

Diminishing Digital Divide: Dynamics & Implications

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Abstract: A consensus is swiftly emerging regarding the democratizing impacts of modern communication technologies. However, the major challenge in this perspective comes from ‘digital divide’ which refers to ‘haves’ and ‘have not’ of the modern communication technologies and access to information. This divide, primarily stems from the existing socioeconomic divides. However, in perspective of existing scholarly research and quantitative data on the issue, it is argued that digital divide is diminishing gradually. The advancements in technology particularly the integrative features of modern technology along with increasing affordability is denting the digital divide. The ebbing away of digital divide has various implications for individual, civil society and state. This article elaborates this issue at length by juxtaposing the findings from the existing research and presents a compact schematic model for better comprehension of the issue.

Keywords: ICTs; Digital Divide; Economic divide; Integrative technologies; Rising affordability

1. Introduction

Information and communication technologies (ICTs) refer to the entire range of technologies devised to retrieve process and communicate information in the shape of text, sound, data and images. ICT cover the full range from conventional widely used appliances such as radio, telephone or television to more stylish devices like computers, the Internet, networks, hardware and software, satellite systems, and

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podcasting Internet. The blend of technologies used might be determined chiefly by the particular local perspective and demand (Weigel & Waldburger, 2004).

ICT influences the lives of a rising number of individuals in different ways all over the globe (Dahlgren, 2005). ICTs have not only been an essential element at the macro-level as in process of globalization, but equally at the micro-level where the enhanced use of mobile phones, for example, transformed daily communication methods universally. These new technologies are supplying unmatched opportunities for the development of state, society and individual (Castells, 2008). However, it is apprehended that people and states in the developing world are unable to take as much advantage from these technologies as their counterparts in the developed world. The difference in access to modern technologies and the related prospects is termed as 'digital divide' (Min, 2010).

The constraints that prevent the residents of developing world often emerge from offline socioeconomic and cultural environments. Some scholars believe that problems of access to technologies and information may sustain as long as there are disparities in the distribution of socioeconomic resources, along with disparities in telecom infrastructures, computer literacy, cultural expectations, leisure and community support (Dahlberg, 2001).

However, keeping in view the rapid proliferation of technologies and the advancements in the technologies it is contended that the 'digital divide' is diminishing gradually. Quantitative data available regarding access to for example, the Internet, and cell phone subscription supports this optimism. The ebbing away of digital divide is highly significant for the individual, society and state.

The first section of the article introduces the issue of digital divide and its dynamics. The second section seeks answer for the issue whether digital divide is worsening or diminishing. It also highlights the factors that slowly and gradually helping to bridge this divide. The third section shows the implications of diminishing digital divide and leads to discussion and conclusions.

2. Digital Divide

There is an apprehension that ICTs, which are believed to facilitate the amelioration of all humans, in reality, increase the disparities between the developing world and the developed world, the rich and poor, whites and blacks,

the educated and un/less-educated, thus giving birth to “digital divide” (Min, 2010).

Some scholars argue that this ‘digital divide’ is also obvious within states and between them. Country-focused studies have discovered that the pattern of marginalization correlates with those sections of society that experience broader deprivations, for instance “women, ethnic minorities, rural people, and the poorly educated” (Norris, 2001). They believe that the ‘information age’ seems an unsuitable misnomer when it is considered that an individual in a high-income state is 22 times more likely to be an Internet user than someone in a low-income state. Thus, the digital divide both shows and strengthens existing structural disparities (Crack, 2007).

These are, of course some of the realities of the off line world, so to say the real world which is marked by economic, socio-cultural, and educational disparities. The north-south divide is by no means a new axiom for the disciplines of political science, economics or history. Economic factors have been at the heart of ‘digital divide’ debates (Avgerou & Madon, 2005). There is no doubt that ICTs for example; computers, few decades ago were too expensive to be afforded by a middle class individual. It may even be true today for a middle class existing in some developing parts of the world.

Moreover, the economic disparities between states have more profound impacts in this regard. The shortage of capital compels prioritization of the developmental programs in developing states. The same results in low/no infrastructure required for the operation of ICTs (Ng'ang'a, 2012). This creates multitudes of problems for getting access to these modern facilities.

