insights

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Leave No Woman Behind: Addressing Gender Inequality in STEM

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"In my experience, one of the biggest barriers has been fear! An overwhelming and an incapacitating belief that we are not enough, that we do not have the capacity to gain tech skills. The only way to deal with this fear is to show up! Be courageous and affirm to yourself that everything is figureoutable!"

Olatokunbo Ogunlade, DevSecOps Engineer

Introduction

The theme for this year's International Girls in ICT Day, "Leadership," shines a spotlight on the vital importance of fostering strong female role models in the realms of Science, Technology, Engineering, and Mathematics (STEM), especially within the African context. While strides have been made, the stark reality persists: women's representation in these fields remains unacceptably low. This is not just a statistic; it is a challenge with far-reaching consequences for innovation, economic growth, and societal advancement. This article advocates for a renewed and intensified effort to empower African women in STEM, weaving together scholarly insights and real-world evidence to illuminate the urgency of this imperative.

Persistent Gender Disparities in Tech Leadership

The global tech landscape stands as a beacon of innovation and progress, yet behind the glittering facade lies a stark

reality that women account for a mere 14% of tech leaders worldwide (Smith, 2020). This staggering statistic unveils a deep-rooted gender gap entrenched within the highest echelons of the tech industry, echoing even louder in the corridors of Africa.

For instance, despite a global uptick in the number of female developers, regional discrepancies persist, revealing stark contrasts in opportunities and representation. In dynamic hubs like East Asia, where nearly 30% of developers are women, there's tangible progress, a testament to evolving mindsets and supportive ecosystems (Jones et al., 2023). However, Africa paints a different picture, grappling with lower participation rates and systemic barriers that stifle women's advancement in STEM. This disparity is not just about numbers; it is about untapped potential and missed opportunities

Within the African context, this gender disparity takes on a multifaceted form, woven intricately into the fabric of cultural norms, societal expectations, and systemic biases. From the bustling streets of Lagos to the serene landscapes of Nairobi, women in STEM face formidable barriers that impede their ascent to leadership roles. Whether it's the pervasive stereotypes that pigeonhole women into traditional gender roles or the dearth of accessible educational opportunities, the journey for African women in tech leadership is fraught with obstacles at every turn. Despite commendable efforts to foster gender equality and inclusion, one can argue and conclude that progress has been agonizingly slow, akin to navigating through a labyrinth with no discernible exit. This conclusion suggests that the time has come for a paradigm shift, one that demands more than mere lip service to the cause of gender equity. It requires bold, targeted interventions and robust support mechanisms tailored to the unique challenges faced by African women in STEM.

One can imagine a world where the next generation of African girls like Olajumoke, Aisha, and Chinyere who are based in the far remote villages of Osogbo, Konduga, and Abiriba, can look up to tech luminaries who resemble them, whose stories resonate with their own struggles and triumphs. This is not a utopian fantasy but a tangible reality within our grasp, waiting to be unlocked through concerted action and unwavering commitment. This was why, at Invictus Africa, we asked some female leaders in tech to share their experiences as women in ICT. Olatokunbo Ogunlade, a DevSecOps Engineer and a beacon of hope for girls in the tech world identifies fear as the primary challenge preventing girls from gaining tech skills. “The only way to deal with fear is to show up! Be courageous, and affirm to yourself that everything is figureoutable”, she advised. Similarly, the founder, Rubies

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Olatokunbo **Ogunlade**

DevSecOps Engineer

The ICT field is male-dominated, and it was not until recently that more women rose to the top of their careers in this field. Female mentors and role models are first inspirations to young girls, which help them tailor their interests and build a belief system that they can do this because someone like them has done it before. Mentors and role models make you accountable for your journey because you don't want to disappoint them. They also become the voice that makes the field more accessible to other girls.

Temiloluwa **Afape**

Founder, Rubies Technologies

Technologies, Temiloluwa Afape acknowledges that ICT field is male-dominated, if not until recently that more women rose to the top of their careers in this field. Temitope argues for a need for female mentors and role models as first inspirations to young girls. She says these ones will "help them [the girls] to tailor their interests and build a belief system that they can do this because someone like them has done it before. Mentors and role models make you accountable for your journey because you don't want to disappoint them." The two great women can be interpreted and summed to be advocating that it is time for African women to reclaim their rightful place at the forefront of technological innovation, blazing a trail for generations to come.

However, as we navigate the uncharted waters of the digital age, Africa stands at a crossroads, poised to harness the transformative power of technology for the betterment of its people. Yet, this vision can only be realized when every voice is heard, when every talent is nurtured, and when every opportunity is made accessible to all, irrespective of gender.

Challenges for Female-led Tech Startups

If many females in tech are asked, they will share challenges they have faced in the industry. Female entrepreneurs encounter significant hurdles in securing funding for their ventures. Despite the potential of female-led tech startups, they consistently receive less venture capital support, hindering financial growth and innovation. Thus, urgent action is needed to implement robust support systems, mentorship programs, and initiatives fostering entrepreneurship among African women. Gender biases pervade the funding landscape, with women-led ventures facing barriers despite comparable or superior performance to male-led startups. These biases, rooted in societal norms and unconscious investor prejudices, perpetuate inequality and exclusion.

In "Gender Disparities in the UK Tech Industry: Challenges and Opportunities" Brown, A., and Williams, argue that the lack of female representation in venture capital decision-making exacerbates the issue, reinforcing biases and impeding support for innovative ventures led by women (Brown & Williams, 2023). This suggests that systemic changes promoting inclusivity and fairness in investment practices are crucial. One challenge is ***untargeted support mechanisms*** like mentorship programs and accelerators tailored to female entrepreneurs' needs (Jackson & Mbeki, 2021). Two, is ***limited gender diversity within venture capital firms*** through training programs and awareness campaigns that challenges biases and foster a more inclusive investment culture (Smith, 2020).

