E-Readiness for E-Learning: A Nepal Case

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E-Readiness for E-Learning: A Nepal Case.

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Abstract:

The level of capacity which is essential to appreciate and utilize digital technology in any organization or in the nation is refers as e-Readiness. E-Readiness of government is being a strong backbone to implement e-governance in the country. It became a vital policy tool for all countries since it enhances the trust of the citizens through applying the principles of good governance. The objective of this paper is to examine the e-Readiness status of Nepal. The literature review and content analysis methodology has applied during accomplishing the study. The study concludes that for improvement of the government efficiency, the Government organizations should implement ICT to improve service delivery for the citizens as well as businesses. E-governance activities enable a long-term revolution of the governments that helps far elsewhere the online service delivery. Based on the UN E-governance survey, data on E-governance readiness and participation indices for Nepal over a period of 2003-2020 were analyzed to have a deeper understanding of the current scenario. It shows that the e-Government development Index rank, e-Government Development Index value, e-Participation Index rank, e-Participant Index value, Online service Index value, Telecommunication Infrastructure Index value and Human Capital Index value.

Key Words: *e-readiness, e-learning, online education, virtual education, open learning*

1. Introduction:

The level of capacity which is essential to appreciate and utilize digital technology in the nation is refers as e-Readiness. It is a measure of country's readiness in the field of ICT and willingness to attain benefits, which arise from the ICT jobs (Kautish et al., 2019). E-Readiness of government is being a strong backbone to implement e-governance in the country. It became a importance policy tool for various countries since it enhances the trust of the citizens through applying the principles of good governance Hassan and Fatimah (2014). It is popularly used to measure capacity of nation to take part in e-activities of service delivery in various sectors of the organizations (Kautish et al., 2019).

An E-Readiness indicator provides the guide line of the country's actual situation and delivers the baseline for assessment and further planning. It not only helps in the improvement of e-Readiness and identifying new areas of service delivery but also provide actual picture of the country in fact. It is a, essential tool which is used for measuring the required levels of infrastructure, education, service delivery and other sectors related to ICT (Dada, 2006).

Different guides have been developed for the assessment of e-readiness. These guides include the Economist Intelligence Unit e-Readiness Index, the International Telecommunication Union Digital Access Index, World Economic Forum Networked Readiness Index, Conference Board of Canada Connectedness Index and ORBICOM Infostate Index, United Nations Conference on Trade and Development ICT Development Index, Mosaic Group Index The Economist Intelligence Unit (EIU, 2006).

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

Same way, The E-Participation Index of Nepal has jumped tremendously into the world ranking of 55 in 2018 in comparison to that of 89 in 2016. The E-Participation Index (EPI) score has improved from 0.5085 in 2016 to 0.7809 in 2018. This indicated that the e-Participation in the country has increased gradually. This shows that Nepal is getting better in terms of technology implementation and usage, which clearly show that there is a very favorable environment of the implementation of e-activities through government level (UN, 2020)

It is clear that there are many reasons to adopt the ICT by the governments to engage in the process of e-readiness. According to Potnis and Pardo (2011) explained that the quality of nations is tested through the process of e-readiness, so it is necessary to accept ICT in the nations.

According to Kishan Buddhacarya and Jyotir Moy Chatterjee (2019) younger age people of Nepal has much knowledge and experience how to use the ICT and digital technologies in different services. The ER index of Nepal has increased to a significantly higher ranks; there is a lot of opportunity in coming days for the successful implementation of e-services and promoting the e-learning.

2. Literature Review

2.1 E-Readiness for e-Learning in Nepal

Internet users in Nepal in Dec/2020, 73.8% penetration and Facebook users in Dec/2020, 41.4% penetration (InternetWorldStats, 2020). Although telecom sector in Nepal have met with many challenges for many years. The fixed line market in Nepal remains underdeveloped. A major reason for this is due to the dominance of the mobile segment. Overall penetration reached only 2.8% in 2019. Fixed broadband penetration in Nepal remains very low mainly due to a limited number of fixed lines and the subsequent dominance of the mobile platform. As the market has grown strongly over the past five years from a very small base with penetration increasing from 0.9% in 2014 to 3.9% in 2019.

