Digitization of Nepali Economy amid Covid-19 Pandemic

POLICY BRIEF

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Summary

With the increasing adoption of smartphones and internet penetration during the last two decades, the digitization of key economic sectors has become a prime choice of policymakers for more efficient economic outcomes. In Nepal, GoN along with a few key private-sector stakeholders have taken major steps to digitize the Nepali economy, especially after Covid-19 struck the country in Jan 2020. In this brief, we highlight Nepal's digitization journey, key sectors disrupted by Covid-19 so far, major challenges to effective digitization, and key GoN policies that support Nepal's digital economy goals.

Background

Nepal began its modern connectivity journey in 1916 with the establishment of the first telephone lines in Kathmandu and the establishment of an open-wire trunk line from Kathmandu to Raxaul (India). This was followed by the establishment of telegram service and the introduction of a high-frequency radio system (AM) in 1950 which increased the public's access to information. Telephone lines were then distributed to the general public in 1955. Finally, with the launch of the GSM mobile service and the internet in 1999 and 2000, the general public attained modern communication services.

Nepal's communication sector has rapidly progressed from the turn of the century. Currently, Nepal has 42,001,423 telephone users among which 41,176,562 are mobile users while 821,875 used fixed telephone services. This means the penetration rate for voice telephony services is 138.94 percent. On the other side, Nepal has 36,041,106 subscribers to broadband internet with a total penetration rate of 119.49 percent.[1]
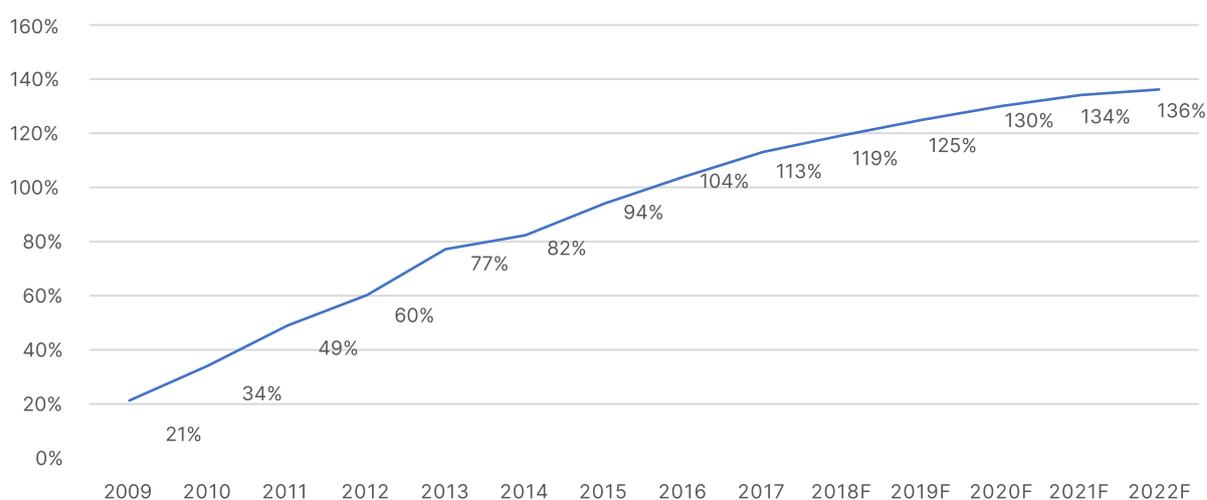
41,176,562
Mobile Users

821,875
Fixed telephone services.

Mobile Penetration (%), Nepal, 2009-2022F

Figure: Mobile Penetration Rate in Nepal [2]

The number of licenses issued by the Nepal Telecommunication Authority, the telecom regulatory body of Nepal, for communication services has reached 202 as of Dec 2021. Currently, fifty-three companies offer internet services in the country with a private company World Link Communications leading the sector and the government-owned Nepal Doorsanchar Company in second place. With a massive growth in the number of companies and investors in the communication sector[3], the number of users has been increasing every year although from the penetration rates we can see that the percentage of people using both voice telephony and broadband internet services has already exceeded 100 percent of the population.

