

# Africa E-mobility Forum

Second edition

*Dakar, Senegal*

14 - 17 May 2024



Funded by  
the European Union



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# Innovative, Locally Adapted and Resource-Efficient Electric Vehicles

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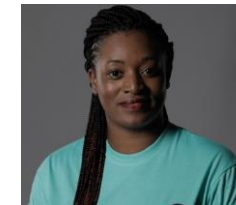
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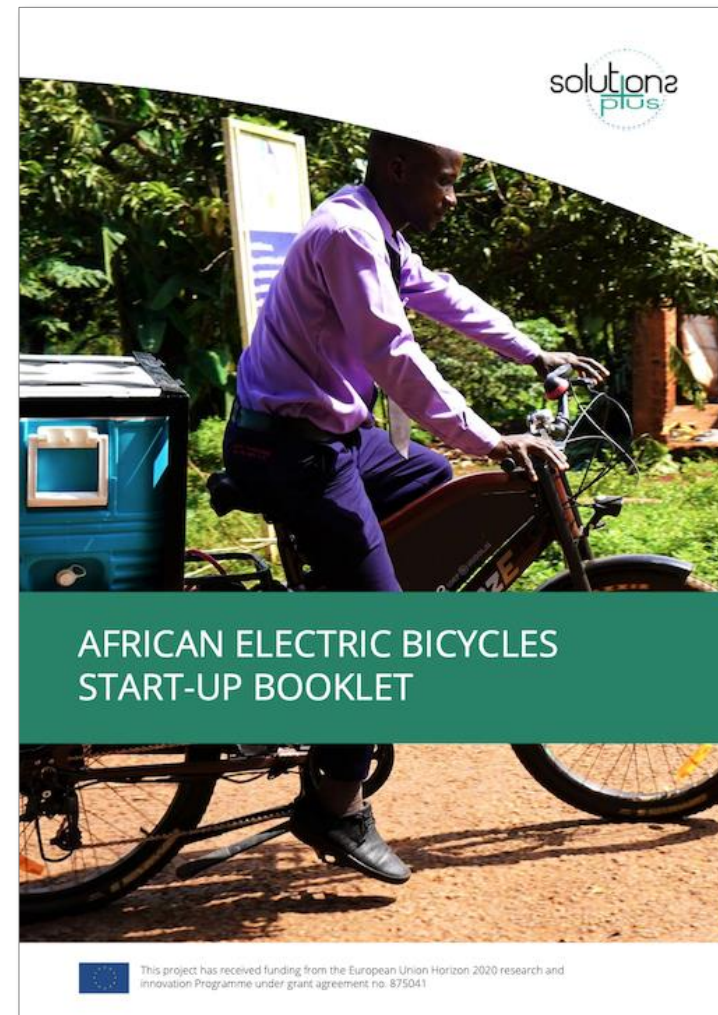
# The Overview of E-bike companies in Africa

## APPROACH

- ▶ Direct result of insights shared by 18 companies
- ▶ Focus on productive applications such as urban deliveries, bike-sharing systems, commuter use, and localised value creation
- ▶ Not an exhaustive overview but a starting point that may be enriched with further case studies

## SCOPE

- ▶ Two- and three-wheeled pedal-assist electric bicycles; throttles *only* if including pedals
- ▶ Both pedelecs and speed pedelecs
- ▶ New electric bicycles and retrofitted bicycles



# Overview of the featured electric bicycle innovations



SOLUTIONSPUS E-BICYCLE BOOKLET

## AFRICROOZE

*"We are fully convinced that the product comes at the exact right time and look forward to it entering the markets in Africa", - Martin Kitzing, Manager without Borders*

**DESCRIPTION**

Africrooze GmbH was formed by the NGO EURIST e.V. to boost e-bike adoption in Africa, after six years of successful e-bike pilot projects promoting socio-economic development in African nations, implemented in partnership with the First African Bicycle Information Organisation (FABIO) based in Jinja, Uganda. These projects covered 10 of the 17 Sustainable Development Goals (SDGs). To ensure sustainability and self-sufficiency, the initiative shifted from donation-based funding to business models, enabling users to finance their e-bikes. Africrooze GmbH partners with local organisations to create an e-bike mobility ecosystem, facilitating customer self-financing.

