EMPOWERING WOMEN IN TECHNOLOGY: Lessons from a successful woman entrepreneur in Kenya

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SYNOPSIS

Over the past decade, Africa has experienced significant growth in the Information and Communication Technology (ICT) sector. This can be attributed to the willingness of African countries to realize the transformational potential of ICTs to boost their economies. Unfortunately, despite the important role of African women in the economy of their countries, millions of them have no access to ICTs and they cannot use the ICT facilities. The gender digital divide is so remarkable that institutions at different levels commit themselves to bridge the gap. This paper provides the success story of Judith Owigar who co-created AkiraChix, a space for women in technology to experiment, fail, and excel, with the vision to increase the ratio of women in technology. After five years of activities, AkiraChix has developed many programs intended for women at different ages and impacted hundreds of girls and women in Nairobi. Even if it is too early to assess the real impact of AkiraChix on the issue of the gender digital divide in Kenya, the initiative is to be recognized and encouraged as already done by many international organizations. On the specific issue of women's access to and use of ICTs, much has been achieved but much more remains to be done to ensure that women in urban and rural regions in all parts of Africa benefit from ICT opportunities. The paper calls for African states to close the gap in gender access to ICT in Africa by promoting and building capacity of women in ICT sector for inclusive achievement of economic development of these countries. Moreover, because of the lack of statistics, the gender digital divide could be underestimated in Africa – as such the paper calls for the regional institutions such as The African Capacity Building Foundation (ACBF), the African Development Bank (AfDB) and the African Union (AU) to support capacities of African states in addressing this knowledge gap. A key lesson emerging from the study is that a small change in mindset can sometimes make a huge difference in women empowerment – therefore policies specially designed to promote early involvement of women in ICTs is important for improving women's access to and use of ICTs in Africa.

Introduction

Information and communication technologies (ICTs) expansion across Africa is a key driver of the economic growth noted in African countries in the last decade (AfDB, 2015). ICTs have the potential to enable many enterprising individuals, firms, communities, to address economic and social challenges with greater efficiency and imagination

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(UNESCO 2003).The increasing mobile phone penetration, reaching 367 million subscribers in mid-2015 (GSMA Intelligence 2015) coupled with the increasing internet penetration which is estimated at about 20% (Nyirenda-Jere and Biru, 2015) are creating new and unprecedented opportunities for individuals and organizations. Beyond these perspectives, there is a critical discrepancy between men and women with regards to ICTs and especially internet access. According to the International Telecommunications Union report "Measuring the information Society 2015", on average across the developing world, nearly 20.5 percent fewer women than men have access to the Internet (ITU, 2015) and the gender gap soars to nearly 43 percent in regions like Sub-Saharan Africa (Intel Corporation 2013). Though Africa has recently seen rapid growth in mobile and internet access, women are vastly under represented in these technologies. This discrepancy reduces their access to opportunities and economic development, thus worsening their already fragile situation.

Judith Owigar, an innovative Kenyan woman is developing solutions to these challenges by working to make a huge impact and nurturing the talents of women in technology, so that they can develop innovations and solutions for Africa. She is co-founder of AkiraChix (http://akirachix.com/), a real game changer for women innovators in Africa. The AkiraChix vision is to give women technology and entrepreneurial skills, which empowers them technologically and financially and enabling them to serve and lead their communities. The first target of this non-profit organization is women from low income areas in Nairobi (Kenya) who do not have access to such opportunities. The second target is to expand opportunities to the larger community of women. As a meanS to addressing poverty, unemployment, and gender inequalities in the access and use of ICT, AkiraChix provides training, mentorship, and outreach programs to increase the number of skilled women in technology and to positively impact the community.

Her outstanding vision and determination have made many young women confident to do things they never thought were possible for them to do. Her inspirational and innovative entrepreneurial story is undoubtedly an example, which seeks to incite young African women to initiate and thrive business activities in technology and have the passion to make their vision a reality. Judith and the women entrepreneurs like her in Africa, are opening up a whole new world of possibilities for a new generation of talented young women who are following in their footsteps to get into entrepreneurship and trust in the power of entrepreneurship to make a positive contribution to the continent's economy.

