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CATALYSING ARTIFICIAL INTELLIGENCE FOR WOMEN'S EMPOWERMENT IN AFRICA



Artificial Intelligence (AI) has the potential to transform societies, offering new opportunities for economic growth and innovation. However, its benefits are not equally distributed, especially for women in Africa. To better promote policies that catalyse AI's potential for women's empowerment while mitigating its risks and challenges, it is crucial to understand the current landscape and identify key areas for intervention. This article will offer findings and recommendations on how the African continent can leverage AI technologies and applications to enhance access to education, healthcare, economic opportunities, and other areas that can contribute to women's empowerment in the region.

AI POTENTIAL FOR AFRICA

By 2030, AI is [projected](#) to contribute \$15.7 trillion to the global GDP, with \$6.6 trillion coming from increased productivity and \$9.1 trillion from consumption effects. The [market size](#) in the Artificial Intelligence market for Africa is projected to reach US\$6.90 billion in 2024, with an annual growth rate (CAGR 2024-2030) of 17.68%, resulting in a market volume of US\$18.33 billion by 2030.



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AI has the potential to significantly transform businesses, drive innovation, and enhance the quality of life for millions across Africa. Key sectors poised to benefit from AI include healthcare, agriculture, education, and finance. Currently, there is a notable increase in AI's application in healthcare, as well as in improving customer service through chatbots and virtual assistants. The development of AI chips and edge computing is also gaining traction, enabling more efficient processing of AI applications. Furthermore, the integration of AI with other technologies like blockchain and the Internet of Things (IoT) is expected to further fuel innovation and growth in the AI industry.

Several factors are propelling the growth of the AI industry. The increasing availability of big data is creating more opportunities for AI applications. Advancements in computing power and cloud computing infrastructure are enhancing the efficiency and power of AI processing. There is a rising demand for automation and optimization in industries like manufacturing, finance, and transportation, which is driving the adoption of AI technologies. The use of AI in consumer-facing applications, such as [virtual assistants](#) and [chatbots](#), is also broadening the market for AI technologies. Additionally, growing investments and partnerships among technology companies, research institutions, and governments are stimulating innovation and growth in the AI industry.

The AI market in Africa is poised for significant growth, driven by increased adoption of AI technologies, advancements in AI algorithms and infrastructure, and growing investment in AI research and development. This growth will lead to continued innovation and expansion, with AI becoming increasingly integral to business operations and consumer-facing applications. However, there is a significant gender gap and inequality in Africa that may prevent everyone from benefiting fully from AI's potential. This gender gap in AI is self-perpetuating and risks leaving us with an economic and technological system with a massive underrepresentation of women.

THE GAP

Life [expectancy](#) at birth for women in Africa is around 65.0 years, compared to approximately 61.0 years for males in 2023. [Less than 1% of women and girls](#) live in countries with high levels of women's empowerment and gender parity. [More than 90% of the world's female population, amounting to 3.1 billion women and girls](#), live in countries characterised by a large women's empowerment deficit and gender gap, with many of these countries located in Africa.

Globally, women achieve only 60% of their full potential as measured by the [Women's Empowerment Index \(WEI\)](#), achieving on average 72% of what men achieve across key human development dimensions, reflecting a 28% gender gap. This gap is particularly pronounced in Africa, where most women and girls face low levels of empowerment and gender parity achievements.



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In terms of economic participation, [less than two-thirds \(61.8%\) of prime-working-age women globally are in the labour force, compared to more than 90% of prime-working-age men](#). In Africa, approximately 63.9% of women participate in the labour force, earning, on average, 30-40% less than men. Women also have limited access to formal credit services and own less than 20% of agricultural land. While the overall female labour-force participation rate in Sub-Saharan Africa has reached 61%, women constitute only 30% of professionals in the tech industry as of 2023.

According to [UNESCO reports](#) Women represent only 29% of science R&D positions globally. They are 25% less likely than men to know how to leverage digital technology for basic uses and only 22% of AI professionals globally.