▶ There has been an appropriate distribution of connectivity among the different parts of Nepal. When started, newer services like 4G or 3G tend to be trialled in certain developed cities, but the rollout of these services over other parts of the country is pretty fast. The adoption of newer services can also be seen by the fact that Nepal was the first country among SAARC to roll out 3G services among its public.[4] Nepal also ended its dependence on India for global connectivity in Jan 2018 by operationalizing optic fiber links with China.[5]

With the access to fast internet reaching all over the country, Nepali companies and individuals have started their shift to e-commerce as well as the gig economy. Nepal's e-commerce journey started in 2000 by companies that helped Nepalis living abroad buy gifts for their relatives in Nepal. Companies such as muncha.com, thamel.com helped Nepalese get a basic understanding of what e-commerce could look like and how the internet could be used to facilitate shopping. Later on, other companies like Sparrow SMS provided School Leaving Certificate (SLC) results through text messaging at a time when internet access was not available at every household and mobile penetration was also relatively low.

Currently, Nepal has a large number of companies working in the e-commerce and gig-economy sector providing a range of services like food delivery, shopping, payments, other deliveries, ride-hailing, and this is only increasing daily. This boom in the e-commerce and gig-economy sector can be largely credited to the increase in internet usage in addition to large international investments in the sector helping provide better operational mechanisms and practices.

With the rise in social media usage, people have also extensively used it to sell goods and services. Small or home-based businesses especially find it easier to do so as it takes little to no startup costs to build an online presence.

While there are no laws governing e-commerce specifically in Nepal, the Ministry of Commerce, Industry, and Supplies had drafted an Electronic Commerce Bill back in early 2021[6] but the bill has not yet been approved by the parliament. Having a specific law to govern this new burgeoning sector is the need of the hour so as to protect consumers and help companies expand in this space. According to the Digital Nepal Framework 2019, the e-commerce industry was valued at USD 30 million with an expected growth of more than 41 percent. But, if we consider the informal sector, where many startups have begun to sell goods through social media without registrations, this number would be much higher. The employment impact for the sector was also estimated to be 1:4, where four indirect jobs were created for each direct job. Additionally, the increase in the online seller base also created additional 12 jobs in support services such as delivery, customer service, and warehousing among others. The growth potential of this sector is huge and its impacts on employment opportunities and contribution to the GDP of the country can be enormous.

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Digitization During the Pre-Covid Period

Nepalese, especially urban youth, have adopted technology and digitalization since the early days. The large number of the Nepalese Diaspora abroad[7], either for studies or work, have either necessitated or made it easier for their family members to adopt the technology. However, the adoption of such technology was slow in the production of goods or service delivery.

The Covid-19 pandemic, and the ensuing lockdown measures, forced different sectors of the economy including the government, to integrate technologies in the delivery of services. The following section analyses the adoption of digital technologies in selected service sectors.

Education

The imposition of the nationwide lockdown in March 2020 forced the closures of the schools too. It shocked the education system in Nepal based on physical classrooms. On 30 May 2020, the Ministry of Education, Science, and Technology (MOEST) issued a Guideline for the Facilitation of Student Learning through Alternative Means[8] and established an online learning portal (https://learning.cehrd.edu.np/home) by bringing together audio, visual, and e-resources[9]. Some schools adopted online classes, with support from the government and development partners. However, only 27 percent of students from public schools and 44 percent of students from private schools had access to online classes. 50 percent of the private school teachers were connected to their students through online/virtual classrooms. The rate was about half (27 percent) for public school teachers[10].

There has been some criticism that the adoption of digital technologies has intensified the gap between rural and urban students or between public and private school students as the above data shows. The question of 'effectiveness' has also been raised in context[11]. Despite those criticisms, the adoption of digital teaching methods has prevented most students from losing (or delaying) two years of education because of Covid-19 restrictions.

