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FAIR FORWARD
Artificial Intelligence for all.

intel.

AI AND DATA SCIENCE BOOTCAMP FOR WOMEN AND MINORITISED GROUPS

Impact report on scaling a curated training across South Africa, Ghana and Rwanda

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On behalf of

Federal Ministry
for Economic Cooperation
and Development

Image credit: GIZ

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Foreword

GIZ

This report reflects our commitment as the German International Cooperation Agency (GIZ) on enabling the active participation of women and marginalised groups in bridging the digital divides and support a just participation in the AI ecosystem. This programme, designed to empower underrepresented communities in the AI field through gender-sensitive trainings in South Africa, Ghana, and Rwanda, serves as a beacon for other countries – an invitation for global action towards a more inclusive and equitable AI ecosystem. We believe this is a foundational step, rooted in impact and action, that empowers women and minoritised groups to have a meaningful involvement in the design, development, and deployment of AI technologies. Through this Impact Report, GIZ reaffirms its commitment to cultivating an AI ecosystem that is just, inclusive, and beneficial for all, in which, countries can harness the transformative power of AI to build a more equitable and prosperous future for every citizen, regardless of gender, socioeconomic status, or geographical location.

Kathleen Ziemann
Co-Lead of FAIR Forward: Artificial Intelligence for All Initiative

Intel

Intel believes that emerging technologies like Artificial Intelligence must be developed by and for everyone. This is why Intel is proud to partner with GIZ and the FAIR Forward project on the AI and Data Science Bootcamp for Women and Minoritized Groups: a program that demonstrates how inclusive, locally grounded education can open real opportunities. From South Africa to Ghana to Rwanda, Intel has witnessed this initiative create safe spaces for women to learn, lead, and thrive in an AI-driven world. Many participants entered the bootcamp unsure of their role in the tech industry, only to graduate as confident professionals, presenting impactful capstone projects that addressed real-world challenges in healthcare, agriculture, public service, and more. Intel is especially inspired by how Intel Digital Readiness Program - AI for Current Workforce has supported women at various stages of life, from recent graduates to new mothers, fostering not just technical growth but personal transformation. This work is important because a diverse AI future benefits everyone, not only women but economies. We look forward to continuing this journey, expanding access, and helping build a culture where every voice can influence innovation.

Anshul Sonak
Principal Engineer & Global Director – Intel Digital Readiness Programs

About Fair Forward

FAIR Forward strives for an open, inclusive and sustainable approach to AI on an international level. Over a project phase from 2019 to 2026, the project's objective is to augment the prerequisites necessary for local AI development in country across its seven partner countries (South Africa, Rwanda, Uganda, Ghana, Kenya, India and Indonesia).

In particular, **the project tackles the lack of openly available, unbiased and localised AI resources,** like training datasets, AI models and other technologies, in developing and emerging countries. Together with missing technical skills and missing political frameworks, this lack represents the major barrier to creating SDG-relevant AI use cases locally. To address this barrier, FAIR Forward explicitly promotes the development of open-source AI resources for local development challenges, which can be freely used, shared and innovated on across projects, companies, organisations, and indeed across regions and the globe.

Bootcamp implementing partners

Intel Corporation brings its global expertise and commitment to digital empowerment through the **Intel® Digital Readiness Programs**. This large-scale public–private partnership initiative, developed in collaboration with governments and academic institutions, aims to build digital readiness for more inclusive participation in the digital economy. **Intel® Digital Readiness Programs aim to demystify emerging technologies like AI for everyone and bring AI skills everywhere.**

For this Bootcamp, Intel provided training and access to its AI for Current Workforce Program, which empowers today's workforce with essential AI skills for both professional and personal impact. Delivered through a 64-hour adult learning experience, the program equips participants with practical knowledge in areas such as AI-enhanced project management and AI-powered venture building.

The **National Electronic Media Institute of South Africa (NEMISA**) is dedicated to advancing digital skills and fostering innovation in the country. Through its various training initiatives, NEMISA provides accessible learning opportunities in fields such as artificial intelligence (AI), digital content creation, creative media and information and communication technology (ICT). By collaborating with industry experts and educational institutions, NEMISA ensures that its programs are aligned with the latest technological advancements, equipping individuals with the skills needed to thrive in the digital economy.

In partnership with the **Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)**, NEMISA has been working to develop and host a self-paced online **AI and Data Science Bootcamp** course to be hosted on the **NEMISA Digital Skills Platform (DSP)**. This initiative aims to provide comprehensive AI and coding training to learners, fostering inclusivity and accessibility in the field of artificial intelligence. Once launched, the AI Bootcamp will be freely available, allowing individuals from diverse backgrounds to gain valuable AI knowledge and skills without financial barriers.

List of abbreviations

AI	artificial intelligence
AQS	Africa Quantitative Sciences
BIPOC	Black, Indigenous, and People of Colour
BIWOC	Black, Indigenous, and Women of Colour
BMZ	German Federal Ministry for Economic Cooperation and Development
CV	curriculum vitae
CSIR	Council for Scientific and Industrial Research
C4IR	Centre for the 4th Industrial Revolution
DCDT	Department of Communications and Digital Technologies
FF	FAIR Forward
FAST	Global Project Feminism in Action for Structural Transformation
GDPR	General Data Protection Regulation 2016/679
GIDRM	Global Initiative on Disaster Risk Management
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
ICT	Information and Communications Technology
LGBTQI+	Lesbian, Gay, Bisexual, Transgender, Queer and other self-identifications
MEG	Migration Entwicklungspolitisch Gestalten
MOOC	massive open online course
NEMISA	National Electronic Media Institute of South Africa
NLP	natural language processing
SANSA	South African National Space Agency
SDGs	Sustainable Development Goals
SITA	State Information Technology Agency of South Africa
STEM	science, technology, engineering and mathematics
UNISA	University of South Africa

1. Introduction

Presently, women make up just 30% of AI professionals globally.[1] There are several reasons that contribute to the imbalance of representation in the technology sector, which include unequal employment opportunities (e.g. hiring biases, unequal pay), environments that are not conducive or supportive of women and their obligations outside the workplace, cultural stereotypes of women and minoritised groups within emerging tech, as well as other barriers to upskilling or reskilling professionally.

In response to these challenges, the project FAIR Forward – 'Artificial Intelligence for all', commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ) implemented by GIZ, created the AI and Data Science Bootcamp for Women and Minoritised[2] Groups. **The goal is to address both visible and invisible barriers that women and minoritised groups face when entering the field of AI, providing support to help them navigate these challenges and feel confident, empowered and capable of contributing meaningfully.** Beyond participation, the aim is to ensure that these groups can fully benefit from the training, feel safe and supported throughout the programme, and ultimately claim their rightful place in the AI ecosystem. By offering a programme specifically designed for women*,[3] FAIR Forward is explicitly signalling that the needs of this demographic are considered and that they belong in the field of tech and AI.

Moreover, recognising the importance of localising technology to reflect the values and needs of each country and its people, **this bootcamp strives to be highly customised and context specific**. In addition to being designed for women, it is encouraged to further adapt the programme to include other marginalised or disadvantaged groups, such as the LGBTQI+ community. Furthermore, the content is tailored to align with the country's current socio-economic environment, ensuring its relevance and impact.

1 World Economic Forum. (2023). *Global gender gap report 2023.* https://www.weforum.org/publications/global-gender-gap-report-2023/

2 'Minoritised is a term that highlights the active process by which certain groups are marginalised or oppressed. It focuses on systemic power dynamics rather than the numerical representation of the group.' Climate Sirens SWANA, Laghssais, B., Chokairi, H., & Benslimane, Y. (n.d.). Decolonizing Language Toolkit.

3 Whoever identifies as a woman.

2. Bootcamp concept

The **AI and Data Science Bootcamp for Women and Minoritised Groups** was designed to actively address the barriers that women and minoritised groups face in the tech ecosystem and empower them with advanced tech and personal development skills to succeed in a digitally driven economy.

The programme modules include technical skills development in coding (Python), data and statistical analysis, data visualisation, machine learning fundamentals, AI and data ethics. To improve confidence and address the unconscious biases and systemic psychological effect of gender imbalance in industry, modules such as communication and presentation skills, product design, gender bias awareness, data and AI feminism, and entrepreneurship were included. This produced a robust and all-encompassing programme that can aid participants to concretely formulate career pathways effectively and competitively in the field of AI and data science.

Content from Intel's **AI for Current Workforce Program** had been incorporated into the Bootcamp curriculum. Consequently, students received Intel certification upon completing the Bootcamp.

