
ZAMACE — Zambia's Agricultural Commodity Exchange

ZAMACE (via Afrocentec Zambia)

1.5 years

Digitized Zambia's agricultural commodity trading

8

Stakeholder Types Connected

400+

API Endpoints

8

Languages Supported

The Challenge

Zambia's agricultural commodity market operated through fragmented, manual processes. Farmers lacked visibility into fair market prices, warehouse receipt management was paper-based, and the trading process between producers and buyers was opaque and inefficient.

There was no centralized platform connecting the various stakeholders — farmers, brokers, warehouse operators, financial institutions, and transporters — in the commodity value chain. This fragmentation led to information asymmetry, price manipulation by middlemen, and limited access to formal credit for producers who couldn't prove their commodity holdings.

Our Approach

As lead developer, I architected and built the entire ZAMACE platform across three integrated applications over 1.5 years.

Backend API (Elixir/Phoenix): A domain-driven design architecture with 40+ business contexts handling all core logic — automated trade matching between buy bids and sell offers, electronic warehouse receipt issuance with QR-code verification, multi-tier membership management with KYC verification, clearing and settlement workflows, and storage fee management.

Member Dashboard (React): A complex role-based SPA serving warehouse operators, brokers, exchange administrators, cooperatives, and producers with tailored interfaces for each of the 8 stakeholder types. Includes real-time order book management, Kanban-style trade workflows, comprehensive reporting, and 8-language internationalization.

Public Website (React): A market data portal providing real-time commodity prices, broker directory with search and filtering, warehouse operator listings, and warehouse receipt verification via QR codes — giving the public transparent access to market information.

Outcomes

Fully digital warehouse receipt system replacing paper-based processes, with QR-code verification, automated storage fee management, and receipt ownership transfer capabilities.

Automated trading system with intelligent offer-bid matching, contract generation, clearing and settlement workflows — connecting 8 stakeholder categories on a single platform.

Real-time market data and price discovery accessible to the public, bringing transparency to agricultural commodity pricing in Zambia.

Platform onboarded 500+ traders, increasing transaction volume by 40%. Multi-language support across 8 languages enables broad accessibility. Live and operational at zamace.co.zm.

Technology Stack

