HARVEST HUB
PRODUCT REQUIREMENTS

Target Release	
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Problem

Solution

Use cases

Value Proposition

Goals and Success criteria

User experience

Competitor analysis

Key features and releases

User stories and requirements

Release plan (optional)

Out of scope

Questions and decision tracker

➢ PROBLEM OVERVIEW

A significant percentage of harvested crops in Nigeria and Africa is lost due to inadequate storage facilities, poor transportation infrastructure, and inefficient supply chains. These losses reduce food availability, increase market prices, and discourage farmers from scaling up production.

The United States Agency for International Development (USAID) reported that approximately 50% of fresh produce in Nigeria is lost at the post-harvest stage.

https://nairametrics.com/2024/04/21/post-harvest-losses-for-fresh-produce-at-almost-50-in-nigeria-usaid/#:~:text=The%20United%20States%20Agency%20for,which%20was%20held%20in%20Abuja

The Nigerian Stored Products Research Institute (NSPRI) estimates that Nigeria records 50% post-harvest losses in fruits and vegetables.

A study published in the African Journal of Agriculture and Food Science indicates that post-harvest food losses in Nigeria could be as high as 20% to 40% of total food production.

The Food and Agriculture Organization (FAO) estimated in 2011 that up to 37% of food produced in Sub-Saharan Africa is lost between production and consumption.

The African Postharvest Losses Information System (APHLIS) provides data indicating that post-harvest losses in grains can vary, with some estimates around 10-20%.

Causes of Post-Harvest Losses:

- Poor Storage Facilities: Lack of modern storage facilities such as silos, cold storage, and hermetic bags leads to spoilage and pest infestations. Smallholder farmers often rely on traditional storage methods that do not protect against humidity, temperature fluctuations, or rodents.
- Inadequate Transportation Infrastructure: Poor road networks and lack of refrigerated transportation cause delays in moving perishable goods, leading to spoilage before they

reach markets. High transportation costs make it difficult for farmers to transport goods efficiently, forcing them to sell at low prices or discard excess produce.

- Limited Access to Processing and Preservation Technology: Farmers lack access to drying, canning, freezing, and other preservation techniques to extend the shelf life of produce. There is minimal investment in agro-processing industries that could turn surplus food into value-added products.
- Inefficient Supply Chains and Market Linkages: Farmers often struggle to find reliable buyers, leading to overproduction and wastage. Poor coordination between farmers, wholesalers, and retailers results in supply-demand mismatches.
- Lack of Awareness and Training: Many farmers lack knowledge of best practices in post-harvest handling, leading to poor packaging, contamination, and losses. Training on proper harvesting techniques, grading, and storage could help reduce losses.

Impact of Post-Harvest Losses

- Economic Losses for Farmers: Farmers lose income when crops spoil before being sold. Limited access to profitable markets discourages investment in large-scale farming.
- Food Insecurity: Reducing post-harvest losses could increase food availability without expanding farmland. Wasted food means fewer resources to feed growing populations.
- Environmental Consequences: Rotten food contributes to methane emissions, a major greenhouse gas. Excessive waste increases pressure on landfills and water resources.
- Higher Food Prices: Reduced supply due to post-harvest losses drives up prices, making food less affordable for consumers.

➢ SOLUTION

To address the challenges of post-harvest losses and food waste in Nigeria and Africa, the proposed solution will involve the development of an integrated post-harvest management platform designed to enhance storage, transportation, and supply chain efficiency. The solution will focus on the following key components:

1. Improved Storage Facilities:

   Develop and deploy cost-effective, climate-controlled storage solutions tailored to different crop types.

Introduce real-time monitoring systems to track storage conditions and prevent spoilage.

2. Optimized Transportation Networks:

   Implement a logistics management platform to connect farmers with transport providers, ensuring timely and efficient movement of produce.

   Leverage route optimization technology to minimize delays and reduce transportation costs.

3. Supply Chain Efficiency:

   Establish a digital marketplace where farmers can connect with buyers directly, reducing the reliance on intermediaries and improving price transparency.