Who?

Women with basic ICT skills.[4]

Specific focus on minoritised groups (e.g. LGBTQI+).

18–50 years old.[5]

No prior coding knowledge necessary.

Hold an undergraduate qualification or tertiary training in any field.

Not in full-time employment or studies.[6]

How?

Leave no one behind:

- Create a safe space for women and diverse people.
- Ensure catch-up lessons for participants who need more support with coding practice.

Flexible schedule: Modular-part time concept to find better times for people with caring responsibilities.

Childcare spaces: Venues are child-friendly environments for mums/parents and kids. They should provide appropriate child-care spaces.

Role models:

- At least 50% of the trainers are or identify as women or diverse.
- Mentorship and career development sessions with women in technology (across the sector spectrum).

Ecosystem engagement: Promote contact with potential employers, project mentors and women networks from the start of the programme.

Real solutions: Capstone projects to acquire hands-on experience in coding with real world problems, internship opportunities and workplace exposure.

4 Whoever identifies as a woman.
5 The programme welcomes women* from different ages and prioritises their skills and commitment to the course, rather than their age.
6 This can be adapted depending on the context and the ideal target audience.

Curriculum

Format of training

The training format defines the level and manner of inclusion within the programme. We believe flexibility is essential to achieving the inclusion we strive for, as our goal is to overcome systemic barriers.

For this reason, our Bootcamp is always hybrid, with variations based on two key factors: the frequency of in-person sessions and the geographical distribution of participants. A predominantly online format is preferred when participants are spread across different regions, while a more in-person approach benefits those in a concentrated geographical area.

The choice of format also depends on ecosystem resources, cultural differences, and cohort needs. To ensure relevance and effectiveness, each training is tailored to the specific country, incorporating insights from our in-country experts.

Sessions with experts

One colossal challenge in creating inclusive AI ecosystems is amplifying diversity. Prevailing stereotypes of AI professionals – cisgender, heterosexual men – impress upon women and minorities that the field or professions seem unappealing or unrelatable to other underrepresented groups. This perpetuates the imbalance in who enters the field, reinforcing a homogeneous and non-diverse AI workforce that fails to reflect the society in which these technologies are ultimately deployed.

Therefore, the programme has been carefully curated to challenge and dismantle harmful stereotypes. From the outset, the content was designed using inclusive language, and incorporating relatable role models into the training was essential. One of the key strategies was to ensure that at least one of the lead instructors was or identified as a woman. Throughout the training, successful women in AI were invited to give talks, participate in panels and lead webinars, sharing their career journeys and inspiring students. Many of these women also took on mentorship roles, providing guidance and support to the next generation of AI and data science experts.

Capstone projects

A fundamental goal of the Bootcamp is to empower women and minoritised groups with the skills and confidence to thrive in the IT field. A key part of this journey is the final group project, where participants collaborate to solve a real-world problem, applying everything they have learnt to create a tangible product. This experience not only strengthens their teamwork but also reinforces their confidence in their ability to build projects using their new skills. Given the participants' diverse backgrounds, many integrated their prior expertise with their newly acquired knowledge to develop AI and data science projects within their respective fields.

Final project presentation in South Africa

Opening and closing ceremonies

Rituals play a vital role in human life, marking the beginning or end of significant cycles in a meaningful way. Throughout various editions of the Bootcamp, these ceremonies have become key highlights of the programme, offering some of the most memorable moments for both students and organisers to celebrate their own achievements and each other.

For Bootcamps held in a single location, the opening ceremony takes place onsite, providing students with an opportunity to meet their classmates and connect with those involved in their training. **In Bootcamps conducted across multiple locations, it is strongly encouraged that an onsite opening ceremony is also held onsite in satellite locations.** This ensures that students from the same regions can meet, start building connections early on, and establish relationships that will be valuable for their group projects later in the programme.

The closing ceremony, which is also onsite, serves as a platform for students to present their capstone projects to industry partners, potential employers and Bootcamp organisers. During the ceremony, students are recognised for their achievements, a panel discussion featuring women in the field is hosted to inspire the new graduates, and a dedicated moment for gratitude is always included.

Closing ceremony of the Bootcamp in South Africa

Image credit: GIZ

REPUBLIC OF SOUTH AFRICA

Regional affiliation
SADC, BRICS+

63,212,384
Population size
(World Bank, 2023)

- ♀ **±51%** (about 30,75 million) of the population is female
- ♂ **±48%** (about 29,39 million) of the population is male

Service provider

MOVE BEYOND CONSULTING

Format

The first AI and Data Science Bootcamp for Women and Minoritised Groups was piloted in South Africa, through a partnership with the GIZ project **Data Economy** and **Intel Corporation (Intel)**. The service provider, MBC Consulting in consortium with the University of South Africa (UNISA), executed the training programme, which ran from July to October 2023.

> **Carefully considering the economic distribution of women across major South African cities, with inclusion as the forethought, the Bootcamp was designed to upskill women across the country, irrespective of their geographic location or professional/academic background.**

Balancing access with inclusion and geography necessitated that the programme be conducted 80% online. This hybrid format enabled participation from across eight different geographic regions within South Africa, including four mothers – three with babies and one with a special needs child – for whom the format especially helped to balance personal with academic commitments.

The remaining onsite sessions were structured closer to the end of the programme and participants were brought in from the different regions and accommodated for a week in Johannesburg. However, during the course of the programme, the participants self-arranged meetups and gathered for their project work within their geographical locations.

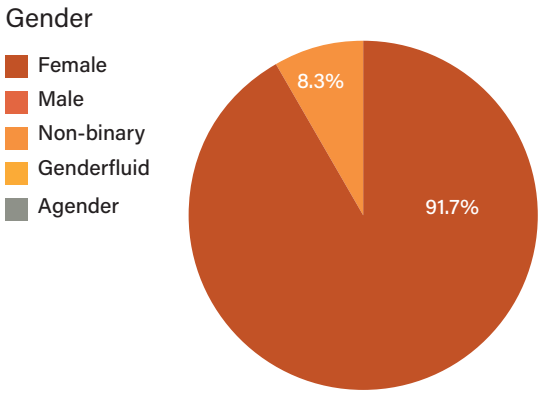
The final leg of the onsite component enabled the participants to engage in work experience elements, meet with their project mentors and complete the final aspects of their group projects together, including presentation preparation. These projects were presented to an independent panel during the final two days of the programme, culminating in an awards ceremony on the last day, held at the UNISA Campus in Pretoria.

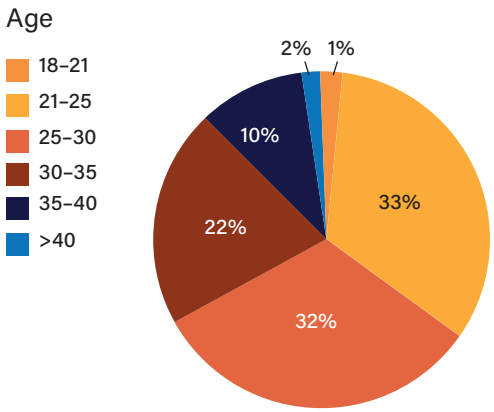
Application process

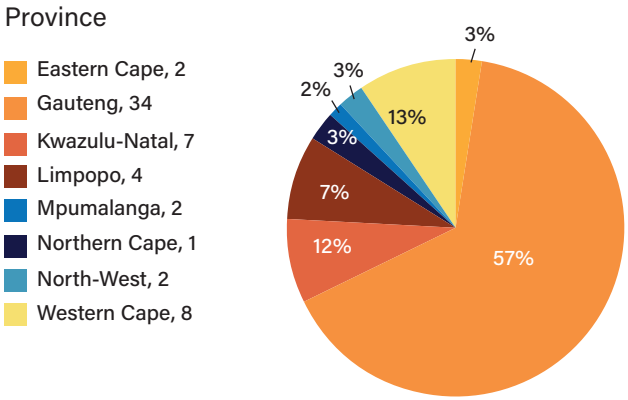
Applications for the pilot were submitted electronically and processed using a blind screening methodology to ensure fairness and equality. Applicants were required to complete an online test and submit motivation letters, which were scored separately. From this process we received **188 applications**, out of which we selected **60**. At the end of the first iteration of the Bootcamp, **35 women and 2 non-binary persons** successfully graduated from the programme.

Demographic

The main target audience for the pilot was unemployed women and gender minorities. This was based on the precariously high youth unemployment rate amongst university graduates, coupled with the systemic gender imbalance within the technology industry locally.