This case study aims to publish the story of a successful African woman entrepreneur who used her strong determination and vision to impact women from her community. We used a literature review based approach to collect data on women and ICTs and on the AkiraChix initiative. Data were analysed as to show how AkiraChix initiative is dealing with the issue of women in ICT, the outcomes and important lessons. Through policy recommendations, this study is also a call for actions towards bridging the Internet gender discrepancy and unleashing the potential of women.

1. The issue of women's access to ICT in Africa

Women represent the main economic force in most developing countries (Lindio-McGovern and Wallimann 2009) where they comprise about 43 percent of the agricultural labour force (FAO 2011) and produce 60-80 percent of food (Mehra and Rojas, 2008). As economies become more and more ICT-driven, the issues of women's access to and use of ICTs are growing in importance, and are of particular concern in Africa. Indeed, despite an exponential growth in ICT penetration in Africa (GSMA Intelligence 2015; Nyirenda-Jere and Biru 2015), there remains a critical ICT gender gap. This difference in the access to knowledge through ICTs, and to use them for a range of different purposes,

has led to the coining of the term, "gender digital divide". (Primo 2003).

In Africa as in other developing countries, women are less likely than men to access and use ICTs (Hilbert 2011). According to Gilwald et al. (2010) in the report "Gender Assessment of ICT Access and Usage in Africa", women are less likely than men to own mobile phone. Additionally women were found to spend less on mobile phones than men (Deen-Swarray, Gilwad and Morrell 2013). As for internet access, it was also found that there are more men than women accessing the internet (Deen-Swarray, Gilwad and Morrell 2013). The gap in user penetration rates between males and females in Africa was estimated to about 20.5 percent (ITU, 2015), suggesting that women in Africa are still vastly underrepresented in internet access. The situation of the internet gender gap is particularly worst in Sub-Saharan Africa where the internet gender gap is nearly double and estimated to 43 percent in 2013 (Intel Corporation 2013), which puts women at a significant disadvantage (Hafkin and Huyer, 2007). In Sub-Saharan regions, Seychelles has highest Female internet access rate (40%) while Sierra Leone had the lowest female internet access rate (<1%) (Intel Corporation, 2013).

According to the SOAWR Policy Brief for 14th Ordinary AU Summit (UA 2010), "Forced to choose between spending resources on buying computers, subscribing to broadband or even a mobile phone on the one hand, and buying food for their families and meeting other very basic needs of survival on the other, it is clear what their choices will be". However, millions of African women continue to be excluded from access to ICTs and especially internet often due to technical problems and costs of access, but also due to a lack of training and knowledge as well as other social cultural obstacles (Primo 2003, Intel Corporation 2013). These factors are of two types: those related to women at individual or household level and those related to community or country level. With regards to women at individual levels, they mentioned awareness, ability and environment as keys factors that influence their

access to the internet (Intel Corporation 2013). According to the report previously cited, many women simply do not know what the Internet is or how it might benefit their lives; others have never learned to use the Internet; and cultural norms and expectations keep women away from the Internet. The power of these barriers varies across countries and intersects with socio-economic realities including income, education level and employment. As for factors related to community or country level, the gender differences are linked to factors that affect the whole population (both female and male) and include technical infrastructure, connection costs, computer literacy and language skills (Web is essentially English).

It is important to understand that ICTs and especially the internet are essential to women's empowerment across the African continent. ICTs offer immense possibilities for women in Africa including overcoming women's isolation, giving women a voice, improving governance, advancing gender equality and reducing poverty (UNESCO 2003; Gurumurthy and Chami 2014). However, this potential will only be realized if the barriers that contribute to the current gender digital divide are recognized and efficiently addressed. Therefore, there is an increasing call upon for actions and more organisations aiming to bridge the gender digital divide as to allow women to benefit fully from ICTs. The initiative of Judix Owigar in Kenya is an example.

2. Closing the gap in gender access to ICT in Africa: A Case study on a successful African woman entrepreneur

2.1. The problem

For millions of African women, ICTs are inaccessible i due to economic and socio-cultural obstacles but also to the lack of training and knowledge. Similarly, fewer African women are producers of ICT products and services, and are rarely involved in the ICT industry or in decision-making related to ICTs. This gender digital divide is remarkable and prevents

women from taking full advantages from new opportunities brought by ICTs.

