

## The Technological Revolution and Its Impact on Gender Relations with a Special Focus on India and Africa

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### I. INTRODUCTION

The technology revolution of the 20th century minimized the importance of geographical, economic, social and political barriers and reduced transaction and information costs – thus boosting productivity and growth, making governance more transparent and empowering the citizen.<sup>1</sup> It propelled not only democracy, but also the market economy. Its impact on social relations, especially on gender relations, was significant, with the commodification of labor, the disintegration of traditional family models, and the separation of the work and living spaces creating the distinction between productive and reproductive work and diminishing the socio-economic status of women.

One can only speculate how the technological revolution of the 20th and 21st centuries will ultimately impact gender relations as we are still in the process of change to a fully-fledged digitized society. There is mixed evidence on the empowering or disempowering potential of ICTs for women.<sup>2</sup> New technologies clearly seem to

have the potential of removing women-specific barriers to participation and organization and leveling centuries-old gender inequality.<sup>3</sup> The gender gap in access and usage, however, reveals that women are not able to tap the empowering potential of new technologies at par with men. The gendered socio-cultural and economic environment in which ICTs are embedded as well as the gendered design and regulatory framework of the new technologies obstruct ICTs from unfolding their empowering potential for women.

A CD ROM project in Uganda reveals the complex nature of empowerment and the difficulties in implementing a gender-sensitive project within the parameters of a gendered society. Not only are ICTs not addressing the gendered mindsets of men and women, they even risk entrenching gender inequalities. Recent initiatives of the private sector in India and Africa equally fail to address the underlying reasons for the ICT gender gap. Female digital literacy is not enough for transformative empowerment that would challenge traditional gender roles and shift

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the balance of power within our societies. If ICTs are to empower women, they have to be designed in a manner that suits female skills and interests, and must be embedded in a regulatory framework that favors female access and usage. Only if ICTs fulfill this ambitious agenda will their potential for women empowerment unfold.

## II. WIDENING SPACES AND EMPOWERING WOMEN

It is indisputable that the advent of new ICTs - the mobile phone and the internet in particular - and the social spaces they create, transform time and space, and irreversibly impact the social, economic and political spheres of our societies, making them more democratic and inclusive.<sup>4</sup> The internet allows access to unlimited information and knowledge and provides a platform for economic, social and political participation.<sup>5</sup> The mobile phone transforms isolation into connectedness and empowers the individual in the economic and social spheres.<sup>6</sup> The formerly excluded and marginalized are able to participate and are given a voice and new identity in our information societies.<sup>7</sup>

Women in particular benefit from these avenues for participation and organization, as the new technologies overcome women-specific barriers to female participation.<sup>8</sup> Women's responsibilities within the household and their limited mobility affect the time available to them and the spaces they can access.<sup>9</sup> ICTs, however, minimize the importance of time and space.<sup>10</sup> The anonymity of the internet makes the gender of the 'user' invisible and as a consequence precludes gender bias, allows women to express their opinion fearlessly, access information without censorship and provides a platform for organization and networking.<sup>11</sup> Movements working for women's rights and gender equality, like the Asian Human Rights Commission, use the internet for the mobilization of supporters, for the advocacy of their cause and as a channel for discussion, information and knowledge exchange.<sup>12</sup> E-commerce, like the online retailing initiative for women weavers in Morocco,<sup>13</sup> allows women to

bypass the male dominated conventional market place by establishing a direct link between producer and consumer, making exploitative middlemen redundant.<sup>14</sup> Information on prices, weather and market developments obtained online or through the mobile phone enhances the productivity of women and frees them from dependency on the male informant.<sup>15</sup> Distance learning allows women to acquire education<sup>16</sup> and e-banking, like the M-Pesa and M-Kesho initiatives in Kenya,<sup>17</sup> offers unprecedented potential for the 90% of the unbanked world population,<sup>18</sup> most of whom are women.