The programme structure was great, and I like that it was very flexible and accommodating. Sometimes we had classes at night because it was accommodated based on everyone's circumstances. Whether you were full time students, mother, working professional. It met us where we were. They understood some people were not available during the day, so they had night classes. I was also at a place where it was not easy. Obviously, as I was trying a new thing. But the pace was very accommodating as well. You wouldn't be overwhelmed and even Meena (MBC Lead) would say, "Oh if you don't understand something, let's have a session," and we would have sessions that were not planned so everyone could be in alignment. So, it was really great.

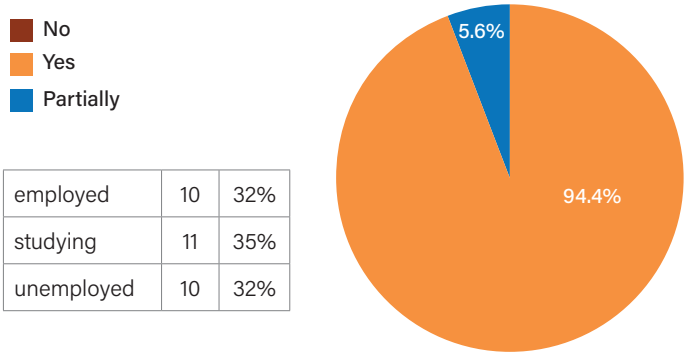
Gontse, South Africa

Highlights from the pilot

Overall, participants expressed a high level of satisfaction at the conclusion of the Bootcamp. One of the aspects they valued most was having a woman lead the project, someone they could relate to and draw inspiration from. MBC Consulting's leader recognised that breaking down barriers for newcomers in the AI field required personalised support and a genuine effort to ensure no one was left behind. Her empathetic leadership fostered a strong connection with students, making it easier for them to stay motivated and complete the rigorous programme. To further support those who struggled, additional lessons were introduced, incorporating both peer learning sessions led by fellow participants and guidance from trainers.

Conducting a hybrid programme in a country facing rotational electricity cuts (load shedding), high youth unemployment rates, expensive data and electricity, and other socio-economic challenges posed significant difficulties. One student, for instance, only had access to a slow, outdated laptop. Thanks to extra tech support from MBC and late-night troubleshooting sessions, she was able to install compatible programs, allowing her to fully engage in the training. Additionally, the lead trainer provided solutions for students experiencing internet connectivity issues, helping them find local alternatives to stay connected and ensuring that technical difficulties did not lead to discouragement or exclusion.

Did the bootcamp meet your expectations in terms of quality learning?



employed	10	32%
studying	11	35%
unemployed	10	32%

Shortcomings of the pilot

Being the pilot for the initiative, South Africa provided valuable insights into successes and shortcomings of implementing such an activity. The economic and geopolitical status of the country also played a role in certain factors.

The most significant challenge was the ability to secure internships for all participants following the conclusion of the Bootcamp. Contributing factors to this included South Africa's high youth unemployment rate at 41.2% in Q3 2023, rising to 46.6% by Q2 2024.[7] The timing of the programme conclusion was also unfavourable, as local corporates ordinarily take graduates at specific times aligning with the study year and tax periods (rather than ad hoc). Notably, the implementing institutions lacked enough established linkages within industry and potential employers prior to the start of the programme, which hindered placement opportunities. Following the Bootcamp, several students have secured employment opportunities within technology and related roles. The activities of the Bootcamp, including the capstone project, provided a pathway to showcase skills acquired that could have contributed to making participants more attractive to employers.

7 StatsSA https://www.gov.za/news/media-statements/statistics-south-africa-official-unemployment-rate (2023).

Testimonials

Two participants were initially hesitant to apply for the Bootcamp due to their non-binary gender identity, fearing social rejection and judgment. However, they were warmly welcomed into the programme. Both went on to receive awards in different categories for their exceptional coding skills and capstone group projects, which leveraged AI to detect breast cancer and uncover fraudulent financial transactions.

Participants celebrating their awards at the closing ceremony

Through the Bootcamp, they enhanced their self-confidence and self-acceptance. Their ability to grasp complex coding elements made them attractive tutors to the other struggling peers, who sought their help to learn. This not only reinforced their sense of belonging but also strengthened the programme's culture of inclusivity, collaboration and mutual support.

Inclusion is one of the underlying principles of the Bootcamp, which was was designed in a way that also supports the professional development of mothers. Three mothers meaningfully participated in the training, largely due to the service provider commitment to inclusion, flexibility with hybrid sessions, ability to catch up on classes with recorded sessions, and extra moral support from class peers and each other. While working on joint assignments, they assisted one another with childcare duties. The team of mothers, who also formed a group for their capstone project, went on to win an award for their NLP project solution – a specific chatbot for use within the information technology agency for internal government services.

Lead of MBC Consulting awarding the kids of the cohort

> *It was different. You had a sense of community, as these are people like you, with similar struggles. Especially for mothers. They could relate to each other, and it created a sisterhood. We had a new mother on the programme – it was inspiring.*
>
> Gontse, South Africa

> *One of the things that touched me was the opportunities given to young mothers, who are often left behind once they perform the most natural thing of giving birth. Not only were they given an opportunity, but provisions were made so that they continue to be mothers while they are part of the bootcamp. It was one of the biggest highlights for me. I know so many women my age who believed if you get pregnant while in school, the only option is to drop out, which means a lot were left behind. In this Bootcamp, no one was left behind. The only ones left behind were the ones who wanted to, but the opportunity was there for everyone. That was one of the most wonderful things that this Bootcamp did.*
>
> Sibonisiwe, South Africa

Image credit: GIZ

REPUBLIC OF GHANA

Regional affiliation
ECOWAS

33,787,914
Population size
(World Bank, 2023)

±50%
(about 16,91 million)
of the population is female

±49%
(about 16,88 million)
of the population is male

Service provider

BLOSSOM ACADEMY

Format

The AI Fellowship for Women targeted women from Accra city and surrounds. It was conducted by the service provider Blossom Academy and ran from February to June 2024, by combining two online sessions (Mondays and Tuesdays) with two in-person sessions (Wednesdays and Thursdays) in a single location. The onsite sessions helped to mitigate issues related to internet connectivity and power outages. Additionally, it enabled two students who did not possess functional equipment, by ensuring they had access to a working device during the sessions.

> *'A key trade-off in selecting this format was ensuring students had access to a safe, well-equipped central location while acknowledging the geographic limitations on participation. While 83% of students found the training venue easily commutable, 21% faced occasional challenges due to distance. Additionally, online participation proved difficult due to internet connectivity issues and power outages.'*[8]

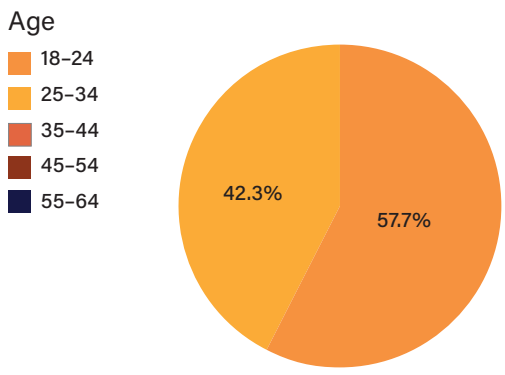
Ghana participants during the bootcamp

Application process

From an initial pool of 6 117 applications, including 111 from male candidates and 556 from individuals outside Ghana, 1 597 candidates underwent a real-time, hour-long critical thinking test. Subsequently, 683 successful applicants participated in an online course to showcase their data aptitude, with 325 completing the course. Following this stage, 103 candidates were selected for interviews, culminating in the final selection of 25 candidates.

Demographics of participants

Due to the intensive time commitment required for the training, this training primarily targeted unemployed women, with little to no previous coding experience, regardless of their academic background.



8 Blossom Academy. (2025). *Final report of the AI Fellowship for Women.*

Internships

Considering the lessons from the pilot experience in South Africa, securing internship positions for participants became a key criterion in selecting the service provider for Ghana. Leveraging Blossom Academy's strong connections with local companies, 92% students were able to secure an internship lasting between three and six months, with an average stipend of GHS 2 206. This hands-on experience allowed them to apply their newly acquired skills in real-world settings. Some of the companies that welcomed participants include Afrobarometer, Zach Levi & Associates, the World Food Programme and Asustem Robotics, among others.