Similarly, literacy, both in the conventional sense and also the computer literacy, may also have halted the growth in access to the Internet. Since the Internet started in a highly educated and computer-literate environment, interaction through text messages, especially through computer communications, was not a difficult behavior to adopt. Neither were the essential skills particularly hard to learn for those who had access (Crespi, 1997). But the same behavior could not be expected in societies with low literacy rate. Thus poor literacy has also been significant factor in reinforcing the digital divide.

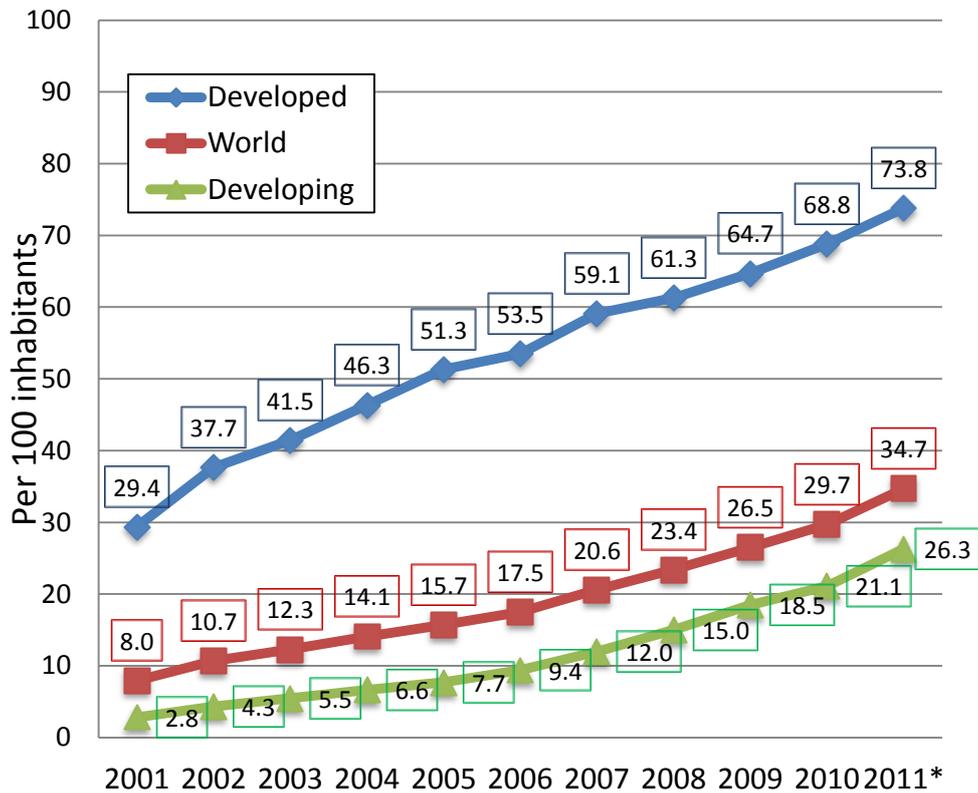
There have also been the social and psychological issues particularly of old generation that contributed to the digital divide. Just as in history a generation experienced certain difficulties when agricultural society transformed into

industrial society (Rider, 2007), a similar set of adaptation problems have to be faced by the senior members of our society.

The limited survey above shows the major factors that contribute to the digital divide that have existed ever since the advent of ICTs. Some scholars on the contrary either refute the existence of this divide or attach little significance to it. The apprehensions of the pessimists have been contended by several scholars. Nevertheless, it seems difficult to set aside all the arguments of the pessimists, but there are also signs that suggest that digital divide is gradually diminishing.

3. Digital Divide: Widening or Diminishing?

Quantitative data support the assumption that the 'digital divide' is slowly and gradually ebbing away. According to the figures released by International Telecommunication Union, in 2001 less than one in ten (8%) had access to the Internet, by 2011, this raised to over three in ten (34%) (ITU, 2012). The trend of rising access to the Internet is equally prevalent in both the developed and developing world. No where it has receded since monitoring started. It is equally prevalent within the states especially due to developments in the convergence technologies.



* Estimate.