It is clear that new technologies widen the spaces available to women and women themselves experience these changes as empowering, with an increase in their self-esteem and knowledge.<sup>19</sup> Economic independence has the potential of shifting bargaining power within the household<sup>20</sup> and access to knowledge and information can transform the horizons of women.<sup>21</sup> According to Kelkar and Nathan, ICTs have the potential for transforming traditional gender roles.<sup>22</sup>

Tapping this potential, however, is not a simple task and evidence suggests that ICTs in their present form and in the manner they are harnessed today are not able to release their empowering potential. Empowerment is a complex concept and shifting traditional gender roles requires transformative empowerment which challenges established power relations between the sexes.

## III. THE COMPLEX CONCEPT OF EMPOWERMENT

The term 'empowering' is frequently used for describing opportunities that ICTs offer for enhancing women's status and their position within our societies.<sup>23</sup> However, empowerment is a complex concept. Carolyn Moser's distinction between practical and strategic gender needs constitutes a useful framework for understanding the differing impact ICTs can have on women. If women use ICTs merely for better coping with their triple roles, thus addressing their practical gender needs, ICTs can even entrench the sexual

division of labor and existing inequalities.<sup>24</sup> If, however, ICTs are used for challenging traditional gender roles within our societies, thus addressing strategic gender needs, ICTs can become a tool for truly transformative empowerment which shifts the balance of power in favor for women.<sup>25</sup> It is argued that addressing practical gender needs can constitute a first step for gaining awareness on strategic gender interests, as the enhancement of knowledge and of self-esteem can destabilize socially accepted gender roles.<sup>26</sup>

A third conceptualization discusses empowerment or rather the sense of empowerment out of the vantage point of the oppressed woman and reveals that the concept of empowerment is constructed. Empowerment signifies here the ability to make strategic life choices which will necessarily reflect the norms and values of the community.<sup>27</sup> A woman in Bangladesh will opt for an economic activity in her homestead rather than for an outside employment, because of the strong social norm of female seclusion (*purdah*) and her desire to preserve her status and dignity within the family and the community.<sup>28</sup>

Empowering women 'from within', so that they perceive the social construction of their subordination, its injustice and the potential for change,<sup>29</sup> as well as giving women more power in all spheres of the society so that they can influence their life situation and influence the processes that shape their life situation, becomes essential for achieving transformative empowerment.<sup>30</sup> Moreover, awareness among men has to be created about the subordinate position of women and the injustices this perpetuates; otherwise, they will not be willing to cede spaces of power and influence.<sup>31</sup>

If ICTs have to achieve transformative empowerment, their use has to shift the gendered power relations within our societies towards more equality for women. The way in which new technological revolutions have unfolded today however indicates that women do not benefit on par with men from the opportunities offered by ICTs. Consequently, the ICT revolution risks entrenching exiting inequalities within our societies.

#### IV. THE ICT GENDER GAP

The so-called 'digital divide', which signifies that certain regions or groups benefit more than others from the new technologies, has many faces.<sup>32</sup> However, it is the poor, rural Third World woman who benefits least from the ICT revolution. Evidence on the involvement of women with ICTs reveals that women do not participate on par with men in the development of ICTs and do not access, use and even value the new technologies equally. It is estimated that the chances for women of benefitting from the opportunities of the information society are one third less than for men.<sup>33</sup> In developing countries, the gender divide in access and usage is particularly pronounced, where 16% fewer women than men use the internet<sup>34</sup> and women in low- and middle-income countries are 21% less likely to own a mobile phone.<sup>35</sup> Fewer women than men are also represented in science, technology, engineering and management<sup>36</sup> and their participation is mostly confined to stereotypical roles in lower-level employment.<sup>37</sup>

Africa is the continent which has until now benefited least from the digital revolution,<sup>38</sup> with less than 10% of the households accessing the internet at home by the end of 2013<sup>39</sup> and with a highly uneven and gendered diffusion of the new technologies.<sup>40</sup> With an internet gender gap in sub-Saharan Africa of 45%, men are almost twice as likely as women to access and use the internet and this gap widens to more than 50% in some rural areas.<sup>41</sup> Rural households in sub-Saharan Africa are between 50 to 80% female-headed because of male employment migration to urban centres, and consequently men benefit more from the new technologies, as urban areas are more connected than rural areas.<sup>42</sup> In Uganda, for instance, of the 23.8% of the population using the Internet, 17.3% are located in urban areas as compared to 6.5% in rural areas.<sup>43</sup>

