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## REVIEW ARTICLE

### INFORMATION AND COMMUNICATION TECHNOLOGY FOR URBAN DEVELOPMENT: A GENDER PERSPECTIVE

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#### ABSTRACT

Information and Communication Technology for urban development is based on the premise that technologies have the potential to fulfil human desire for progress thus, improved livelihoods. The implication is that people appropriate technology for self fulfilment. The exploit of technology is certainly transforming the world. However, there is a problem in understanding ICT for development within the confines of technology alone without assessing how it impacts on different gender. It is easy to lose sight when we merely change the world without really understanding it. This is because technology is embedded in a social context. Hence, the concern that, in making use of factors of production such as technology, the digital divide between technology poor and technology rich is proliferating. This probably explains the current digital divide debate and its profusion in communication studies. However, little is known about digital gender inequalities that are perpetuated by ICTD in developing countries. Hence, this paper hopes to fill this gap by highlighting the benefits accrued to accessing and using ICT by the urban populace in Migori town while addressing the impact it may have on different gender. Additionally, it is the argument in this paper that gender responsive ICT can be a panacea for narrowing the digital divide between the technology haves and have not by addressing concerns of different gender with regard to access and use of ICT.

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#### INTRODUCTION

The notion that Information and Communication Technology (ICT) can trigger economic and political development while immensely affecting social structures abounds in communication studies (Chapman and Slaymaker, 2002; DOTForce, 2002; Hafkin and Taggart, 2001; Heeks, 2009; World Bank, 2006; Melhem, Morell and Tandon, 2009). The International Labour Organization joins this debate with the view that ICT is a global job creator (ILO, 2001). This explains the realization among developing countries that unless the technology poor have a chance to catch up with the increased advancement of the technology rich in the developed nations, the already existing economic gap between technological "have" and "have not" will be perpetuated further (Bridges, 2001). To this effect, the United Nations promote ICT for development as a means through which this digital divide can be lessened (Bridges, 2001; UNDP 2001; World Bank, 1999; TDG, 2000). The aforesaid has made useful contributions to ICTD studies. However, what is not known about the digital divide theory is the view that different genders have different

concerns in accessing and using ICT. There is, therefore, the need to highlight how the digital divide is impacting on different gender in socio-economic development as this may further perpetuate the already existing digital divide. This discussion is driven by the numerous efforts by many countries of the world, Kenya included, to establish organizations to promote ICT (Morgan, 2012). The efforts range from developing skills for use in the labour-force to ensuring adequate access to technology (ibid.). The simple reason being that ICT is a driving force for development, and so, imbedded in Kenya's vision 2030. With the help of ICT, Kenya aims at being the hub of Business Process Outsourcing in Africa. This is to transform Kenya into a middle level economy (GOK, 2007). This vision is to be steered by both men and women in Kenya. However, it is easy to remain preoccupied with the benefits of technology without realizing that very little is known about how access and use may affect our social lives as a developing country. More, the existent digital divide among different gender and what impact this may have on socio-economic development is left unexplored. Hence, this paper hopes to fill this gap. The benefits accrued to accessing and using ICT by the urban populace will be highlighted while looking closely at how it may impact on different gender.

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## Information and Communication Technology for Urban development

Information and Communication Technology (ICT) has been defined variously by different scholars. According to Slaymaker and Chapman (2002), ICTs include an array of communication equipment or technologies used in processing and communicating information. It encompasses computer technology, multi-media and network hardware and software, telecommunications and opto-electronics [semi-conductors and fibreoptics]. It covers any technological products and processes that store, retrieve, manipulate, transmit or receive unprecedented amounts of information and communicate electronically in a digital form. They are satellites, mobile telephones, wireless local loops and also, a range of applications such as internet, email, distance or open learning, teleworking, digital radio and video. With the invention of wireless technology, ICT can be accessed almost anywhere. Physical access to ICT occurs in public spaces such as workplaces, libraries, schools as well as community information centres. In Migori County, for instance, ICT can be accessed through mobile phones, privately owned cyber-cafes as well as satellite systems famously known as ZUKU. Even so, not everyone can afford to pay for these services as result of their cost. ICT, as addressed in this paper, refers to access and use of the internet enabled computers and mobile phones, cybercafés and satellite systems. Additionally, the term urban refers to proliferation of shops, supermarkets and markets into a town or city. Gender as a strategy recognises that development initiatives such as policies, programmes, projects or activities are never neutral and that they can actually widen the gaps between individuals and groups (Morgan, 2012). Hence, every initiative, regardless of the sector of intervention or discipline involved, has different effects and impacts on men and women, young people and older people, rural and urban populations. It is for this reason that, as a developmental approach, gender is understood to mean men and women's needs for empowerment and equality, that is, the Gender and Development (GAD) approach (Reeves & Baden, 2000).

