Deliver through Mobiles First

Introduction

Policy-wise, the Internet as a technology may be pursued in two strands. One focuses on capacity by taking speed as its coarse measure of progress. Policies in this pursuit set the next faster speed technology as their target. The other approach focuses on user experience. Policies with this orientation consider the targeting ways to integrate the technology seamlessly into user’s everyday life. Nepal’s Internet policies fall in the first category. Their fixation on speed is reflected in the popular media reports, national policies and whitepapers of the industry association.

The sole aim at speed has two major implications. First, the drive has been exclusively on the rapid upgrade of the already huge physical infrastructure in order to deliver the advertised speed. The resources, which could have been available for the expanding access to the basic services, are thus scooped away for developing existing infrastructure. Second, setting the eye solely on the next generation connectivity has allowed the actors to side-step the more difficult challenge of transforming user experience smoothly. Nepal has complex histories of computers, dial-up Internet, cable-Internet, mobile and mobile-Internet. Hardly any effort is made in taking stock of the historical experience and to deliver the broadband Internet in ways someone would find useful to integrate it in her everyday activities. This exclusive focus on capacity is going to be as ill-fated as other top-down, capacity-centric development projects were in the country.

To make the matter worse, the attention on speed is also lop-sided. The emphasis on download speed is so evident that issues related to the poor upload speed have been ignored. Consequently, Internet traffic has remained highly asymmetrical, with little to no scope for users’ generation of content.

The Information Technology (IT) policy landscape has been dealt extensively in previous Chautari reviews. The implication of growth in the IT infrastructure expansion on adjacent energy infrastructure has been explored in a recent econometric

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The first writing provides a more rounded picture of the ideological basis of the IT policies, and of the aspirations and grievances of the connectivity providers and mediators, both of which have mobilized huge resources in setting up of new infrastructures and institutions. The second paper calls for a more cautious approach to the drive to universal connectivity by arguing first to remove energy constraints.

This brief presents, in a nutshell, the findings of Chautari’s research on the state of the connectivity, access and use of the Internet in select sites in Nepal (Map 1). These sites were Changunarayan (in Bhaktapur), Dapcha Chhatrebanjh and Panauti (in Kabhrepalanchok), Pragatinagar (in Kathmandu-Bhaktapur) and Tangting (in Kaski), and represented geographic, ethnic, linguistic, economic, educational and settlement diversities. The research brief shows that the strength and direction of the causal relationships involving factors of Internet adoption cannot be established beyond tendencies. This disconnect with the users (and non-users) of the Internet suggests that Nepal’s IT policies need to reflect the fact that the technological outcomes are products of social relations and interactions. The real problem of ‘digital divide’ can only be dealt meaningfully by situating it in the context of broader socio-economic divide in the country. We argue here that widespread diffusion of mobile phones provide an opportunity to direct, shape and fine-tune existing policies. Instead of leaning unreliably on the capacity-centric model, Nepal’s IT policies need to frame ways to integrate user’s everyday experience of mobile phones into the drive towards universal connectivity.

Crisis and Opportunity

The number of voice service users has exceeded the country’s population reported by the 2011 census, according to the latest Nepal Telecommunication Authority (NTA) report. It shows approximately 97

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percent of the total Internet users connect to the Internet through their handheld devices. In our household research, 72.36 percent respondents owned mobile-phones with slightly more than half using the Internet from their handsets. The rapid and widespread diffusion of the mobile phones presents a rare opportunity to understand Internet adoption, its effects and the social characteristics of its users. Internet has been a topic of research as it provides a unique blend of modes of communication and forms of content in a single medium. Its rapid diffusion through mobile-telephony and reconfigurable aspect has attracted the attention of technologists and sociologists alike. The value of research on this theme became evident when Neell searched for patterns in its network data to track the movement of people and identify displaced areas after the devastating 25 April 2015 earthquake and major aftershock on 12 May 2015. A powerful opportunity is therefore presented by the widespread penetration of mobile phones. The government could use the mobile Internet phenomenon as a test bed to direct its IT policies and fine-tune the targets.