2.2. The solution

In 2010, Judith Owigar, one of the most popular female tech leaders in Kenya attended iHUB'S maiden and she realized they were very few ladies in attendance. This shock prompted her to co-find with a group of friends AkiraChix (http://akirachix.com/), a space for women in technology to experiment, fail, and excel with the vision to increase the ratio of women in technology. Overtime AkiraChix was extended to the wider community to share the skills learnt. They (Judith and her co-workers) decided to first focus on women from low income areas in Nairobi who do not have access to the opportunities they had.

AkiraChix acts as a not-for-profit organization which provides assistance for women and girls in technology and entrepreneurship in Africa. As a way to address factors inhibiting women's access to and use of ICTs, AkiraChix provides training, mentorship and outreach programs to increase the number of skilled women in technology and positively impact on the community. Programs at the organization are developed to reach young women at different levels including but not restricted to Primary Schools, High Schools and Universities; there are also those working in the technology field and those who wish to have a career in technology, making it an effectively wholesome program.

AkiraChix provides its community with four keys services: Training program, High school outreach, community building and kids camps.

- ### Training program

The training program of AkiraChix (See http://akirachix.com) is a technical training targeting young women from a poor social and economic background in Nairobi. Every year, AkiraChix takes 30 bright and promising young women from low income areas, and takes them through a one year intensive course on programming, design and

This training program is the first of its kind in Africa, as it is the only ICT technical based program targeting women only.

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entrepreneurship. At the end of the training, students get placements in different organisations for community service and internship. Students also get access to women in the technology industry that mentors them throughout the duration of the course (http://akirachix.com).

- ### High school outreach

In order to encourage female students to select careers in Science, Technology, Engineering and Mathematics, AkiraChix has developed and is implementing a comprehensive high school outreach program (http://akirachix.com). The program comprises a bi-weekly session in

"My future plans and aspirations for Akirachix are to influence the technology industry in Africa by increasing the number of women creating impact using technology."

Judith Owigar

different Kenyan girl schools with students from computer clubs and bootcamps every school holiday, targeting students not reachable with bi-weekly sessions and the Girls in ICT Day. The latter event introduces hundreds of girls to career opportunities in technology and exposes them to women working in the technology industry and leadership for mentorship.

- ### Community building

To ensure a successful force of women in technology, AkiraChix is developing a network of women technologists by providing opportunities for women in technology, to connect and collaborate with each other, linking women to opportunities that help them grow holistically. This creates a safe online and physical space for women in technology to excel, creating awareness about the women in technology movement, and supporting other women in technology organisations within Africa, etc.

- ### Kids camps

AkiraChix has developed a special program for children between 7 and 13 (http://akirachix.com). This program begun running since 2015 and aims at

exposing them to different facets of technology and sparking creativity and curiosity through arts sessions, at a subsidized cost per student.

- *The challenges*

According to Judith and her colleagues, creating a successful force of women in technology is a huge challenge because of socio-economic and

> *"We want to change communities, one woman at a time, using technology," says Judith.*

cultural obstacles. Also, improving women's access to and use of ICTs requires important funding. Even some donors have already assisted AkiraChix (Google, Institute of Software technology) for the development of its activities, Judith and her colleagues still need assistance to sustain and run for more impact.

According to Judith and her collective, beyond funds and capacities (good mobile penetration, broadband, infrastructure, etc.) increasing the number of women creating impact using technology requires a culture of computer geeks. That's where AkiraChix comes in.

3. Outcomes and overall assessment

AkiraChix has been working for five years to influence the technology industry in Africa by increasing the number of women creating impact using technology. It has so far achieved notable points.

- *AkiraChix connected young women in Nairobi to technology*

Since 2010 AkiraChix has taken 61 young women through its proven intensive diploma course in Information Technology and Entrepreneurship. These young women have gone on to get internships, jobs, promotion or start their own businesses (http://akirachix.com). Among the beneficiaries of the programme is Agnes Masia who, after the one-year training, went on to work as a technology researcher at a technology

company and opened a shop where she has employed her brother.

