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Artificial intelligence:
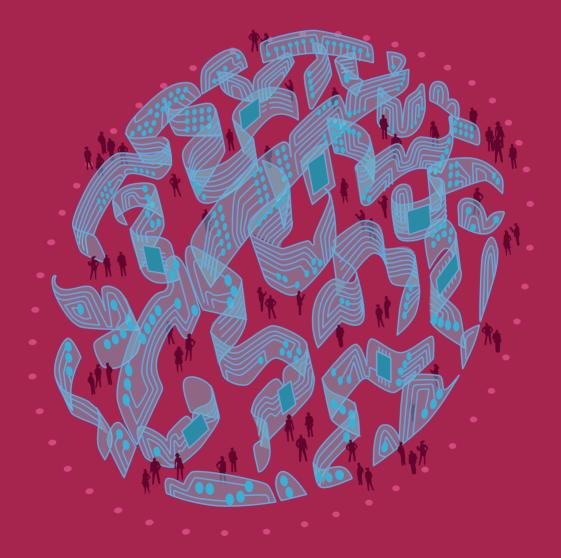## *Human rights, social justice and development*

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Artificial intelligence: Human rights, social justice and development

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MALAWI

FRAMING THE IMPACT OF ARTIFICIAL INTELLIGENCE ON THE PROTECTION OF WOMEN'S RIGHTS IN MALAWI

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Introduction

Artificial intelligence (AI) is touted to have the potential to address some of the human rights issues facing women in the world today.[1] However, literature on the current debate is mostly dominated by the developed world,[2] and few similar studies have been done in developing countries like Malawi. Consequently, there is lack of empirical evidence to substantiate how women conceptualise AI in the context of protecting their rights.

This report uses framing theory to understand how Malawian women speak about the impact of AI on human rights. Studies suggest that the way people frame (or conceptualise) an object affects the way they can engage and use it.[3] Therefore, if we know how women frame AI in their contexts, we can understand the factors that shape how they engage with AI technologies, and deploy AI in a manner that safeguards their rights.

Key objectives of this report are to analyse how women potentially frame AI and human rights in Malawi, their awareness of AI initiatives in the country, and how the rights of women are understood to be impacted positively or negatively by AI. Given this, a set of recommendations are made for improving the level of participation of women in AI initiatives in the country.

Context

Malawi gained its independence from Great Britain in 1964. It borders Tanzania, Zambia and Mozambique. The country has an estimated population of 18.1 million people, of which 85% live in rural areas.[4]

The GDP per capita is roughly USD 390.[5] Most women are working in the agricultural sector, which is a backbone of Malawi's economy. Of those in non-agricultural waged employment, 21% are women and 79% are men, and the numbers have remained the same over the years. The overall mobile penetration is estimated at 45.5% while internet penetration is 6.5%.[6] About 34.5% of women own a mobile phone, 0.6% own a desktop computer, and 1.8% own a laptop, while just 4.7 % of them have access to the internet.[7] The low rates of information and communication technology (ICT) penetration in Malawi are attributed the country's weak economy, the high value-added tax (VAT) imposed on the importation of ICT gadgets, and other contextual factors.

State of women's rights in Malawi

Section 24 of Malawi's constitution stipulates that "women have the right to full and equal protection by the law, [and] have the right not to be discriminated against on the basis of their gender or marital status."[8] These rights are also operationalised in Malawi's National Gender Policy (2015),[9] National ICT Policy (2013),[10] and the Malawi Growth and Development Strategy III (2017).[11]

Despite such policy interventions, women's rights in Malawi are largely curtailed. Patriarchal beliefs and attitudes still prevail and many of the traditional cultural practices are harmful to women's rights. The unequal status of women is further exacerbated by poverty and discriminatory treatment in the family and public life. Malawi is ranked 173 out of 188 countries on the UN's Gender Inequality Index.[12]

1 Access Now. (2018). *Human Rights in the Age of Artificial Intelligence*. https://www.accessnow.org/cms/assets/uploads/2018/11/AI-and-Human-Rights.pdf

2 Cullen, D. (2018, 31 January). Why Artificial Intelligence is Already a Human Rights Issue. *Oxford Human Rights Hub*. https://ohrh.law.ox.ac.uk/why-artificial-intelligence-is-already-a-human-rights-issue

3 Chigona, W., Mudavanhu, S. L., & Lwoga, T. (2016). Framing telecentres: Accounts of women in rural communities in South Africa and Tanzania. *CONF-IRM 2016 Proceedings*, 43. https://aisel.aisnet.org/confirm2016/43