Field visit to STEMAIDE

Moreover, as part of the efforts to enhance the career experience of the Bootcamp participants, they had the opportunity to attend the FEMTECH conference, in addition to online and onsite sessions where they got to interact with women thriving in their tech careers, and to take two field trips, one to STEMAIDE (a local tech startup) and another to Zach Levi & Associates (a data company). All these activities highlighted the importance of an interdisciplinary approach, showing how integrating tech and non-tech skills can expand career opportunities and improve adaptability in the job market.

Awareness campaign

Parallel to the training, an awareness campaign was launched for the general public to showcase the pivotal role of women in AI and challenge the stereotype that AI and tech are a field for men. The campaign also emphasised the importance of equal participation for women in shaping technology that benefits everyone. It was promoted across multiple platforms, including LinkedIn, Instagram, X, YouTube and a major daily newspaper.

Post of awareness campaign

Testimonial

The Bootcamp has also shifted my perception about women in the field of AI and data science. Earlier I used to think coding was for guys, even though I saw my sister code, I really didn't think I could do it, coming from a non-traditional background. As I shifted my perspective, it made me know that we can just learn anything. So, looking at how the industrial world is changing, it is important to add more value to yourself. As women, it can be challenging, we have this notion that "Oh, tech and coding is for guys, so we cannot find our foot in that space." However, thanks to GIZ, it is changing. We have a lot of women, at least 25 more women added to this field, and I think that's a plus. And it's not just about gender, it's about the value you bring to the table. It's about adding value to yourself and not just see yourself that you are a woman and can't do it.

After the Bootcamp I enrolled in a course in quantum computing, That's deep tech. In that cohort we were over 1 000 people, mixed gender. We had men, women and others. And getting to the larger part of the programme, we started with 1 000 people and dropped to about 96. And in the 96, most were men with few women. I asked myself – did women feel intimidated by men, as usually men asking more questions in the class. This made me really appreciate my experience in GIZ programme, where we were all women. We felt safe, we felt, "Oh no one's judging me in my abilities." We were all there to learn. We were all there to uplift each other. Being in an all-women cohort went a long way to help each other. It was a safe space for us.

The experience made me believe that women when given the right opportunities, the right support and encouragement, not just excel, but also thrive and open doors for other women.

Moreover, the Bootcamp wasn't just about the technical aspects. The soft skill part was helpful as well; it really changed my approach to personal branding. Earlier, I used to question why should we share our achievements with others, is it rubbing it off on others' faces? But the programme made me realise that it is not entirely true. Generally, people really want to do something, but they need that inspiration to start. So, your story can go a long way in helping, without you even knowing.

Grazia, Ghana

Image credit: GIZ

REPUBLIC OF RWANDA

Regional affiliation
EAC

13,954,471
Population size
(World Bank, 2023)

± 51,5%
(about 6,82 million)
of the population is female

± 48,5%
(about 6,43 million)
of the population is male

Service provider

HuzaLabs

Format

In Rwanda, despite a growing IT sector, women remain underrepresented, particularly in data science and AI, a pattern reflected globally. While many women in the country overcome significant barriers, including limited access to education, socio-economic challenges and traditional gender norms that disproportionately affect those from marginalised backgrounds, they still struggle to secure positions in the IT industry. To address this challenge, FAIR Forward reintroduced the AI and Data Science Bootcamp for Women, building on successful pilots in South Africa and Ghana, but tailored to the Rwandan context. This translated into having a different target audience, which in this case was women with IT backgrounds.

The Bootcamp was conducted from March to August 2024 by Huza Labs. The training was structured in an onsite format, offering three in-person sessions per week, allowing participants to balance their learning with other responsibilities. All sessions were held in Kigali, primarily because most upskilling activities are centralised there, making it convenient for participants to commute or reside in the city during the programme. Additionally, having all fellows in one location enhanced engagement, fostered interactive sessions and facilitated collaboration on projects, ensuring timely support and a cohesive learning environment.

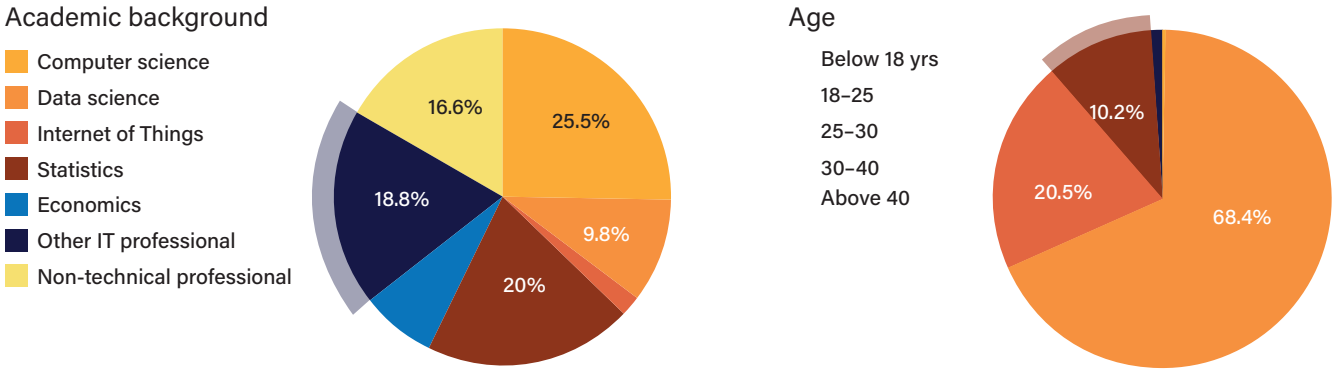
Application process

From the initial pool of 1 413 applicants, 100 candidates were shortlisted for further consideration based on factors such as educational background, technical aptitude and demonstrated interest in technology. Ultimately, 35 women were finally selected and all successfully graduated from the programme.

Participants of Rwanda during the Bootcamp

Demographics of all programme applicants

The diagram below illustrates that a substantial portion of our applicants possessed IT backgrounds, leading to the selection of candidates with computer science expertise. Initially, the programme aimed to train women with minimal IT experience. However, according to **Rwanda Statistics Institute**, in Rwanda, even graduates from IT programmes often face employment challenges. In the first quarter of 2024, the unemployment rate stood at 12.9%, indicating that approximately one in every eight individuals in the labour force was unemployed. To address this issue, we focused on women with IT backgrounds to bridge the employment gap by immersing them in industry settings through internships. This approach aimed to equip them with market-relevant skills beyond traditional academic curricula, enhancing their employability and facilitating the start of their careers.



Internships and capstone projects

The capstone projects and internships phase marked the culmination of the 20-week intensive Bootcamp, providing participants with opportunities to apply their acquired skills in real-world settings. This phase allowed the women to immerse themselves in professional environments, focusing not only on project work but also on understanding workplace culture. They developed soft skills, learnt to integrate into professional teams and contributed meaningfully to organisational goals. Companies hosted them, offering guidance and mentorship to facilitate this transition into the workforce.

The participants' internship projects included:

Healthcare analytics innovation

This project involved analysing and processing 10 000 district-level records to create heat maps and automated visualizations, identifying patterns in disease distribution across African regions. They were able to achieve an 85% accuracy rate in outbreak predictions. The goal was to enhance real-time vaccination coverage mapping by integrating disease pattern analysis, thereby improving targeted vaccination strategies.

Legal technology innovation

The solution is an AI-driven legal professional database system designed to streamline the process of connecting clients with suitable lawyers based on their specific cases. Central to this system is an AI-powered chatbot that efficiently processes over 1 000 lawyer profiles, achieving a 90% accuracy rate in recommending lawyers tailored to clients' needs.

Key features of the system include:

- **AI chatbot integration:** The chatbot interacts with users through an intuitive interface, understanding client requirements and suggesting appropriate legal professionals.
- **Google Sheets API integration:** Leveraging Google Sheets API, the system manages and updates the extensive database of lawyer profiles, facilitating seamless data handling and accessibility.

This innovative approach exemplifies the integration of AI in legal technology, aiming to simplify the lawyer selection process and improve client satisfaction.

Participants of Rwanda during the Bootcamp

Testimonials

Before joining the Bootcamp, coding was a challenge for me, even though I had a background in statistics. In today's world, many statisticians and data analysts are also machine learning engineers. However, I wasn't proficient in it, and I was scared about how I would overcome this challenge. I had completed my undergraduate degree and wondered how I would manage learning coding and paying for additional schooling. Tech skills evolve every day, and continuous learning is required.