India's ICT revolution displays a similar picture. The ITU 'Measuring the Information Society Report 2013' suggests that India is one of the 'least connected countries' with regard to

access, use and skills.<sup>44</sup> Despite a ten-fold increase in the percentage of the population with internet access at home in the past ten years to about 20% in 2014,<sup>45</sup> only about 10% of the population is using the internet.<sup>46</sup> Indian women are 27% less likely than men to access the internet, with 8.4% of Indian women and 11.6% of Indian men being online.<sup>47</sup> Only about 28% of Indian women own a mobile phone as compared to 40% of the male population.<sup>48</sup> This gender gap in access and usage notwithstanding, the recent boom in employment creation within the ICT sector has benefitted in particular women whose participation in the IT and software industry and technology careers has increased substantially.<sup>49</sup> In the past twenty years, women's enrollment in technical institutions has increased from 5 to 45%<sup>50</sup> and the outsourcing of business activities creates new ICT jobs in service industries, which are increasingly occupied by women.<sup>51</sup> Moreover, women constitute the majority of computer and electronic assembly manufacturing workers in India.<sup>52</sup>

The above analysis reveals that women are not participating equally in the ICT revolution and those who participate belong to a small and educated urban elite and do not represent the life situation of the majority of women in developing countries.<sup>53</sup> With regard to female participation in ICT employment, women are mostly represented in low-skill and low-paid service or manufacturing employment. As a consequence, men are disproportionately benefitting from new technologies and strengthening their economic and social capital and thus marginalize women further in the economic, social and political spheres.

What are the underlying reasons for the ICT gender gap? Why are the majority of women in developing countries unable to tap the opportunities created by the new technologies? The subsequent section of this paper reveals that it is the gendered socio-cultural and economic environment in which technologies are embedded as well as the gendered nature of ICTs that obstruct equal female access to and usage of ICTs.

## V. THE UNDERLYING REASONS FOR THE ICT GENDER GAP – TECHNOLOGY IS NOT GENDER NEUTRAL

Women's ability to harness ICTs is conditioned by a number of factors that shape their realities. The high cost of access to new technologies coupled with the low level of female purchasing power is one of the main reasons for the low uptake of ICTs by women.<sup>54</sup> According to the Affordability Report 2014, women are amongst the groups having the least access to affordable internet<sup>55</sup> and in a survey in Africa, 50 to 70% of the non-users cited affordability as the main reason for non-participation.<sup>56</sup> Due to the sexual division of labor and the triple role of women, women all over the world occupy lower-paid and less skill-intensive jobs and earn on average 30 to 50% less than men.<sup>57</sup> Women's productive work force participation in developing countries was only about 39% in 2010<sup>58</sup> and in India only 20% of urban women and 54% of rural women in the age group 15-59 participated in the productive workforce in 2012.<sup>59</sup>

Women's lower levels of education also contribute to the ICT gender gap, as better education leads to better paid employment.<sup>60</sup> Furthermore, education is necessary for obtaining a skill-set, like literacy, English language skills and technological and scientific knowledge that is necessary for harnessing ICTs.<sup>61</sup> The persistent gender gap in schooling and literacy levels in developing countries puts women at a disadvantage with regard to ICTs. The census data of India of 2011 reveals that 66% of women are literate as compared to 82% of men<sup>62</sup> and in sub-Saharan Africa, the male literacy rate in 2013 was about 68% as compared to 51% among women.<sup>63</sup> Gender biased belief and value systems are amongst the main reasons for this gap. A preference towards sons and girls' contribution to housework increases the opportunity cost of sending a girl to school.<sup>64</sup> In India, 23% of girls drop out of school before they reach puberty.<sup>65</sup>

Infrastructural constraints equally contribute to the ICT gender gap. Rural areas are less

connected than urban areas, mainly due to profitability reasons.<sup>66</sup> In Africa, 90% of the rural populations lack electricity and as energy still constitutes an important prerequisite for access and usage of ICTs this energy poverty translates into ICT poverty with a predominantly female face, as more women than men live in rural areas.<sup>67</sup>