From the foregoing definitions, Information and Communication Technology for urban development (ICTD) refers to women and men of the urban populace accessing and using ICT as a tool for accelerating social-economic outcomes in the domain of transport, health, education and trade for the purpose of improving their livelihoods and quality of life. ICTD is based on the premise that technologies improve livelihoods. Research has shown that technology has the potential to fulfil a people's desire for progress (Brewer *et al.*, 2005). Scholars support this view with an explanation that those with higher usage of ICTs will be advantaged in education, income and other resources as these contribute to improved livelihoods (Hoffman and Novak, 1998; Benton foundation, 1998; Strover 1999; Bucy cited in Neckerman, 2004). This position implies that people appropriate technology for self fulfilment hence, social modernization. This can be traced back to the times of industrial revolution (1770-1850) in which work was made easier by means of water power giving rise to mechanization. Steam powered technology followed closely between the years 1850-1900 which then saw electrification of 1900-1940. In the event of continued

modernization arose motorization and automated society of 1940-1970 then to the most recent digitization of the society. Indeed humans have struggled to improve their livelihoods through technology. However, in making use of factors of production such as technology, our social stratum has changed as well. Evidently so is the proliferation of the digital divide between the technology poor and technology rich. Consequently, there is the problem of understanding ICT for development within the confines of technology alone and not assessing how it impacts on different genders. This has been put forward by Heeks (2007:1) that "...there has been a bias to action, not a bias to knowledge. We are changing the world without interpreting or understanding it". This implies the need for an understanding of ICTD within other factors such as community development, poverty, agriculture, health care, education among others. Further, it explains why probably most governments of any country tend to fuse ICT with other disciplines. However, little is known about digital gender inequalities that are perpetuated by ICTD. It is therefore the argument in this paper that gender responsive ICTs can be a panacea for narrowing the digital divide between the haves and have not by addressing issues of access and use of ICT by different gender.

### ICT in Urban Areas

ICT can open up new avenues and offer new opportunities to support economic development of the urban livelihoods. If accessed and used, ICT can strengthen production and increase market coordination which are the main processes that can contribute to future opportunity and creation of income. Chapman, Slaymarker and Young (2004) have observed that ICT influences livelihoods in a number of ways depending on the context in which ICT is delivered. The provision of ICT through cybercafes and telecentres in the urban areas can improve livelihoods in the following ways: Financial capital: This is where online and mobile banking famously known as e-banking or Mobi-banking allows the urban populace to have greater access to banking facilities and can provide a secure place for cash deposits and remittances. For instance, in Migori town, Equity and Cooperative banks partner with entrepreneurs by situating outlets within business premises through mobile-banking. Additionally, smartcards, automated teller machines, M-Pesa, M-Shwari are used to access loan facilities as withdrawal and banking of cash is made possible through e-banking. E learning, participatory approaches such as micro-finance institutions and networking across political and cultural divides as well as sharing best practices is made possible through mobile phones as well as cyber cafes. Human capital: This is where the use of ICT allows computer trainers to impart updated knowledge and skills, techniques and new developments in technology to the urban populace through computer training. In Migori, most cybercafes house computer training at a fee. Migori town is situated in a valley making it impossible to access frequencies without the assistance of a satellite receiver. Nevertheless, the advent of ZUKU satellite has made access to local and global information sources possible. Additionally, with the dawn of devolved government in Kenya, job applications at the counties have been made easier through on line applications.