When I saw the Bootcamp, I knew it would be very helpful. Once I joined, I was happy but faced many challenges. As a beginner, I had to spend long hours debugging code. One project took me eight hours to run properly. Even cleaning the code was a big challenge. However, with the help of the mentors, who were always there for us, I overcame these difficulties. Many people told me to go into management or finance to avoid stress, but I knew that tech would open many opportunities for me. Today, tech and AI are integral to our lives, and I know I must embrace them, even if they are tough. At first, learning was overwhelming, but now I have overcome this challenge.

The skills I gained during the Bootcamp helped me in my master's programme. My work involves coding and analysing medical data. Hospital administrators provide us with data on diseases and patients, and we must analyse it to provide recommendations. Data is information, and we use coding to interpret it and advise governments. The skills I obtained from the Bootcamp are still relevant today. Having the Bootcamp experience on my CV and cover letter is impressive and has helped me professionally.

Alice, Rwanda

4. Assessment of key assumptions

The following are the assumptions behind the theory of change of the Bootcamp that will be assessed in this section:

Source: BDO Uganda. (2025). *Inception report for the AI and Data Science Bootcamp for Women in Uganda*.

The assumptions were crafted based on landscape research conducted by the service provider of the Bootcamp in Uganda, BDO Uganda, as part of its inception report. To test the assumptions, we analysed data from end-of-Bootcamp surveys, final reports from contractors, an impact survey distributed to students a few months after their training, and a series of interviews conducted alongside the impact survey.

Participant interest and engagement

One of the most significant achievements of the Bootcamp has been challenging the belief held by some training institutions that women do not apply to AI and data-related programmes due to a lack of interest, supposedly inherent to their gender**. After running only three Bootcamps, we collectively received 7 600 applications for just 120 slots.** This shows that women are eager to be part of the AI field and dispels any myth of women not wanting to participate or engage in STEM opportunities. The associated takeaway is that existing training content has not been presented and/or designed in a way that resonates with them or helps them overcome their barriers and challenges to participate and engage meaningfully.

Moreover, **the Bootcamp has explicitly and convincingly reshaped perceptions among applicants and participants, proving that coding and machine learning are not exclusively for those already connected to IT careers.** Our participants come from diverse professional backgrounds, and many have successfully applied their newly acquired skills to their original fields. For example, healthcare students developed an algorithm to identify brain tumours, while a geologist used image recognition to classify specific rock formations.

In addition, during the three iterations of the Bootcamp, both participants and service providers manifested that having a tailored programme for women created sense of safety and of community in which they felt more comfortable to participate in comparison to other existing courses.

Participants in Ghana

As we were all women, we felt safe, we felt, "Oh no one's judging me in my abilities. We are all here to learn. We are all here to uplift each other." Being in all women cohort went a long way to help each other. It was a safe space for us. It made me know that women when given the right opportunities, the right support and encouragement, we do not just excel, we thrive and open doors for other women.

Grazia, Ghana

One of the most striking distinctions was the level of confidence and engagement demonstrated by the participants. In previous mixed-gender trainings, I noticed that women were often hesitant to ask questions, express their opinions, or take leadership roles in group projects. However, in these women-only settings, the atmosphere was noticeably more supportive, collaborative and engaging. Participants were more open to sharing their ideas, seeking clarification and actively contributing to discussions without fear of judgement. This created a strong learning community where peer support and mentorship thrived, enabling the women to develop both technical skills and professional confidence.

Huza Labs, Rwanda

South Africa's openly non-binary population is small (around 1%), but many experience systemic exclusion from education and career opportunities, particularly in STEM fields. Accepting non-binary participants acknowledged their right to access skill-building opportunities in an environment that is safe, welcoming, and affirming. Non-binary participants almost always face social rejection and providing them with a learning space where they felt seen and respected helped boost engagement.

Move Beyond Consulting (MBC), South Africa

Stakeholder engagement

While the programme appeals to many stakeholders, certain criteria significantly increase the likelihood of strong participation from industry partners and networks. These partnerships are crucial in providing participants with mentoring sessions and internship opportunities during the bootcamp.

So far, **the most important factor has been the existing reputation of the implementing partners and service providers**. This could be the positioning of GIZ and its connections or the standing of the training institution among industry partners and women's networks. If neither has these established connections, engaging industry partners for internship placements in a timely manner becomes significantly more challenging.

Ideally, partners should be involved before the Bootcamp begins to build relationships that create value for all parties involved. This was especially successful in Ghana where Blossom Academy had a good network and in Rwanda where FAIR Forward is very well positioned. Inviting partners in advance facilitates the creation of mutually beneficial agreements, as their input is already considered during the design phase, which translates into courses that can be tailored to the needs of partners and that help the Bootcamp to guarantee internship positions, networking opportunities, spaces that can be used by the learners or other resources that can be needed in the development of the programme.

In addition, when service providers were asked about industry support for such initiatives, some noted that multinational firms are generally more supportive compared to local companies, which often do not actively back efforts to promote women's participation in AI and tech. This gap is attributed to a lack of awareness, budget constraints, and a perceived lack of urgency. However, all respondents emphasised the need for increased funding to sustain and expand these training programs.

Ghana student in her visit to STEMADE

Industry leaders are increasingly recognising the importance of diversity in tech and are making efforts to create more inclusive opportunities. However, while progress is being made, corporate involvement is still not widespread. Many companies prioritise general workforce development rather than targeted initiatives for women in AI. Limited awareness, resource constraints, and traditional hiring biases also hinder broader industry participation. To bridge this gap, there is a need for stronger advocacy, corporate incentives, and policies that encourage companies to actively support and hire women in AI. With more collaboration between government, private sector and training institutions, Rwanda can further strengthen its commitment to gender inclusivity in technology.

Huza Labs. Rwanda

Resource availability

The format of the bootcamp will dictate the amount and scope of resources needed, as it determines which costs need to be covered by the sponsors and organisers to better support the participants in its learning process.

In hybrid courses and especially in contexts where data can be very expensive, it is recommended to support students with data bundles or facilitate access to areas where participants can use or access infrastructure such as computing labs. This was part of the feedback provided by the South African cohort. In South Africa, participants facing connectivity and technical issues received reliable support, regardless of their location. This level of assistance made them feel truly supported throughout the Bootcamp.

For the Bootcamps in Ghana and Rwanda, stipends were provided to cover transportation and data costs. Given the onsite format, it was important to support students with part of these expenses. Additionally, this setup allowed participants who faced computer-related challenges to borrow laptops for the duration of the training. Having all participants in one location also helped mitigate common issues such as unstable internet and energy supply, which are major obstacles in hybrid programmes.

Furthermore, during onsite events and training of all Bootcamps, childcare support was offered to mothers from the commencement, ensuring that they and their children felt welcomed and that they were in a safe space. This service was especially valuable during the closing event and capstone project presentations in South Africa, which several mothers attended with their children.

> **An important lesson learnt from this iteration was the need to consider the diverse caregiving responsibilities that are placed on women, beyond just caring for young children.**

One participant shared that she has a son with a special need requiring significant attention, making it challenging for her to attend onsite events. In such cases, providing special accommodations would have made it easier for her to participate without worrying about her son.

Participants in South Africa presenting their Capstone projects

It was also observed that some mothers chose not to use the childcare support during training, as they preferred to rely on their family and personal networks, viewing it as a private matter. These cultural contexts are also respected. However, they still appreciated having the option available and most of them felt supported and understood in their role as mothers and caregivers.

Yes, I was greatly supported throughout the Bootcamp even as a parent. The love and support shown towards my child and I was completely unmatched. From booking the flights tickets, to accommodation, meals and gifts for my baby was completely mind blowing.

Courage, South Africa

Yes, I was well catered for especially as a mother to a newborn at that time.

Boitumelo, South Africa

Gender responsiveness and cultural acceptance

When it comes to the gender responsive side of the course, participants stated that the fact that the Bootcamp programme was curated only for women made them feel safe. The word cloud below illustrates the feedback provided through evaluation engagements; participants also felt empowered, inspired, motivated and happy about the community that was built out of the Bootcamp. Moreover, some indicated that it had a transformative effect in their lives. These are some of those examples:

Regarding cultural acceptance, interviews conducted for this report revealed that most participants had a highly supportive environment. In many cases, it was their own network of family and friends who encouraged them to apply to the bootcamp.

Joining a programme that specifically targeted women inspired me in my career and also encouraged me to never give up on what I want. Sometimes I thought that when I get married, I won't get enough time for coding but by joining this Bootcamp I met young mothers who decided to break this bias. They were good in tech and also good mothers back in their families, I found this more inspiring.