   Introduce predictive analytics to anticipate market demand and align supply accordingly.

4. Training and Capacity Building:

   Provide farmers and supply chain stakeholders with training on best practices in post-harvest handling and logistics.

   Develop a support network to offer technical assistance and real-time problem resolution.

5. Data-Driven Insights:

   Integrate data collection and analysis capabilities to provide actionable insights on storage performance, transportation efficiency, and market demand.

   Enable farmers and supply chain operators to make informed decisions based on real-time data and market trends.

This comprehensive solution aims to reduce post-harvest losses by improving infrastructure, enhancing market access, and empowering farmers with the tools and insights needed to increase productivity and profitability.

➢ USE CASES

1. Use Case: Farmers & Agribusiness Owners

As a farmer, I want to:

Find nearby storage facilities so I can store my perishable produce before it spoils.

Monitor my stored crops using real-time IoT sensors that alert me to temperature or humidity issues.

Get AI-powered recommendations on the best preservation techniques based on my crop type.

Connect with buyers through a marketplace to sell my produce before it expires.

Receive price insights & demand forecasts so I know the best time to sell my produce for profit.

2. Use Case: Food Processors & Manufacturers

As a food processor, I want to:

Buy surplus produce from farmers at affordable rates to use in production.

Receive alerts on excess produce availability so I can quickly act before food goes to waste.

Request transport services to collect bulk produce from farms efficiently.

Access financial services to help me scale my operations.

3. Use Case: Transport & Logistics Providers

As a transporter, I want to:

Get notified of available delivery jobs from farmers and food processors.

Optimize delivery routes using AI-powered recommendations to reduce travel time and spoilage risk.

Offer cold-chain transport services to businesses needing refrigeration.

Track payments & transactions for completed delivery services.

4. Use Case: Wholesalers & Retailers

As a retailer, I want to:

Order fresh produce directly from farmers before it reaches the market.

Track my inventory levels and receive alerts when stocks are low.

Use digital payments & financing options to buy in bulk.

Get reports on customer demand trends to know which produce to stock up on.

➢ VALUE PROPOSITION

Core Value Proposition Statement:
We help farmers, agribusinesses, and food distributors reduce post-harvest losses and maximize profits by providing storage management, real-time market linkages, and logistics solutions—all in one centralized platform.

Key Benefits & Value Delivered to Customers

- Reduction in Post-Harvest Losses – Farmers and food businesses can minimize spoilage by accessing real-time storage solutions, preservation tips, and IoT monitoring.
- Increased Revenue & Market Access – Harvest Hub connects farmers directly with buyers (wholesalers, retailers, and food processors), ensuring faster sales before produce goes bad.
- Efficient Logistics & Transportation – The app matches farmers with transporters, ensuring produce reaches markets on time.

- AI-Powered Demand Forecasting – Users get data-driven insights on market prices & demand trends, helping them sell at the best time for maximum profit.
- Financial Inclusion & Credit Access – Farmers and agribusinesses can access grants & digital payment options to scale operations and invest in better storage.

Competitive Advantage: Why Choose Harvest Hub?

- All-in-One Solution – Unlike traditional systems that focus on only storage or logistics, Harvest Hub integrates storage, market linkages, demand forecasting, and financing into a single, easy-to-use app.
- AI Integration – While competitors offer basic market connections, Harvest Hub uses smart AI-driven recommendations to help users take preventive actions.
- Hyperlocal & Scalable Model – Unlike broad agricultural apps, Harvest Hub is customized for Nigerian & African farmers, with features tailored to local storage conditions, logistics challenges, and buyer behaviors.
- Financial Access – Harvest Hub partners with banks and fintech to give farmers & businesses access to payment solutions and grants.