A. Education & Skills

Access to AI education and training is crucial for women's empowerment in the AI sector. However, disparities exist:



Access to Education for Girls remains a significant issue. A UNESCO report in 2022 [highlighted that across Sub-Saharan Africa](#), 9.5 million girls between the ages of about 6 and 11 do not have any chance of going to school at all, compared to 5 million boys, indicating a significant gap in access to education between genders in this region. In primary and secondary education, the [gender parity index \(GPI\)](#) remains below 1, indicating lower enrolment for girls compared to boys.

[In terms of digital literacy](#), women and girls are 25% less likely than men to know how to leverage digital technology for basic purposes, 4 times less likely to know how to program computers, and 13 times less likely to file for technology patents. This highlights a significant gap in digital skills and access. There are challenges in gender representation in higher education staff. [A report](#) by the Higher Education Authority of Rockview University in 2020 revealed that out of 1,681 academic staff in public universities in Africa, only 429 are women, accounting for approximately 25.5% of the total staff.

These disparities are further exacerbated by women's lower enrollment rates in AI-related courses and programs. [Only 30% of female students pursue STEM-related higher education studies](#), limiting their



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exposure to AI education. This trend is reflected in the workforce, as [a report by the World Economic Forum states](#) that 78% of AI professionals in developing countries are male. Even in online learning platforms like Coursera, [only 12% of AI course completions are by women](#). However, there is progress;

The literacy rate of adult females in the region was 46.8% in 2000 and increased to 58.8% by 2019, according to the [World Bank](#), indicating a positive trend in female literacy rates over the years. While progress has been made in female literacy rates, with sub-Saharan Africa reaching around 59.5% for females compared to 70.3% for males, there is still a gap. [Statista](#) published data in 2018 showing the adult female literacy rates in different countries in West Africa. Cabo Verde, Ghana, and Nigeria had the highest rates, whereas Niger, Guinea, and Chad had rates as low as 14%.

Primary Education Completion Rates vary in the region. [UNESCO reported](#) in 2020 that 66% of girls completed their primary education in Sub-Saharan Africa, compared to 61% of boys, showing a higher completion rate among girls at this level of education.

B. Digital Infrastructure

Access to infrastructure is crucial in empowering women in the AI ecosystem, However, [According to the World Bank](#), only 19% of women in low-income countries in Africa have access to the internet, compared to 89% in high-income countries. This exacerbates existing inequalities, limiting access to AI technologies.

Women in this region are 37% less likely than men to use mobile internet, limiting their access to information and opportunities. Many countries in Sub-Saharan Africa exhibit significant gender gaps in internet access, with women lagging behind men by at least 10% points in 22 countries.

[A 2018 survey across 16 countries](#) in Eastern and Southern Africa highlighted these disparities further. In Kenya, for example, only 10% of women used a mobile phone to access information on products and services, compared to 22% of men. Similarly, in Uganda, only 13% of women used the internet, compared to 24% of men.

C. Entrepreneurship & Funding

In entrepreneurship, while millions of women worldwide have started businesses in recent years, with Africa having the highest percentage, women still face challenges. Ghana stands out as a leader in female entrepreneurship, with approximately [26% of female adults engaged in entrepreneurial activities](#). Africa currently has the [highest female entrepreneurship rate globally at 27%, with 58% of](#)



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[the continent's self-employed](#) population being women, highlighting their significant role in entrepreneurship. However;

[According to Forbes](#), only 2% of all VC funding goes to women-led startups. The question then arises: Why are only 16% of decision-makers at VC firms women? Despite this, [female-founded startups outperform their male counterparts, generating 63% more value and twice as much per dollar invested](#). One study concluded that [VCs could have made an additional \\$85 million over five years](#) if they had integrated a gender lens into their investment decisions.

In 2021, [only 3% of venture capital funding in Africa](#) went to startups with all-female founding teams, in stark contrast to the global average of 2%. This statistic is particularly concerning considering that [women represent over half of the population in Africa](#).

Several factors contribute to the funding gap for female founders in Africa. One major factor is lack of female representation in the venture capital industry, where only 1% of venture capital partners in Africa are women. This disparity means that women are less likely to have the networks and relationships needed to access funding.