Liliane, Rwanda

The exposure to women leaders in tech was incredibly motivating, and the programme gave me a sense of purpose to contribute to closing the gender gap in this industry. It not only prepared me for a career in AI but also inspired me to advocate for more diversity in tech, ensuring others like me feel empowered to break barriers and succeed.

Pfunzo, South Africa

Effective implementation

When it comes to the trainers' and facilitators' delivery quality, students expressed high levels of satisfaction. On average, the programme met the expectations of 90% of the participants, and more than 86% of them would take another training like this or would recommend it to family and friends. Furthermore, upon completing the training, participants applied their newly acquired skills through capstone projects, showcasing their expertise to all training partners. We saw projects like the IsiZulu grammar checker, the sign language translator, the computer vision-based disease detection for maize crops and the computer-aided brain tumour detector, among others, that served as evidence of the level of proficiency that the students had acquired in the field and of the high-quality content that was delivered by the trainers.

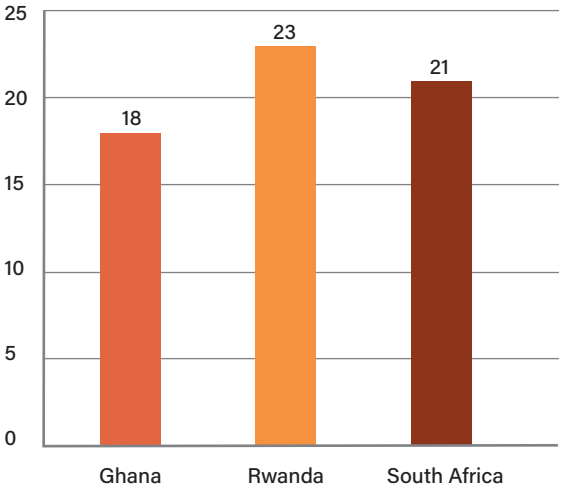
Participant of the SA Bootcamp presenting her capstone project

On the other hand, there is still some room for improvement when it comes to culturally relevant content, since most of the capstone projects used datasets that were created in other regions and countries. Even though this has improved over the different iterations of the Bootcamp, more efforts need to be made to familiarise participants with open datasets created in their countries and region. The same needs to be done with the data and AI feminism content.

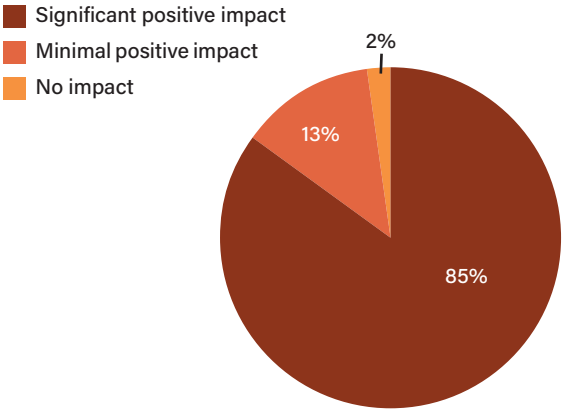
Mid-term impact

Of the 95 graduates from the three Bootcamp iterations, 62 responded to the impact survey, and 7 participated in video interviews. Even though not all the students completed the survey, more than half of them from each iteration did, giving us a good grasp of the medium-term effects on their lives. However, we recognise that it is still too early to evaluate long-term effects, as only one year and three months have passed since the first Bootcamp concluded in South Africa.

Surveyed students per country

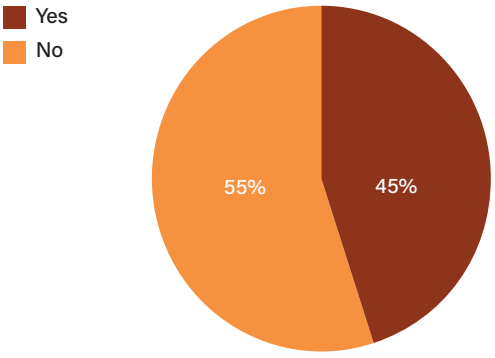


Impact on career



As shown in the graph above, most surveyed people feel that the Bootcamp had a significantly positive impact on their careers. As we look at the next graphs, only 46% of them attribute this impact to tangible outcomes such as new roles, responsibilities, promotions, increase in income, or greater financial stability.

New Roles, responsibilities, promotions, experience a change in income or financial stability



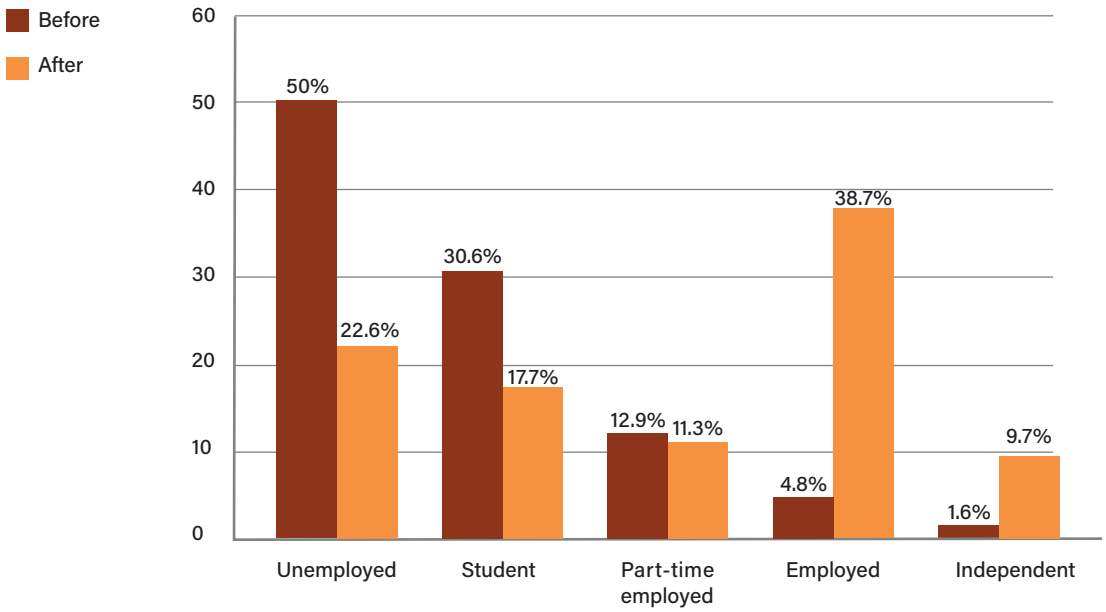
The first internship Blossom Academy (service provider in Ghana) helped us secure, the others I secured myself through LinkedIn. Because I used LinkedIn strategically. All because of the soft skills learnings. I took those lessons seriously and it paid off. When we were done with Blossom, I was getting interviews but not making the list. I did freelance at the time. And it helped me as well. All of it because of the lessons I learnt from the fellowship.

Grazia, Ghana

In the graph below we can see some of these tangible changes. In the comparison of participants' employment status before and after the Bootcamp, **one of the most relevant changes is the significant reduction of 27% in the unemployment rate. Similarly, there was a drastic increase of 34% of employed participants,** while those working independently grew by 8%.

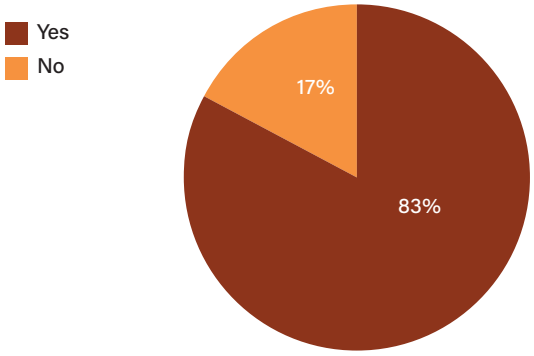
Although we cannot establish a definitive causal relationship between the Bootcamp and these employment shifts, the data suggests it had a positive influence on participants' career trajectories.

Employment status before and after the Bootcamp



However, the bootcamp has influenced participants' professional lives beyond changes in employment status. Many have benefitted from applying newly acquired skills in their current roles. Some of these skills are highly technical, such as SQL and Python, while others relate to professional development, including delivering structured and confident presentations, improving CVs and performing better in job interviews. As shown in the graph below, 83% of surveyed respondents are currently using these skills in their work.