Value Proposition Summary

We help- Farmers, agribusinesses, food processors, transporters, and retailers.
We do- Reduce food spoilage, logistics, access buyers, get financial support.
By- Providing storage through third parties, real-time market linkage, and demand forecasting.
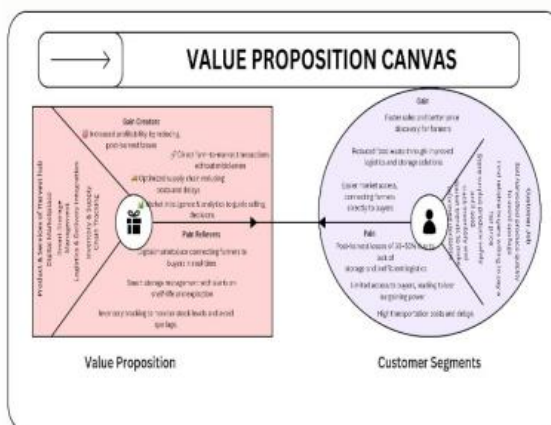
➢ TARGET PERSONA

Harvest Hub is designed for farmers, agribusiness owners, food processors, and transporters who struggle with post-harvest losses due to inadequate storage, poor logistics, and limited market access.

1. Primary persona:

Name: Mr Adams Uche (small scale & mid sized farmer)

Age: 35 years

Tech savviness: none

· Grows perishable crops such as fruits, vegetables, and grains.

· Lack access to modern storage facilities and struggle to find buyers on time.

· Operate in rural areas but supply urban markets.

Needs: A storage facility and connection with people who need the particular product he cultivates.

Pain points

- Farm produce spoils before he gets to the market and little income is generated.
- Limited or no storage solutions, leading to high food spoilage.
- Difficulty in accessing buyers before produce deteriorates.
- Poor logistics and high transportation costs.
- Lack of financial support to invest in better post-harvest management.

His goals: To increase his income and improve his family's standard of living.

Solutions

- Find affordable storage options nearby to preserve crops longer.
- Get real-time market connections to sell before spoilage.

- Access AI-powered demand forecasting to sell at the best time.
- Book transportation easily to move produce faster.
- Receive microloans & financing to invest in better storage and logistics.
- USDD to check the products that are available , storage facilities and booking of rides etc

2. Secondary persona:

Name: Mrs aminat lambo (agribusiness owner & food processor)

Age: 35 years

Tech savviness: Intermediate

She buys raw produce for processing into food products.

Needs: Needs a system that can bring her closer to fresh farm produce before spoilage.

Pain point: Struggle with sourcing fresh produce in large quantities before they spoil.

Solution

- Find surplus produce easily from nearby farmers. Receive alerts on excess food supply for quick purchases.
- Improve supply chain efficiency with better logistics planning.

3. Name: Mr collins adebayo (a wholesaler)

Age: 41

Needs: Immediate market for farm produce

Pains: Poor storage facilities, fluctuating market needs and inconsistent transportation options

Solutions:

- Software for optimizing the most efficient delivery routes and coordinating transportation.
- An online platform linking farmers to wholesale buyers and retailers

4. Name: Miss sarah daniel (a retailer)

Age :28 years

Needs: Storage facilities and good road network

Pains:

- Farm produce bought in bulk spoils before they get to the market because of bad roads and no immediate customers to buy the product.
- Unable to link with the wholesaler that offers the exact farm produce she wants.

Solution: Optimized transportation network, training and capacity building.

5. Name: Chinedu Adewale (the forward-thinking agro-supply chain manager)

Age: 42

Occupation: Agro-supply chain manager & agribusiness consultant

Location: Lagos, nigeria (operates across multiple states)

Education: Bachelor's degree in agricultural economics

Income level: Upper-middle income, dependent on business success

Tech savviness: Proficient in digital tools, data analytics, and logistics platforms

Background

Chinedu oversees the movement of agricultural produce from farms to markets, ensuring efficiency in storage, transportation, and sales. However, frequent post-harvest losses due to poor logistics coordination, unpredictable market demand, and inefficient storage impact profitability. He struggles with fragmented supply chains, unreliable transport services, and a lack of real-time data to make informed decisions.

Pain points

- Logistics bottlenecks: Poor road infrastructure, high fuel costs, and inefficient transport coordination cause delays, leading to food spoilage and increased operational costs.
- Farmer & buyer disconnect: Heavy reliance on middlemen increases costs for consumers while reducing profits for farmers. Direct access to buyers remains limited.

