WEHUBIT

Learning from the project : Decentralised decision room - Planning decision support system

Can digital social innovation strengthen the resilience of cities for sustainable and inclusive urban development, how and in which context?

Country
Rwanda

Implemented by

Budget
295.585 €

Duration
08/2021 – 07/2023

Contribution to SDGs

11 SUSTAINABLE CITIES AND COMMUNITIES

Implemented by

Enabel

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PROJECT OVERVIEW

Reason

The government of Rwanda has formulated plans to significantly **increase the urban population** in the coming years. The target of having 35% of Rwanda's population residing in urban areas is part of the country's broader strategy to promote economic growth, improve living standards, and enhance overall development, transitioning from a **low-income to a middle-income country**. The government recognises the importance of **urbanization** as a catalyst for socioeconomic progress and aims to leverage **urban areas as centers of innovation, productivity, and opportunities.**

Cities can play a crucial role in the country's transformation. By adopting inclusive data-led management and planning, efficient community-based infrastructure, and localised innovation, they can become **driving forces for economic growth and sustainable development.**

To **realize** this vision, Rwanda has developed a Smart City Master Plan. The plan envisions **cities of the future integrating technology and data** into various city functions to enhance efficiency, resilience, competitiveness, and innovation. The Smart City **Masterplan** outlines ten essential steps that cities should take to achieve this vision, with the sixth step involving the **establishment of an Urban Dynamic Map (UDM) as a real-time data update tool.**

To implement data-led management and spatial planning in the housing and infrastructure sectors and ensure fair distribution of infrastructure services and housing facilities, the **Ministry of Infrastructure** has put in place a **Spatial Development Framework** (SDF), a methodology going hand in hand with the upgrade of existing **Decision rooms** with IT materials, including **UDM serving as a reliable real-time data source .**

However, the SDF methodology and its Decision room were only used at the Ministry level in Kigali. **Cities and other local actors still rely on paper-based data collection**, storage, and analysis, which makes the process difficult, non-participatory, and exclusive. The data collected are displayed in Decision rooms on physical banners, leading to prolonged and cumbersome analysis with limited possibilities.

To address these challenges and ensure effective implementation of the Smart City Master Plan, it is **crucial to expand the use of the SDF methodology and Decision room beyond the Ministry level.**

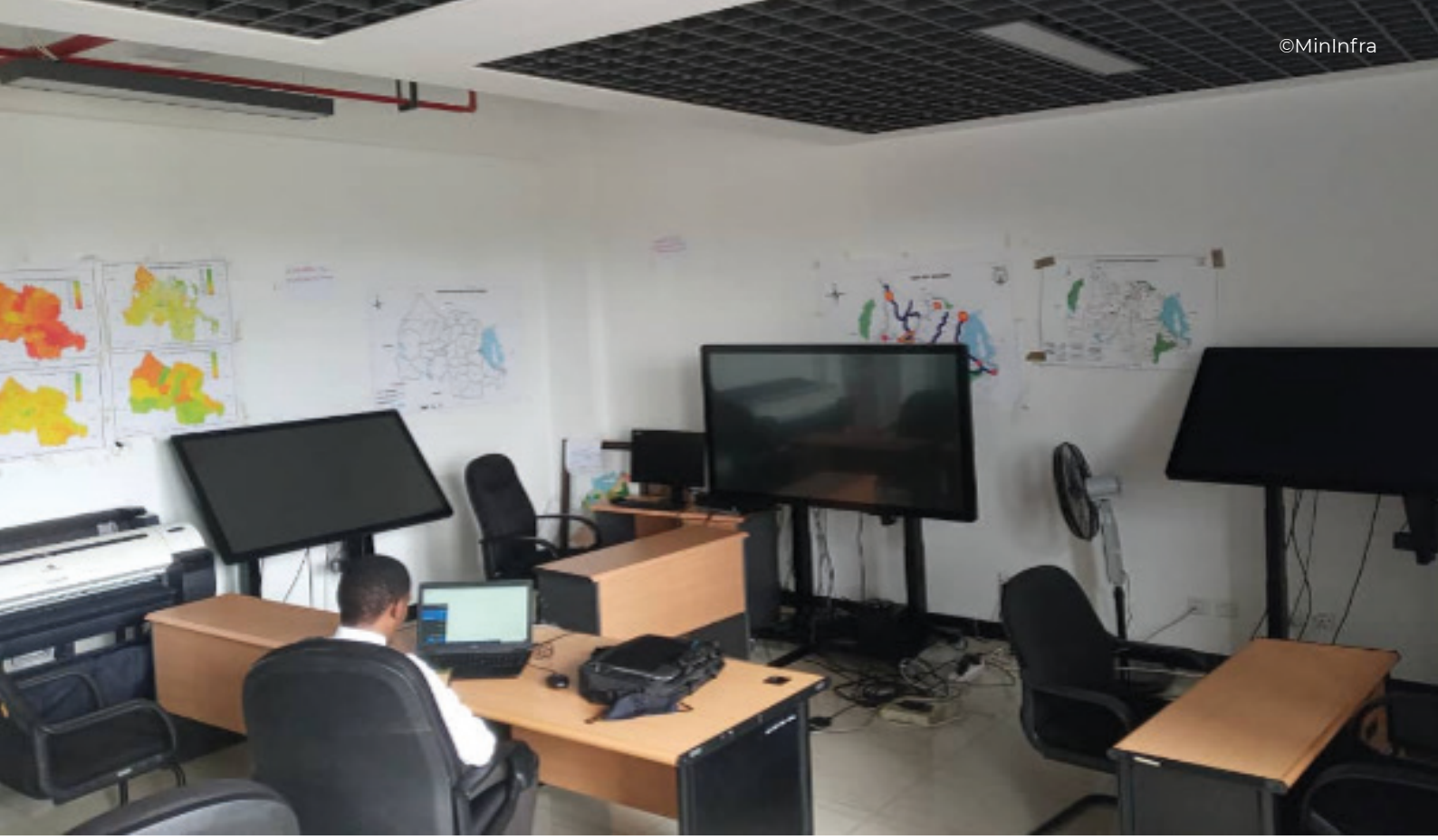
Digital social innovation

Under Wehubit, the Ministry of Infrastructure (MinInfra) decentralised the Spatial Development Framework (SDF), upgrading Decision rooms and developing an Urban Dynamic Map (UDM) in 5 cities: Muhanga, Bugesera, Rwamagana, Musanze, and Rubavu.