Physical capital: Service providers like Safaricom, Orange, Airtel, ZUKU, DSTV monitor access to services through ICT in Migori town. ICT service providers can also detect network problems with minimum inconvenience their customers. Further, these services are accessed and paid for through M-Pesa, hence saves time. Natural capital: This is where access to information about availability and management of natural resources is enhanced. For instance, in Migori town, gold mine entrepreneurs and other traders can access market prices with the help of their internet enabled mobile phones as well as cybercafés thereby averting exploitation by middle men. Social capital: This allows for social networking. ICT bridges time and space [the case of banking while in one's living room] ends isolation in social media and enables one to access knowledge and productive resources either through mobile phones or computers. In Migori, those who access face book are able to get in touch with what is going on in the county through friends and network partners.

### Gender Issues in ICT for Urban Development

Despite numerous benefits accrued to access and use of ICT, many women are not yet ICT compliant as compared to their male counterparts and so may be left out in terms of development. Scholars have pointed out that a people's relationship with technologies, such as ICT, determines their use and access. Wajcman (1991:28) posits that "though new technologies do represent a force for change ... the outcomes are constrained by the pre-existing organization of work, of which gender is an integral part". Implying that one's relationship with technology is dependent on whether one's needs and concerns are considered and whether what one needs is made available. In Hafkin's (2002) words, 'one cannot use what is not available' but even when it is available, the existence of ICT in public spheres does not guarantee access to and use by all. In the same vein Wambui (2002) adds that the constraints to effective use of ICTs in developing countries are a mirror of the already embedded gender relations in the society where women are socialised into non-technical careers and made to distant themselves from software production. However, Chapman and Slaymaker, (2002) refute this when they mention that women need to move beyond being merely users of technology to being producers of technology. From the above discussion, Wambui's observation may be seen to have been skewed to developing countries, particularly Africa. However, in India, the reverse is true because women have made careers in the ICT sector. Furthermore, other parts of the world have noted high women representation in software production and use (Wright and Jacobs, 1994). Rickert, Anne and Sacharow, (2000) support this when they mention that, currently, more than 50% of the internet users in the west are women. Even so, men are still advantaged in creating and controlling what goes on in the media given their roles as technocrats (Herring, forthcoming). Hence, there are still disparities of ICT production by women as compared to men. This is confirmed by Wood (2000) who asserts that:

ICT usage represents a social reality [...] Addressing these realities (including gender imbalances) creates a space for social justice [...] We need to ask: Who controls the mouse?' (Wood 2000 in Hafkin, 2002 p.4).

The implication here is that access and use should be embedded in the production that is aligned to one's needs for technology. If this is not addressed then the gap will still widen. With this regard United Nations posits that ICT thirds poverty and violence against women viz a viz global issues facing women (Hafkin & Taggart, 2001). To highlight this are the statistical reports on gender issues:

### Global Gender Issues

The World's Women Report [WWR] (2010) stipulates that women perform 2/3 of the world's working hours and produce over 50% of its food but only earn 10% of its income, own less than 2% of its property and receive less than 5% of all bank loans. Additionally, of the 1.2 billion people living in poverty [earn less than \$1 a day], 70% are women. In the space of 20 years, the number of rural women living in absolute poverty has increased by 50%, compared with 30% for men. No country has achieved wage equality and 60% of workers in precarious jobs are women. Around 16% of the adult population are illiterate: 2/3 of these are women. 72 million school-age children are not in school: 54% are girls. Of the world's 40 million refugees, 75% are women and children. One in three women has been raped, beaten or suffered some form of abuse at least once in her life.

### Gender Issues in Africa

The World's Women Report [WWR] (2010) has also observed that despite restrictions on their rights to own, use and inherit land (in 43 out of 48 countries in Africa, land law is characterised by inequalities in land acquisition and ownership), women own just 1% of land and are responsible for over 60% of food production. Women have access to only 10% of the credit granted to small farmers and to 1% of the credit awarded to the agricultural sector. A woman's working day is 50% longer than a man's. In Sub-Saharan Africa, 47% of men are literate compared with 30% of women. Research has shown that if women had equal access to farm income, agricultural services and land and if they controlled these resources and their benefits, production could increase significantly (Moser, 1993; 1996). It is estimated that women's limited access to education and employment reduces annual growth rates by 0.8%. HIV-positive women in Africa account for 58% of all documented cases, and many of these are rural women. In Sub-Saharan Africa, 61% of adults living with HIV/AIDS are women; 75% of 15-24 year olds newly infected with HIV are girls and women.