The capacity-centric definition of broadband in Nepal’s IT policies, which focus on the household connectivity, has instead produced a crisis. Household broadband access puts forward an inclusive agenda. It is said that due to household-broadband, “all household members can have access – no matter whether they have jobs, go to school, are male or female, children, adults or elderly.” In such a policy environment, universal access is generally described as the access to the Internet for residential households. But the household connectivity provided by the incumbent Nepal Telecom (NT) and private Internet Service Providers (ISPs) has barely reached three lakh households (5.58 percent of total households in the country). Put differently, the household Internet connects only 15 lakh individuals or 5.71 percent of the population. Our research sites exhibit the similar dismal penetration where 8.22 percent households had Internet access, and 13 percent of the respondents saying they use broadband Internet in some form. The Nepal government’s 2020 target to achieve 90 percent household access to broadband services and 100 percent Internet connectivity thus appears to be a fantasy. There are no clear pathways to integrate the mobile and broadband Internet connectivity. The current approach, in other words, presents a challenge to match the ubiquity of the handheld devices with the need for the seamless integration to deliver services to every citizen round the clock. Further, assuring basic capacity (512 Kbps) in most households demands a monumental effort, given that an average household exhibits the similar dismal penetration where 8.22 percent household Internet connects only 15 lakh individuals (8.22 percent of the population). Our research sites also exhibit the similar dismal penetration where 8.22 percent households had Internet access, and 13 percent of the respondents saying they use broadband Internet in some form. The Nepal government’s 2020 target to achieve 90 percent household access to broadband services and 100 percent Internet connectivity thus appears to be a fantasy. There are no clear pathways to integrate the mobile and broadband Internet connectivity. The current approach, in other words, presents a challenge to match the ubiquity of the handheld devices with the need for the seamless integration to deliver services to every citizen round the clock. Further, assuring basic capacity (512 Kbps) in most households demands a monumental effort, given that an average household

1 NTA-MIS 2015 report mentions Internet connectivity is available to 46.04 percent of the 2011 population. But it does not mention what characterizes a subscriber to be labeled as an Internet user such as in case of Internet ready sim-card (which is basically all sim-cards).

2 The initiative was supposedly to help aid organizations better target their efforts. The full report which was produced by Flowminder together with UN Office for the Coordination of Humanitarian Affairs (UNOCHA) is available at www.worldpop.org.uk/nepal/Flowminder-Nepal-2015-08-27_-%28V3%29.pdf accessed 8 April 2016.


4 We have taken the population of Nepal to be 26,494,504 as reported in the NTA reports for the sake of intuitive comparison. This number was acquired from the findings of the 2011 national census. The Central Bureau of Statistics (CBS) puts the present population of Nepal at 28,349,979. See, http://cbs.gov.np/ for estimate of the present population; accessed 7 April 2016. We assume that household connectivity provides access to five individuals (roughly the average family size of Nepal).
effects are different in the transition from cable Internet connectivity to fiber based connectivity compared to capacity upgrades to an existing technology. Therefore, it is extremely important for policies to be clear on the countries they consider as exemplars and those that offer cautionary experiences. Empirical studies on the three dimensions of speed, penetration and price could have provided a realistic starting point for debates and in setting meaningful targets in Nepal. For a start, these studies could focus on identifying the number of fixed, wireless and mobile Internet users, the technology they have and the prices they pay for them.

Issues on Internet Adoption

The Chautari research shows that the Internet non-user households are poorer (with an average monthly income of Rs. 14,643) than the mobile-Internet user households (Rs. 20,933) that are themselves poorer than the households which enjoy both the broadband and mobile Internet (Rs. 21,924). Similarly the non-user households show an overall lower level of formal education (mostly up to secondary level schooling; about 59% are below SLC) and higher levels of illiteracy (17%). The relationship between income and price of modern technology adoption permeates into the domain of Internet as well. The education argument is, however, not straight forward. We were not able to establish a strong relationship between household with family member in higher education (intermediate or more) and the adoption of the household Internet. Although income and education levels were positively associated with the household Internet adoption, they could explain the use and non-use only partially. Furthermore, the increase in the tendency to use the Internet for non-recreational activities (education, commerce and employment) was not noticeable in households with higher levels of income, education and English proficiency. In short, the individual relationship of economic and demographic variables with Internet adoption was neither strong to be predictable nor could it ensure the use of the Internet beyond general tendencies. The results from the research could not ascertain, for instance, whether high income translates to more ownership of IT devices or more time spent on the activities offered by the mobile platform.

There are technological challenges related to topography such as the line-of-sight issues in hilly area like Tangtong for wireless communication. There are also issues around licensing (spectrum), exclusive infrastructures and business models among the stakeholders such as NTA, telecoms and ISPs. These problems leave most of Nepal without access to the Internet or the choices thereof.