- **The Spatial Development Framework (SDF)** is a methodology designed to support national, regional, and local government decision-making for balanced territorial development. It creates a 'spatial' understanding of the current state of the territory. The purpose of the SDF is to **identify where investments/interventions are needed to maximise the social and economic benefits** of investments/interventions.

- **Decision/Situation rooms** are premises equipped with adequate IT Tools and Equipment where public authorities of a particular institution/territory gather to **analyse development needs based on available data**, and take decisions. It can also serve as a Situation room where stakeholders can find information about their territory and institutions. These new 'digitalised' rooms can be used by any public servant, civil society organisations or citizen to check on their city "situation" (that's why there are also called Situation rooms), or visualise and analyse rapidly a big amount of data.

  Decision rooms support cities in taking into account **citizens' feedback during planning processes**. Development projects (related to education, health, agriculture...) are indeed proposed by citizens in the form of citizens' priorities, identified with the support of local leaders and administration staff. Citizen's priorities to implement in a particular fiscal year are selected by analysing real local needs and by seeking for the most impactful actions.



- **Urban Dynamic Maps (UDM)** are interactive city maps. They are a **visual representation of urban areas** that depict the spatial and temporal changes occurring within a city. They provide **real-time or near-real-time information on various urban phenomena**, such as transportation patterns, population density, land use and environmental factors. These maps are dynamic on several levels: scale (ability to zoom); turning on and off data layers; automatically creating map animations and dashboards.

  Maps are also **dynamic with respect to what and how data are collected,** who participates in the collection process and who analyses the data and uses it. Governments, private enterprises (retailers, contractors, telcos, banks, etc.), civil society organisations and citizens can, through continuous mapping, participate in real time data update.

  Data collection engages stakeholders through a web or mobile application. More than **650 data collection digital forms** have been designed for the five cities, encompassing all kind of activities. These digital forms enable **participative real-time data collection, geographical tracking of field users, task assignment and notifications for field workers.** The data collected are checked and validated at the district level.

  These collected data are displayed in the UDM and are available in the Decision Rooms. The core technology utilised in the development of UDM is ArcGIS*, provided by Esri Rwanda.

**ArcGIS is geographic information system (GIS) software developed by Esri. It enables the capture, management, analysis, and visualisation of spatial data. It provides a comprehensive set of tools and capabilities for mapping, geospatial analysis, and location-based decision-making. ArcGIS is widely used in industries and government for solving complex spatial problems and supporting informed decision-making processes.*

5 cities integrated the SDF and the UDM in their planning processes : Muhanga, Bugesera, Rwamagana, Musanze, and Rubavu.

183 technical and managerial staff from the lowest level of government administration, cell level*, up the district's administrative levels have been trained in order to use the SDF and GIS (UDM technology). People trained were already digital literate and possessed some GIS skills already.

5 IT staff members from the cities have received training on the maintenance and installation of hardware, specifically the equipment used in the Decision room.

*https://www.gov.rw/government/administrative-structure#:~:text=The%20country%20is%20divided%20into%20four%20Provinces%20and%20the%20City,are%20divided%20into%2014837%20villages.

KEY MESSAGES

The key messages highlight the added value that SDF, Decision rooms and UDM could have in the future.

Digitalising data collection has three main added values compared to the former manual system:

- Firstly, automation can significantly **accelerate the process** for all involved actors, particularly the administration services responsible for consolidating these data. Reports are now quickly available and contain fewer errors.
- Secondly, digitalisation enables the **preservation of historical data** and facilitates advanced analytics.
- Lastly, it facilitates **systematic and broader participation in data collection, data analysis and collaborative decision-making,** involving individuals at all levels and across various sectors, including the civil society and private sectors.

UrbanDynamic Maps, through the display of a multitude of crosscutting indicators encompassing various activities, enable **user-friendly visualisation and real-time monitoring.** It facilitates the analysis of territory development and the identification of issues, enabling timely and effective interventions.

BEYOND PROJECT'S END

The implementation of the Urban Dynamic Maps (UDM) and decentralised Spatial Development Framework (SDF) system was accompanied by a **district level plan for continuous monitoring and maintenance.** The long-term sustainability of the system is ensured by integrating maintenance costs and management into the regular city asset management programme.

In order to enhance the capacity of the cities' teams and enable them to carry out regular maintenance, the project included **provisions for capacity building and knowledge transfer**. This ensures that the cities' teams are equipped with the necessary skills to continue maintaining and utilising the digital tools effectively.

After the project is completed, the plan is to **expand the implementation of all the tools (SDF, Decision rooms and UDM) to the national level.** Therefore, discussions are currently taking place at the government level to determine the appropriate timing and approach for scaling-up the project nationwide.

Moreover, **continuous maintenance and technical support will be provided** in partnership with with the Ministry of Infrastructure (MinInfra), the Rwanda Spatial Data Infrastructure and Esri. This collaborative effort guarantees the ongoing functionality of the Digital Social Innovation and ensures its contribution to the anticipated project outcomes.

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