The developed/developing country classifications are based on the UN M49, see: <http://www.itu.int/ITU-D/ict/definitions/regions/index.html>

Figure 1. Internet users per 100 inhabitants, 2001-2011*

Moreover, ICTs are not only about the Internet. Today, the cell phone can perform a number of such functions which until a couple of years ago were considered only possible on the computer like accessing the Internet, image processing/transmitting etc (Kanthraj, 2005). By the end of 2011, there were around 6 billion mobile subscriptions around the world. That translates into 87 percent of the entire world population. It is an enormous rise from 5.4 billion in 2010 and 4.7 billion mobile ownership in 2009. Mobile owners in the developed world have touched saturation level with minimum one mobile subscription per person. This shows that market expansion is being driven by demand from the developing world, spearheaded by

China and India. These two states jointly increased 300 million new mobile subscriptions in 2010 that is more than the entire mobile users in the US. By the end of 2011 there were around 4.5 billion mobile subscriptions in the developing world that is 76 percent of worldwide subscriptions. Mobile penetration stands at 79 percent in the developing world. Africa is the least penetrated in this regard at 53 percent (ITU, 2012).

These figures reflect that a divide though exists, but these also manifest a downward trend in the digital divide which has been argued. Merger between various technologies and media is contributing novel and powerful opportunities to augment the participation and involvement of majority of citizens (Crack, 2007). Moreover, a transformation from a transmission model of “one-to-many” to “many-to-many” is noticeable; the consumers are turning out to be producers of audio, video and textual contents on the Internet. The ultimate consequence is enhanced participation, involvement and sway even of marginalized groups who can now raise their opinion through modern ICTs (Kalas & Finlay, 2009).

4. What Facilitates Diminishing of the Digital Divide

The diminishing of the digital divide is primarily facilitated by technology itself. Advancement in technology has facilitated the integration of different technologies into each other and raised the accessibility to ICTs (Kanthraj, 2005). Similarly, these innovative advancements are increasingly making the ICTs user friendly, requiring only minimum skills (Hargittai, 2005; Ospina, 2011). Over the course of last decade the cost factor has also positively changed (ITU, 2011). Last, a new generation has emerged now which is more accustomed to modern technologies and feel them as part and parcel of their lives (Comba, 2011). Since the public advent of the Internet in the 1990s, the strength of netizens has raised from the low millions to billions today. Similarly, social media have turned into reality for civil society globally, that involves various actors like citizens, NGOs, activists, telecom firms, software suppliers, and even governments (Shirky, 2011).

4.1 Integrative Technologies

ICT facilitates the integration of various kinds of media. Convergence of various ICTs is essential for raising inclusivity and interactivity. Integration of technologies is becoming evident in innovative designs of new services and tools

(Weigel & Waldburger, 2004). For example, community radio takes a more participatory form when people through mobile phones raise their opinions (Kalas & Finlay, 2009). This reflects the major character of modern communication technologies, of easily merging into each other to enhance connectivity and raise accessibility (Khan, et al., 2012).

Another significant feature of the Internet is that it integrates various stages of the communication process, for example storage and sharing of information, interaction, and transformation of the communication channels in an unprecedented manner. Internet is a catalog of unlimited information and a medium for its communication, and is particularly significant for its capacity to link different agents efficiently, swiftly and reciprocally (Oblak, 2002). Computers and cell phones today are both increasingly getting enabled to access each other through wireless systems, retrieving information from web via computers or cell phone have become commonplace (Casey & Turnbull, 2011).

Contemporary developments in the mobile phones technologies include the improved features of phones to generate and pass on content other than SMS. High standard image and video facilities in the latest generation of mobile phones has paved the way to several new software that enable individuals to publish images, audio, and videos from mobile phones directly to related websites. Bulk SMS can now be easily sent through mobiles (Yadav & Rani, 2011). Cell phones have profound potential to deal with the digital divide.

4.2 Cost effectiveness

Generally, the cost factor is still considered as a challenge for many in the developing world, however the comparative cost of ICT has significantly declined over the past few years and this trend is sustaining (ITU, 2011). Consequently, novel uses of ICT can allow information flows and exchange cost-effectively as in comparison to conventional ways like books or newspapers and help further narrow the digital divide (Weigel & Waldburger, 2004).