Mindsets are another factor contributing to the ICT gender gap. Due to the lack of exposure, women are often not familiar with ICTs and do not realize the value and empowering potential of ICTs.<sup>68</sup> They become reluctant to access and use ICTs and the so-called 'technophobia' of women can mainly be attributed to this lack of exposure.<sup>69</sup> Gendered mindsets of our societies contribute to the exclusion of women from the new technologies.<sup>70</sup> In India for instance, patriarchal norms obstruct women's mobility which would allow them to access telecentres or engage in outside employment<sup>71</sup> and the society-specific understanding of masculinity and femininity creates a situation where technologies are usually regarded as a typically 'male' domain and women are regarded as 'incapable' of handling them.<sup>72</sup>

It becomes clear that ICTs are embedded in a gendered socio-economic and cultural context and that all parameters that create gender inequality within our societies equally obstruct female access to and usage of ICTs. At this point we have to ask why technologies and their operational environment are constructed and designed in a way that hampers women's participation. The answer to this is complex: it can be said that the processes by which technologies are developed, designed, produced, marketed and consumed, as well as the institutional framework in which they are embedded, are in themselves gendered.<sup>73</sup> The gender identity, experiences and perception of societal needs of those who are involved in these processes determines the nature of a technology. As women are generally under-represented in science, technology, engineering and management positions and in the policy processes that regulate technologies, technologies and their regulatory frameworks predominantly reflect male experiences, interests and needs.<sup>74</sup>

## VI. CHALLENGES OF IMPLEMENTING A GENDER-SENSITIVE ICT INITIATIVE – A CASE STUDY FROM UGANDA

The CD ROM initiative "Rural Women in Africa: Ideas for Earning Money" was implemented in 2001 in rural Uganda in three telecentres with the objective of enhancing business activities and improving the life situation of the rural, illiterate woman.<sup>75</sup> The design and the content of the CD ROM were developed through a participatory process, whereby women were consulted with regard to their specific needs.<sup>76</sup> The local vernacular language Luganda, visual and audio material, easy teaching methodology and minimal technical skill requirements for the operation of the CD ROM were used and the content allowed women to learn about how to start an entrepreneurial activity with resources at their disposal.<sup>77</sup> The women would meet at the telecentres and go through the material and information and discuss with a facilitator their learning and reflect on how they could apply their gained knowledge.<sup>78</sup>

The majority of participants were able to set up, expand and diversify their business into an income-generating activity, which enhanced their economic situation.<sup>79</sup> The CD ROM also taught them how to save and re-invest their gains, but women tended to spend their savings on expenditure not related to their business activity and thus their businesses were mostly stagnating.<sup>80</sup> Frequently women would pay school fees and medical bills, which previously had been paid by their husbands, who abandoned these responsibilities once they became aware of the enhanced economic situation of their wives.<sup>81</sup> This led to a shift in gender roles which increased the obligations and responsibilities of women within the household and as a consequence hindered their entrepreneurial success.<sup>82</sup> This was not experienced as disempowering by the women and they often did not object to their husbands' abdication of responsibilities.<sup>83</sup> The preservation of their marriage and the contribution to the family welfare was given more value than the success of their businesses.<sup>84</sup>

The case of two widows, who were able to expand their businesses and moved from the status of economic dependency to independence, reveals that only when women are given space and are freed from male dominance, they can effectively take advantage of ICTs and the resulting business opportunities for their personal economic enhancement.<sup>85</sup>

Despite the absence of significant entrepreneurial success and the absence of a change in their subordinate position within the family, women themselves experienced the increased contribution to the family welfare and their economic activity as an improvement of their life situation.<sup>86</sup>

The initiative reveals that despite the gender-sensitivity of design and content and despite the enhanced economic situation of the women, transformative empowerment could not be achieved. If traditional gender roles are not challenged, economic empowerment can even lead to more gender inequality. The women themselves experienced this outcome not as disempowering as they derived their social status and identity from their roles as mothers and wives and therefore experienced an increased contribution to the family welfare and the maintenance of their marriage and not entrepreneurial success as empowering.<sup>87</sup>

The case study provides a good learning example on the complexities of the concept of empowerment and on the difficulties of implementing a gender-sensitive ICT initiative and serves as an analytical framework for the evaluation of recent ICT initiatives in India and Africa.

