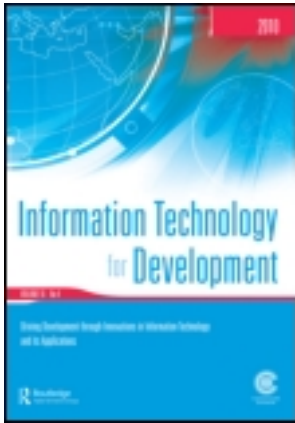


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## EDITORIAL

### As the global digital divide narrows, who is being left behind?

Sajda Qureshi  
Editor-in-Chief

There is a sense that information and communications technologies (ICT) have the potential to give people the freedom they need to lead the lives they value. Papers published in this journal consider how ICTs are the means that enable people to achieve their ends of better livelihoods. This line of research builds upon the work of Amartya Sen's (1999) book entitled *Development as Freedom*, where development is seen as the process of expanding the real freedoms that people enjoy. In particular, Andersson, Grönlund and Wicander's Special Issue in this journal (2012) illustrates how development can be seen as freedom when the capabilities by which people are able to achieve their ends are expanded through the use of ICTs. If people have the freedom to achieve the aims they value, then they will be able to lead better lives through their use of ICTs. The outcome of such better livelihoods can be seen in terms of human, social and economic development. The papers in this issue continue to build upon this discovery by considering the role of ICTs in enabling development as freedom. It discusses how the Internet may or may not support freedoms to achieve better livelihoods and delves deeper into the challenges faced by people whose lives are changed for better or for worse by their use of ICTs.

There is a divide between people who are able to use ICTs to achieve their freedoms and those who are not. The digital divide is seen to keep those who do not have access to ICTs from being able to participate in the information economy and take the opportunities it makes available. There are multiple definitions of the digital divide. There are different types of digital divides. The most commonly known is referred to as the global digital divide which considers the disparities in ICT access and use between countries and or regions of the world. The digital divide has often been measured from a narrow, technologically deterministic perspective that focuses on the "technology gap" to allow policy-makers to have an "objective" tool to enable them to allocate resources (Barzilai-Nahon, 2006; Servon, 2002). The global digital divide as measured by the World Bank and United Nations International Telecommunications Union (ITU), assesses the differences in access and the use of ICTs between countries. In their investigation of the global digital divide, Pick and Azari (2008) found foreign direct investment, education and government prioritization to have a significant impact. Reports that the global digital divide has been narrowing in studies by the World Bank, ITU and Orbicom as described in Sciadas (2005) has led governments and policy-makers to provide services over the Internet.

The effects on economic development from the use of ICTs to achieve freedoms are many. These benefits range from giving small businesses the ability to access new markets, obtain knowledge and skills they need adopt more efficient cultivation of crops and increase their competitiveness by offering better goods and services. For every 100 cell phones in a typical developing country, GDP grows by a factor of 0.8 (*Economist*, 2009). According to the World Bank, there is growth by a factor of 3.4 between businesses in a typical developing country which uses ICT and those that do not. This difference amounts to a 750% growth in businesses that adopt ICTs compared to those that do not. The same study showed an increase in profitability by 113%

and labour productivity of 56%. The global market for IT-based services has been estimated to be approximately \$800 billion. Only about a third of this potential has been realized (World Bank, 2012, p. 16). This points us to the underlying challenges faced by those at the bottom of the pyramid who are unable to reap these benefits despite the narrowing digital divide.

Some of the main components of ICT that comprise measurements of the global digital divide are access and use of cell phones and the Internet. The ITU estimates that there were 6 billion mobile phone subscriptions in 2011. Of this, 4.5 billion mobile phone subscriptions, which account for 79% of the total, are in the developing world (ITU, 2011). There are 360 billion Internet users in the world comprising about 33% of the world's population. The largest portion of Internet users is in Asia, which comprise 44% of the world's Internet usage and account for 1 billion users. Only 26% of Asia's four billion people have access to the Internet. Africa has 140 million Internet users as of December 2011, which account for only 13.5% of the continent's total population (Internet World Statistics, 2012). While the number of cell phone subscribers and Internet users is growing, there are a large number of people who are being left behind: those who are unable to read or use a computer to search the web, those who are unable to understand the language that is used to communicate on the Internet and those who have been marginalized by the lack of access to ICTs.

There is a social or democratic divide which refers to social stratification and differences in civic engagement brought about by the limitations in the ability to make use of the technologies (Norris, 2001; Warschauer, 2003). The social digital divide refers to the ways in which people use technology to connect with each other given the limited resources at their disposal such as education, digital literacy, language and support structures in place to help them do so. It appears that this divide in education and digital literacy may in fact comprise the wider digital divide that limits the freedoms people may have to use ICTs to live the lives they value. There is a sense that the aim of using ICTs should not be an end in itself but rather to enable social inclusion and participation in the economic markets made possible by the ICTs (Servon, 2002; Warschauer, 2003). Yet there remains a deep divide between those who have the resources, education and skills to reap the benefits of the technology and those who do not (Servon, 2002). The narrowing of the social digital divide can be seen in the ways social media are used to enable civic engagement and mobilize masses in their quest for political freedoms across of the Middle East and beyond. At the same time, the Internet has been used by some governments as a means to censor and restrict human freedoms while using the same technology to identify and incarcerate people for speaking out against the government's actions.