The education sector faced a lot of disruptions due to the enforcement of lockdowns. A lot of the schools turned to online tools such as zoom to hold online classes. The government of Nepal and development partners offered support to schools, especially to schools in rural areas for holding online classes. Study materials were also transmitted to students in certain districts through television and radio. Telecom service providers also offered internet and data packages with reduced costs to help students who had financial troubles accessing internet services. However, the gap that has existed between schools in urban and rural areas was illustrated and exacerbated due to the pandemic and the subsequent lockdown.

Two years since the advent of covid-19, Nepal is better equipped to deal with disruptions in physical classes compared to the pre-pandemic era, though some disparities remain. This will come in handy if schools must be closed for pandemics, natural disasters, or political strikes in the coming time. In summary, Nepal has made some progress in terms of adopting digital technologies to facilitate educational activities but routine updates and improvements over the years are required to meet the emerging needs of the students and institutions alike.

Public Service Sector
Covid-19 and Digitization of the Economy

One major aim of GoN has been using digitization to accelerate the economic growth of the country[12]. This process was hastened because of the pandemic, though some efforts had been made prior to the pandemic. As such the government had begun the process of digitizing transactions through the implementation of e-payment systems, digitizing historical documents, and using direct bank deposit systems. Currently, payment for various services such as utility bills, blue book renewal fees, traffic police fine payment, passport, no objection letter payment, and foreign employment insurance and welfare funds can be paid through online banking and digital wallet services. Services at provincial and local levels are also being slowly digitized. The Local Level Mobile application system developed by the Department of Information Technology is one such service[13]. Another such service is the Smart Palika app which aims to usher every local level to the digital age[14]. It allows the citizens to access information easily, pay utility bills, file tax documents, get government documents, contact their representatives, and lodge complaints.

The government has also launched systems such as Nepal National Single Window to create a smoother online system for imports and exports[15]. During the pandemic, the Ministry of Health and Population created the Covid-19 Dashboard website and launched the HamroSwasthya app to provide up-to-date information about the Covid-19 situation in the country. Provincial governments and local level governments also utilized apps and text messages to update the citizens regarding Covid-19.

Besides the government, NRB has also been focused on creating and implementing policies that aim to make the digital economy accessible all over Nepal. A major effort from NRB's side has been the implementation of the National Payment Gateway System a common platform that incorporates the entire payment ecosystem[16] and will help the central bank monitor all payment systems and will allow consumers to make VAT, income tax, and excise duty payable through an online system. While the system was supposed to be ready by the first quarter of the fiscal year 2021/2022, the first phase of the system has been implemented since Nov 2021[17]. In addition, as Covid-19 cases began rising and lockdowns were imposed the central bank emphasized the need to increase digital transactions and use digital services to conduct banking transactions. Banks and financial institutions launched various services to make digital transactions easier for their customers[18]. In an attempt to regulate QR service providers and make digital transactions easier for consumers, NRB has also published guidelines for QR payments in Jan 2021[19]. Under the guideline, the QR Service providers are not allowed to charge customers extra fees under any headings.

The government too expedited the automation of its public data/information, ▶

In an attempt to regulate QR service providers and make digital transactions easier for consumers, NRB has also published guidelines for QR payments in Jan 2021.

approvals process, and revenue collection and payout processes, which it had been attempting to do for many years.

This has resulted in the exponential growth of digital transactions. It increased from NPR 3.1 billion during the fiscal year 2016/17 to NPR 221.1 billion in the fiscal year 2019/20. During the Covid-19 lockdown period, from mid-July to mid-Oct 2020 (first quarter of the fiscal year 2020/21), the volume for government transactions (payout and revenue collection) increased by 943 percent compared to the same quarter last fiscal year[20].

On 26 Jan 2021, GoN launched the long-awaited Nepal National Single Window (NNSW) system[21]. It will bring down the number of days required to import or exports goods from Nepal, and the cost of importing a consignment by 20 percent[22]. As per the GoN provided details, any trader (or a business house) while importing or exporting goods and services can visit a single service center allocated by GoN where he/she can finish required documentation and logistics across key ministries and departments (eg. Inland Revenue Department, NRB, Department of Industry and Department of Customs among others). This is a good move and if implemented well it is sure to cut down the number of days required to accomplish related logistics thus cutting down net expenditures and to some extent corruption incidents.