- Data & technology barriers: Many supply chain operators lack access to real-time data, which makes it difficult to track market demand, monitor storage conditions, and optimize supply chain performance.

Solutions

- Logistics management tools for route optimization and transport coordination.
- A digital marketplace to connect farmers directly with bulk buyers and retailers.
- Training programs on post-harvest handling, data-driven decision-making, and supply chain optimization.

➢ GOALS AND SUCCESS CRITERIA

1. Project Goal

The primary goal of HarvestHub is to reduce post-harvest losses and food waste in Nigeria and Africa by improving storage, transportation, supply chain efficiency, and empowering farmers with digital tools and knowledge.

HarvestHub aims to enhance agricultural value chains, increase profitability for farmers, and promote sustainable practices using modern technologies such as IoT, AI, and real-time data analytics.

Detailed Project Goals

- Enhanced Storage Management

Connect farmers to affordable, climate-controlled storage solutions such as micro-warehouses, solar-powered systems, and cold rooms.

Integrate IoT-enabled sensors to monitor temperature, humidity, and potential spoilage risks in real time.

Provide alerts to farmers for proactive measures, helping extend the shelf life of crops and minimize losses.

- Optimized Transportation Networks

Develop a logistics management system where farmers can book transportation services for timely delivery of produce.

Utilize AI-based route optimization to minimize delivery delays, reduce fuel costs, and enhance supply chain reliability.

Ensure easy, fast, and affordable transportation access for farmers, improving delivery timelines and product quality.

- Supply Chain Efficiency and Market Access

Build a digital marketplace that allows farmers to list their produce directly to buyers, minimizing intermediaries and ensuring fair pricing.

Incorporate AI-powered demand forecasting to guide farmers on optimal market timing.

Enhance price transparency and improve farmers' bargaining power to increase profitability.

- Farmer Training, Support, and Engagement

Provide educational resources, tutorials, and workshops on best practices in post-harvest handling, storage, and logistics.

Establish a real-time support network, including chatbots or call centers, for immediate technical assistance on storage and transportation issues.

Empower farmers with continuous learning to adopt modern agricultural practices.

- Data-Driven Insights and Decision-Making

Enable farmers to log storage performance, transportation efficiency, and sales data for analysis.

Provide real-time insights on pricing trends, demand forecasts, and buyer preferences through an analytics dashboard.

Use predictive analytics to improve demand-supply matching and assist farmers in making informed decisions on storage, logistics, and sales.

2. Success Criteria and Key Performance Indicators (KPIs)

- Reduction in Post-Harvest Losses

Achieve at least 35% reduction in post-harvest spoilage within the first year.

Extend the shelf life of crops through real-time monitoring and proactive storage management.

- Efficient Transportation and Logistics

Achieve a 55% decrease in transportation delays using route optimization tools.

Increase on-time and efficient delivery rates for produce transported through the platform.

- Improved Market Access and Profitability

Ensure at least 40% increase in direct farmer-to-buyer transactions within the first year.

Help farmers achieve an average 20% increase in earnings by reducing dependency on intermediaries.

- Farmer Adoption and Engagement

Onboard a minimum of 100 farmers within the first year of launch.

Maintain a 70%+ engagement rate in training programs and support services.

- Data Utilization and Informed Decision-Making

Ensure 80% of registered farmers actively use real-time data insights for better decision-making.

Achieve 60% improvement in demand-supply matching accuracy through predictive analytics.

Monitor and use data for future platform enhancements, including better storage solutions and advanced analytics.

Expected Impact

By meeting these goals and success criteria, HarvestHub will:
- Significantly reduce food waste in Nigeria and Africa.
- Improve market access and profitability for farmers.
- Empower farmers with modern tools, knowledge, and data-driven insights.
- Promote sustainable agricultural practices and ensure long-term success for stakeholders across the agricultural value chain.

What Does a Successful Product Look Like?