Connectivity choices and quality-of-service are important factors that determine the uptake of the Internet. Seventy percent of the users in our research sites found their household Internet to be slow and expensive, and that they could perform text-only browsing with the entry-level capacity. There are of course other factors influencing the low rate of Internet adoption and access. Population density, individual preferences, composition and the level of competition in the telecommunication sector are some of the obvious ones. The research findings, however, reiterate the observation that interests of the investors shape a new technology to a great deal. Presently, the Internet in Nepal is the product of the efforts put by connectivity providers and the IT industry. The disinterest in the uptake of the household Internet is partially due to the social location of the promoters and partially due to the failure of the IT policies to shape the factors that can increase adoption.

It was evident from the household responses that non-adoption and general lack of interest in the Internet technology (both mobile-Internet and home-Internet)
was because its promoters have failed to provide compelling reasons to adopt it. The Internet is not seen as an attractive option to a household that can obtain reliable information through newspapers, watching television or face-to-face conversations with friends and co-workers or using mobile phones. Lack of Internet content particularly for the mobile-platform and in local languages may be cited as partial explanations for limited use in Nepal. Our research finds that about half of the mobile-Internet users ‘occasionally’ search the Internet for information. Only 21 percent said they could find information in their mother tongue on the Internet (radio by far tops the list with 85%, followed by television with 70% and newspaper/magazines with 51%). Non-availability of the needed content in more accessible language explains a highly skewed (i.e. unbalanced) Internet use for entertainment. Facebook is the most popular use of mobile-Internet with 91 percent using it regularly. Only 21 percent use mobile-Internet for educational and 13 percent for employment related purposes. The social character of the Internet is not adequately determined by its essence. It is likely that the Internet will create many networked societies, thereby fragmenting Nepali society further, rather than a single network society in Nepal.

The Chautari research could not therefore establish the strength and the direction of the causal relationships beyond tendencies. Income, literacy (such as income levels and breadth in use of the Internet are related) will uncover as the technology matures and penetration rate increases. The characteristics of such relationships tend to vary within a country with different generations of a technology and within cross-country studies for the same technology. IT policies therefore need to be aware of the socially malleable nature of the Internet and reflect the understanding that the technological outcomes are rather created by the interaction between it and the social relations/environment in which it is situated as much as (if not more) the development of the technology.

### Unequal Status and Access

Interests in the unequal Internet access in the mid-1990s made the idea of ‘digital divide’ popular. The phrase was commonly understood as the binary divide between the computer (and Internet) haves and have-nots found mostly along racial and economical lines. In Nepali context, it may refer to the gap between the marginalized population (viz., poor, rural, elderly, persons with disability, etc) and the others in terms of their ownership and access to the digital devices. Our research found that the disparity in device penetration at the household level has remained unchanged since the 2011 census. In the 2011, 24 percent of urban households owned a computer and 12 percent had Internet access, in sharp contrast to the rural households where the ownership was three percent and the access approximately one percent. Similar pattern characterized our research sites in 2015 (Table 1).

#### Table 1: Digital Ownership and Access, 2011-2015

<table>
<thead>
<tr>
<th>Location</th>
<th>2011 National Census</th>
<th>MC Household Survey, 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changunarayan</td>
<td>13.4</td>
<td>4.1</td>
</tr>
<tr>
<td>Dapcha</td>
<td>1.9</td>
<td>0.3</td>
</tr>
<tr>
<td>Chhatrebanjh</td>
<td>16.5</td>
<td>5</td>
</tr>
<tr>
<td>Panauti</td>
<td>0</td>
<td>1.1</td>
</tr>
<tr>
<td>Tangting</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pragatinagar</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

A location at a terrain more favorable for relatively inexpensive expansion of the communication infrastructure seems to enjoy better Internet access. However, the increase is interesting only in comparison. Pragatinagar, a squatter settlement started in 2061/62 v.s., shows encouraging access number for it is close to Kathmandu city. The penetration rates for both wired and wireless technologies at the site seem disappointing enough from the target of 40 percent household Internet by 2015, set by the UN Broadband Commission and aspired by the local policy documents. The rapid spread of mobile phones could be considered an exception to the dismal digital penetration in the country. That too is a global phenomenon. The digital divide is re-introduced through the handsets and the technology to access the mobile Internet. In Pragatinagar, for instance, 80 percent mobile phones are Nokia handsets with small monochrome screen and GPRS Internet.13 These basic handsets are useful for text-only browsing. More than 90 percent of the mobile phone owners in Dapcha

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13 General Packet Radio Service (GPRS) is a method used to transfer data over wireless networks using mobile devices. It is basically a 2G technology that delivers low download speeds.
Chhatrebanj is similarly discouraged from using the Internet by the phones. Panauti and Tangting have around 46 and 30 percents of the handsets as smart phones respectively. Their owners enjoy relatively better user interfaces and latest Internet technologies allowing for the flow of the richer content such as streaming video and video calling.