4 https://data.worldbank.org/indicator/SP.POP.TOTL?locations=MW

5 https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=MW

6 National Statistical Office. (2015). *Survey on access and usage of ICT services in Malawi – 2014: Report*. https://www.macra.org.mw/wp-content/uploads/2014/09/Survey_on-_Access_and_Usage_of_ICT_Services_2014_Report.pdf

7 Ibid.

8 www.malawi.gov.mw/images/Publications/act/Constitution%20of%20Malawi.pdf

9 https://cepa.rmportal.net/Library/government-publications/National%20Gender%20Policy%202015.pdf/at_download/file

10 https://www.macra.org.mw/wp-content/uploads/2014/07/Malawi-ICT-Policy-2013.pdf

11 https://www.mw.undp.org/content/dam/malawi/docs/UNDP_Malawi_MGDS)%20III.pdf

12 https://www.usaid.gov/malawi/fact-sheets/malawi-gender-equality-fact-sheet

Methodology

Ten women participants from the academic, government, civil society and private sectors participated in the interviews for this report. The author contacted them by phone and consent was given for face-to-face interviews. Some of the key questions that were posed to participants were as follows:

- What is your general understanding of AI?
- Can you describe some of the AI initiatives that you know or have participated in?
- How do you think AI is likely to impact on women's rights in the country?
- What policy/regulatory initiatives should be put in place to ensure women's rights are protected through the emerging AI regime?

Framing theory was adopted and textual analysis was used to analyse their views, opinions and insights. Framing refers to the process by which people develop a particular conceptualisation of an issue or re-orient their thinking to an issue.[13] Different people view the world in different ways and place emphasis and importance on different issues. This then results in people sometimes framing the same issues differently. This implies that frames help us to interpret the world around us and represent that world to others.[14] The frames suggested by the interviews helped to understand meanings that were attached to AI in relation to their rights. Table 1 lists the sector and type of work of the participants.

Defining AI and human rights

The majority of participants conceptualised AI in different contexts. For instance, to a lawyer, AI was understood as an automatic machine that can work independently of a human being, while other participants defined AI as a robotic, machine-learning, sensor or biometric device: "It's where biometrics or sensors are automatically able to capture data in a computer" (Resp. 9); "I think is when a computer is able to think like a human being" (Resp. 3); "It can be defined as a machine or computer that reasons like a human being" (Resp. 5).

From the definitions, it was clear that while none of the participants was able to capture the comprehensive definition of AI, their responses showed a basic awareness of AI that is in line with lay people's definitions of the technology. What was evident was that the majority of the informants attempted to define AI according to their own understanding, suggesting some measure of appropriation of the technology at a conceptual level. Likewise, on human rights, the majority of women confidently defined human rights as entitlements that any person including women are supposed to enjoy from birth: "Human rights are entitlements that women and any other person should enjoy from birth such as right to life, opinion, freedom of expression, just to name a few" (Resp. 2). It was also encouraging that some participants went further to categorise human rights as economic rights, social rights, cultural rights and solidarity rights.

TABLE 1.		
Sector and type of work of interview respondents		
Pseudonym	**Position**	**Sector**
Resp. 1	Lawyer	Government
Resp. 2	Human rights activist	Civil society
Resp. 3	Gender specialist	Civil society
Resp. 4	ICT expert	Government
Resp. 5	ICT expert	Private sector
Resp. 6	ICT lecturer	Academia
Resp. 7	AI lecturer	Academia
Resp. 8	Computer engineering student (Level 4)	Academia
Resp. 9	ICT student (Level 3)	Academia
Resp. 10	ICT education student (Level 2)	Academia

13 Chong, D., & Druckman, J. N. (2007). A Theory of Framing and Opinion Formation in Competitive Elite Environments. *Journal of Communication*, *57*(1), 99-118.

14 Chigona, W., Mudavanhu, S. L. and Lwoga, T. (2016). Op. cit.

Awareness of AI initiatives in Malawi

Most of the participants expressed ignorance of AI initiatives being implemented in the country – only a few women (from academia and the private sector) were able to mention any. This suggests that while a general awareness of AI can be found among the public, specific examples that demonstrate a practical knowledge of the implementation of AI are less readily available.

A review of AI initiatives in Malawi showed that they are at different maturity. Table 2 presents key AI initiatives in the country.