Women have always been underrepresented in the venture capital space worldwide. Some of the earliest research from the US (2018) found that only nine percent of VC decision-makers were women. [Data by Disrupt Africa show promising trends](#), 39.6% of VCs actively investing on the continent in 2022 had a female partner or founder, yet less than 10% of angels are women.

“African tech certainly does have a gender problem when it comes to women within leadership positions at startups. Of the 2,395 startups tracked for the purposes of this publication, only 350 (14.6%) have at least one female co-founder and 230 (9.6%) have a woman CEO,” read part of the study.



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The study further showed, “While there are increasingly more opportunities to make the sector more welcoming and attractive to females, it is clear from the data that African tech remains a male-dominated landscape, and there is serious work to be done in order to get women anywhere near parity from a leadership perspective within the space.”

Despite these challenges, there have been positive developments. [In 2023, female-led ventures in Africa raised just over \\$200 million](#), showing a positive year-on-year growth of 7%, despite an overall shrinkage of -39% year-on-year in funding. Female-led ventures raised 7% of all funding in 2023, up from 4% the previous year. However, it is important to note that [male-led ventures still claimed 93% of the total funding in 2023, down from 96% in 2022](#). This means that by February 1st, 2023, male-led start-ups had already raised more funding than female-led ventures would raise throughout the whole year.

The representation of women-led start-ups in larger deals continues to be low. [Only 7% of the ventures raising \\$10 million or more in Africa in 2023 were woman-led, compared to 4% in 2022 and 6% in 2021](#). Additionally, the \$10 million+ deals raised by female CEOs were, on average, smaller than those raised by male CEOs, with female CEOs raising an average of \$23 million compared to male CEOs' \$40 million (1.8 times less). The largest deal raised by a female CEO in 2023 was Sabi's \$38 million Series B in e-commerce in Nigeria. In contrast, 10 male CEOs raised \$38 million or more in 2023, totaling \$1.4 billion.

D. Women in Leadership

Africa has made significant progress in promoting women's leadership and equality in roles of power and decision-making, particularly in the policy arena. Years of activism, policy changes, and legal reforms have improved women's rights and status in societies across the continent. One notable area of progress is women's leadership in politics, with several African countries leading the way. For example, Rwanda stands out as the first country in the world to have 61.3% women in parliament, followed by South Africa (46.3%), Senegal (43.0%), Namibia (42.7%), and Mozambique (41.2%).

Women's leadership extends beyond politics and into the regulation of artificial intelligence and technology, influencing sectors and levels of governance both on the continent and globally. With women constituting half of Africa's population, there is a growing recognition that they are entitled to opportunities that enable their full participation in decision-making processes and the implementation of policies, laws, and initiatives. This recognition is not only a matter of rights but also crucial for the continent's development.



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The impact of women's leadership and full participation in governance and political processes extends beyond these realms, influencing other sectors and spheres to include more women in leadership roles and positions. Strong female role models are essential for inspiring girls and young women to aspire to leadership and pursue ambitious goals. By fostering these aspirations, African societies can ensure a more inclusive and diverse leadership landscape that reflects the population it serves.

AI Policy Landscape in Africa

In the AI policy landscape, seven African countries, including Egypt, Senegal, Rwanda, and Mauritius, have taken proactive steps by publishing comprehensive AI strategies. Despite these efforts, the region still faces challenges, with foreign AI technologies often dominating the market. These technologies may not always align with local developmental priorities, highlighting the need for policies that prioritise inclusive digital, data, and computing infrastructure and skills development.

In 2023, the African Union (AU) developed a Continental Strategy on AI (the AU AI Strategy), which is not yet publicly available (AUDA-NEPAD 2023). We can expect that this AU AI Strategy will help catalyse AI for women's empowerment in Africa and provide a continental vision that outlines "the African approach to AI governance." The strategy will likely play a crucial role in articulating Africa's distinctive vision for AI, but much of this depends on how it is framed.

Policy responses to AI in Africa should be rooted in national digital agendas and prioritise, gender equality, the development of infrastructure and skills that benefit all segments of society equally. This approach is essential for ensuring that the benefits of AI are widely distributed and contribute to sustainable development.

