AI BY & FOR ALL

FAIR Forward Replication Kit

Part (1): Five FAIR Forward Products for replication & Replication Kit for AI Practitioners and Learners

german cooperation
DEUTSCHE ZUSAMMENARBEIT

Implemented by:

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FAIR FORWARD
Artificial Intelligence for all.

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ABOUT THE REPLICATION KIT

The FAIR Forward **Replication Kit** brings together the initiative's key experiences and proven methods in the areas of open-source and locally anchored AI, capacity building and responsible AI governance from 2019 to 2026.Designed specifically for practitioners, learners, organisations, institutions and governments, it contains lessons learned, methodologies, playbooks, studies, open-source datasets, AI models and implementation guidance, which can be adapted and replicated in different contexts.

The replication kit contains the following:

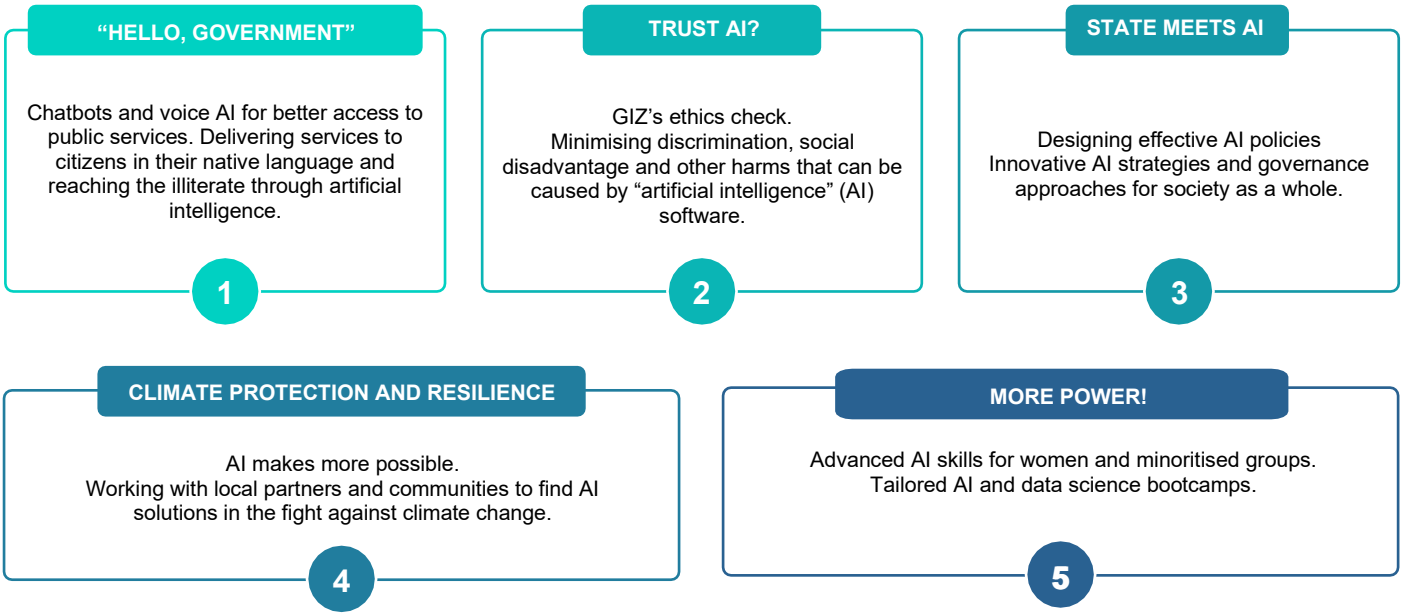
- **Replication part (1): Five FAIR Forward products for institutions, governments and development partners & replication kit for AI practitioners - [THIS DOCUMENT]**
- Replication part (2): Lessons learned
- Replication part (3): Playbooks, handbooks and studies
- Replication part (4): Catalog of open-source datasets, AI models and AI systems
- Replication part (5): Key actions of FAIR Forward with links to key information

Get access to the full replication kit at:
https://www.bmz-digital.global/en/overview-of-initiatives/fair-forward/#replicationkit

FIVE FAIR FORWARD PRODUCTS FOR INSTITUTIONS, GOVERNMENTS AND DEVELOPMENT PARTNERS

01

FAIR Forward has translated its experiences into five “products” a.k.a. replicable service and advisory offerings which GIZ or other institutions can offer to partner institutions and governments.



In addition to the five products below, please also check “Replication (3): Playbooks, Handbooks & Studies” for additional useful resources for institutions, governments and development partners such as

- Playbooks For Policy Makers in Asia and Africa
- Playbooks For Agencies Supporting AI Development

1 “HELLO, GOVERNMENT”

Chatbots and Language AI for better access to public services

Delivering services to citizens in their native language and reaching rural and illiterate citizens through artificial intelligence.