Fiber-optic networks are developing all over the country under private and public funding. The growing demand for high speed internet will strongly push the development of fixed broadband. Over the next five years to 2024 strong growth is expected to continue. Fixed broadband penetration is predicted to reach 10% by 2024.

Between 2018 and 2019 numerous ISP announced contracts with Nokia to deploy fibre-to-the-home (FTTH) in the country. This is in line with the government's vision of a digital society, whereby 90% of the population will have access to broadband services by 2020.

Nepal's mobile market is now relatively developed and has experienced extraordinarily strong growth over the last years. It has seen a very rapid increase in mobile broadband penetration over the past seven years driven by increasing numbers of 3G and 4G mobile subscribers. However, the mobile broadband market is still at an early stage of development with penetration well below most other Asian countries.

The crucial nature of telecom services, both for general communication as well as a tool for home-working, will offset such pressures. In many markets the net effect should be a steady though reduced increased in subscriber growth. The responses of the telecom operators as well as government agencies and regulators as they react to the crisis to ensure that citizens can continue to make optimum use of telecom services. This can be reflected in subsidy schemes and the promotion of tele-health and tele-education, among other solutions.

The key developments in telecommunication sector in Nepal are:

Government facilitates e-learning with free internet access and data packages for students;

- Nepal rises to 11th country in terms of international broadband speeds rankings;
- Nepal Telecom secures additional 1800MHz spectrum, aims to close down CDMA network by July 2021;
- Nepal sees rapid increase in mobile broadband penetration;
- Nepal Satellite Telecom has license revoked;
- Nepal's first national satellite to be launched in 2022;
- Report update includes an assessment of the global impact of COVID-19 on the telecoms sector

2.1.1 Current status of Information and Communication Technology in Nepal

ICT is rapidly developing in Nepal. Mobile, internet service, FM radio, television, e-newspapers, online media, social media have expanded significantly. Nepal has formulated a satellite policy for the development of its satellite using the orbital slot received from the International Telecommunication Union (ITU), and for the expansion of international cooperation in the field of communication technology, radio, and television.

Table 1: Indicators Related to Communication and Information Technology

Indicators	Till Fiscal Year 2018/19	Up to Mid-March of Fiscal Year 2019/20
Telephone Density(%)	137	139
Density of Internet Subscriber(%)	60	75
Increase in national access to Radio(%)	86	87
Customers of Basic PSTN Telephone (In Ten Million)	8	6.7
Customers of Mobile Telephone(in hundred thousand)	396	407
Number of Internet customers (in hundred thousand)	140	187
The online tracking system in the postal Service(District)	55	75
Access density in broadband (Population %)	176	211
Digital Television access (Population %)	72	72
Government service delivery through online (Number)	10	13

Source: Ministry of Communications and Information Technology, 2020

According to Economic survey (2019/20), it has declared that access and coverage of Nepal Television's broadcast have reached 72.0 percent of the population and 52.0 percent of the geographical area in the country. Nepal Television's broadcast access has expanded to 146 countries outside the country.

2.1.2 Telecommunication service in Nepal

By mid-March of the fiscal year 2019/20, telephone density has reached 139.0 percent and the internet subscriber density has reached 75.0 percent. In the fiscal year 2018/19, telephone density was 137.0 percent and internet subscriber density was 60.0 percent.

By mid-March of the fiscal year 2019/20, the number of mobile phone users has reached 40,793, 102. In the fiscal year 2018/19, the number of mobile users was increased by 5.9 percent as compared to that of the fiscal year 2017/18 and had stood at 40,596, 259.

To upgrade the existing ADSL service of Nepal Telecom to FTH and to convert local telephone to fiber technology in the long run and provide internet, television, and voice services from a single cable, a network of 4000,000 is planned under the FTTH project, out of the plan a network having the capacity of 142,000 has installed so for and the number of subscribers has reached 43,000.