- *AkiraChix seeds the passion of technology in mind of girls and children*

Through its special programs High school outreach and Kids camp, AkiraChix introduced hundreds of girls from disadvantaged communities (Kibera, Kabiria, and Deepsea etc.) and children between 7 and 13 to technology. Even if there is no official and precise figure on beneficiaries so far, it is expected that an increase of girls' enrollment in Science, Technology, Engineering and Mathematics. Similarly, it is expected that other girls and children who attended the different programs develop a passion for technology and in future create impact using technology.

- *The community of female technologist empowered by AkiraChix is growing*

Over the last five years of activities, AkiraChix has built a strong community of more than 500 volunteers and supporters, and look to grow this community beyond Kenya, into Africa.

- *AkiraChix became a model in technology field in Africa*

The initiative of AkiraChix has been appreciated by different organizations and Judith won many prizes. According to TechHer (http://techherng.com/), a community platform of women using technology, Judith is an East African Acumen Fellow, 2014 International Focus Fellow, one of the 10 Africa Tech voices to follow on Twitter named by CNN. She won the 2011 Change Agent ABIE Award of The Anita Borg Institute for Women and Technology. The US Embassy in Kenya honored her with the Unsung Heroes Award in recognition of her work with AkiraChix.

In 2015, she received the top highlight of her career when she was sitting next to President Barrack Obama and President Uhuru Kenyatta at the Global Entrepreneurship Summit (GES).

4. Lessons learned and policy recommendations

Considering the experience of Judith Owigar and her collective of AkiraChix, and the current state of art on the gender digital divide, some lessons could be drawn. These lessons call up on special and urgent policy recommendations.

ICTs are powerful tools likely to change the conditions of women in Africa but much remains to be done before

The literature on the gender digital divide and the experience of AkiraChix shows clearly the opportunities of ICTs for women. Unfortunately there is some way to go before women take fully advantages from the potential of ICTs. There is an urgent need to overcome barriers. This includes a holistic strategy creating conditions for skills, innovation and entrepreneurship to flourish alongside modern infrastructures. These conditions include more investment, adequate policy formulations and more actions with regards to gender responsive outreach, advocacy and capacity building. These efforts should be conjointly done by ICT industries, communities, policy makers and international institutions.

Special policy which promotes early involvement of women in ICTs is important to improve women's access to and use of ICTs

AkiraChix encourages girls at high school to select the technology field and connects children with technology field during kids' camps. According to Judith and her team, this is a prerequisite for sustainably increasing women's access to and use of ICTs and for increasing the number of women creating impact using technology. This is important for each African country to support and encourage women at an early age to take courses in Science, Technology, Engineering, and Mathematics. Special scholarship programmes could be developed to encourage their enrolment in this field.

A small change in mindset can sometimes make a large difference in women empowerment

"You know you're the odd-ball just because of your gender," Judith Owigar says. This opinion of the tech entrepreneur expresses how women are discriminated in many aspects of social life, including employment, literacy and income. These inequalities also come on ICT access and usage. Judith believes there should be no stereotype in the technology industry. This change in her mind helps her to overcome the problems. African women should change their minds and work to attend fields so far dominated by men but of great potential for them. They should not be afraid to fail and they should not give up. As an advice for millions of African women willing to impact using technology, Judith says "Dream big, start small, start now. Just because you're not where you want to be does not mean you should give up. As long as you do not stop you will progress."

Because of the lack of statistics, the gender digital divide could be underestimated in Africa

A popularized wisdom of Mark Twain said: there are three kinds of lies: lies, damned lies, and statistics. The current statistics on gender digital divide are from studies based on samples generally and are biased because focusing mainly on urban and peri-urban zones. Therefore, the situations of rural regions where millions of African women live with severe socio-economic and cultural barriers are overlooked. Consequently, we are working to bridge a problem we do not master yet. There is an urgent need for African countries to collect and analyse data on the gender digital divide and its impact. This is a necessary prerequisite to efficiently, equitably and sustainably reach women and let them benefit from the potential of ICTs.

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