**ACHIEVEMENTS**

Africrooze's value proposition is to provide green mobility (via PAYGo or lease-to-own systems) by means of an affordable, sturdy and reliable e-bike that is tailor-made for the local needs and requirements of the East African market and beyond, which can be charged at solar service centres.

Both commercial and non-commercial use cases have been tested in various pilot projects in Uganda, Tanzania, Namibia, Burkina Faso and Benin. The use of e-bikes in the health sector as ambulances and as water transporters for women groups formed viable donation-based projects. Initial tests of taxi fleets and delivery e-bike showed signs of lucrative business cases. The start-up will focus on B2B Taxis, Delivery and Last Mile transportation provision, although B2C commuter groups will also be targeted.

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SOLUTIONSPUS E-BICYCLE BOOKLET

**Key Africrooze results:**

- 292 AfricroozeE e-bikes active on the African continent, with another 240 to be delivered before the end of 2023.
- Job creation and increased daily savings, including reduction in transport costs
- Easier access to services e.g. education, water, farming, markets and the health system

**DESIGN FOR THE AFRICAN MARKET**

The long-tail ebikes were designed with a highly sturdy frame and 100 kg carrying capacity on the large rear carrier to carry loads or passengers. The design ensures that most spare parts can be found on the East African market and balances quality delivery and low prices.

We see a growing e-bicycle market in urban and rural Africa to satisfy the transport demand of the fast-growing lower middle class and the millions of SMEs in Africa, fostering an overall regional shift to zero-emissions electric mobility

**SOCIAL MEDIA**

- <https://africrooze.com/>
- <https://www.facebook.com/euristngo/>; <https://www.facebook.com/FABIOuganda/>
- <https://www.instagram.com/african.ebike/?hl=en>
- [https://twitter.com/Eurist\\_Mobility](https://twitter.com/Eurist_Mobility)
- <https://www.youtube.com/watch?v=h1ttfYafpBM>

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# Types of bicycles

## TYPES

- ▶ Conventional form of a two-wheeled electric bicycle



- ▶ Front-load variant



- ▶ Back-load variant



- ▶ Trailers on two-wheeled electric bicycles



- ▶ Three-wheeled electric bicycles



## NEEDS

Need to transport heavy loads (goods or passengers)

Need for a robust vehicle to navigate through unpaved or bumpy terrains

Need to cover long distances, e.g. in peri-urban and rural areas

Need to be able to maintain and repair the electric bicycle locally

## POSSIBLE ELEMENTS OF A TAILORED-MADE DESIGN

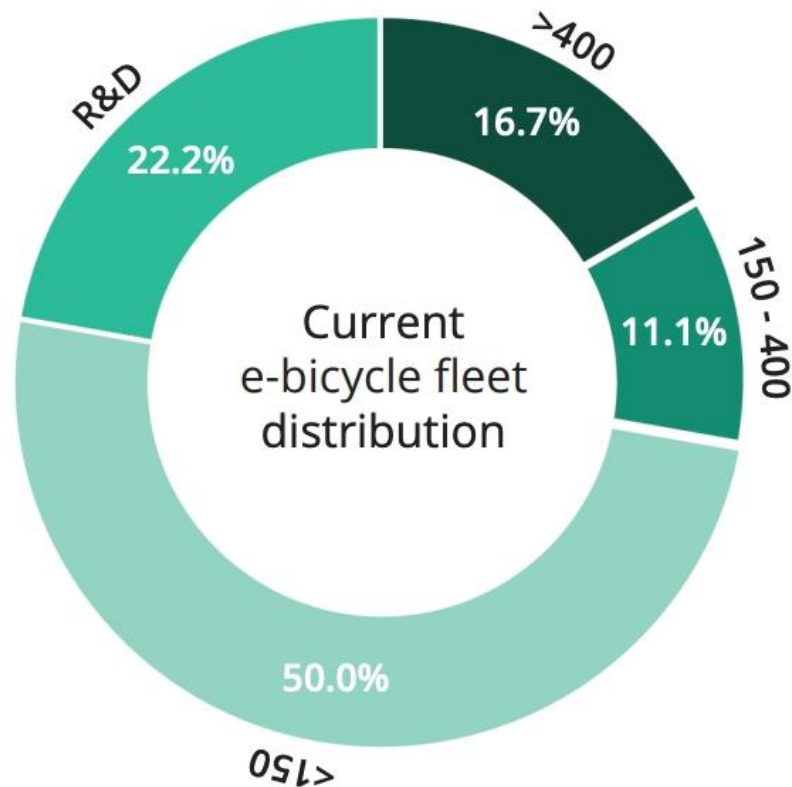
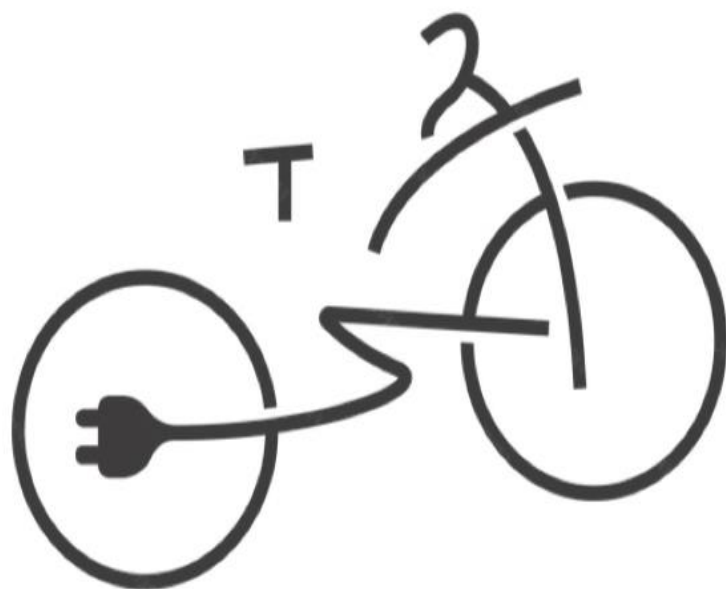
- › Large and sturdy rear carrier
- › Strong braking system
- › Strong motor