Use of skills acquired in the bootcamp in the current position



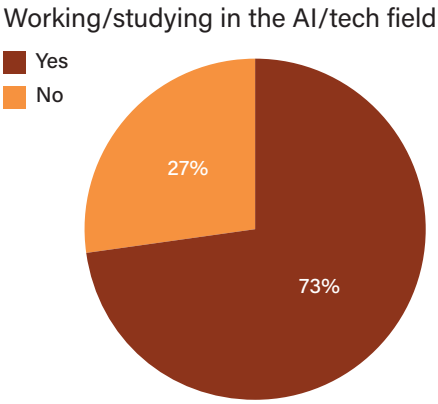
I was unemployed at the time I joined the Bootcamp.

We have an employment partner – one of the teachers. He helped us get internships. He told us about companies which did data science alongside international relations and political science.

Thank you all for the opportunity. Don't think will even have the job I have right now if it weren't for the bootcamp. Expecting to see more good things for me in the future. Also using to push this for Divas in AI.

Ama, Ghana

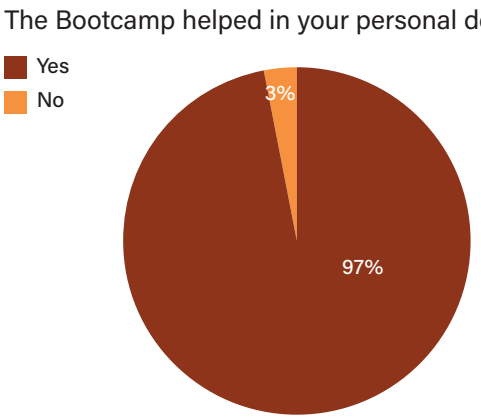
Another key finding aligned with the Bootcamp's objective is that 44 of the surveyed students are currently employed in AI, data and tech-related fields. They hold positions such as data analyst, data scientist, AI engineer, machine learning engineer, coding and robotics teacher, computational linguist, software developer and freelancer, among others. The Bootcamp has expanded opportunities for these women and non-binary individuals by equipping them with the skills and confidence they need to pursue these roles. Additionally, it has strengthened their entrepreneurial mindset, enabling some to transition into freelancing.

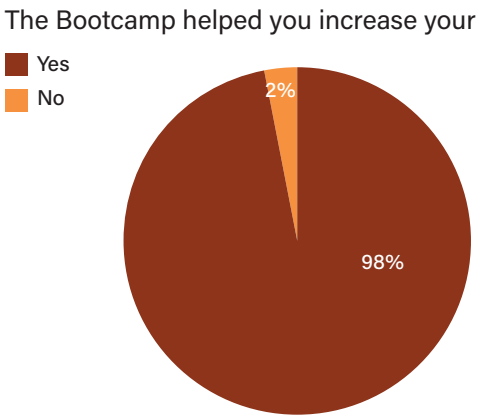


Obviously very useful for me – I am working in data management, and I also do data analysis. So, it was absolutely useful for me.

Ama, Ghana

The impact of this programme goes beyond the professional lives of participants. Of the 62 surveyed, 60 felt that the Bootcamp contributed to their personal development, primarily by boosting their confidence. For many, joining a programme in an unfamiliar field was a significant challenge, one they initially doubted they could overcome. However, successfully completing the training and presenting their capstone projects in front of peers, trainers and potential employers helped them gain a greater sense of self-assurance.





Personal branding – the focus was not data science or AI, but it stood out because it's a soft skill we overlook. Despite the experience I have, coming from a disadvantaged background, you struggle to sell yourself and showcase your work. As black women, you struggle with it. In our culture, we always get told you are a Woman, I have to be seen and not heard. That's why we struggle to say I have done this and that. And that's why this stood out – gave an opportunity to share what I had done and see what others have done.

Sibonisiwe, South Africa

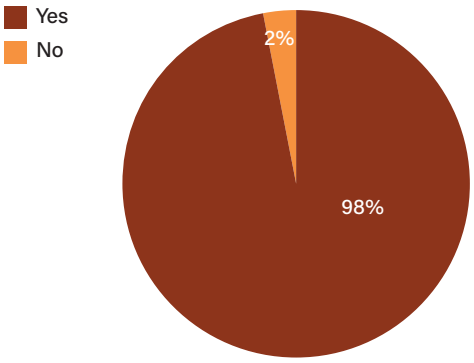
Absolutely, the Bootcamp has significantly contributed to my personal development. One of the most impactful ways was by boosting my confidence. Tackling challenging projects and presenting my ideas to peers and mentors helped me overcome self-doubt and improved my communication skills.

For me, all the presentations that we did stand out. To see how everyone prepares their presentations. Me, personally, I started as being very afraid to speak to everyone in class, but we had presentations every other day. And the more you do it, the more natural you become and the more used to it. So I started as being afraid of the presentations, but as the programme progressed I started liking presentations. And now at the work I do, it is easier for me to present my findings, it is easier for me because it just comes naturally. And I know it is because of the programme. Because of the lot of presentations we did.

Ama, Ghana

One of the most significant findings is that the experience was overwhelmingly positive, with 61 out of 62 surveyed participants stating they would recommend the Bootcamp to others. This is a crucial step in fostering a virtuous cycle in which more women and diverse individuals encourage others to join similar training programmes, making AI more accessible and inclusive. Additionally, some participants have embraced the mission of increasing diversity in the AI field, becoming ambassadors of the very purpose for which the Bootcamp was originally created.

Would you recommend the bootcamp to others?



Because for me, the transition to data science and AI – it is too late for me to be a programmer, so I see my role is a little different. I see myself as being an advocate for this field. One of the projects I got assigned in my current job was to look at how to skill and reskill colleagues within the bank with data science and AI. I see my role as being an advocate for those roles. I am able to look at the curriculum – and be able to say here is how we skill and reskill a newbie in my organisation.

Sibonisiwe, South Africa

The bootcamp was great, but the number of participants is still low compared to the number of people who want to join the field. It would be beneficial to expand the programme to accommodate more participants, especially more girls. Tech requires a lot of time and dedication, and it is difficult to find a bootcamp that provides the necessary support. Increasing the number of participants would be valuable.

Alice, Rwanda

Last but not least, a key factor in ensuring the sustainability of compensatory initiatives like this one, and which is essential for bridging diversity gaps in the AI field, is for the service providers of the Bootcamp to become potential replicators of similar programmes. When asked whether they would replicate a training like this and integrate it into their course offerings, all three respondents answered affirmatively. All of them highlighted that the success of an AI programme designed exclusively for women demonstrated the significant impact of a gender-responsive learning environment. They all concurred that the media response was significantly higher compared to their mixed- gender cohorts.

BLOSSOM ACADEMY

One of the most striking indicators of the programme's impact was the overwhelming number of applications – we received 6 000+ applications, making it one of the best responses we've ever had. While there were men among the applicants, the vast majority were women, showcasing the strong enthusiasm and eagerness among women to break into AI when given the right opportunity.

Given these positive outcomes, replicating and institutionalising this initiative would not only empower more women in AI but also help bridge the gender gap in tech. We see this as a valuable and necessary addition to our regular course offerings, ensuring that more women have access to high-quality AI training in a supportive and encouraging environment.

Blossom Academy, Ghana

In addition, whenever the country's context and security factors permit, the service provider of South Africa, MBC Consulting, encouraged greater inclusion of members of the LGBTQI+ community.

MBC MOVE BEYOND CONSULTING

The inclusion of non-binary individuals broadened the Bootcamp's gender-equity mission beyond the traditional male–female binary. It set a precedent for stakeholders involved in other programmes in STEM to rethink gender-based inclusion, ensuring that initiatives designed for marginalised groups are truly reflective of all gender identities. The decision to include non-binary individuals positioned the Bootcamp as a progressive, forward-thinking initiative. Future editions of the programme can build on this by explicitly stating inclusion policies in calls for applications and designing content that addresses barriers faced by all marginalised genders in STEM.

MBC Consulting, South Africa

5. Sustainability and free access for all

Sustaining this programme was a paramount consideration from the outset. Maintaining momentum beyond the funding of GIZ projects is critical as development funding is not a long-term measure for ecosystem development. To this end, FAIR Forward has collaborated with a fellow GIZ South Africa programme **'Digital Skills for Jobs and Income'** to adapt the Bootcamp in two contexts.

Accounting for all considerations, nuances of country insights, feminist perspectives and non-technical skill development, the AI and Data Science Bootcamp for Women* and Minorities is being adapted into an open, e-learning course hosted on **atingi**, the GIZ platform for e-learning courses, and will be available globally to access. It will also be available within the learner management (training) system of National Electronic Media Institute of South Africa (NEMISA), an agency of the Department of Communications and Digital Technologies (DCDT). The open-source nature of the course on atingi will make it easier for other training institutions globally to utilise this training in part or in its entirety, and to adapt it to local needs. The NEMISA version will be sustainably maintained by the organisation, for access to those based in South Africa, enabling use and access without the ability to commercialise. The aim is free and fair education for all.