Three, ***lack of governments' interest in creating a gender-sensitive enabling environment*** by offering incentives

Establishing age-appropriate ICT educational institutions can encourage young girls to develop an interest and pursue careers in ICT.

For example, my sister and I created AfriteQ Academy, a school to ignite the interest of young minds in engineering. We developed innovative ICT-focused programmes such as Girl + Engineering, Little Engineers Day Camp, and Engineering Summer Camp Experience, and tailored our curriculum to empower girls with various levels of computer literacy with new skills and knowledge.

The results? Nothing short of inspiring. These young girls, bubbling with enthusiasm, eagerly dive into their laptops to unleash their creativity and bring their ideas to life.

Engr. Lois **Adeyemo** **(R.Engr., MNSE, M.ASCE)**
Civil/ Environmental Engineer | Co-Founder/Chief Executive Officer
AfriteQ Academy

for investment in women-led tech ventures, streamlining regulatory processes, and expanding educational opportunities in STEM fields as suggested in "Empowering Girls and Women in STEM: Policy Recommendations" (UNESCO, 2020). How do we retain women in tech? The UK's high attrition rates among women in tech underscore the importance of addressing systemic issues such as workplace culture, gender bias, and work-life balance (Brown & Williams, 2023).

How Do We Increase Participation Rates?

Increasing participation rates of women in the tech sector, especially in leadership roles, requires a carefully carved multifaceted

approach that addresses systemic barriers and fosters an inclusive environment conducive to women's advancement. One, we must Promote STEM Education and Skills Development. Just as Lois Adeyemo, the Co-Founder/Chief Executive Officer of AfriteQ Academy suggests, accessible and quality STEM education is fundamental to nurturing a pipeline of skilled female technologists. Initiatives such as mentorship programs, coding boot camps, and scholarships tailored specifically for girls can help bridge the gender gap in STEM education (Amadi, 2020). Two, we must Address Socio-Cultural Norms and Stereotypes. Tackling ingrained socio-cultural norms that perpetuate gender stereotypes is paramount. Advocacy campaigns, media representation, and community engagement initiatives can challenge stereotypes and redefine societal perceptions of women's roles in technology. Three, we must Create Supportive Ecosystems and Networks. In "Building Supportive Ecosystems for Women in Tech: Insights from Nigeria" Ogundele, O., & Adebanjo, D. (2021) argue that building networks and support systems for women in tech can provide mentorship, networking opportunities, and access to resources essential for career advancement. Platforms like women in tech communities, professional associations, and entrepreneurship hubs can foster collaboration and empowerment (Ogundele & Adebanjo, 2021). Four, we must implement Gender-Inclusive Policies. Implementation of Gender-Inclusive policies is germane. This is because it will serve as a platform on which every other approach thrives. This includes measures such as equal pay, flexible work arrangements, parental leave, and zero-tolerance policies against discrimination and harassment (Awokoya & Odukoya, 2020). Importantly, we must also Invest in Research and Data Collection. Data is LIFE. We cannot know what to do, where to do it and how to do it if we neglect the importance of data. Thus, we must invest heavily in research and data collection. More research is needed to understand the root causes of gender disparities in the African tech sector and to track progress towards gender equity. Investing in data collection, monitoring, and evaluation mechanisms can inform evidence-based policies and interventions (Olowookere & Okunoye, 2022). Furthermore, we must Encourage Female Leadership and Role Models. Highlighting successful female leaders in the tech industry as role models can inspire and motivate the next generation of women leaders. Recognizing and celebrating the achievements of women in tech through awards, conferences, and media platforms can amplify their voices and influence (Adeloye et al., 2021). Above all, by implementing these strategies in concert, stakeholders can create an enabling environment where African women are empowered to fully participate and thrive in the tech sector, ultimately driving innovation, economic growth, and social development across the continent.

Our Recommendations

To excel in tech, first, African women must proactively seek out opportunities for skill development, mentorship, and networking. Second, investing in education, training programs, and STEM initiatives tailored to girls and women will help to bridge the gender gap and unlock their full potential (Jackson & Mbeki, 2021). Third, governments should prioritize policies that support the girl-child and women, including initiatives to enhance access to education, healthcare, and economic opportunities (UNESCO, 2020).

Above all, empowering African women in STEM is not just a matter of social justice but also a strategic imperative for sustainable development and economic growth. By fostering a culture of inclusivity, diversity, and innovation, we can harness the full potential of Africa's female talent pool and drive meaningful change in the tech industry and beyond. It is time to break down barriers, challenge stereotypes, and pave the way for a more equitable and prosperous future for all.

One very important thing is that we should actively seek out and elevate female role models in tech. I went to a school last year to talk to girls, and I asked who their role models were. They mentioned women like Michelle Obama and Chimamanda Adichie, and someone mentioned Ayra Starr. These are people doing great things in their industries, but no one mentioned a tech woman. When I asked them to tell me about their tech role models, they mentioned Bill Gates, Mark Zuckerberg, and other successful tech men. But some women are doing incredible work in this industry. We need to highlight their stories more so that young girls can see them. By showcasing these successful women who have excelled in technology-related careers, we can provide tangible examples for girls to aspire to and emulate. This might involve inviting female guest speakers to schools, hosting career panels, or creating mentorship programs where girls can connect with women working in tech.

Adora **Nwodo**

Founder of NexaScale

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