4.3 User Friendliness

ICTs are increasingly becoming user friendly. User friendly nature of ICTs can help attract more users and dent the digital divide (Boeltzig & Pilling, 2007). One might say 'user friendly' nature of a communication device provides a competitive

edge to manufacturer and facilitates its sales. Many of the websites for public information have user friendly formats and any one with some fundamental computer skills and access to the Internet, can retrieve information of his/her need from the Internet. The requirement of a certain level of literacy is still a debatable issue as there are increasing signs available of low literate users of the Internet. Illiterates and non-literates are becoming effective members of mass audiences. These members become participants, although passive, in the communications process imperative for raising the mutual awareness (Crespi, 1997). The cell phone in this perspective is far advanced. Even the illiterate people of the developing world today own a cell phone and are able to use it to fulfill their needs of connectivity effectively.

4.4 New Genre

The new Geners peculiarity is that it is the first generation to grow up in the age of information technologies. Net geners are not simply familiar with the use of modern technologies rather they have by default a level of expertise in it (Barnes et al., 2007) The net geners enter higher academic institutions with a reasonable education in technology. They get their technology literacy formally through different programs at school or in the workplace, and also informally, i.e. at home, friends circles, or by themselves (Ezziane, 2007). The issues of acceptability of technology become irrelevant altogether for new geners.

Net geners are inclined toward autonomy and independence in their learning styles whether in classroom or in society, this makes them more assertive and enthusiastic information seekers and determines their approach towards learning in the classroom and in the society (Barnes et al., 2007). So the net geners are difficult to be curtailed by the digital divide and they would find out their ways out.

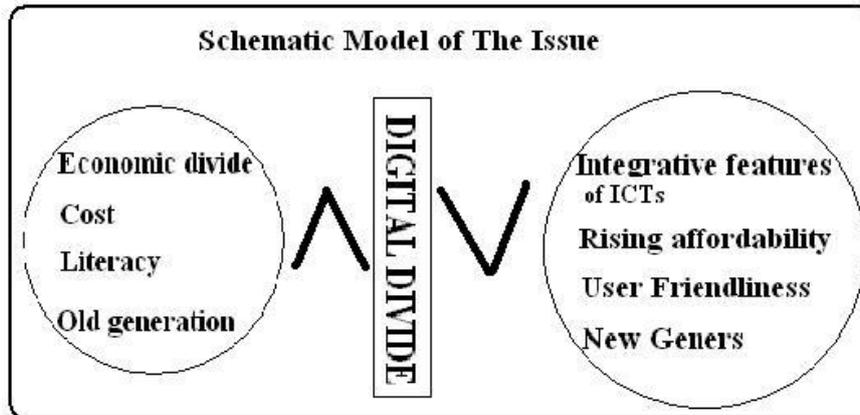


Figure 2. Conceptual Model of The Issue

5. Implications of the Diminishing Digital Divide

It is better to comprehend ICT in perspective of shaping a new set of associations and spaces, rather than as a high-tech tool. It is one more global field in which competitions over the distribution of power, resources and information will take place (Van Dijk, 2006). The Internet is a unique matrix of networks which is established on a “many-to-many” model of information distribution, contrary to the “one-to-many” structure of mass media (Crack, 2007).

Drache contends that the digital divide is dwindling. Its evidence can be found in instances of text messaging in China of anti-Japan demonstrations in 2005 and broadcasting of images of the genocide in Rwanda, Yugoslavia and Iraq informing and sensitizing the world about human rights violations around the world. The consequence of this decreasing digital divide is “an exponential democratization of communication” (Drache, 2008).

The invention of press (1450) is a typical illustration of how novelty can set off cascades of revolutions within societies. ICTs are expected to play similar role. Due to their service potentials and prevailing nature ICTs have social, political and economic implications (McChesney, 1995). With the declining digital divide, technological tools and services would be available to businesses, states, civil society and individuals across the world to achieve numerous goals.