Table 2 indicates that AI projects in Malawi include machine-learning algorithms, drones,

TABLE 2.		
Summary of major AI initiatives in Malawi		
AI initiative	**Description**	**Implementer/funder**
Data intelligence	- Also known as planning, prediction, prompting and prodding for change (4P2C). - Uses geo-spatial and data analytic tools. - Provides accurate and real-time information for women and children and their families. - Used for monitoring and decision making in development and humanitarian processes.[a]	UNICEF Malawi in partnership with the Malawi government
Drones lab	- Provides a controlled platform for universities, the private sector and other expert organisations to explore how unmanned aerial vehicles (UAVs) can be used to deliver services that will benefit women and children in disadvantaged communities. - To make the project sustainable, UNICEF teaches local Malawians how to make drones and trains local pilots rather than relying on expatriates.[b]	Launched in June 2017 by UNICEF Malawi and the Malawi government

IBM Digital-Nation Africa (D-NA) Project	- The project offers training to students on emerging technologies such as AI, cloud computing, data science and analytics, blockchain and security, and the internet of things (IoT).
	- It has three platforms:
	  (i) Watson Artificial Intelligence: Communicates with the user to build a profile, gives an overview of current job markets and suggests multiple learning paths.
	  (ii) New Collar Advisor: A tool that performs skills gap analyses for users and helps in job matching.
	  (iii) Innovators: Helps users explore, design and leverage cloud computing and AI services to build applications like chatbots.[c]
		In December, 2018, International Business Machines (IBM) partnered with Malawi University of Science and Technology (MUST)

AI for patient diagnosis project	- An AI-powered digital pathology microscope slide scanner.[d] - The AI-powered system turns a microscope into a manual slide scanner and magnifies images of blood so that they can be linked to a computer or mobile phone and beamed across the world. - It is anticipated that over 28,000 children admitted with blood cancer are going to benefit from the initiative. - The AI microscope has improved paediatric services at the Queens Central Hospital.	A group of computing scientists and medics from Newcastle University in the United Kingdom in partnership with Queens Central Hospital in Malawi
Missing Maps Project	- Using AI-powered maps, helped to educate over 100,000 houses in three days about measles and rubella vaccines.[e]	Facebook, Red Cross and Malawi government
National Registration and Identification System	- A civil registration of national identities that uses biometric data and sensors.[f]	Malawi National Registration Bureau (NRB)

(a) https://www.unicef.org/malawi/innovation-o. (b) Ibid. (c) Mphande, J. (2018, 18 December). MUST partners IBM on ICT project. *Malawi University of Science and Technology*. https://www.must.ac.mw/2018/12/18/must-partners-ibm-on-ict-project. (d) Newcastle University. (2019, 22 February). Newcastle experts help African children with cancer. https://www.ncl.ac.uk/press/articles/latest/2019/02/malawimicroscope. (e) APO Group. (2019, 9 April). Facebook artificial intelligence (AI) researchers create the world's most detailed population density maps of Africa. *Africanews*. https://www.africanews.com/2019/04/09/facebook-artificial-intelligence-ai-researchers-create-the-worlds-most-detailed-population-density-maps-of-africa. (f) www.nrb.gov.mw/index.php/about-us/strategic-plan/item/3-the-national-registration-identification-system-nris-for-malawi

imagery, biometrics and sensors, among many others.

None of the interview respondents had participated in an initiative using AI. This could be an indication of how women are neglected not only in the ICT sector in the country, but particularly from innovative future-thinking projects.

Framing the positive impact of AI on women's rights

The participants felt that AI had the potential to improve women's social and economic well-being if deployed using ethical standards and based on human rights principles: "I believe that AI is very broad and, as women, we can benefit both directly and indirectly as they affect our rights" (Resp. 6). For example, they stated that AI is likely to benefit women in the areas of education, health care, environmental management and good governance. As one participant put it, there are few areas of the economy where the use of AI will not impact on women, highlighting the need for the rights of women to be foregrounded in AI initiatives: "You know, women are represented in all sectors of the economy. Therefore, any area that AI is going to touch, women are always there. For example, if a company uses AI in banks, women are there, in agriculture, women are there, you name it… in all these areas our rights must be protected and our voices be heard" (Resp. 7).

The following were some of the specific potential positive impacts of AI mentioned by the participants:

- *AI can save women's lives in times of disaster*: Women stated that the use of AI that predicts extreme weather could help to respond to natural disasters in which the loss of lives of women and children could be prevented. "If we have AI that can tell us about bad weather to come or any disaster, it may help to save the lives of women. We had a disaster of Cyclone Idai in Malawi; you will find that the majority of people who lost their lives through floods were women" (Resp. 3).