- › Sturdy frame
- › Suspension
- › Wide tyres that can resist punctures

- › Sufficient battery capacity
- › Double battery system
- › Battery system that can be charged on a regular socket or swapped
- › Several levels of electric assistance

- › Standard spare parts that can already be found in the country or the region
- › Training of mechanics as an integrated activity of several companies

## ■ The current e-bicycle fleet



- ▶ Rapid increase in the adoption of EVs and supportive government policies in Africa
- ▶ Electric two- and three-wheelers making a remarkable 79% of the electric fleets
- ▶ 19% of electric mobility companies in the continent offer a variety of electric bicycles according to the Africa E-mobility Readiness Index by UNEP and AfEMA

# Use cases – Part 1

## LOGISTICS

- Urban or peri-urban, for various types of small parcels
- Rural, e.g. transport of food products for farmers



## Use case – Part 2

### PASSENGER & HEALTH

- Urban or peri-urban
- Personal commute
- Ambulance
- Shared uses





## Significant advantages highlighted

### ➤ **Enhanced spatial accessibility through electric bicycles as a new mobility option**

- ▶ Faster than conventional bicycles, longer trips
- ▶ More affordable to operate than petrol motorcycles
- ▶ Enhanced accessibility in rural or peri-urban areas, e.g. farmers, SMES
- ▶ In cities, increasing modal choice and option for the first and last mile
- ▶ In cities, convenience to address hills or hot climate

### ➤ **Economic savings and opportunities for users**

- ▶ More affordable to purchase and operate than petrol motorcycles
- ▶ Companies connecting riders with e-commerce platforms
- ▶ *Potentially* decreasing transportation costs for commuters

### ➤ **Significant GHG emission and air pollution reductions if electric bicycles replace petrol vehicles**

- ▶ For instance, when replacing urban last-mile deliveries using fossil-fuel motorcycles or larger vehicles

- ▶ Job creation
- ▶ Quality of products
- ▶ Sustainable urban mobility
- ▶ Gender inclusion
- ▶ Community and participatory design
- ▶ Health benefits
- ▶ Vector for digital integration
- ▶ Training
- ▶ Convenience



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- ▶ ... often confused with electric motorcycles in East Africa when calling them “e-bikes”
- ▶ ... mainly absent from e-mobility policies and fiscal incentives in African countries
- ▶ ... do not have a separate registration category, i.e. often categorized as standard goods
- ▶ ... suffer from a negative perception of cycling as mobility of “the poor”, or used for sport or tourism



This project has received funding from the European Union Horizon 2020 research and innovation programme under grant agreement No. 8705041



Link to the booklet

# Thank you!

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