## **VII. REFLECTIONS ON RECENT ICT INITIATIVES IN INDIA AND AFRICA – WHAT IS THEIR SCOPE FOR EMPOWERMENT?**

India is the country with the largest number of ICT for development initiatives<sup>88</sup> and the new government under Prime Minister Narendra Modi committed itself with the 'Digital India' campaign to transforming India into “a digitally

empowered society and knowledge economy”.<sup>89</sup> Despite the gender-blindness of most of the efforts,<sup>90</sup> there have been a number of private sector initiatives targeting female access and usage of ICTs.

Google launched the 'Helping Get Women Online' campaign in November 2013, which aims at helping women overcome the access, knowledge and awareness barriers which impair their participation online.<sup>91</sup> The website [www.hwgo.com](http://www.hwgo.com) instructs women on how to use a computer and the internet and how to get access to so-called relevant information. The website is available in English as well as four regional languages and indicates the number of a free helpline for those who require help in operating the computer or the internet.

Despite the gender-sensitive design of the website, the requirement of literacy excludes illiterate women, who constitute about 1/3 of the female population in India (Census 2011). Moreover, household and relationship tips, advice on child caring and maternity all address traditional responsibilities of an urban housewife and consequently reinforce entrenched gender roles. The website seems to be designed especially for the urban, literate, non-working and married woman who has access to the internet at her home, but who is not aware on how to use it.

Maybe in response to this last critique, Google launched in July 2015 the 'Internet Saathi' campaign, which targets the digital literacy of the rural woman. Over a period of eighteen months, about five million rural women will learn how to use the internet.<sup>92</sup> This however does not guarantee increased access and usage. As we have seen, other factors like literacy levels, socio-cultural barriers and infrastructural constraints condition the engagement of women with the digital world. Not addressing these parameters will most likely obstruct the sustainability of the effort by Google and its partners. Moreover, these women-only initiatives exclude men from the process of empowerment and therefore cannot have a real transformative impact. A shift in gendered power relations on the household and societal level requires men to cede spaces of power

and influence. To achieve this, they need to be involved in the process of empowerment and acknowledge the injustice of female subordination and recognize the need of female engagement with the new technologies.

Similar efforts are made in Africa, where there is an increased recognition of the need for the digital empowerment of women. Based on the report 'Women and the Web', where it was realized that in developing countries 25% fewer women than men use the internet and that this gap expands to 43% in sub-Saharan Africa, Intel has launched in 2014 the 'She Will Connect' campaign as a pilot initiative in Kenya, Nigeria and South Africa with the aim of digitally empowering five million young women by 2016.<sup>93</sup> The combination of digital literacy training, of an online peer network and of gender-relevant content is supposed to facilitate the access and usage of the internet for increasing their income, receiving better education and enhancing their political participation.<sup>94</sup>

As mentioned above, merely creating digital literacy amongst women cannot be the magic bullet that automatically shifts power relations within our societies towards more equality for women. The gendered structural inequalities within our societies have to be equally addressed and men have to be involved in the process of gaining awareness on the social construction of

female subordination and inequality and the injustice this constitutes.

## VIII. CONCLUSION

This paper takes a critical stance on the alleged empowering impact of ICTs on women. We have seen that the way in which most ICTs operate today in developing countries, i.e. within the parameters of a male-dominated society and favoring male access and usage, largely fail to truly empower the majority of women.

ICTs clearly have the potential for shifting the power relations within our societies towards more equality for women by providing them with unseen opportunities for participation and organization. Tapping this potential and achieving truly transformative empowerment which challenges traditional gender roles however requires a complex process of addressing the gendered nature of ICTs and the gendered socio-cultural and economic environment within which ICTs are embedded. The gendered mindsets of both men and women on the social construction of female subordination and gender inequality in our societies too need to be addressed. Gender-sensitive ICT for development initiatives have to take all these aspects into consideration if they aspire to have a lasting and transformative impact on the lives of women.

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### ABOUT THE AUTHOR

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