### The Digital Gender Issues

From the foregoing discussion, it is evident that there exist a gender gap and this may be a bottleneck to development. This gap is perpetuated further by a number of digital gender issues: First is the stereotype pegged on the notion that science, math and technology are predominantly a male preserve while girls and women strive more in languages (Quaisie, 1996). This has contributed to some females shunning the use of technology. The famous phrase 'this thing is not for us' by women further perpetuates this stereotype. However, there is need for the female gender to rise above the technophobic theory by

enrolling for math, science and technology courses. This is slowly being realized in America, Europe, Asia and the Pacific, and Russia. In these countries girls, as early as primary level of education, are encouraged to deconstruct this theory by making a career out of ICT (ITU, 2001 in Hafkin, 2002). Additionally, if access and use is availed, another study has shown that women actually embrace digital technology even more than men, disproving the stereotype of "technophobic women" (ibid.). Second are issues of income, education and employment. Going by the World's Women Report [WWR] (2010) that 2/3 of the world's illiterate are women and this is unlikely to improve in the near future (UN, 2000), the inference is that 2/3 of these illiterate women will not embrace ICT. The reason being, that the digital language that has been used in the past has been predominantly English with Chinese, Japanese, German and Swahili being included only recently. It may be argued that, with translation, the problem would be resolved. However, translation alone would not help if one cannot read and write. Hence, as Hafkin (2000) has suggested a solution to this would be to use translation alongside graphic and voice user interfaces for those who are illiterate. In other words, with issues facing women [as indicated by WWR 2010] limited access and use of ICT by women may be as a result of their unfavourable conditions with respect to employment, education and income. It is, therefore, believed that if these variables were to be controlled, women would turn out to be more active users in ICT than men (ITU, 2001). This turns the alleged digital gender divide into a debate that, if ICT were to be gender responsive, it would be the panacea for treating this digital gender divide by offering women opportunities and the potential to provide access to employment, education, income, health services, participation, protection, and as well as safety (Heeks, 2009). That is to say that ICT would give women a voice to tackle social discrimination as they make use of this opportunity to fight longstanding inequalities existent in the society. Research shows that there is need for the female gender to embrace ICT given their roles in driving social and economic growth (Slaymaker and Young, 2002). A study conducted by ITU 2001 indicates that bridging the digital gender divide in the workplace drives economic growth while struggling to maintain the status quo cost billions of dollars in a year.

### **Migori Town**

Migori, the capital of Migori County is located 63 km south of Kisii and 22 km north of the Tanzania border. The town has an urban population of 31,644 and total population of 46,576 (1999 census) and is connected to a road leading to Maasai Mara national park. Migori town is immediately after Awendo, (where the Sony Sugar Company is situated), Oyani, Stella and Kakrao areas. After Migori town is the road to Isebania which leads to Mwanza in Tanzania. The latitude and longitude are 1,0667 and 34, 466 respectively while the altitude is roughly 1323 meters at Kakrao descending by 100 metres into the Migori river. The different peaks near the town are a little over 1550 metres above sea level. This explains why the frequency can only be accessed through satellite. The soils are well drained and tending to loamy hence favours the cultivation of tobacco, sugarcane, maize, beans, coffee, groundnuts and vegetables. The major economic activities are mining and

trade. Mining is centered in Macalder area of Migori on the way to Sori (Karungu Bay). However, most economic activity is centered on the main highway that crosses the town. Apart from mining there are other small and micro enterprises largely the Jua Kali with a concentration in auto mechanics, furniture works, tailoring, welding, trade and agriculture. Agricultural produce comes from surrounding areas like Ngege, Oyani, Anjogo etc. Other profit making organisations include Barclays, KCB, K-rep, Diamond Trust bank, Kenya Women Trust bank, Family Finance, Co-operative, National and Post banks. Additionally, there is a National cereals board depot. Migori town is chosen because it is the capital of Migori County as well as a typical representative of other towns found within the county.

