

Digital  
Transformation  
Center Rwanda

# QUARTERLY REPORT

APRIL - JUNE 2024



# **QUARTERLY** REPORT

# 1. INTRODUCTION

Welcome to the latest edition of our quarterly report, where we provide a comprehensive overview of the Digital Transformation Center Rwanda's recent endeavors and accomplishments. As we delve into the contents of this report, we invite you to explore the diverse array of initiatives aimed at driving innovation, empowerment, and progress across Rwanda's digital landscape.

In this edition, we highlight a wide range of impactful projects and programs spanning various focus areas, each designed to address critical challenges and drive positive change within our communities. From empowering women through digital literacy and capacity-building initiatives to harnessing the potential of Artificial Intelligence for climate action, our efforts are guided by a commitment to leveraging technology for social good and sustainable development.

Throughout this report, you'll find insights into our work across key domains, including ecosystem-building activities, public sector innovation, and initiatives aimed at fostering digital inclusion. From the National Robotics Program to the Innovate Africa Challenge on AI for Climate Action, each initiative represents a step forward in our collective journey towards a more digitally empowered and inclusive Rwanda.

As we reflect on the accomplishments detailed within these pages, we extend our gratitude to our partners, stakeholders, and collaborators whose support and dedication have been instrumental in driving our success. Together, we remain steadfast in our commitment to advancing Rwanda's digital transformation agenda and creating a brighter, more Inclusive future for all.

## 2. SOLUTIONS & INNOVATION

### 2.1. Natural Hazards Monitoring for Disaster Risk Reduction Management

The natural hazards monitoring project concerns the development of AI solutions to support government response to natural hazards, such as landslides and floods. This comprises, for example, supporting hazards susceptibility maps based on available data (e.g., meteorological, land cover, hydrological, geospatial etc.), vulnerability maps, and artificial intelligence models to predict landslides or floods.

For this project, the Rwanda Space Agency (RSA) is the key steering partner. They face obstacles in the development of data and AI models to predict landslides and floods, in particular related to accuracy of meteorological data. GIZ so far has contributed in three ways. First, it conducted a needs assessment with RSA, thereby identifying meteorological now- and forecast data as a key point. Second, it connected RSA to a data science expert with expertise in building landslide monitoring systems. Third, it is supporting applied research on how to improve the available meteorological now- and forecast data in Rwanda.

### 2.2. Machine Translation Use Case(s)

Through the previous phase of the bilateral project DSSD II, GIZ implemented various activities in AI machine translation, the goal was to improve digital inclusion through overcoming the language divide on public platforms in Rwanda. One promising use case has been on using machine translation in e-learning; particularly on the opensource Moodle LMS and using other open translation models for English-Kinyarwanda.

New developments under this project include.

- The project was showcased at the eLearning Africa 2024 conference on May 29th, this demonstration was shown next to the Atingi partner project. Additionally, the local innovation partner also discussed with the Moodle team on how to make the project sustainable in the long-term.
- The project has also been accepted to present at Moodle Moot global conference happening later this year October in Mexico. It was accepted under the title "Breaking Language Barriers: AI-powered Translation Plugin for Moodle LMS"

### 2.3. Data and Artificial Intelligence for Crop-type Mapping and Crop Yield Prediction

The project's objective is to develop and pilot an artificial intelligence (AI)-based crop-type mapping tool to identify agriculturally used areas and classify different types of crops in Rwanda. Crop-type mapping is a critical input for crop yield prediction. The tool will be used to support government policy and response on agricultural planning and food security.

In collaboration with the Rwanda Space Agency (RSA) and the Ministry of Agriculture (MINAGRI), GIZ has co-designed this project, conducted market research, and published an open tender for local and regional service providers for the development of AI-based crop-type mapping solutions. Currently, bidders are undergoing joint evaluation by GIZ, RSA and MINAGRI. The implementation will kick off in the third quarter of 2024.

## 2.4. Agricultural Chatbot to Support Farmers with Information

The project seeks to develop an AI-based agricultural chatbot with an interactive voice response feature to provide farmers with easily accessible, up-to-date agricultural information

Over the last quarter, GIZ in collaboration with the Centre for the Fourth Industrial Revolution (C4IR), launched an open tender for the development of the IVR chatbot. An MoU and NDA between MINAGRI and C4IR on data sharing for the chatbot development were drafted and under review.