Financial Sector

The financial sector was among the quick adopters of digitization during the pandemic. There have been sizeable upticks in card subscription (9.48 percent), mobile banking (35.46 percent), internet banking (12.41 percent), and other similar digital instruments were seen in the fiscal year 2019/20[23].

Transaction values and volumes have also grown, further escalating during the Covid-19 period. Transaction value during the month of August-Sept (second month of the current fiscal year as per Nepal Rastra Bank data) increased for digital transactions of NCHL (non-cheques) to NPR 215.0 billion, cards to NPR 34.1 billion, mobile banking to NPR 20.3 billion, internet banking to NPR 4.7 billion, and digital wallets to NPR 7.3 billion.

The capital market awakened overnight to realize that less than two percent of its investors had access to its online platform even two years after its online trading platform was launched. Remittance companies dependent on cash-based agent delivery mechanisms moved towards direct-to-bank account deposits. And banks and financial institutions, which had been extremely aggressive in opening up new branches, reduced the number of footfalls by increasing their digital services.

E-Commerce

With the increase in digital penetration, stable internet service, and digital payment options, e-commerce in Nepal has taken up during the pandemic. According to Nepal Rastra Bank, online transactions in mid-October and mid-Nov 2021 reached NPR 4.93 trillion compared to NPR two trillion in the same time period last year. The number of transactions also swelled reaching 48.66 million during the review period, up from 34 million transactions previously[24]. E-commerce companies like Daraz and Sastodeal grew by 100 percent[25] in terms of volume and value respectively in the year 2021.

Despite the rapid growth, there are issues. The Ministry of Industry, Commerce, and Supply prepared an e-commerce bill in Jan which has been sent to the Ministry of Law, Justice, and Parliamentary Affairs for inputs and approval for implementation[26]. However, the government has not been able to enact an e-commerce law yet. Both the consumers and the service providers are operating under uncertainty. As an emerging issue, ▸

cryptocurrencies have become a subject of major policy discussions among the NRB and the Ministry of Finance officials. As the recent dip in remittance inflow, NRB had issued a notice asking Nepalese citizens, irrespective of their current country of residence, not to invest in bitcoin and other blockchain-based cryptocurrencies identifying these currencies as the key reasons behind the fall of remittance inflows to Nepal lately[27]. From economic digitization perspective, this NRB move seems counterproductive.

The Covid-19 pandemic has accelerated the speed of digital ecosystem adaptation in Nepal. Below are a few ways through which various sectors have been adjusting to the process of digitization:

Mobile Banking

Mobile banking saw an increase in usage during the pandemic[28]. Fintech platforms such as eSewa, Khalti, IME pay all saw an increase in users and volume of transactions during the lockdown. E-Sewa, which is one of the leading fintech companies saw an increase of 35 percent in its user base from March 2020 to August 2020[29]. IME pay also saw an increase of 25 percent in its user base during the same time period. Online payment has also penetrated the consumer goods market. The options of making payment through digital wallets in supermarkets, restaurants, and other service providers. Even local markets such as major vegetables markets have added the option of QR code payment[30].

Health Sector

Healthtech platforms also saw a boost in usage during the pandemic. Jeevee, which is a leading platform in the health-tech sector saw its platform's traffic increase by 90 times[31]. In addition, healthcare apps such as e-Appointments, SmartSwasthya, HamroDoctor, and NepMeds also gained popularity during the pandemic. These apps are currently being used in digitizing health records,

booking consultations, making/ following up on appointments, and filling pharmaceutical orders.