- Farmers experience fewer losses and earn more from their harvests.
- Food processors and retailers get fresher produce faster and at lower costs.
- Logistics providers have more efficient, profitable delivery routes.
- A seamless, easy-to-use platform that users find valuable and recommend to others.
- A financially sustainable business model with growing subscriptions, partnerships, and funding opportunities.

➤ USER EXPERIENCE

1. Discovery Phase (How Users Find the Product)

Social media campaigns (Facebook, WhatsApp, Instagram, Twitter, TikTok)

Google search ads and SEO-optimized content

Referral programs (farmers and buyers invite others for incentives)

Partnerships with agribusinesses, cooperatives, and NGOs

Offline outreach via local farm associations and extension workers

2. Accessing the product (how users get started)

Mobile App (Android/iOS) for farmers, buyers, and logistics providers

Web App (for agribusinesses, wholesalers, NGOs, and policymakers)

USSD Code Option for farmers in rural areas with limited smartphone access

WhatsApp Chatbot Integration for simplified interactions

3. Core user interactions (key features & flows)

Onboarding & Profile Setup

Create a profile by filling in the required details,(e.g name, phone number or email address, password etc).

Pick your persona: Farmer, buyer or trader.

User's experience

Farmer Dashboard: Displays available storage facilities, transportation services, and market prices.

Logistics Provider Dashboard: Shows booking requests, assigned drivers, and shipment tracking.

Buyer Dashboard: Displays available suppliers, prices, and shipment tracking.

Booking and Payment System: Enables farmers and buyers to book services and make payments securely.

Shipment Tracking: Provides real-time updates on shipment status.

Market Price Information: Displays current market prices for various crops.

Reviews and Ratings: Allows users to rate and review services.

User flow

● Scenario 1: Farmer Storing Crops

Farmer logs into the app.

Select "Find Storage Facility."

Chooses nearest storage, checks pricing, and books.

Receives booking confirmation and payment options.

Drops off crops at the facility.

Receives updates on storage status and potential buyers.

- Scenario 2: Farmer Selling Crops

Farmer lists available produce with quantity and price.

Traders & buyers see listings and place orders.

Farmer gets transport suggestions to deliver crops.

Secure payment processing.

Key Design Principles

- Simple Interface: Icons, local language support, and voice-based navigation for low-literacy users.
- Offline Mode: Essential for rural areas with poor internet.
- Trust & Transparency: Ratings for transporters and storage providers.

Prototyping & Testing

- Low-fidelity wireframes for initial feedback from farmers.
- High-fidelity prototype for usability testing.
- Beta testing with a small user group before scaling.

UX Solution Components

Mobile App (Primary Interface)

Core Features:

a. Storage Marketplace

- Book nearby storage facilities (cold rooms, warehouses).
- Compare prices and availability.
- IoT integration for real-time storage condition monitoring.

b. Marketplace for Buyers & Sellers

- Farmers list produce (quantity, quality, price).
- Buyers bid or purchase directly.
- Escrow payment system for security.

c. Logistics & Transport Booking

- Request trucks with temperature control.
- Track shipments in real-time.
- Route optimization to reduce delays.

d. Price Intelligence & Alerts

- Real-time market prices across regions.
- SMS/voice alerts for farmers without smartphones.

e. Post-Harvest Training Hub

- Short video tutorials (local languages) on storage, packaging.

f. IoT & Hardware Integration

- Smart Sensors in Storage – Monitor temperature, humidity.
- GPS Trackers for Trucks – Prevent theft and delays.

USSD/SMS Option (For Feature Phones)

- Menu-Based System (e.g., *326*#)
- Check prices.
- Find storage.
- Request transport.

User Journey Map

Scenario: Farmer Musa Sells His Tomatoes

1. Pre-Harvest

- Gets SMS on best harvest time.
- Watch a video on proper tomato packaging.

2. Post-Harvest

- Uses the app to book a nearby cold storage unit.
- Lists tomatoes on the marketplace.

3. Sale & Transport

- A buyer in Lagos places an order.
- A refrigerated truck is booked via the app.
- Musa tracks the shipment and receives payment via mobile money.