In general, cost is the most visible inhibitor to the uptake of the Internet. The cost of fixed-broadband Internet is high relative to the household income. Where households are already spending an average of Rs. 1,320 (per month) on mobile phone bills, the information and communications costs rise to 15 percent of their income for an entry-level connectivity. Since mobile phones are overwhelmingly preferred as the platform for Internet use, there is clearly an economic aspect to the non-use of the Internet. Broadband commission report prepared by the International Telecommunication Union (ITU) and United Nations Educational, Scientific and Cultural Organization (UNESCO) has suggested that an affordable broadband should be less than five percent of average monthly income to meet the target of 40 percent household penetration. Fees for a highly data capped 512 Kbps Internet, which is set as the minimum download speed to be considered as broadband by Nepali IT and broadband documents, costs ten percent of monthly family income. This excludes the other significant costs associated with auxiliary devices, electricity bills, and repair and maintenance.

The lack of suitable digital content is frequently mentioned as another reason for general disinterest in Internet. Behind the strong push for porting content and services to the digital platform lies the belief that lack of access to digital information would lead to information poverty. This belief is based on the assumption that ‘important, valuable and useful’ information exists only in the digital form. But whether people from a variety of economic and social backgrounds are looking for digital information in everyday life is questionable. Indeed, Nepal’s low Internet use may in part be attributed to the fact that Nepali society in general is not yet information poor. It has been utilizing friends, neighborhood and the conventional audio-visual media for meeting its information needs. Dapcha Chhatrebanj has a low digital device penetration (less than 3% of the households have a computer or a laptop) for its inhabitants overwhelmingly use local and traditional sources of information. Tangting’s high use of mobile phones is not for increasing information resources through the Internet but for communicating with its large migrant population. The respondents’ non-requirement of the Internet services should be understood against the backdrop of such information landscape (Table 2).

Within a specific settlement, the Information and Communication Technology (ICT) penetration and ownership of devices seem to reinforce the socio-economic exclusion. Across the sites, however, people belonging to the same ethnic group have varied access and levels of ownership such as the Newars in Dapcha Chhatrebanj and Panauti. In a mixed settlement of Pragatinagar, the Tamang households seem to have better ICT capabilities than their ethnic kin in Changunarayan. Interestingly, the Tamang households in Changunarayan are a majority and reported higher monthly income. The Pragatinagar households have the location advantage which may explain better penetration numbers. Non-users across the ethnic lines reported that the overwhelming reason for not installing a fixed broadband connection in their households was the lack of its everyday use.

There are two usual arguments for bridging the digital divide. First, Nepal will not be able to compete economically on an international scale given the varying access to the technology. Second, the Nepali society will continue to have limited access to useful information. The assumptions behind these arguments are flawed, so are the solutions proposed to reduce the digital gap. The most prominent belief is that such a divide can be
Table 2: Sources of Information in the Select Research Sites (in percent)*

<table>
<thead>
<tr>
<th>Location</th>
<th>Newspapers/Magazines</th>
<th>Radio</th>
<th>Television</th>
<th>Mobile</th>
<th>Internet</th>
<th>Friends/Locality</th>
<th>Noticeboard/Posters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changunarayan</td>
<td>45</td>
<td>86</td>
<td>85</td>
<td>66</td>
<td>29</td>
<td>96</td>
<td>64</td>
</tr>
<tr>
<td>Dapcha</td>
<td>10</td>
<td>60</td>
<td>37</td>
<td>33</td>
<td>4</td>
<td>95</td>
<td>23</td>
</tr>
<tr>
<td>Chhatrebanj</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pragatinagar</td>
<td>45</td>
<td>55</td>
<td>70</td>
<td>60</td>
<td>31</td>
<td>80</td>
<td>23</td>
</tr>
<tr>
<td>Panauti</td>
<td>76</td>
<td>70</td>
<td>94</td>
<td>61</td>
<td>59</td>
<td>81</td>
<td>50</td>
</tr>
<tr>
<td>Tangting</td>
<td>35</td>
<td>57</td>
<td>35</td>
<td>84</td>
<td>10</td>
<td>98</td>
<td>43</td>
</tr>
</tbody>
</table>

*The total exceeds 100 percent because respondents could choose more than one answer.