What is this?	In many countries, you will have to go to a government agency in person to receive a public service, for example to register a business. To simplify access to services, government agencies have begun digitising services. However, these largely web-based solutions are inaccessible for illiterate people or those without smartphones or computers, and they are often unavailable in citizens’ native language. Chatbots and language AI in local languages make services and information – from health or agriculture to business services – accessible to millions of people, including underserved communities. Chatbots can be made accessible via simple mobile phones, smartphones or websites. They even enable illiterate people to ‘speak’ with digitised government services. **Do you want to** • Develop inclusive, digitised services – be it for government, civil society or private sector – that citizens can access in their native language? • Ensure people living in rural areas or illiterate citizens can access digital services through their voice or simple digital devices? • Develop a chatbot for a service offered by your partner institution? **Then make use of GIZ’s service offering “Hello, Government” - Chatbot and language AI** for better, more inclusive access to public services. It supports you with developing chatbots and language AI closely involving government partners and citizens, building the necessary language AI tools (incl. datasets and models) and with mentoring for maintaining chatbot systems.
How can I replicate this? How do I do this right? Key methodologies, standards & guidelines to implement this, also with focus on “good practices” and standards that uphold quality of replication	**GIZ is working with government agencies and local AI developers to develop chatbots and language AI in native languages. This includes support with:** • **Technical development** using fit-for-purpose technologies ranging from simple Q&A chatbots to sophisticated generative AI systems • **Workflow integration** with respective government agencies (or other partner institutions) to ensure the chatbot complements existing processes effectively • **Involving citizens** throughout the development and prototyping phase to ensure the chatbot meets citizen needs • **Local language adaptation** of chatbot systems to ensure they work well in citizens’ languages – e.g. through data collection and fine-tuning of AI models for speech recognition, speech generation or generative AI • **Capacity building** for developers, government agencies and other involved partner institutions to ensure sustainable maintenance and operation of the chatbot system • **Open-sourcing** collected language data and models for wide reuse by the wider in-country or regional AI ecosystems (incl. licensing)

Can I directly use this product? Has this been tested already?	This product is directly usable for replication and advisory offerings. It contains proven technical frameworks, tested process steps and guidelines as well as several successful implementations – see below.
Where is the AI data and software stack to do this?	Check the FAIR Forward catalog of open-source AI data, models and AI systems for examples, datasets and models that were created and open sourced for various chatbot projects and languages. Check GIZ's ChaBo Framework for an open-source framework for simplifying the development and operation of chatbots.
How much resources and time does this take?	The time and resources required to develop, test and launch a successful chatbot project depend on the complexity of the topic, the availability of data on the topic as well as the readiness of the partner institution to operate a chatbot. **Below are two examples as rough ballpark figures:** • A simple chatbot for one government service for which sufficient data exists to build the chatbot knowledge base can cost around 30.000 EUR plus additional costs for advisory services and take about six months for implementation. • A more complex multilingual chatbot that integrates several government services, uses generative AI (LLMs) and requires extensive service design including several ministries can easily cost around 120.000 EUR plus additional costs for advisory services and take a year to implement. If AI training data needs to be collected for one of the target languages, you should add one to two years for data collection and preparation.
Who can help me to do this? Key implementation partners and local support partners	**GIZ** offers advisory services on chatbots and voice AI as part of its • Digital transformation offer (Contact: dataservicecenter@giz.de and digital-solutions@giz.de) or • The AI Hub Rwanda (Contact: dtc-rwanda@giz.de) **Externally** (selection of partners from FAIR Forward) • Lelapa AI (South Africa) • THiNK (Kenya) • Sunbird.AI (Uganda) • Digital Umuganda (Rwanda) • Digital Green (India, Global) • Prosa.AI (Indonesia) • CLEAR Global (Global)
How can I try this out?	You can check out some chatbots at the FAIR Forward Catalog (chatbot filtered) for instance the chatbot Faktalklim on climate disinformation. Or you can chat with some of the chatbots of GIZ's ChaBo framework here: ChatBots Arena - a GIZ Collection
Who has already done this? Key reference/ implementations	**Chatbots for government service discovery, business start-ups and data protection in Kenya:** In Kenya, GIZ has supported several chatbots: In final development (as of January 2026) is a generative AI-based chatbot that assists citizens with more easily discovering digitised government services. Thanks to the chatbot of the government agency Business Registration Service (BRS), Kenyan entrepreneurs can easily find out, for example, how to start a new business. Through another chatbot, the office of the Kenyan Data Protection Commissioner can more easily inform citizens and companies about their rights in relation to data protection.

Chatbot on land rights and sweet potato cultivation for vulnerable groups in East Africa: With the help of AI language models, the development of which was supported by GIZ together with the Mozilla Foundation, entrepreneurs in East Africa have been able to expand access to their services in Swahili. In the Democratic Republic of Congo, a local NGO has developed a chatbot that educates women about their land rights (Haki des Femmes). In Tanzania, an agricultural company can use a chatbot (Kiazi Bora) to inform smallholder farmers more efficiently about the cultivation of sweet potatoes, which contribute to food security there.

COVID-19 chatbot in Rwanda "Mbaza": In Rwanda, GIZ has developed a chatbot together with a local start-up and the Rwanda Biomedical Center (RBC) to make information more accessible during the COVID pandemic. Through the chatbot, citizens were able to obtain daily updated information in the national language Kinyarwanda about case numbers, restrictions and behavioral measures. Thanks to the solution, which was accessible via simple mobile phones, more than 2.3 million Rwandans could be reached in their local language, and the government's call centres were no longer overloaded.

2 TRUST AI?

GIZ's ethics check

Mitigating discrimination, social disadvantage and other harms that can be caused by "artificial intelligence" (AI) software – the Responsible AI Assessments

What is this?

If you want to:

- Evaluate and mitigate risks from the get-go and reduce unintended harms towards users and consumers
- Check if your data, model, and system design follow better practices
- Strengthen transparency and documentation for users, partners, donors and regulators
- Improve trust and accountability across the AI lifecycle of your product/service
- Build towards an inclusive and ethical AI system, aligned with global responsible AI norms.