➢ DESIGNS/ FLOWS

https://www.figma.com/design/wItYSvKY4ajs8h0CNltD0P/Grocery-app-(Community)?node-id=0-1&t=O6nm39Kv71bvVZ1i-1

https://www.figma.com/proto/wItYSvKY4ajs8h0CNltD0P/Grocery-app-(Community)?node-id=0-1&t=aYYrdUugAW84c5y7-1

Roadmap

https://www.canva.com/design/DAGjCV0sgYA/b2lIL1It47nXAdsY50swKw/edit?utm_content=DAGjCV0sgYA&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton

➢ COMPETITOR ANALYSIS

Identification of Key Competitors in this space can be categorized into:

A. Storage Solution Providers

- ColdHubs (Nigeria): Solar-powered cold storage for smallholder farmers.

- SokoFresh (Kenya): Offers pay-as-you-store cold storage for farmers.

- Solynta (Nigeria): Provides solar-powered refrigeration for perishable goods.

B. Logistics & Transportation Platforms

- Kobo360 (Nigeria, Africa): Digital logistics platform connecting farmers and transporters.

- Lori Systems (East Africa): Optimizes trucking logistics for agricultural produce.

- TruQ (Nigeria): On-demand trucking and logistics for agribusinesses.

C. Digital Marketplaces for Farmers

- Farmcrowdy (Nigeria): Connects farmers with buyers and investors.

- Twiga Foods (Kenya): B2B food supply platform linking farmers to retailers.

- AgroMall (Nigeria): Digital marketplace for farm inputs and outputs.

D. Post-Harvest Management & Analytics Firms

- Zowasel (Nigeria): AI-driven post-harvest quality control and market linkage.

- Aerobotics (South Africa): Uses drone and satellite data for farm insights.

- Releaf (Nigeria): Provides processing and storage tech for smallholder farmers.

The Competitors Strengths & Weaknesses

A. Twiga Foods (Kenya)

● Company Overview:

Twiga Foods is a Kenyan agri-tech company that connects smallholder farmers with urban retailers through a digital platform, optimizing supply chain efficiency and reducing post-harvest losses.

 ● Product or Service Offerings: B2B digital marketplace, Logistics and distribution network for fresh produce

● Target Market: Smallholder farmers, retailers and wholesalers in urban areas and Agricultural supply chain operators in East Africa

● Unique Value Proposition: Eliminates middlemen, Data-driven logistics and Scalable model expanding across East Africa

● Strengths: Established market presence in Kenya with proven impact, Strong logistics network for fresh produce and AI-driven demand forecasting

● Weaknesses: Limited presence in West Africa, including Nigeria and Lacks dedicated climate-controlled storage solutions

B. AgroCenta (Ghana)

● Company Overview:

AgroCenta is a Ghanaian agri-tech startup providing market access, logistics, and financial services to smallholder farmers through a digital platform.

● Product or Service Offerings: Digital marketplace, Logistics and transportation services and Financial inclusion services (microloans and digital payments).

● Target Market: Smallholder farmers in Ghana, Bulk buyers, processors, and exporters.

● Unique Value Proposition: Empowers smallholder farmers with direct market access, Provides financial support for farmers to scale production and Integrates logistics and payment systems for seamless transactions

● Strengths: Strong focus on financial inclusion and payment and Digital platform reduces dependence on intermediaries

● Weaknesses: No dedicated storage solutions to prevent post-harvest losses and primarily operates in Ghana with limited reach in other African markets

C. Farmcrowdy (Nigeria)

● Company Overview:

Farmcrowdy is Nigeria's first digital agriculture platform that connects investors with small-scale farmers while also offering market access solutions.

● Product or Service Offerings: Crowdfunding, Market linkage between farmers and buyers and Training and support for smallholder farmers.

● Target Market: Smallholder farmers in Nigeria, Agricultural investors and Agribusinesses seeking farm produce

● Unique Value Proposition: Enables farmers to access funding for production, provides training and mentorship programs and connects farmers directly to bulk buyers.

● Strengths: Strong network within Nigeria's agriculture sector and Financial empowerment for smallholder farmers.

