839-2>
- Matt, C., Hess, T., & Benlian, A. (2015). Digital Transformation Strategies. *Business and Information Systems Engineering*, 57(5), 339–343. <https://doi.org/10.1007/s12599-015-0401-5>
- Mithas, S., Tafti, A., & Mitchell, W. (2013). How a Firm’s Competitive Environment and Digital Strategic Posture Influence Digital Business Strategy. *MIS Quarterly*, 37, 511–536. <https://doi.org/10.25300/MISQ/2013/37.2.09>
- Mitroulis, D., & Kitsios, F. (2019). *Digital transformation strategy : a literature review* *Digital transformation strategy : a literature review*. July.
- Nograšek, J., & Vintar, M. (2015). Observing organisational transformation of the public sector in the e-government era. In *Transforming Government: People, Process and Policy* (Vol. 9, Issue 1). <https://doi.org/10.1108/TG-04-2014-0014>

- Panthee, B., Dhungana, S., Panthee, N., Paudel, A., Gyawali, S., & Panthee, S. (2020). COVID-19: the current situation in Nepal. *New Microbes and New Infections*, 37, 100737. <https://doi.org/10.1016/j.nmni.2020.100737>
- Pariyar, M. P. (2007). e-Government Initiatives in Nepal : Challenges and Opportunities. *ICEGOV 2007*, 280–282.
- Pokharel, T., Subedi, B. P., Adhikari, S. H., Adhikari, R., & Gupta, A. K. (2018). *Quality of Public Service in Nepal: Nepal National Governance Survey 2017/18 Thematic Paper*. [https://www.nasc.org.np/sites/default/files/Quality of Public Service in Nepal.pdf](https://www.nasc.org.np/sites/default/files/Quality%20of%20Public%20Service%20in%20Nepal.pdf)
- Qian, H. (2011). Citizen-Centric E-Strategies Toward More Successful E-Governance. *Journal of E-Governance*, 34(3), 119–129. <https://doi.org/10.3233/gov-2011-0263>
- Rai, S. K., Ramamritham, K., & Jana, A. (2021). Government to government (G2G) framework to strengthen communication among government agencies during disasters: Learnings from 2015, Gorkha earthquake, Nepal. *International Journal of Electronic Governance*, 13(1), 73–96. <https://doi.org/10.1504/IJEG.2021.114272>
- Sang, S., & Lee, J. D. (2009). A conceptual model of e-Government acceptance in public sector. *Proceedings of the 3rd International Conference on Digital Society, ICDS 2009*, 71–76. <https://doi.org/10.1109/ICDS.2009.30>
- Sebastian, I. M., Moloney, K. G., Ross, J. W., Fonstad, N. O., Beath, C., & Mocker, M. (2017). How big old companies navigate digital transformation. *MIS Quarterly Executive*, 16(3), 197–213. <https://doi.org/10.4324/9780429286797-6>
- Shaanika, I., & Iyamu, T. (2015). Deployment of enterprise architecture in the Namibian Government: The use of activity theory to examine the influencing factors. *Electronic Journal of Information Systems in Developing Countries*, 71(1), 1–21. <https://doi.org/10.1002/j.1681-4835.2015.tb00515.x>
- Shrestha, D., Devkota, B., & Jeong, S. R. (2015). Challenges and Factors affecting E-governance practises in Nepal. *9th International Conference on Software, Knowledge, Information Management and Applications (SKIMA)*, 292–299.
- Sodhi, I. S. (2016). Application of e-government in developing countries —issues, challenges and prospects in India. *SOCRATES*, 4(91), 91–109.
- Sullivan, M., Bellman, J., Sawchuk, J., & Mariani, J. (2021, March). Accelerated digital

- government. *Deloitte Insights*, 8–18.
<https://www2.deloitte.com/us/en/insights/industry/public-sector/government-trends/2021/digital-government-transformation-trends-covid-19.html>
- Talukder, T. K. (2015). *E-Governance in Public Service Delivery: A Study of Land Record Mutation Service in Bangladesh* (Issue December). North South University.
- Timeline of WHO's response to COVID-19*. (2021). WHO.
<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline#!>
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *Journal of Strategic Information Systems*, 28(2), 118–144.
<https://doi.org/10.1016/j.jsis.2019.01.003>
- Wei, N. W., & Oakes, R. (2020). *Public Service for a New Era*.
https://www.accenture.com/_acnmedia/PDF-128/Accenture-Public-Service-New-Era-SG.pdf#zoom=40
- What is Digital Transformation? Why Is It Important* - *Salesforce.com*. (2021).
<https://www.salesforce.com/products/platform/what-is-digital-transformation/>
- World Bank. (2014). *Local service delivery in Nepal*.
<https://openknowledge.worldbank.org/handle/10986/20020>
- World Bank. (2018). *Indicators of citizen-centric Public Service Delivery*.