Then use the Responsible AI Assessments and check the description.

The step-by-step guide provides structured assessments, templates, sample questions, documentation checklists, and guidance for evaluating and mitigating risks in AI systems.

V1.0 includes a 3-part guide:

- Part A: Step-by-Step Guide
- Part B: Qualitative Guide.
- Part C: Quantitative Guide

V2.0 combines the various guidebooks to produce one comprehensive risk assessment methodology.

The Responsible AI Assessments (RAIA) Guide has been co-created by the GIZ project "FAIR Forward – Artificial Intelligence for All", Eticas and a diverse community of AI inclusion experts from Sub-Saharan Africa and Asia-Pacific.

It supports AI practitioners (GIZ project teams, service providers and ecosystem partners) in evaluating the risks, impacts, and governance of AI systems. It offers a practical, step-by-step method to assess ethical, social, technical, environmental, and governance risks of AI.

This guide includes templates, scorecards, sample questions, structured workflows, and documentation tools. This empowers AI project teams involved in the design, development, deployment and oversight of AI systems, to partner with independent assessors (e.g. auditors), to align their AI systems' risk management process with international standards (ISO/IEC/IEEE) and internationally recognised practices (i.e. UNESCO, OECD AI Principles).

How can I replicate this? How do I do this right?

Key methodologies, standards & guidelines to implement this, also with focus on “good practices” and standards that uphold quality of replication

Core Methodology as in this online document: Responsible AI Assessments

Step-by-step RAIA workflow
Pre-survey, scoping, documentation review, deep dive, mitigation design, and final reporting. Clearly defined roles for developers, project managers, and assessors. Pre-assessment questions and documentation mapping.

Five risk categories

1. Ethical and societal risks
2. Technical robustness
3. Data and model quality
4. Governance and accountability
5. Environmental and socio-economic impacts

Documentation-first approach
Options for crafting model cards, scorecards, risk assessment approaches, system overview, and governance monitoring.

Approaches to align with international practices

- UNESCO Recommendations on AI Ethics
- OECD AI Principles
- ISO/IEC AI standards (ISO42001, ISO42005, IEC23894)
- EU AI Act and GDPR

Key standards and guidelines

- The RAIA guide translates the components of UNESCO’s recommendation on the ethics of AI (2021) into actionable risk categories: Bias & fairness, privacy & confidentiality, reliability, governance, and security & misuse.
- The methodology aligns with recommendations outlined in global instruments, including OECD AI principles, ISO/IEC standards (42001, 42005, 23894), and regulations i.e. EU AI Act or GDPR.
- Methodology tested on use cases emanating from global South, with iterative feedback built into risk assessment and analysis model.
- The RAIA guide provides a structured framework to ensure assessments are ethically grounded and globally aligned but do not replace holistic AI audit processes.

Good practices for replication

- Engage diverse stakeholders including AI developers, project managers, and community or domain experts to provide local context and critical perspectives.
- Apply the methodology iteratively and repeatedly across the AI lifecycle to capture evolving risks and enable accountability.
- Adapt the templates and assessment questions to the specific domain, project context, and type of AI system being evaluated.
- Where information about the AI system is not immediately available, teams should coordinate with internal project teams, external vendors, or implement partners to gather necessary documentation and data.

Can I directly use this product? Has this been tested already?	This product is directly usable for replication and advisory offerings. It contains proven technical frameworks, tested process steps and guidelines as well as several successful implementations – see below.
How much resources and time does this take? Key estimates* days and elements of good practices for Terms of Reference	**Time requirement** (dependent on entity size and complex of systems) • Pre-survey: 30 mins for project teams to fill out the form & 1-2 hours of preparation for the assessors. • Scoping call: 45 mins – 1 hour call • Documentation review: 6-7 hours for assessors (iterative) • Deep dive sessions: 1.5 - 2 hours call • Mitigation development and reporting: 4-6 hours to prepare and follow-up (if required) • Full cycle: approx. 18 - 20 hours of work spread over a few weeks for a smaller assessment. **Terms of Reference** • Time required from developers and project teams to provide system documentation and answer assessor questions • Availability for scoping calls and deep dive sessions • Internal resources for gathering data, reviewing findings, and coordinating mitigation measures • Budget for external assessors or local experts, if needed
Who can help me to do this? Key implementation partners and local support partners	**GIZ** offers advisory services on chatbots and voice AI as part of its • Digital transformation offer | GIZ (Contact: dataservicecenter@giz.de and digital-solutions@giz.de) or • The AI Hub Rwanda (Contact: dtc-rwanda@giz.de) **Externally** (selection of partners from FAIR Forward): • Eticas • Community of African and Asian AI Inclusion Experts (See page iii of the document “Part A: Step-by-Step Guide” of the Responsible AI Assessments)
How can I try this out?	You can apply the RAIA guide by selecting a concrete AI project or system within your organisation to examine its potential risks. Templates, structured questions, and guidance will help you critically analyse AI systems, focusing on ethical, human-rights, and technical considerations. It is important to include external experts, i.e. independent AI assessors and local domain specialists, to provide critical perspectives and context-specific knowledge that internal teams may overlook. Engaging both internal and external participants allows you to document findings, identify mitigation strategies, and use the insights to improve system design, deployment, and governance.
Who has already done this? Key reference/ implementations	The RAIA Guide has been applied and tested in more than 16 real-world contexts in Sub-Saharan Africa and Asia-Pacific, covering domains such as landslide detection, chatbot support, plant disease identification, energy-demand mapping tools, entrepreneurship and government-service chatbots, climate innovation initiatives, agricultural disease detection, and a RAG-based farm-advice platform.