● Weaknesses: Limited focus on logistics and post-harvest storage and No advanced technology solutions for reducing spoilage.

D. ColdHubs (Nigeria)

● Company Overview:

ColdHubs is a Nigerian company that provides solar-powered cold storage solutions for perishable foods, helping farmers reduce spoilage.

● Product or Service Offerings: Solar-powered cold storage units, Pay-as-you-store business model for affordability and Storage services for perishable produce.

● Target Market: Smallholder farmers in Nigeria, Fresh produce traders and agribusinesses and Market vendors and food processors.

● Unique Value Proposition: Affordable cold storage, Solar-powered and Pay-as-you-go model.

● Strengths: Reducing food spoilage, Sustainable and cost-effective storage solutions and Strong market presence in Nigeria.

● Weaknesses: Focuses only on storage, lacks logistics and supply chain integration and no digital marketplace or predictive analytics for demand planning.

E. Kobo360 (Nigeria)

● Company Overview:

Kobo360 is a Nigerian logistics technology company that provides an end-to-end digital platform connecting cargo owners (e.g., farmers, manufacturers) with truck drivers and freight operators. The company optimizes supply chain efficiency through real-time tracking, data analytics, and seamless logistics management.

● Product or Service Offerings: Digital freight marketplace (B2B and B2C), real-time cargo tracking & fleet management, warehousing & last-mile delivery solutions, and payment & financing solutions for logistics.

● Target Market: Small and large agribusinesses in Africa, manufacturers and FMCG companies, truck owners and freight operators, and exporters and importers in emerging markets.

● Unique Value Proposition: AI-driven logistics optimization for cost and time efficiency, pan-African reach with operations in Nigeria, Ghana, Kenya, and Togo, and integrated payment and financing solutions for transporters and shippers.

● Strengths: Strong technology backbone (GPS tracking, analytics), large network of verified truckers and logistics partners, and expansion into multiple African markets.

● Weaknesses: High competition from traditional logistics providers, dependence on fuel prices and infrastructure quality, and limited control over external factors like road conditions and delays

F. Zowasel (Nigeria)

● Company Overview: Zowasel is an agri-tech company that leverages AI, blockchain, and IoT to improve agricultural supply chains. It connects farmers with global buyers while ensuring quality control, fair pricing, and efficient logistics.

● Product or Service Offerings: Digital marketplace for agricultural commodities, AI-driven crop quality testing & certification, blockchain-based traceability for transparency, and market linkage & export facilitation.

● Target Market: Smallholder and commercial farmers in Africa, commodity traders, agro-processors, international buyers of African agricultural produce, and food and beverage manufacturers.

● Unique Value Proposition: Ensures premium pricing for farmers through quality assurance, reduces post-harvest losses with data-driven storage & logistics and provides access to global markets via digital trade platforms.

● Strengths: Advanced tech integration (AI, blockchain, IoT), strong focus on export market linkages, and improves farmers' income through fair pricing.

● Weaknesses: Limited physical logistics infrastructure (relies on partners), high-tech solutions may be complex for smallholder farmers and still scaling operations beyond Nigeria

Competitive Advantage & Differentiation Strategy

Feature	Competitors	Harvest Hub
Integrated Storage + Logistics + Marketplace	✖ (Fragmented)	☑ (All-in-one)
Real-Time Storage Monitoring	✖ (Limited)	☑ (IoT Sensors + Alerts)
Predictive Demand Analytics	✖ (Manual)	☑ (AI-Driven Insights)

Farmer Training Programs	✗ (Minimal)	☑ (Structured Workshops)
Affordability for Small Farmers	✗ (High Cost)	☑ (Pay-as-you-go Model)

Market Gaps and Opportunities From the competitor analysis

The following gaps exist in the market:

Key Features	Twiga Foods	AgroCenta	Farmcrowdy	Coldhubs	Harvest Hub
Storage solution	✗	✗	✗	☑	☑
Real-Time Monitoring	✗	✗	✗	✗	☑
Logistics Optimization	☑	☑	✗	✗	☑
Digital Marketplace	☑	☑	☑	✗	☑
Predictive Analytics	☑	✗	✗	✗	☑

Training and Capacity Building	✕	✕	✕	✕	☑

➢ KEY FEATURES AND RELEASES

Release Phase 1 – MVP (Minimum Viable Product)

Goal: Establish a functional platform that addresses core challenges in post-harvest loss prevention and market access.