Source: MS Household Survey, 2015

explained in terms of economic factors only. The social and cultural characteristics of the technology are hidden in the policy documents and its utility as an agent for economic transformation is overemphasized. Such a view has prompted the policies to focus exclusively on increasing access to bring the marginalized population into the market as potential customers. For a skeptic, the belief on the ICTs as providing the best fixes to poverty, illiteracy, environmental degradation and inequality is wrongly founded in the face of the strongly entrenched structural and geographical discrimination in the country. The presence of fantastic phrases such ‘Digital Divide,’ ‘knowledge based society’ and ‘information society’ has only served the ideological interests of an influential group. They reduce the solution to the increase in the access and ownership of the latest technologies but tend to ignore that the Internet, like all technologies, is a socio-cultural construct. While ‘Digital Divide’ is indeed a real and important problem to deal with, it has to be dealt with in the context of a broader socio-economic divide if the ones to benefit from the vague phraseology are to be others than the ICT vendors.

Conclusions

The IT policies in Nepal advocate a capacity centric development model illustrated in their pursuits of the download speeds and the next generation technologies. Benchmark studies on the three dimensions of speed, penetration and price could have provided a realistic starting point for meaningful debates and in setting achievable targets. In the absence of such exercise, it is difficult to make sense of the speculative numbers/targets in the policy documents. To complicate the matter further, there is a lack of consensus on the policy replication practices around the world. The rapid spread of mobile phones as an Internet platform provides a real opportunity to deliver Government-to-Citizen (G2C) services. The mobile platform allows an increased penetration of such services. Its reconfigurable aspect makes also an evolution in the delivery mechanisms possible. This opportunity should be seized to direct, shape and fine-tune existing policies. The universal access to the Internet, which will stimulate the ‘effective use’ as expected in the ICT policies, could only be delivered through household broadband connectivity, a desirable but unrealizable prospect for some years to come. These policies would need first to avoid the fallacious maxim that digital technology is sufficient to determine economic, let alone social, transformation. They should reflect the fact that the social interactions of the technologies in use shape their outcomes. Current capacity centric approach to IT needs to be rectified to recognize that technologies are socio-cultural constructs. A starting point would be to reconsider the ‘Digital Divide’ as a result of the historical development in the social and economic forces. In contrast, the significance of the social divide is lost in the vague and incomplete phrasings. The only ones to benefit from the ill-founded policies are the ICT service and device vendors mostly based in Kathmandu, who have also been influencing the course of the Internet in Nepal. The elitist program should be abandoned in favor of a more inclusive agenda which would be based on an informed analysis of well-grounded empirical data of the Internet access and use in the country.

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Martin Chautari (MC) began as an informal discussion group in Kathmandu in 1991, allowing development professionals and academics to meet every two weeks to share insights and experiences. In 1995, the name ‘Martin Chautari’ was adopted after the late Martin Hoftun, one of the founders of the original discussion group. After being managed by the Centre for Social Research and Development for six years, in 2002 MC became registered as a separate non-government organization in Kathmandu.

Since its inception, MC’s core objective has been to enhance the quality of public dialogue and the public sphere in Nepal. Started at a time in which Nepal had little, if any, culture of informed public discussion, MC is now nationally known for its discussions which are held two times a week. Chautari also conducts research focused on governance and democracy, media, education, health and livelihoods with cross-cutting themes of gender and social inclusion. A rigorous mentoring program of young researchers is in-built into MC’s work.

Till date MC has published eighty-seven books including an annual journal *Media Adhyayan* [Media Studies, established 2006]. MC is also the editorial home of the journals *Media Adhyayan*, and *Studies in Nepali History and Society* (SINHAS), published by Mandala Book Point since 1996. Since 2006, MC has opened its research library and media documentation centre to the public. The library’s holdings total more than 20,000 books, a quarter of which focuses on the media.

All five components – the discussions, research, mentoring, publications and library – feed into each other and form an intrinsic part of MC’s primary objective: strengthening the social contract between the state and citizens and expanding and making inclusive the public sphere by promoting informed dialogues and analytically rigorous research.