3 STATE MEETS AI

Designing effective AI policies

Innovative AI strategies and governance approaches for society as a whole

What is this?	**If you want to:** • Design interdisciplinary AI policy processes by combining targeted policy development with the strengthening of capacities and knowledge on AI for all relevant actors in society. • Create multistakeholder processes that actively involve political decision-makers, the private sector, civil society, academia and disadvantaged groups • Have knowledge exchange between local and international experts and build local, regional and global networks • Create AI policy frameworks that fit your society understanding its specific capabilities and readiness. **Then look at our State meets AI product** that charts a grounded journey through the real-world complexities of AI policymaking in the Global South and offers offer more than just principles but practical tools, insights, and strategies to shape policy that serves local needs.
How can I replicate this? How do I do this right? Also with focus on "good practices" and standards that uphold quality of replication	**GIZ supports governments in developing countries and emerging economies in developing effective AI policies and governance mechanisms in the following core fields:** • **Policy development:** We support governments and regional institutions in developing national and regional AI strategies and regulatory frameworks. Together with government representatives in Africa and Asia, we have developed an AI Policy Playbook that outlines methods for inclusive AI policy development. In close dialogue with our partners, we tailor the strategies to the specific needs of a country or region, while ensuring that they are based on global best practices, human rights and fair AI principles. • **Networking and knowledge updates in the face of rapid change**: We specifically promote and support networks between leaders who are developing policies and regulations for AI in their respective countries. This makes it possible to manage regulation despite the rapid change in AI technologies. Exchange and coordination between government representatives also makes it easier to represent the interests of African and Asian countries in global AI governance debates. • **Further education and training:** GIZ has developed a training program for government representatives on AI governance that can be individually adapted to different formats (physical or e-learning) and thematic focuses.
Can I directly use this product? Has	This product is in beta-stage. You can use it for replication and advisory offerings. It contains handbooks and has successfully been implemented. However, given the rapidly

this been tested already?	moving nature of the policy field and a scarcity of advisory groups on the topic and missing standards for AI policy making, this product is considered beta.
What are key methodologies, standards & guidelines to implement this?	**Key resources:** • Handbook for Implementing a Capacity Building Programme for Policy Makers on AI • AI Strategy Playbook for Policy Makers: AI Policy Playbook **Practices:** • Smart Africa AI Blueprint: Artificial Intelligence for Africa – Smart Africa and 2021 Smart Africa: Blueprint AI for Africa • National AI Strategy Rwanda: National AI Policy Summary (rura.rw) • National AI strategy of Kenya: Kenya AI Strategy 2025 • National AI Strategy of Ghana: Ghana AI Strategy 2025-2035
How much resources and time does this take? Key estimates*days and elements of good practices for Terms of Reference	Difficult to estimate, as it varies from government to government and depends on each countries AI readiness. **In general:** Political processes take time. Example of one country: First draft of Strategy was ready in October 2022 and was finally released in January 2025.
Who can help me to do this? Key implementation partners and local support partners	**GIZ** offers advisory services on chatbots and voice AI as part of its • Digital transformation offer | GIZ (Contact: dataservicecenter@giz.de and digital-solutions@giz.de) or • The AI Hub Rwanda (Contact: dtc-rwanda@giz.de) **Externally** (selection of partners from FAIR Forward): • The Future Society • Global Partnership for Sustainable Development Data (GPSDD)
How can I try this out?	You could check out the AI strategies of the Smart Africa AI Blueprint: Artificial Intelligence for Africa – Smart Africa and 2021 Smart Africa: Blueprint AI for Africa , the National AI Strategy Rwanda: National AI Policy Summary II Nw (rura.rw) , the National AI strategy of Kenya: Kenya AI Strategy 2025 and the National AI Strategy of Ghana: Ghana AI Strategy 2025-2035.
Who has already done this? Key reference/ implementations	**AI strategies Rwanda, Kenya and Ghana** In Rwanda, Kenya and Ghana, GIZ has supported the national ICT ministries and regulatory authorities in developing a national AI strategy. The strategies are tailored to the specific challenges and opportunities of the two countries and are based on global AI governance principles. This makes Rwanda and Ghana among the first African countries with their own AI strategy. **Regional AI Blueprint Africa** Together with Smart Africa and in cooperation with South Africa, GIZ has facilitated the development of the first regional blueprint in 2021 for African countries on AI that addresses the specific potentials and challenges of AI on the continent. The blueprint offers starting points for regional cross-border cooperation on AI.

Guidelines for the procurement of AI India
In India, GIZ has supported the government of the state of Telangana in developing guidelines for the procurement of AI in the public sector. The guidelines provide a framework for public sector officials. It supports the design, evaluation and purchase of AI-based solutions and applications to mitigate possible risks.

Africa-Asia AI policymaker network
Together with Smart Africa, GIZ supports the Africa-Asia AI policymaker network, a network of leaders from ICT ministries and regulatory authorities from Africa and Asia. The network enables peer exchange and cross-border projects and positioning between government representatives.