The innovation partner, C4IR, recently launched the RfP titled "[Developing an AI-enabled IVR system to support Rwandan framers](#)".

## 2.4. Mobility Lab

The Smart Mobility Lab aims to foster innovation in the mobility space in Rwanda. It is a space for cooperation between partners from the private sector, academia, and public institutions. It builds upon existing experiences from innovative ecosystems in other regions and will be part of a global network for innovation in the mobility sector.

The mobility lab is dedicated to improving access to mobility for all and to accelerate the transition to clean energy in the transport sector. As such, they are focusing on two areas of intervention: Smart mobility and E-Mobility.

Under the Smart Mobility context, the mobility lab aims to improve access to mobility services in the city. This includes public transport, taxis and on-demand mobility services such as ride-hailing or bike-sharing. By addressing accessibility gaps and implementing targeted solutions, the lab seeks to create a more inclusive and user-centric transportation system.

Currently ongoing is the digital mapping process for the public transport network for the city of Kigali. The result of this includes Data that is compatible with most (or all) mapping platforms for integration. Open General Transit Feed Specification (GTFS) data that can be integrated into other data portals and visualisation systems.

## 3. DIGITAL LITERACY & CAPACITY-BUILDING

### 3.1. National Robotics program

The national robotics program is an initiative that aims to enhance the learning experience of students by integrating the concepts of Robotics and Coding in schools in Rwanda.

Amongst other things this quarter, the solution providers were able to co-design and align their solutions with the national curriculum. This was done in close collaboration with the REB and RTB teams. The next activity was to train teachers on the solution. This was a success regarding the initial timeline that aimed to pilot the program using robotics clubs. Recently our GIZ team took the time to travel all around the country to observe and have conversations about the school's readiness. Focusing on infrastructure and overall potential of success that the program has, key take aways were that the program is really needed, the approach should be changed from clubs to classes and that teachers would like to get a refresher training.

### 3.2. Digital Literacy for People with Disabilities

The project aims to enhance basic digital literacy skills for people with disabilities through trainings and provision of assistive technologies. We are collaborating with MINICT, NCPD, and OPDs to support those people with disabilities on basic digital literacy.

The first round was concluded last year where participants from 10 organizations that support people with disabilities benefited from the program. 400 people with disabilities were trained, 30 trainers were trained for ToT, and the curriculum in both Kinyarwanda and English was developed.

The team is currently working with all involved stakeholders to plan for the second round by analyzing and incorporating the feedback gotten from the first round.

### 3.3. Apple Labs

This is a project to support the establishment of Apple Accredited Training Centers for Education (AATCE) in six institutions in Rwanda (AUCA, Ines, UTB, UR, RCA, AIMS).

The procurement of apple devices is underway. The tender has already been published and will remain open until July 18th. This procurement initiative aims to acquire 60 iMacs for distribution among 6 centers. Trainers at the above institutions are going through the training of trainers provided by Apple Inc. to ensure they are ready to train participants when this initiative is launched.

### 3.4. AI & Data science training program for Women

The AI4Women training program emerges as a strategic response to the global gender imbalance within the AI sector, particularly focusing on rectifying this disparity in the Global South. Presently, less than a quarter of AI professionals worldwide are women. This contributes to biased AI services due to the inadequate inclusion of experiences from women and marginalized groups during technology development.

This training program is being provided by Huzalabs in close collaboration with the Move beyond consulting from South Africa and Blossom Academy from Ghana, is specifically designed for women aged 18 to 35 in Rwanda, encompassing various socio-economic, geographic, and educational backgrounds. With an emphasis on those with limited or no prior experience in data science, AI, or coding, the program aims to empower women with essential skills. Upon completion of the training, participants will receive a certification by Intel, to mark a significant stride towards enhancing inclusion and skill development in AI

Over the past 15 weeks, the women have received training in fundamentals and advanced concepts in data science and machine learning. Only 3 weeks remaining from the initial curriculum-focused phase of the program, after which they will transition to internships to apply their knowledge to real-world projects.