- *Improve women's agricultural livelihoods*: In Malawi, 79% of agricultural activities are done by women. The participants stressed that the use of satellite images to collect weather data together with AI applications could provide information for women farmers to improve crop yields, and diagnose and treat crop and animal diseases. This may better the social and economic rights of women through improved livelihood outcomes: "In our country, we depend on natural rain fed for our crops to grow, and women are majority smallholder farmers. If we could have AI which predicts in time the occurring of crop pests and diseases, it means women farmers can use this information to control and prevent such pests and diseases. In the long run, they will improve their livelihoods such as increase income, improve crop and livestock yields, and be able to manage and deal with vulnerabilities" (Resp. 8).

- *Women's social and economic inclusivity*: Despite research suggesting that the use of AI in financial services can increase institutional bias, the participants felt that the use of AI applications such as credit scores for disbursement of loans can help to reduce gender bias: "The majority of women do not have access to financial credits in Malawi because sometimes they are biased due to gender stereotypes. If we have AI credit scores that do not bias on selection, it means many women may qualify for credits and loans" (Resp. 10). From the comment, it was clear that AI with the appropriate ethical standards can be used to challenge the discrimination experienced by women when trying to access credit and loans, enabling the social and economic rights of women.

- *Promote the health rights of women*: Participants observed that if they had AI technologies that could help to predict, diagnose and prevent the outbreak of diseases, the access to health care for marginalised and vulnerable women located in remote areas would be significantly improved. AI would enable health workers to intervene and contain any disease before spreading sporadically. AI could also be used to screen patients for diseases, and help improve medical services during pregnancy: "I expect in Malawi to have AI that could screen cervical cancer, help in surgery of pregnant women during delivery… because so many pregnant women die during delivery time due to inadequate midwifery professionals in our health facilities. We may reduce maternal and neonatal death by 2030 by using such technologies" (Resp. 2).

- *Equality in education and employment opportunities*: Participants expressed optimism that the use of AI for hiring workers could help more women get high-paying jobs without bias. In addition, some participants believed that AI could allow more young girls to enrol in top universities in the country such as the University of Malawi and Malawi University of Science and Technology: "AI may help young girls to enrol

at University of Malawi which is currently very competitive and many girls are left out" (Resp. 7); "When you go to an interview, maybe it is a technical job, and they see you as a woman, the likelihood that you will be picked becomes very low, even if you have the right qualification. I hope that if we can have an AI technology that interviews job applicants without asking gender and other affiliations, it may promote gender equality" (Resp. 9).

- *Fair criminal justice*: Participants also felt that AI could be used to promote fair trials in courts. In particular, it may help to provide women access to the justice system without bias and discrimination against gender: "Sometimes we have our court judges who are very corrupt, so when you have an AI technology that can provide a ruling or determination fairly, it means people may have trust in our justice systems. I do not know if this technology may work in Malawi…" (Resp. 1).

Framing the negative impact of AI on women's rights

Although women felt that the use of AI technologies could help them exercise and enjoy their social, political, cultural and economic rights both online and offline,[15] they also observed that all aspects of human interaction with ICTs in general are gendered. While AI can contribute to women's rights, a predominant concern was that a violation of rights such as privacy can occur, and discrimination can reinforce existing inequalities. They suggested that proper legislation and regulations were necessary to counteract this potential. The following were some of the concerns expressed by the participants:

- *Discrimination against women*: In general, the use of facial or speech recognition software tools can surveil and identify women and discriminate against them. AI can be used to create and disseminate disinformation, and political and socioeconomic propaganda. The targets of these campaigns are often likely to be women and other vulnerable individuals. One participant expressed a concern that AI would exacerbate the objectification of women that was already felt online: "Already the current ICTs have exacerbated privacy concerns for women. We see more nudes for women in social media platforms like YouTube, etc. than males, so how AI will protect us from such embarrassments?" (Resp. 3).

- *Censoring dissent:* Law enforcement agencies can use AI such as facial recognition to monitor the women activists who provide dissenting views to government. This may also violate the rights of women such as freedom of expression, opinion, movement, assembly, privacy and data protection.[16]

- *Right to equality in the work place and in education:* Despite expressing the view that AI could neutralise bias in work opportunities or enrolment in universities, some participants acknowledged that the opposite could also be true. AI used for hiring workers could promote bias and discriminate against women based on gender, race and ethnic backgrounds, among others. In addition, using AI to create credit scores for enrolling in a top college or university may discriminate against more deserving young girls who perhaps did not have the appropriate credit scores due to poor access to basic quality education.