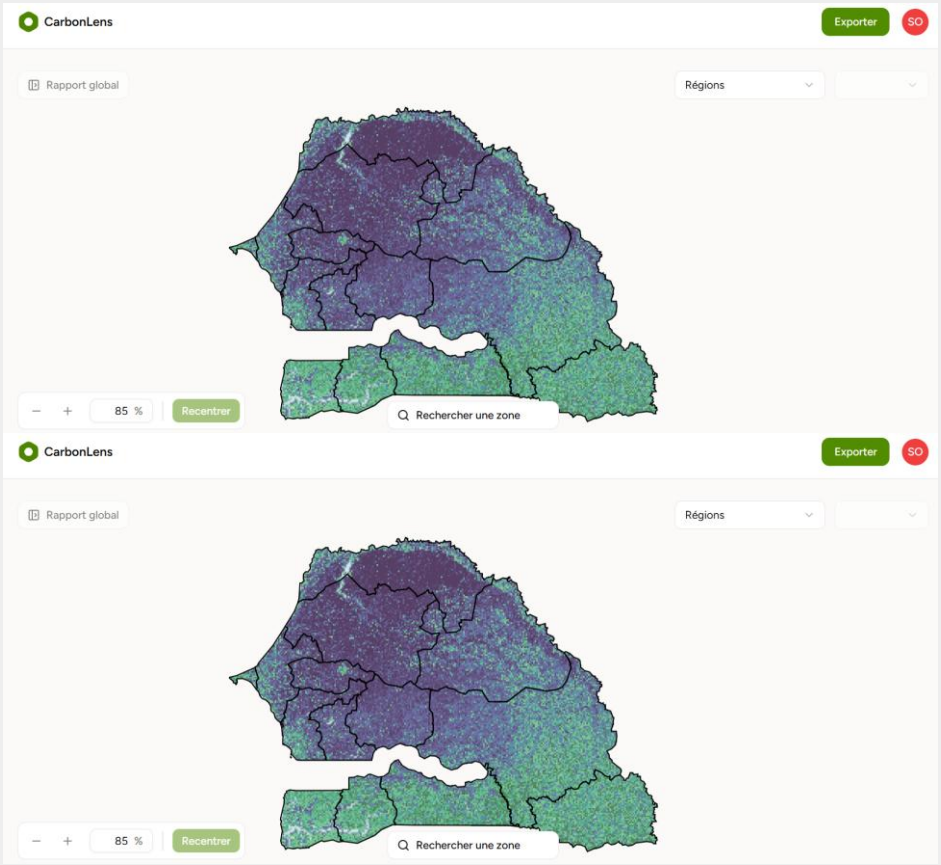
4 CLIMATE PROTECTION AND RESILIENCE

AI makes more possible

Working with local partners and communities to find AI solutions in the fight against climate change

What is this?	**Do you want to:** • Use AI to detect climate risks early, prevent crop loss, or protect forests? • Co-create solutions with communities and ensure that marginalised groups genuinely benefit? • Use AI-generated data to improve climate strategies, nationally determined contributions, national adaptation plans, or policy design? • Develop sustainable, energy-efficient, and inclusive AI systems that scale beyond pilots? Then use our AI for Climate Action Package! We provide co-creation, technical development, data & model building, capacity development, responsible AI guidance, and policy advisory - secure, ethical, and locally anchored. We combine technology, capacity development, and participatory processes to build sustainable, resource-efficient, and responsible AI solutions in sectors such as agriculture, forest protection, energy, and climate policy. Link to product.
Can I directly use this product? Has this been tested already?	This product is in beta-stage. You can use it as inspiration for replication and advisory offerings. It contains several methodologies, which have been successfully been implemented. However, this product is considered beta and any action based on this product will need further specification. The product does not contain yet a fully fleshed out technology stack, but rather different elements of such a stack e.g. open data from some regions.
How can I replicate this? How do I do this right? Key methodologies, standards & guidelines to implement this, also with focus on “good practices” and standards that uphold quality of replication	To replicate high-quality, responsible, and scalable AI climate solutions, GIZ follows a structured approach that combines technical excellence, participatory development, and sustainable AI principles. The following methodologies, standards, and good practices ensure quality, reusability, and long-term impact. **Core methodologies:** 1. **Co-creation with local partners and communities:** GIZ develops AI systems in close cooperation with local partners, communities, policymakers, NGOs, research institutions, and the private sector in countries of the Global South. This ensures local ownership, contextual relevance, and long-term sustainability. 2. **Participatory climate problem analysis** • Joint definition of climate challenges with communities • Inclusion of vulnerable and marginalised groups, including Free, Prior, and Informed Consent and CARE principles [Collective Benefit, Authority to Control, Responsibility, Ethics] • Alignment with local knowledge systems and cultural context