Through the partnership with NEMISA, the course will be launched in South Africa as a live e-learning programme, where participants will progress through the curriculum either as a self-paced MOOC or, in specific instances, as a blended learning cohort. The blended learning cohorts will be supported by dedicated mentors, e-tutors and regular webinars that will be held to broaden their professional perspectives and help them apply their newly acquired skills.

Service provider

Limina
Reimagine Learning

Content of the Bootcamp adapted by Limina

How can this be adapted?

Given the introductory nature of the Bootcamp and the level of proficiency in machine learning and data science that students can reach, the programme is highly adaptable to diverse audiences. Designed for individuals with no prior coding experience and open to all backgrounds, it provides a flexible learning experience tailored to different needs and objectives – a structure that also makes it highly replicable and adaptable across geographies, professional levels and contexts.

The course can be used to upskill professionals who already work with data in national institutions but lack the technical skills to maximise its potential. By integrating an ethical and feminist perspective, the programme ensures that participants not only enhance their data proficiency but also develop a responsible and inclusive approach to working with data and AI.

Moreover, organised civil society groups can be trained to collect, analyse and leverage data, as well as develop technology that supports and advances their causes. This kind of adaptation will be tested in Colombia, where four GIZ projects have joined forces to launch the first AI and DS Bootcamp for Women and LGBTQI+ individuals in Latin America. **The Global Project Feminism in Action for Structural Transformation (FAST), the Support for the Global Compact on Migration (MEG), Paz Rural (Rural Peace)** and **the Global Initiative on Disaster Risk Management (GIDRM)** of GIZ will train members of civil society organisations in their respective areas of work, equipping them with AI and data science skills to strengthen their daily efforts.

Participants of South Africa presenting their Capstone Project

Conclusion

The AI and Data Science Bootcamp for Women and Minoritised Groups was designed to actively address the diversity gap in the AI field by lowering the entry barriers that women and minoritised groups face and empowering them with advanced technical and personal development skills to succeed in the AI and tech field. The theory of change of the programme was the product of an extensive literature review on the causes and consequences of the diversity gap in the tech industry and of FAIR Forward's own experience across different fields of AI, from NLP to agri-tech climate action and capacity building.

This effort evolved into a programme designed to attract women of all ages, backgrounds and caregiving responsibilities, aiming to open the door to their entry into the tech field. Small actions (childcare spaces, flexible schedules), while administratively intensive, enabled focused cohorts with peace of mind, fully present. Support for participants from diverse professional and geographical backgrounds expands the concept of inclusion to beyond young, working professionals in a capital city. **One of the key outcomes of this gender-responsive initiative was demonstrating that the lack of diversity in the AI field cannot be attributed to a lack of interest from underrepresented groups. The Bootcamp received 7 600 applications for just 120 slots, which is clear evidence of strong interest and motivation. This underscores a crucial point: women do not need to be 'fixed'; it is the systems that needs to change.**

There is no one 'right way' to conduct a curated programme like this. However, as demonstrated by past and upcoming iterations of the Bootcamp, success lies in adhering to the core principle of 'leaving no one behind.' By conducting thorough research at the outset to understand the nuances of different economies, ecosystems and the specific needs of the target audience, such training programmes can not only succeed but also be effectively scaled to diverse locations and populations.

FAIR Forward strives to democratise access to the AI field and enable inclusive participation, by all persons, regardless of their geography or background. This report aims to demonstrate how intentional, curated interventions can challenge and transform the gender and diversity imbalances often found in conventional capacity-building programmes. One key truth remains: the digital gender and diversity gap must be addressed and it is within the power and responsibility of the ecosystem to drive this change, ensuring that AI becomes a technology that genuinely benefits everyone.

Participants of the Bootcamp of Ghana

Acknowledgements

GIZ wishes to acknowledge the key partners who have contributed to the success of the Bootcamp:

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NEMISA

atingi

Limina Education Services

Rebecca Ryakitimbo

GIZ Digital Skills for Jobs and Income (Alexandra Militz, Dr Suraya Adams)

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Erica Akanko

Grazia Edumaba Graham

Rwanda

Alice Mbera

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Gontse Moshidi

Sibonisiwe Ndzukuma

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South Africa

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Annexes

intel digital readiness

As AI continues to rapidly reshape the global economy, the need for accessible, relevant and practical AI education has become urgent. The AI for the Current Workforce program, part of the Intel® Digital Readiness Programs, addresses this need by equipping professionals across sectors with the skills necessary to adapt to and thrive in an AI-augmented world. Intel® Digital Readiness Programs are a large-scale public–private partnership initiative, developed in collaboration with governments and academic institutions, to build digital readiness and enable more participation in the digital economy. These programs aim to demystify emerging technologies like AI and bring AI skills everywhere.

The AI for the Current Workforce initiative specifically targets individuals in sectors most impacted by digital disruption – including those in small and medium enterprises (SMEs), public institutions and among entrepreneurs, women, ageing professionals, and incoming workforce like recent graduates. It is designed to help these groups stay competitive in a rapidly changing job landscape. The program offers a three-tiered structure to support learners at different stages of professional development:

- Level 100 – AI Power User: Focuses on the practical use of AI to enhance productivity, including generative AI for workplace efficiency and career growth.
- Level 200 – AI Solution Builder: Offers both technical and non-technical tracks. The non-tech path introduces AI project management and business value creation using no-code tools, while the tech track covers core domains like computer vision and agentic AI for building AI-driven prototypes.
- Level 300 – AI Venture Builder: Supports the development of AI-powered ventures, guiding learners through ideation, business modeling, and deploying AI solutions in startups or within organisations.

The curriculum is modular, experiential, and customizable, offering organizations the flexibility to deliver training in instructor-led or self-paced formats. Intel provides comprehensive training materials, including slide decks, facilitator handbooks, and learner checklists, ensuring ease of implementation across sectors and regions.

The initiative has already achieved successful deployment in multiple countries. In the United States, where more than 1,500 professionals completed the program through the Ohio TechCred Program. In Poland, Ministry of Development and Technology is making it available to all small and medium enterprises as part of a national strategy to advance AI capability across the workforce.

By focusing on practical applications, career-aligned outcomes, and inclusive design, the AI for the Current Workforce program is a powerful tool for any country or institution looking to future-proof its workforce in the era of artificial intelligence.

Learn more about the program and Intel® Digital Readiness Programs here: https://www.intel.com/content/www/us/en/corporate/artificial-intelligence/digital-readiness-ai-for-current-workforce.html

Republic of South Africa

Capstone projects

Team Name	Capstone project
Chat_Lwazi	Knowledge Management Retrieval Augmented Generation
Sign-to-all	Sign language translator
Grammar Girls	IsiZulu Grammar checker
Clearer Air and Skies	Assessing methane emission levels using ML and forecasting methane emissions from 2024 to 2028, eMalahleni, Mpumalanga, SA
Cotton Guard	Using AI to monitor crop health: cotton leaves
CropSight	Computer vision-based disease detection for maize crops
Jordyn's paving problem	Determining the suitability of driving on cobble road
Water cleaners	Prediction of energy consumption and evaluation of affecting factors in wastewater treatment plants using ML
RockWhisperer	Spatial distributions of geochemical data using ML
CardioCare	Development and evaluation of supervised ML algorithms for early diagnosis of cardiovascular disease using predictive modelling
DataEd Insights	Demographic informed AI matching for clinical trial learning: A data-driven approach
DiabetesTech Guardians	Retinopathy diabetes detection and personalised treatment using AI
TumorAIDetector	Development of predictive model of breast cancer
Predictive Maintenance	Predictive maintenance model for industrial equipment
FinanceTech Team	Enhancing credit card fraud detection using deep learning
Finessed	Explicating money laundering: Employing AI to solve financial crimes

Republic of Ghana

Capstone projects

Project area	Capstone project
Financial Modelling	Smart lending: Harnessing machine learning for accurate loan eligibility assessment
Computer Vision	Computer-aided brain tumour detection and classification
Computer Vision	Harnessing computer vision for intelligent waste sorting solutions
Natural Language Processing	eSentinel: A natural language processing model for cyberbullying detection in online text
Consumer Segmentation	The science of customer segmentation: How data science can transform your customer strategy
Anomaly Detection	Intelligent intrusion detection: A machine learning approach

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Artificial Intelligence for all.