### **3.5. Digital Inclusion Council**

In collaboration with MINICT, we will support to set up the digital inclusion council (DIC), which will become a one stop center(platform) for Rwandans seeking to acquire digital skills

Thus far, we have collaborated with UMUZI on conducting research and a scoping analysis for the Digital Inclusion Council. The resulting report has been shared with GIZ and MINICT, which includes a proposed implementation plan for the DIC. Additionally, preliminary drafts of the landing page and DIC platform have been shared with MINICT and GIZ.

### **3.6. Cyber Security Academy**

We will be supporting the National Cyber Security Authority to set up the cyber academy. The academy will have the necessary infrastructure to train cyber professionals that will meet Rwanda's cyber skills job requirements and help create a local cyber industry.

We are collaborating with NCSA on various aspects of the Cyber Academy, including assisting with architectural design, furniture, and initiating training sessions. The architect has drafted sketches and prepared the required documents to engage a contractor for renovation work. Currently, we are identifying essential furniture and outlining their specifications. Additionally, we are finalizing a proposal for phase 1 training sessions at the Cyber Hub.

## 4. EVENTS & ECOSYSTEM

### 4.1. Smart City Hub Rwanda

The Smart City Hub is a consortium between the Ministry of ICT & Innovation, the ICT Chamber, and Rwanda Information Society Authority (RISA). The Hub is a one-stop-shop where actors in the smart city ecosystem (public, private and development) can collaborate to empower the digitalization of SMEs, co-design solutions that aim to address urbanization challenges, create impact and improve the lives of citizens in Rwandan cities and communities through technology and innovation.

Currently ongoing activities include Smart Cities innovation challenge covering the cities of Kayonza, Bugesera, Musanze and Rubavu. The Smart Cities Innovation Challenge is intended to be an innovative, streamlined, and cost-effective way of crowdsourcing solutions to key city needs. This program provides a framework to empower the City staff to address the pressing issues in their communities.

### 4.2. Indaba X 2024

IndabaX Rwanda is a 2-day AI and Machine Learning conference that aims to build the AI and ML community in Rwanda. It is a local version of the Deep Learning Indaba aiming to connect the local community with the wider African AI community and to bring international expertise and speakers to the community.

On June 21st to 22nd, the Indaba X Rwanda 2024 was held at Norrsken with support from partners including MINICT, C4IR, Digital Transformation Center Rwanda, CMU Africa, AIMS, and the Deep Learning Indaba organization. Several workshops and insightful panel exchanges happened with contributions from InstaDeep, Light EPFL & YALE, IBM Research, GoogleAI Research in Ghana, MinoHealth AI Labs, and other local startups in the AI and data space. Additionally, the event touched on multiple topics under the theme of “AI for Social Good” and 3 hackathons were launched on RAG for Kinyarwanda, Illegal Crypto Mining Monitoring, and Deep Speech Kinyarwanda hackathon





### 4.3. TinyML Rwanda: International Women's Day in Engineering

This is a community-driven initiative focused on the application of machine learning at the edge, leveraging low-power/memory devices to enable innovative solutions across various fields.

On June 29th the TinyML Rwanda community hosted an event for International Women in Engineering Day at the UNIPOD lab, several workshops were held on ArmDeveloper Program, Applied ML, 3D Design and Printing, and Computer Repair and Maintenance. Sparking interest in multiple areas of the engineering landscape; thanks to partners [Arm](#), Digital Transformation Center Rwanda, [timbuktoo Africa](#), and the [Embedded Learning Challenge](#).



#### **4.4. E-learning Africa**

E-Learning Africa is a global network of professionals working in the field of ICT supported education and training. It includes educators, trainers, technology specialists, policy makers, and investors. For its 17th edition, the conference took place in Kigali where with collaboration with MINICT, GIZ hosted a panel discussion about “Enhancing school curricula using robotics and coding”.

The panel discussion was a success where REB, RTB, and MINICT as our key partners on national robotics program alongside the representative from German Embassy in Rwanda explained the role of robotics and coding in enhancing school curricula. The panellists also called up on all concerned stakeholders to join the efforts and expand the projects together.

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