	3. Sector-specific application of AI models AI training data, models, and tools are adapted to the realities of: • Sustainable agriculture • Forest and biodiversity protection • Resource-efficient energy systems • Climate information and policy development This sectoral adaptability is essential for meaningful and replicable use cases. **4. Localised and responsible AI development** • Development of open, transparent, and locally anchored AI systems • Use of community-generated or co-produced datasets • Low-resource AI and responsible and sustainable computing principles to reduce environmental footprint **Key standards & guidelines** • GIZ Responsible AI Guidelines (See Trust AI? GIZ's ethics check) • Sustainable use of AI: See AI for Climate Action Paper - Applications and Principles in Development Cooperation • Climate risk and adaptation frameworks aligned with IPCC **Good practices for replication** • **Localisation & accessibility**: Multilingual, low-bandwidth, and user-centered design for broad inclusion. • **Ethical & transparent AI**: Clear data provenance, explainability, model cards, and bias checks. • **Reusable building blocks**: Open-source models, interoperable APIs (Application Programming Interfaces), standardised datasets and data collection methodologies. • **Capacity development:** Training partners to operate, adapt, and scale solutions independently. • **Continuous monitoring:** Track climate impact incl. CO2 footprint of AI, model performance, and user feedback for improvement.
Where is the AI data and software stack to do this?	GIZ's AI climate solutions are built on a modular, reusable technology stack that allows fast replication across countries and sectors. The following building blocks can be combined and adapted depending on the use case (agriculture, forests, energy, climate policy): • Datasets and Methodology for Forest Protection in Indonesia • Vertify biomass model India for Forest Forward use case. • Early Warning System: Advisory services on climate-smart farming for small-holder farmers • Climate Policy Vulnerability Tracker: App on Hugging Face; Interactive report; Data Lab Blog Articles For a full list of replication-ready use cases and datasets in the field of climate action, see: FAIR Forward Catalog of open-source AI datasets, models and AI Systems (with filter: all on climate action)

Who can help me to do this? Key implementation partners and local support partners	**GIZ** offers advisory services on AI and climate action as part of its Digital transformation offer | GIZ (Contact: dataservicecenter@giz.de and digital-solutions@giz.de) or • Sector teams in Agriculture, Climate, Forest, Energy are working on sector-specific applications • The department DIGITS is working on AI development, data pipelines, dashboards **Externally (selection of partners from FAIR Forward):** • Local Development Research Institute (Kenya) • Indigenous communities and forest organisations (Indonesia, India, Senegal, e.g. Community Mapping organisation Indonesia, High Carbon Stock Approach foundation, vertify. earth, data 354) • Universities & research institutions • National climate agencies and ministries (e.g. Bappenas Indonesia, ministry of forestry)
How can I try this out?	**Climate Policy Senegal** - Climate Policy Vulnerability Tracker (Live app & interactive reports) – link will follow. Some snapshot:  Dashboard showing NDC data in Senegal based on high carbon stock mapping (legend will follow, link to dashboard will follow) **Agriculture / Early Warning** - Early detection AI for crop failure (Kenya) - Multilingual advisory in English + 4 local languages **Forest Protection in India**

	- Biomass model (Hugging Face: vertify/biomass-model, with Interactive forest carbon & biomass maps
Who has already done this? Key reference/ implementations	• **Agriculture (Kenya):** AI-driven early warning system predicting crop yields, detecting pests & diseases, and offering localised advisory to smallholder farmers. • **Forest Conservation** (Indonesia, India, Senegal): AI + satellite + ground data to map forest carbon, track biomass, detect fires, and monitor NDC carbon sinks. • **Climate Policy (Kenya):** AI-powered vulnerability tracker used as part of the Gender Climate Action Plan to improve targeted adaptation measures. • **Promotion of start-ups on AI for Climate Action**: Innovate Africa Challenge: AI for climate action | BMZ Digital.Global **Reference links/resources:** • Digital.global blog articles (Kenya, Indonesia, Senegal) • FAIR Forward repository of Open-source AI Data & AI Use Cases • FAIR Forward Forest datasets • Hugging Face biomass model • ARTE documentary (Senegal forest work) • Data Lab articles & DPPD handbook (Ghana tree monitoring)

5 MORE POWER!

Advanced AI skills for women and minoritised groups

Tailored AI and Data Science Bootcamps

What is this?	The AI and Data Science Bootcamp for Women and Minoritised Groups is a curated programme that actively addresses both visible and invisible barriers that women and minoritised groups face in the tech ecosystem and empowers them to succeed in a digitally driven economy through advanced tech and personal development skills. The product “More Power” creates safe and inclusive spaces for different training formats that are tailored to be locally grounded. **Do you want to:** • Implement gender responsive, localised, impactful, capacity development initiatives? • Empower non-technical people with AI skills? • Break the barriers and glass ceilings preventing women and minoritised groups from participating in AI and digital development? • Develop sustainable, human-centered and feminist solutions to local problems? Then implement our tailored AI & Data Science Bootcamp for Women and Minoritised Group. We provide a concept that can be adapted to any local context, from classroom to boardroom, that cultivates community, collaboration with the ecosystem and peer support. Leave no one behind, because everyone can do AI.
How can I replicate this? How do I do this right? Key methodologies, standards & guidelines to implement this, also with focus on “good practices” and standards that uphold quality of replication	To replicate an inclusive, gender transformative, localised, capacity development initiative for women and minoritised groups, GIZ has developed a set of guidelines and standards that merge human-centered design, understanding of local ecosystems with sustainable AI and capacity development principles. With the development of the e-learning course (browse to the subheading “AI and Data Science Bootcamp”) and the replication kits, you can tailor the course to different target audiences, sectors and local contexts. Moreover, the e-learning course, which is open source, can be used and adapted to the needs of participants and other actors, reducing in this way the costs of onsite capacity building by allowing you to rely partly or completely on the online course. The following methodologies are a core foundation of the Bootcamp´s replication kit to ensure quality, inclusive design and sustainable impact. **Core methodologies:** • **Co-creation with the local ecosystem:** Sustainable, relatable and genuinely inclusive capacity development initiatives are done with the cohort at the forethought, and no one knows better than the people that have already walk the path that you want participants to take. Role models are key. Women mentors working in the industry can provide practical guidance and support during

networking events and online masterclasses. This provides validation, representation and motivation to the cohort, whilst simultaneously showcasing otherwise hidden faces and figures of women in the field – providing foundations for community, connection and networks. Look for local partners, in the academia, the government ant the private sector that are already working in the field of AI in your country. Mapping the ecosystem and trying to co-create with some of these actors ensures contextual relevance and real-world relatability between service provider and cohort.