Table 2: Details of Internet Users (in Percentage)

Service Provider	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Nepal Telecom Pvt. Ltd.	56.3	55.15	53.10	43.66	48.41	48.91
Ncell Pvt. Ltd.	41.3	42.48	43.85	40.78	34.82	32.81
United Telecom Pvt. Ltd.	0.5	0.46	0.40	0.42	0	0
Smart Telecom Pvt. Ltd.	0.8	0.76	1.08	0.28	1.10	1.13
Internet Service Providers	1.1	1.15	1.58	14.86	15.67	17.15
Total	**100**	**100**	**100**	**100**	**100**	**100**

Source: Ministry of Communication and Information Technology, 2020 **up to mid-March*

Table 2 indicates that the internet service has reached 75 percent of the total population of Nepal. By mid-March of 2020, subscribers to Nepal Telecom Company had reached 48.9 percent.

Similarly, 32.8 percent of subscribers use Ncell Internet service. The share of various internet service providers is 18.3 percent.
To provide high-speed internet service to the Mid-Hill High way and surrounding districts, the work of laying 204 km of optical fiber has been completed by mid-March of the fiscal year 2019/20. (Economic Survey, 2019/20)

How about the readiness of the internet facility in student's locality? The question is whether there is the availability of the internet for online education in their location?

Table 3 : Availability of internet facility in students locality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	25	17.7	17.7	17.7
	Yes	116	82.3	82.3	100.0
	Total	141	100.0	100.0	

Data Source: Field Data 2020.

The table 3 elaborated that a significant number of respondents from the sampled (82.3%) responded positively 'Yes' there is facility of internet. But 17.7% of respondents answered 'No' means there is not facility of internet.

Due to poor WIFI connectivity in rural areas students have been facing problems during online classes. Disconnection of WIFI, poor visualization and poor sound system made students irritated during class period too. It made difficult to concentrate on their classes. Those students who have not WIFI at their home have shared with friends. They must walk long distance to get WIFI at friend's home. It is the great problem of students in hilly and mountain areas of Nepal. Although the Government of Nepal is declared to distribute free internet data package but poor students have not got it because they have not computer, mobile or laptops also (Giri, 2020).

2.1.3 Information Technology

Digital Nepal Framework-2019, has been approved by the Government of Nepal and implemented. Till mid-March of the fiscal year 2019/20, broadband internet service has been extended to 421 local levels, 3,530-word offices, 2,839 community secondary schools, and 2481 health institutions. To establish a relationship between the local level and the general public, 431 local levels using mobile apps.

In the fiscal year 2019/20, as per the agreement, 1,000 community secondary schools are made information technology-friendly. The setting of computer labs has been completed in 535 community secondary schools. One in each of the seven provinces, the school has been transformed into an information technology friendly "Smart school". (Economic Survey, 2019/20)

2.1.4 Network Readiness Index 2019 Nepal

Nepal ranks 106th out of the 121 economies included in the Network Readiness Index-NRI 2019 **(Figure 1).**

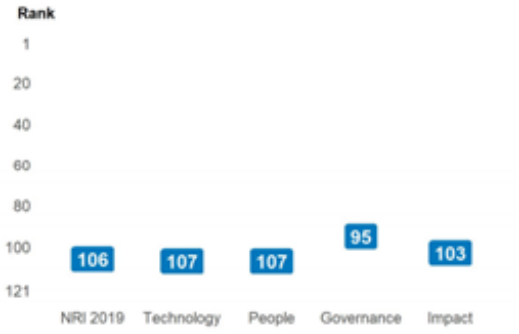

Figure 1. Nepal global ranking overall and by pillar.

Its main strength relates to Governance. The greatest scope for improvement, meanwhile, concerns Technology and People.

2.1.5 Strongest and weakest indicators

The indicators where Nepal performs particularly well include online trust and safety, Income inequality, and E-Participation (Table 4). By contrast, the economy's weakest indicators include Pollution, 4G mobile network coverage, and Availability of latest technologies.