Key Fundings

1. Women in Africa face challenges in economic participation, with less than two-thirds of prime-working-age women in the labour force, earning 30-40% less than men. Women also have limited access to formal credit services and own less than 20% of agricultural land.
2. Disparities exist in access to education and digital literacy in Sub-Saharan Africa, with lower enrollment rates for girls compared to boys. Only 30% of female students pursue STEM-related higher education studies, limiting their exposure to AI education.
3. Access to infrastructure is crucial for empowering women in the AI ecosystem, yet disparities persist. Only 19% of women in low-income countries in Africa have access to the internet, limiting their access to AI technologies.



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4. Women face challenges in accessing funding for startups, with only 2% of all VC funding going to women-led startups. Despite this, female-founded startups outperform their male counterparts. Women in Africa represent over half of the population but only receive 3% of venture capital funding.
5. Women are underrepresented in science R&D positions and AI professions globally. In Africa, women constitute only 30% of professionals in the tech industry as of 2023. Despite progress in promoting women's leadership, particularly in politics, women remain underrepresented in leadership roles in the AI and technology sectors
6. While seven African countries have published comprehensive AI strategies, foreign AI technologies often dominate the market, highlighting the need for policies that prioritise inclusive digital infrastructure and skills development.

Recommendation



One critical aspect that policymakers need to consider is the impact of AI on gender equality. Africa already faces a significant digital gender divide, and the COVID-19 pandemic exacerbated existing challenges. As data-led economies become more prevalent, there is a risk that gender inequalities will deepen if not addressed. Therefore, any AI policy framework must include measures to promote gender equality and ensure that women have equal access to AI technologies and opportunities.

It is encouraging to note that as of June 2023, 44 out of 55 African Union Member States have ratified the Maputo Protocol on Women's Rights. This protocol is a critical tool for advancing gender equality and ensuring that women's rights are protected in the face of technological advancements like AI. By aligning AI policies with existing gender equality frameworks, African countries can work towards a more inclusive and equitable future.

To achieve greater gender equality and empowerment in the AI sector, reducing the digital infrastructure gap is crucial. This can be achieved by supporting affordable and inclusive internet access for all. Additionally, integrating a gender lens in ICT policies through sex-disaggregated targets,



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employing gender champions, and opening procurement opportunities to women-owned firms can help bridge this gap.

Building basic and advanced digital skills tailored to women's needs and interests is essential, as is supporting digitally enabled firms with funding, networks/market access, and skills tailored to women. Improving the accessibility of products and services, including government services, through digital identification (ID) can also contribute to narrowing the digital divide.

To ensure better policies and regulations from African parliaments, encouraging more women's leadership in policy-making decisions is vital. Developing gender-sensitive regulations that champion equal pay, access, and opportunities for all can help create a more inclusive environment. Amending policies and regulations to provide incentives, such as tax cuts and lower regulatory rates, for women in the tech space can incentivize more women to enter and thrive in the field.

Specific policy recommendations that would promote women's empowerment in AI while mitigating risks and challenges include implementing policies to increase access to AI education and training for women, such as scholarships or targeted programs. Creating policies to promote gender diversity in the tech industry, including quotas for female representation in AI-related fields, can also be effective. Establishing funding mechanisms specifically for female entrepreneurs in the tech sector can help support women-led businesses.

Developing regulations that ensure equal pay and opportunities for women in AI-related jobs is crucial. Additionally, providing incentives for companies to develop AI solutions that address gender-specific challenges or benefit women can further empower women in the AI sector.

Conclusion

Addressing the gender gap and inequality in the AI ecosystem is crucial for promoting women's empowerment in Africa. The findings highlight disparities in economic participation, education, digital infrastructure, entrepreneurship, and leadership. To catalyse AI's potential for women's empowerment in Africa, there is a need for comprehensive policies that prioritise inclusive digital infrastructure, skills development, and access to funding for women-led startups and incentives for Women in STEM and tech ecosystems. By closing the gender gap and promoting women's leadership in AI and technology, Africa can ensure a more inclusive and diverse ecosystem that benefits society as a whole.