- **The training:** Training should be, to the extent possible, conducted in local language or language of preference of the cohort, and must adapt relevant use cases of the geo-location for relevance and relatability. The bootcamp equips participants with practical skills in Python programming for data analysis, data visualization, and foundational machine learning. It also includes modules on data and AI ethics and data feminism, as well as the "AI For Current Workforce Programme" developed by Intel. Participants complete a capstone project, allowing them to apply their newly acquired skills in a real-world context. In addition to technical training, the program offers courses in communication and presentation skills, workplace readiness, and the fundamentals of entrepreneurship.

Core methodologies but made to be tailored

- Knowing the local ecosystem can ensure that the program is adequately designed for the socio-economic realities of each country – all women face challenges, but all challenges are not the same.
- The training format defines the level and manner of inclusion within the programme.

The format depends on ecosystem resources, cultural differences, and cohort needs.

- Flexible schedules are required to accommodate young professionals, those with domestic care duties, mothers and generally making accommodations for the unseen, unpaid, social responsibilities that are placed on women. This could feature differently in different ecosystems.
- Safe spaces for women and children to access during the day/and or evening, including child-friendly venues and possible childcare support to enable mothers to focus, with peace of mind.
- Where access is not possible in person, consider how remote access/online participation can be facilitated (computer labs within educational venues).
- 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.

Hands-on experience in the local AI ecosystem:
The most effective method of learning AI is to do AI. This only comes when the knowledge is applied practically and realistically.

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. The academia and research partners usually support, mentor groups and provide strategic guidance for projects in sector specific areas.

Moreover, the bootcamp promotes practical work experience, through work placement, internship or fellowship opportunities within industry so newly developed skills can be applied in real world settings.

Key Standards & Guidelines & and descriptions of good practices:

- GIZ AI and Data Science Bootcamp for Women and Minoritised Groups Impact Report

	• **E-learning courses:** MC1: Python Coding for everyone, MC2: Introduction to AI, MC3: Data Collection, MC4: Data and Statistical Analysis , MC5: Data Visualisation, MC6: Machine learning Fundamentals, MC7: Communication skills and MC8: Introduction to entrepreneurship
Can I directly use this product? Has this been tested already?	This product is directly usable for replication and advisory offerings. It contains proven technical frameworks, tested process steps and guidelines as well as successful implementations in Ghana, South Africa, Uganda, Egypt and Latin America – see below.
Where is the AI data and software stack to do this?	**The programme promotes the use of open-source tools and repositories. e-learning courses:** • MC1: Python Coding for everyone • MC2: Introduction to AI • MC3: Data Collection • MC4: Data and Statistical Analysis • MC5: Data Visualisation • MC6: Machine learning Fundamentals • MC7: Communication skills • MC8: Introduction to entrepreneurship **The trainer guide includes all software needed to complete this Including the installation of:** • Anaconda guide for setting up Python • VSCode • NumPy • WinRar (extraction of rar zipped folders)
How much resources and time does this take? Key estimates *days and elements of good practices for Terms of Reference	**Cost**: EUR65k (approx.) **Service provider costs to adapt curriculum and use cases local context, training materials** • Venue costs (childcare spaces, childcare support, catering) • Work placements/work experience days • Project presentation • Networking and mentorship sessions • Graduation ceremony **Estimated time for Bootcamp:** 20 weeks, 11 hours weekly + internship time
Who can help me to do this? Key implementation partners and local support partners	GIZ offers advisory services on chatbots and voice AI as part of its • Digital transformation offer | GIZ (Contact: dataservicecenter@giz.de and digital-solutions@giz.de) or • The AI Hub Rwanda (Contact: dtc-rwanda@giz.de) **Externally** (selection of partners from FAIR Forward): • MBC – Move Beyond Consulting (South Africa) • NEMISA – National Electronic Media Institute of SA (South Africa) • Blossom Academy (Ghana) • Huza Labs (Rwanda) • BDO (Uganda) • Intel (AI for Current Workforce Program)
How can I try this out?	Take a look at our Bootcamp impact report and get familiarised with the experiences or take a look at the e-learning course available on atingi.

Who has already done this? Key reference/ implementations	South Africa (Hybrid) Ghana (Accra) Rwanda (Kigali) Uganda (Kampala)(Hybrid) Colombia (Hybrid)

REPLICATION KITS FOR AI PRACTITIONERS AND LEARNERS 02

This section is specifically designed for practitioners, learners, organisations, institutions, and governments who would like to adapt and replicate this approach in their own context

BUILD WITH FAIR FORWARD

UTILISING OPEN DATA AND USE CASES

Use the more than 80 training datasets and 30 use cases curated by FAIR Forward and partners to build an AI Application. These open resources cover critical areas like agriculture and language technology. This approach enables the direct replication of proven solutions using pre-labelled context-specific data, significantly reducing the initial burden of data collection and preparation.