Table 4: Strongest and weakest indicators

Strongest indicators	Rank	Weakness indicators	Rank
Online trust and safety	6	Availability of local online content	105
Income inequality	34	Internet access	108
E-Participation	55	Regulatory quality	108
R&D expenditure by government and higher education	60	Handset prices	109
E-commerce legislation	66	Internet shopping	109
Road safety	68	Social Safety net protection	109
Government online service	71	Social safety net protection	111
Professionals	73	Availability of latest technologies	112
Publication and use of open data	79	4G mobile network coverage	116
Ease of doing business	84	Pollution	120

Data Source: NRI Report (2019).

2.1.6 E-Government Development Index rank (2003-2020)

According to UN Survey (2020) e-participation and data-centric approaches have been enhanced, and the focus in building digital capacities has increased. However, digital government roadmaps should be supported by a long-term vision, national leadership and necessary capacities. The Survey has further illustrated that the role of digital ministers, national chief information officers, and other policymakers and researchers in e-government development has been increasing day to day as well as digital transformation is being a critical part of the national sustainable development of many countries.

Table 5: E-Government Development Index rank (2003-2020)

2020 Nepal	2020	2018	2016	2014	2012	2010	2008	2005	2004	2003
E-Government Development Index rank	132	117	135	165	164	153	150	126	132	130
E-Government Development Index value	0.4699	0.4748	0.34581	0.23442	0.26644	0.25677	0.2725	0.30211	0.28074	0.26839
E-Participation Index rank	137	55	89	110	134	127	152	73	75	61
E-Participation Index value	0.369	0.7809	0.50847	0.29411	0.0263	0.05714	0.02272	0.07936	0.06557	0.1379
Online Service Index value	0.4	0.6875	0.39855	0.15748	0.28758	0.16825	0.28762	0.4	0.3359	0.31877
Telecommunication Infrastructure Index value	0.4691	0.2413	0.16745	0.16843	0.05969	0.02268	0.0119	0.00634	0.00632	0.00639
Human Capital Index value	0.5405	0.4957	0.47142	0.3774	0.45206	0.58206	0.51758	0.5	0.5	0.48

Data Source: e-Government development index 2020

Table 5 showed that e-Government development index rank of Nepal is 132 in 2020 but it was 117 in 2018. Same way, E-Participation index rank is 137 in 2020 but it was 55 in 2018. Likewise, online service index value 0.4 in 2020 but it was 0.6875 in 2018. Furthermore, telecommunication infrastructure index value is 0.4691 is in 2020 but in 2018 it was 0.2413. The human capital index value in 2020 is 0.5405 where as it was 0.4957 in 2018.

Discussion

As we know that e-Readiness in Nepal is still in development phase. No doubt the poor ICT development, poor human capital and its security challenge are major issues in Nepal. Cyber security and its control mechanism how to make it secure and sustainable in the coming future. E-Government readiness index rank is still 132 according to UN survey report and e-participation index rank is 137 at 2020. The question is how to increase the international position to it. The Government of Nepal should keep it on high priority. Without e-Readiness, e-Governance is impossible. Its affects could be seen in the future at different sector of the government activities like e-learning or online education.

Conclusion

For improvement of the government efficiency, the Government organizations should implement ICT to improve service delivery for the citizens as well as businesses. E-governance activities enable a long-term revolution of the governments that helps far elsewhere the online service delivery. Electronic activities and services are depends on e-Readiness of the country as e-learning. Geographical diversity, poor human capital and poor ICT infrastructure are the major challenges to e-Readiness. The readiness of the network to support a particular project needs to be evaluated carefully before it is applied. This article concludes the e-Readiness scenario in Nepal. Based on the UN E-governance survey, data on e-Governance readiness and participation indices for Nepal over a period of 2003-2020 were analyzed to have a deeper understanding of the current scenario. It shows that the e-Government development Index rank, e-Government Development Index value, e-Participation Index rank, e-Participant Index value, Online Service Index value, Telecommunication Infrastructure Index value and Human Capital Index value and Human Capital

Index value have been gradually developed for which quality by service providers and access to the marginalized is must.

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