Challenges to Effective Digitization of the Nepali Economy

Challenges Pre-Pandemic for Digitizing Economy

World Economic Forum's Network Readiness Index (NRI) indicates the application and impact of information and communication technology (ICT) in economies around the world. In the year 2019 Nepal was ranked 106th among 121 economies[32]. NRI divides the index into four pillars to monitor and judge the strengths and weaknesses of the economy. The pillars are – Technology, People, Governance, and Impact. Technology and people pillars are areas where Nepal must improve as the country has not fared well in the mentioned pillars. Both Technology and People have sub pillars – Technology includes 'Access, Content, and Future Technology. According to the NRI, technology is at the cardinal of an economy and "sine qua non" for the government's role in the globalized economy. The People sub pillar comprises Individuals, Businesses, and Governments. The People pillar believes the efficacy of technology can only be judged when people have access, resources, and skills to use technology properly.

Although online trust and safety are two of the strongest indicators, in contrast, areas like - Availability of local online content, availability of the latest technologies, 4G mobile network coverage, and internet access are the weakest indicators among others.

Challenges post and during pandemic for digitization economy

Undoubtedly, Nepal has made progress in the ICT sector after the surge of the Covid-19 ▶▶

pandemic but still, some challenges are prevalent in the twenty-first century. Firstly, Nepal's main law that regulates the telecommunication sector is the Telecommunication Act 2053 (1997). The act is more than 2 decades old and requires an amendment to meet the current modern digital flux. Secondly, Nepal's digital infrastructure is disproportionately spread, and online payment systems are metropolis centric. Issues like land acquisition have hindered the process of developing digital infrastructure. As per the 2019 Digital Nepal Framework electricity disparity exists in Nepal – "only 72 percent of the rural population having access to electricity, compared to 96 percent in urban areas". The Nepali populace is well acquainted with long hours of outage. A pre-requisite for digitized Nepal is the complete electrification of the country. Nepal relies on the development of its hydropower to electrify the country. To harness Nepal's hydropower energy, pain points like land acquisition and forest clearance should be pre-empted and tackled.

After governments globally started imposing strict lockdown measures to contain the Covid-19 it encouraged private companies to go digital. Digital wallets and food delivery sites became increasingly popular. Some examples would be foodmandu and Bhoj Deals for food sites and IME pay introduced remittance services to digitize remittance. However, 2021 NRI slates online access to a financial account, internet shopping, computer software spending, and high-tech exports as the weakest indicators[33].

On a sanguine note, internet penetration has seen an upward trajectory. In 2017, internet penetration was at 52.03 percent and in 2022 increased to 102.82 percent[34].

A pre-requisite for digitized Nepal is the complete electrification of the country. Nepal relies on the development of its hydropower to electrify the country.

Policy Recommendations

1. The digitalization of public service delivery is laudable. Yet, some of them are limited to digital payment. In such cases, there is a need to visit the service provider to present the proof of 'payment' for service delivery. It would be better served if all service delivery that can be provided without an office visit is provided online.

2. As the local governments are digitalizing services, it would be prudent for the federal government to provide guidelines so that all local governments have a standardized system. It will help the staffers and service seekers. It could also bring down the costs of developing such platforms for each local level.

3. GoN should prioritize setting-up optical fibers in the rural areas as well. This will not only help GoN and other key players to organize their overall internet infrastructures across Nepal's rural areas but also minimize changes of their damages during frequent natural disasters (eg. landslides, floods, and earthquakes)

4. Between 1997 and 2022, Nepal's connectivity landscape has changed manifolds. As a consequence, to make sure that the country has the latest policy document to guide related activities and initiatives, GoN should amend and update the archaic Telecommunication Act 2053 (1997). In addition, we recommend GoN updates the said Act and other related acts and policies more frequently, if not on annual basis, on annual basis given the unprecedented pace of disruptions in these sectors in recent years.

5. Comparing mobile penetration rates and available infrastructures (built by GoN and private actors), Nepal's overall phone and internet infrastructures are still in average conditions. On this, as the world prepares to adopt 5G technologies, GoN should also have a major focus on building sufficient infrastructures for better 5G connectivity across the country.

6. The communication channels developed by federal and local governments (such as applications and social media groups) should be repurposed (by some modification, if necessary) after the pandemic as forums for the local government to communicate with the people, including to receive direct feedback on the performance of local governments or staffers.