This would also result in the multimodal interactions among individuals. Individuals carry out their dealings with others face-to-face, through the phone, and also online through modes as varied as e-mail, personal messages, social network relations, instant messaging, comments, collective participation in discussion forums and online games, and by sharing digital images, music, and video clips (Crack, 2007; Castells, 2008). With the rising access to information, not only the citizens across the world would find opportunities to know each other and but they would also get more empowered to make their governments accountable and play significant role in the democratic processes (Khan et al., 2012).

Modern communication technologies have built in socializing impacts. Making information available, facilitating its sharing, creating networks of people either already familiar to one another or strangers, all of these features entail social powers to encourage civic engagements (Dahlberg, 2001). Moreover, as ICTs operates beyond territorial boundaries so these facilitate civic interactions beyond nation-state territorial confines. Drache terms the transnational activism stimulated by the internet use as the 'digital publics'. Drache optimistically contends that contemporary era through the ICTs and information flows provide the common citizen limitless social opportunities to innovate and shape discursive communities on a range of issues (Drache, 2008).

The enhanced access to information and connectivity can really transform the myths of global civil society into reality. Civil society through their networks across the globe would get unique opportunities for motivating public engagements which they are able to do on limited scales today (Crack, 2007). The universal access to ICTs might provide novel mechanisms for making the global governance structure accountable and thus legitimate (Castells, 2008).

6. Discussion

As mentioned earlier that some scholars refute either the presence or the severity of the digital divide. They contend that this divide will ultimately vanish like other technological divides in history. Compaine holds that technological divides will eventually disappear, for the fact that as the world's workers get better-off and as costs of technology reduces, variations in living standards of citizens will decrease. He quotes the history of different technologies like electricity, radio, or automobiles that were novelties in the last century and have gone through a similar developmental course (Compaine, 2001).

Contemporary research has paid more attention to the “second-level” digital divide, which is concerned with the “multiple layers of access and use” of modern technologies (Norris, 2001). These research shows that individuals access and utilize ICTs in a variety of ways. A range of factors that consists not only of socioeconomic and demographic factors, but also physical, psychological, cultural, and environmental factors, determine the various levels of access and utilization of ICTs (Min, 2010).

Besides fundamental demographic and socioeconomic factors, Internet skills and political motivations of the users are of great significance. In fact, users’ skills and motivations might be the key determinants of an individuals’ varied usage of the Internet for political purposes. Internet skills have attracted reasonable attention of the researchers recently. The online behavior of Individuals, partly, reflects their online skills (Hargittai, 2005). Thus, sound Internet skills, irrespective of user’s level of education, may actually help predict online political engagement. Thus a citizen’s decision to be part of any critical debate depends not simply on his/her access to the Internet but on his/her interests, aptitude and sociopolitical background (Khan et al., 2012).

ICTs capabilities to produce networks of knowledgeable citizens reflect their political powers. Cyber enthusiasts contend that the Internet can strengthen democracy by connecting people, with utter disregard to territory, and by fostering public spheres and fresh social movements (Min, 2010). As Luther used the newly invented printing press to drive protestant movement against the Catholic Church, or the American revolutionaries utilized Benjamin Franklin designed postal service, today's nonconformists’ movements have liberty to choose from many of the ICTs devices to shape their viewpoint and synchronize their actions. As the digital divide is diminishing globally and communications composition is getting dense, complex, and increasingly participatory, the netizens are gaining enhanced access to information, augmented options for public speech, and a raised ability to carry out collective action (Shirky, 2011).

Several recent socio-political mobilizations primarily organized through the Internet and mobile interactions in the Philippines, Spain, South Korea, Ukraine, Nepal, Ecuador, Thailand and several other countries, manifest the strengths of social media and the new power of social movements to call for solidarity to the world at large for their local cause.

7. Conclusion

It is concluded that though 'digital divide' is a reality, but more significant is the fact that it is diminishing slowly and gradually. History reflects that all the major technological innovations of the past, often very unique at the outset, have later become common place. Moreover the quantitative data regarding the access to the Internet supports this assumption that the digital divide is ebbing away.

Integrative features of ICTs, their user friendly innovations and decreasing cost are among the significant factors that are narrowing the digital divide. Moreover, the new Generations, born in the age of information civilization will play significant role in this process. The diminishing digital divide will empower the citizens and civil society. This might facilitate a mechanism for the accountability and legitimacy of global governance structures.

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