- *Right to life and to health*: Participants expressed some fear of AI technology. For instance, they feared that the use of drones in conflict situations may result in more death and injury to women and children. Hospital patients undergoing surgery using AI such as robotics might die of a systems failure, something that could be avoided if a human was performing the surgery.

- *Family and marriage rights*: AI technologies that are used for reproductive screening were seen as good because they allowed women to know their reproductive status, but they may affect women's rights to get married if it was revealed that they were unable to conceive.

Conclusion

Although not comprehensive, this report suggests how women frame AI in the context of human rights in Malawi. The women interviewed showed a generalised notion of some characteristics of AI, such as automation, involving robotics, and the use of imagery, biometrics, machine learning and algorithms. However, they suggested a low level of awareness of AI projects being implemented in Malawi.

The participants believed that AI could promote their political, social, cultural and economic rights. Nevertheless, they feared that many AI initiatives being piloted in the country could cause more harm than good to their rights if legislative and regulatory frameworks are not revised to reflect the current AI

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15 Sida. (2015). *Gender and ICT*. (Gender Toolbox Brief). https://www.sida.se/contentassets/3a82odbd152f4fca98bacde8a8101e15/gender-and-ict.pdf

16 Access Now. (2018). Op. cit.

regime. The participants suggested that AI is likely to violate women's rights such as privacy, equality, health rights and education rights, among others, all of which are rights contained in the country's constitution. Eventually, AI could perpetuate the already existing digital divide and digital inequalities that women are experiencing in the country.

A review of policies such as Malawi's National Gender Policy (2015),[17] National ICT for Development Policy (2006)[18] and National ICT Policy (2013)[19] show that gender equality and other women's rights are policy priorities for the government. However, there are no specific targets in place to monitor how such rights can be measured and achieved. Therefore, the findings in this report have implications for the role of civil society, the private sector, academia and the government for understanding the impact of AI on human rights.

Civil society should lobby for transparency and accountability in the deployment of AI so that these initiatives are more inclusive of women. This will also ensure that women are more aware of different AI deployments and be in a position to assess the risks those AI technologies are likely to pose to their rights. The government should review current policy frameworks such as the ICT Policy so that it is aligned with the new wave of AI technologies being implemented in the country. The government should work with the private sector and academia through public-private partnerships to deploy AI technologies that are beneficial to all citizens, including women. The government should also develop an affirmative action plan for women so that more young women are enrolled in AI technology and other science, technology, engineering and mathematics (STEM) graduate courses in our universities and colleges.

Action steps

The following steps are necessary in Malawi:

- The government should develop an AI strategy, with a strong focus on the role of women.
- Data protection legislation, regulations and standards should be developed by the government, the private sector and civil society organisations.
- The government should use the public-private partnership approach in the deployment of AI projects to ensure transparency and accountability.
- Human rights risk assessments should be conducted before AI technologies are deployed in the country.
- Regulatory or policy frameworks that fund and incentivise local women AI innovators need to be established.
- There should be investment in training and research into AI that includes women.
- Affirmative action is necessary to ensure more women participate and enrol in AI and other related ICT courses.
- Civil society should build knowledge and capacity among women's groups and organisations on AI.

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17 https://cepa.rmportal.net/Library/government-publications/National%20Gender%20Policy%202015.pdf/at_download/file

18 http://unpan1.un.org/intradoc/groups/public/documents/unpan/unpan033688.pdf

19 https://www.macra.org.mw/wp-content/uploads/2014/07/Malawi-ICT-Policy-2013.pdf

Artificial intelligence:
Human rights, social justice and development

Artificial intelligence (AI) is now receiving unprecedented global attention as it finds widespread practical application in multiple spheres of activity. But what are the human rights, social justice and development implications of AI when used in areas such as health, education and social services, or in building "smart cities"? How does algorithmic decision making impact on marginalised people and the poor?

This edition of Global Information Society Watch (GISWatch) provides a perspective from the global South on the application of AI to our everyday lives. It includes 40 country reports from countries as diverse as Benin, Argentina, India, Russia and Ukraine, as well as three regional reports. These are framed by eight thematic reports dealing with topics such as data governance, food sovereignty, AI in the workplace, and so-called "killer robots".

While pointing to the positive use of AI to enable rights in ways that were not easily possible before, this edition of GISWatch highlights the real threats that we need to pay attention to if we are going to build an AI-embedded future that enables human dignity.

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