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Annex

Major policies

Timeline of key policy decision/ documents aimed at boosting Nepal's digitization plans

2017	4G/LTE service launched
2015	FTTH service launched
2014	Wi-Fi Hotspot, NT Official Mobile App
2013	IP-Based Wireline Network (NGN) service launched
2012	Convergent Real-Time Billing and Customer Support system launched
2012	IP-CDMA system commissioned
2012	WiMAX 4G service launched
2011	GSM 3G Data Card service introduced
2011	First International Carrier Partner's Meet organized by NT
2011	Launching of GSM 3G Data Only Service
2011	Launching of EasyPhone SIP PPP Service
2010	Launching of EasyPhone SIP EasyCall Service
2010	EVDO Service started
2009	Postpaid CDMA Mobile Service started
2009	SMS Service from GSM to CDMA mobile started
2009	IVR 1606 Service extended outside Kathmandu Valley
2009	IVR 198 Service extended outside KTM valley
2008	PSTN VMS - Notice Board Service Launched
2008	IVR 198 service extended for ADSL Fault Complaint Registration
2008	IVR Service 1607 started for GSM and CDMA PUK Enquiry
2008	Broadband ADSL Service launched
2007	GPRS, 3G, and CRBT Services introduced in GSM Mobile
2007	VOIP Call Complaint Registration started via 188 IVR Service
2007	PSTN Bill Enquiry Service started via 1606 IVR Service

2007	National Roaming for CDMA Mobile (Sky Phone) started
2006	CDMA services in Kathmandu Valley
2006	MCC (198) Complaint Registration via IVR in Kathmandu Valley
2006	Home Country Direct Service - Nepal Direct (IN)
2006	PSTN Credit Limit Service - PCL (IN)
2005	Outsourcing of Enquiry Service (197)
2005	Access Network Services
2005	Soft launch of CDMA
2004	Launching of SLC Result via IVR system (1600)
2004	Prepaid Calling Card Service (IN Services)
2004	The transformation from Nepal Telecommunications Corporation to Nepal Doorsanchar Company Limited commonly knowns as Nepal Telecom
2003	GSM Prepaid Service
2002	East-West Highway Optical Fiber Project
2001	Launching of International Roaming in GSM mobile service
2001	Launching of Payphone Service
2000	Launching of Internet Service
2000	Implementation of SDH Microwave Radio
1999	Launching of GSM Mobile service
1997	Digital Link with D.O.T. India through Optical Fiber in Birgunj - Raxual
1997	Nepal Telecommunications Authority was established according to Telecommunication Guidelines, 2054
1996	Independent International Gateway Exchange established
1996	Introduction of VSAT services
1996	Internet/Email service started in Nepal according to Telecommunications Act, 2053
1995	Installation of Optical Fiber Network
1992	Formulation of National Communication Policy
1987	Commencement of ISD service

1984	Commencement of STD service
1983	Establishment of Digital Telephone Exchange
1975	Telecommunications Development Board converted to Nepal Telecommunications Corporation
1971	Enactment of Communications Corporation Act, 2028
1969	Telecommunications Department converted into Telecommunications Development Board according to third five-year plan (1966 - 1971)
1964	Beginning of International Telecommunications Service using HF Radio to India and Pakistan
1963	Establishment of first 1000 lines Automatic Exchange in Kathmandu
1959	Establishment of Telecommunication Department according to First National Five Year Plan (1955 - 1960)
1955	Distribution of telephone line to the general public in Kathmandu (300 lines Cross Bar Exchange)
1955	First National Five Year Plan (1955 - 1960) recommends the establishment of Telecommunication Department
1950	Establishment of CB telephone exchange (100 lines) in Kathmandu
1950	Introduction to High-frequency Radio System (AM)
1950	Establishment of Telegram Service
1948	Establishment of MOHAN AKASHWANI
1916	Establishment of Open wire Trunk Link from Kathmandu to Raxaul (India)
1916	Establishment of first telephone lines in Kathmandu

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