ETHICAL AND RESPONSIBLE AI DEVELOPMENT - IDENTIFY AND ASSESS POTENTIAL HARMS AND BIASES IN AI SYSTEMS WITH A FOCUS ON USE CASES IN SUB-SAHARAN AFRICA AND ASIA

Learn how to eliminate or reduce risks of your AI applications and data using the Responsible AI Assessments methodology developed by FAIR Forward, Eticas and partners). Identify and assess potential harms and biases in AI systems with a focus on use cases in Sub-Saharan Africa and Asia. Gain insights on how to develop responsible AI through our practitioners' guidelines of Ghana and Kenya on how to responsibly harness the benefits of AI while ensuring data protection.

BUILD OPEN-SOURCE BUSINESS MODELS AND CREATE COMMUNITY-DRIVEN DATASETS

Use the Open Source AI Business Mentorship program Toolkit by GIZ/FAIR Forward and Villgro Africa to learn how to create sustainable business and funding models with Open-source AI. Or learn how to create community-driven datasets with the guide that we have developed in partnership with Mozilla Common Voice.

SHARE AI TRAINING DATA AND BUILD ALLIES WITHOUT RISKING DATA COLONIALISM

Follow the recommendations of this article: Open-source AI Data Sharing: yes! Data Colonialism: no! | by Open for Good Alliance | Medium and check the impact report, section “Open source ai in practice II: the challenges and solutions”

HOW CAN I AS AD DEVELOPER BUILD AN LLM-BASED AGRICULTURAL ADVISORY SERVICE OR USE LANGUAGE TECHNOLOGY FOR COMMUNITY ENGAGEMENT?

Check out the following:

- Building AI-based advisory services for smallholder farmers: Technical learnings from the AIEP Initiative
- Disrupting agricultural advisory utilising generative AI: Lessons learned from Minimum Viable Product development of the Agricultural Information Exchange Platform
- Language AI for social impact - a Playbook on how to use language technology for community engagement.

BUILD INDIC VOICE TECHNOLOGIES THAT ARE INCLUSIVE AND BE PART OF OPEN-SOURCE AI IN INDIA

Use our Toolkit for Developers to build Indic Voice Technologies For An Inclusive Digital India and check out our recommendations to Technology Developers (and governments) on Advancing Open Source AI in India.

MAKE SURE THAT AI IS IN LINE WITH DATA PROTECTION IN INDIA

Check out our Handbook on Data Protection and Privacy for Developers of Artificial Intelligence (AI) in India (Update 2026, see also first edition 2021)

MAKE SURE THAT LOCAL AI DATA COLLECTION WILL NOT IMPACT NEGATIVELY ON ENVIRONMENT, CONFLICT, GENDER OR COMMUNITIES

Use the Community-Engagement-Framework_for ML-Datasets of Lacuna-Fund for dataset collection projects and the Guidance on Environment, Conflict, and Gender of Lacuna-Fund for dataset collection projects.

LEARN WITH FAIR FORWARD

FREE E-LEARNING COURSES ON AI - OPEN-SOURCING AI IN AFRICA AND MORE.

Grow your technical know-how on AI using over 50 courses available for free on Atingi e-learning platform, for instance ….

The course series on how to Open-Source AI in Africa and its replication Kit.

This course series is addressing practical challenges to AI training data in African countries as a way of strengthening local actors in the field of AI through locally developed learning content. This course is about building open, locally relevant, and unbiased AI training data for AI practitioners in Africa.

HANDS-ON LEARNING BY DOING: CONTRIBUTE TO OPEN-SOURCE AI DATA YOURSELF

Learn how to engage in community-building to collect community-owned AI training data:

- Community-Centered Data Ownership and Governance: An Ethical Framework for Creating Speech Datasets in Under-Represented Languages
- Creating community-driven datasets: Insights from Mozilla Common Voice activities in East Africa
- Language AI for social impact - a Playbook on how to use language technology for community engagement.
- The Community-Engagement-Framework for ML-Datasets of Lacuna-Fund for dataset collection projects
- Indic Voice Technologies For an Inclusive Digital India. Toolkit for Developers

LEARN HOW TO ENGAGE IN COMMUNITY-BUILDING TO COLLECT COMMUNITY-OWNED AI TRAINING DATA

Check out the following key resources:

- Community-Centered Data Ownership and Governance: An Ethical Framework for Creating Speech Datasets in Under-Represented Languages
- Creating community-driven datasets: Insights from Mozilla Common Voice activities in East Africa
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- Indic Voice Technologies For an Inclusive Digital India. Toolkit for Developers

HOW CAN I LEARN TO PREPARE DATASETS IN SUCH A WAY, THAT THEY ARE READY FOR WIDESPREAD USE BY OTHERS

Check out the AI Training Dataset Sustainability Toolkit of Lacuna-Fund (by LDRI) ML Dataset Sustainability Toolkit

SHAPE POLICIES WITH FAIR FORWARD

AI STRATEGY AND POLICY IN AFRICA AND ASIA

Learn from practical experiences of African and Asian countries on how to implement AI policy instruments with the AI Policy Playbook.

For more handbooks, also check Replication part (3): Playbooks, Handbooks & Studies".

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Online Access
You can access the full impact report and all parts of the replication kit at: https://www.bmz-digital.global/en/overview-of-initiatives/fair-forward/#impact

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