The papers in this issue identify those who have been left behind as the uptake of ICTs continues to grow. This first paper entitled, "Unveiling the Modernity Bias: A Critical Examination of the Politics of ICT4D" co-authored by Antonio Díaz Andrade and Cathy Urquhart, investigate how ICTs affect political liberty for individuals. They argue that ICT4D initiatives are predominantly informed by a modernist philosophy, which in their effort to bring some material progress risk granting technological tools a major role. This view assumes that ICT4D users are merely passive recipients of the benefits of technology. Moreover, it implies that development can only be brought by those in a more developed, powerful position. They argue that the modernist paradigm, those in a more powerful position, is the political viewpoint that is embedded in the design of ICT4D projects. Building on Sen's (1999) capability framework, they discuss how far ICT4D projects are able to assist political liberty of the alleged beneficiaries, given that political liberties are constrained by wider institutional factors. They conclude by making a call for researchers to more critically examine the structure and intention of ICT4D projects.

The second paper in this issue co-authored by Yael Valerie Perez and Yael Ben-David ask "Does the internet enhance the freedoms people enjoy?" In this paper, the authors evaluate the capacity of the Internet to enhance development in emerging regions through Sen's freedom

perspective which suggests that technology-based progress is one of the instruments for expanding human freedoms. The paper begins with a qualitative evaluation of the Internet's potential as a freedom enhancer through examples and literature study. It then presents a quantitative evaluation based on web access logs obtained from the AirJaldi network in rural India. The data are categorized based on Sen's freedoms to contribute to an information and communication technology-freedom taxonomy. The usage logs indicate that indeed users may have experienced enhancement in all of Sen's freedom categories; yet their qualitative evaluation suggests there is much unexploited potential. In particular, the freedom of exchange, that is to transact through the market mechanism (economic freedom) and a social safety net for preventing people from being reduced to abject poverty (protective security) are limited. The authors conclude that it is important to look at the Internet-based Information and Communication Technologies for Development projects through Sen's freedom lens and call for such projects to be evaluated based on these broad freedom goals rather than on focused development goals.

The ability to use ICTs may provide, in Sen's terms, "the freedom to enter markets [that] can itself be a significant contribution to development" (1999, p. 7). The third paper in this issue entitled, "Market development at the bottom of the pyramid: examining the role of information and communication technologies" co-authored by Monideepa Tarafdar, Prashanth Anekala and Ramendra Singh investigate this illusive topic. They ask the research question, "How can the use of information and communication technology (ICT) enable development of markets at the bottom of the pyramid (BOP)?" In order to investigate this question, the authors integrate the concepts centered on three roles of ICT: automate, informate and transform, market mechanisms, and agency freedom aspects of ICT-enabled development, to examine how (1) ICTs facilitate development of market mechanisms at the BOP, (2) market mechanisms enable economic and social benefit outcomes for BOP markets and members, and (3) complementary conditions facilitate or hinder ICT-enabled market development. The findings are based on qualitative primary data from interviews with 27 BOP individuals from India, and from published and secondary examples. The authors found that by identifying benefit outcomes of ICT-enabled market development for people at the bottom of the pyramid enhanced their agency freedom. In this way, people who are left behind due to lack of education, funds or awareness may have a chance at participating in the ICT-enabled market mechanisms.

There are two papers on the digital divides in this issue's View from Practice section. The first paper in this section is entitled, "Intermediaries: bridges across the digital divide" co-authored by Maung Sein and Bjørn Furuholt, who identify the challenge of bringing developing countries into the "information society" as being traditionally framed as bridging the digital divide. Meeting this challenge has predominantly been through technical solutions aimed at providing physical access to the Internet. Yet, the authors argue that other aspects of the divide such as low literacy rates, gender and religious issues pose bigger hurdles in getting the benefits of the Internet to the vast majority of the population of developing countries. They are seldom aware of the information available on the net and even when they are, they have difficulty using it. Sein and Furuholt propose that to facilitate access and use of the Internet by the population, an intermediary is often needed. While case studies in the literature have shown several examples of such intermediaries, the role of this entity has not been conceptually examined. In this paper, the authors attempt to meet this knowledge gap by conceptualizing the characteristics, types and roles of the Intermediary entity. They present a view from practice through three vignettes of intermediaries from their own studies to illustrate their conceptualizations. Based on this, they discuss some implications for practice and offer directions for research.

Alvaro Armenta, Arturo Serrano, Mayer Cabrera, and Roberto Conte, co-author the second practice paper in this issue entitled, "The new digital divide: the confluence of broadband

penetration, sustainable development, technology adoption and community participation.” The authors suggest that there have been significant efforts during the last years to define indicators to estimate the digital divide among nations, regions, and social groups. The first attempts considered are mainly parameters of technical nature related with access to computers and Internet connectivity. Though these technical parameters gave an initial indication of the magnitude of the digital divide, they did not provide a complete picture of its dimension and context. They investigate the use of videoconferencing between migrant workers in the USA and their relatives in two cities in Mexico, and found that the migrant families did not feel comfortable talking to a computer screen. The authors propose that grass roots participation, integrating socioeconomic development with human values, taking advantage of the advent of emerging mobile wireless, and efficient broadband technologies play a significant role in redefining the nature of the digital divide.

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