### **Gender Issues in the Context of Migori Town**

Other than playing different roles in the society, women and men in Migori town have different concerns in accessing and using ICT. These concerns, which Morser (1993:38) refers to as 'gender needs', are categorized into two domains: those that are needed for survival as identified by women within a specific context [practical gender needs] and those that challenge male dominance [strategic gender needs]. The author argues that in addressing gender issues in developing countries, prioritizing these concerns is of importance. Many of these concerns to some extent depend on one's behaviour but in most cases are pegged on one's cultural and societal orientations which then influence women's needs economically as well as politically. Culturally and even socially, most women, especially in developing countries, are often impeded from access to and use of ICT (Hafkin, 2000). These, in the end, limit their opportunity to develop economically. More, genders issues are rarely infused in ICT policy. This paper discusses gender issues using two lenses: access and use. Based on the aforementioned, there are cultural issues, more so in Africa, that impede women from accessing ICT (UNIFEM & UNU/TECH, 2000). For instance, infrastructure can be termed as a gender issue if analyzed in relation to location, cost and choice. This is because most infrastructure and high technology applications are found within the town centres while a majority of women live in the rural areas. More, given women's roles as caregivers [taking care of children and the elderly] in the home, it is difficult for most of them to move to urban areas. This implies that most women may not access communication infrastructure. Hafkin (2001) is of the opinion that the deployment of infrastructure ought to be concentrated where women may predominate.

In terms of income almost all communication facilities are costly. For instance in Migori town, the cheapest mobile phone ranges from 1000-2000 Kenya shillings. However, these cheap mobile phones are not internet enabled while those that permit internet access are costly approximating 4000-15000 Kenya shillings. Yet, in context, most women are dependent on men for their economic needs. Nonetheless, even when they do have access to these resources their income is controlled by men. Further, research has shown that women spend 70% of their income in meeting the family's basic need in subsistence economies (Jacobson, 2007) and so would probably hesitate to spend their income on ICT. This implies that with less income,

some women may not access ICT and so may not contribute to socio-economic development. There is, therefore, the need to lower costs and introduce regional tariffs to mitigate the bias (Hafkin, 2002). More, the continued insistence on standards like we saw last year in Kenya [in which most Chinese phones which permit access to the internet were banned] may mean that cheap mobile phones may soon be out of the market and so most women and men with low income will not have access to them. Hafkin, (2007) insists that there is need to analyze who needs ICT and for what purpose in the event that choices are made. It is also vital that user-friendly technology be supported especially for those who are illiterate. In terms of location, most cybercafés, like those in Migori town, are centered on the main highway [Migori-Isebania] that crosses the town. More, users of these cybercafés are predominantly young male adults who frequent these facilities for several reasons; among them being to watch pornography. It is therefore difficult for girls and women who are expected to be prudent to visit these cafes for the fear of being mistaken. A typical example is one cybercafé owned by a Christian. The cybercafé is located behind the shops along Migori-Isebania road. Given its location and because it allows for privacy, it is mostly visited by middle aged male and female adults. However, culturally, frequent visit to these kind of cybers by women may not be welcomed as the public domain is a male preserve. Hence, women's mobility in the public domain is restricted. There is, therefore, the need for internet content regulation to mitigate this prejudice alongside awareness advocacy in planning and implementing infrastructure (Hafkin, 2002).

Lastly, most cybercafés are located in the town centre of Migori. However, based on my experience, given women's responsibilities as caregivers along side work or business, their leisure hours are limited. What this means is that by the time these women complete their chores, most of these cybercafés have closed down. Nevertheless, even when they are open, culturally, evenings is a male preserve since women are expected to be at home to prepare dinner. Additionally, it may not be safe for them at these 'odd hours'. There is, therefore, the need to adopt schedules that suit women's needs. Further, bringing more female trainers on board to work with fellow women may mitigate cultural issues that may hinder them from enrolling for IT courses (Chapman and Slaymaker, 2002). More, training of women technologists would enable them to contribute favourably and equally with their male counterparts in contributing towards socio-economic development.

## Conclusion

This paper has attempted to highlight the benefits accrued to accessing and using ICT by the urban populace while addressing the impact it may have on different gender. The problem of a narrow understanding of ICT for development within the confines of technology is discussed. Further, the issue of proliferation of the digital divide has been addressed with the view that ignoring the impact of ICT for urban development on different gender may lock the developing world into a digital gender divide. It is argued that insistence on the status quo may be a costly affair. Hence the conclusion that gender responsive ICT can be a panacea for narrowing the

digital divide between the technology haves and have not, consequently, improved socio-economic development.

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