Features:

Key Features:

Mobile Installation: Android/iOS app availability.

Web App Availability: Responsive browser version with feature parity.

User Registration/Login: Secure onboarding for farmers and buyers.

User Profiles: Display roles, preferences, and order history.

Farmer Storefront: Personal produce shop for each farmer.

Buyer Interface: Product discovery, ordering, and tracking dashboard.

Farmer Interface: Stock management, pricing, and order control panel.

Search Bar: Filter produce by freshness, name, or seller.

Add to Cart & Checkout: Standard e-commerce experience.

Payment Integration: Multi-gateway for secure transactions.

Geolocation Integration: Detect location for nearby sellers, storage, and buyers.

Product Categories & Listings: Structured by type, perishability, etc.

Cold Storage & Warehouse Booking: Location-based integration for availability.

Logistics Coordination: Partner with logistics services for delivery optimization.

Release Phase 2 – Expansion & Intelligence

Goal: Enhance automation, analytics, and user engagement.

Key Features:

Customer Support Chatbox: Live or AI-powered query handling.

Smart Inventory Management: AI-driven shelf-life prediction and expiry alerts.

Multi-Language Support: English, Yoruba, Hausa, Igbo.

Order Tracking: Real-time updates from logistics partners.

Quality Assurance: Verified sellers and product badges.

Sold-Out Tagging: Auto-updated inventory status.

Ratings & Reviews: Buyer feedback loop for quality control.

Notifications: Alerts for deals, perishables, status updates.

Settings Panel: Manage language, privacy, and alerts.

AI-Based Demand Forecasting: Predict trends from weather, sales, and region.

Analytics Dashboard (B2B): Business insights for cooperatives/exporters.

Release Phase 3 – Rural Access & Monetization

Goal: Enable rural participation, offline access, and financial tools.

Key Features:

Bulk Buyer Onboarding: Customized flow for wholesalers.

Farmer Hub: Social feature for knowledge sharing and collaboration.

Farmer/Storage Communication Tools: Chat or VoIP with facility managers.

Farmer Records Database: Track performance, history, and listings.

USSD Integration: Access core features via feature phones.

App Wallet: Store and use credits, rewards, and quick pay.

Price Filters: Refine search by cost, volume, freshness.

Offline Mode: View prices, book services, receive SMS alerts.

Voice Support (USSD): Audio instructions for non-literate users.

Release Phase 4 – Market Intelligence & Empowerment

Goal: Equip farmers with data, knowledge, and promotion tools.

Key Features:

Farmer Education Hub: Videos, tips, guides on farming and markets.

Market Analysis Dashboard: Real-time trends and pricing insights.

Grants & Partnerships: NGO/government collaboration and funding tools.

System Installation Support: Onboarding for hubs/cooperatives with hardware needs.

Boost Feature: Paid promotions to increase farmer visibility.

IoT Sensors (Future): Monitor spoilage, temperature, and storage conditions.

Sustainability Solutions (Future): Composting and recycling for waste.

Government/NGO Integration (Future): Policy and subsidy alignment.

Launch Plan Strategy

Phase 1 – Pilot: Engage key cooperatives, agribusinesses, and logistics firms to test MVP.

Phase 2 – Regional Expansion: Roll out financial tools, analytics, and advanced logistics.

Phase 3+ – National Scale: Introduce AI automation, IoT monitoring, and sustainability tools.

➢ USER STORIES AND REQUIREMENTS

Feature	User story	Requirement/s	Example UI	Release
1. Installation	1. 1 As a farmer or distributor, I want to easily install the	The app should be available on Google play store and Apple store. The installation process should be easy and quick	App store should be showing HarvestHub download	Phase 1

	harvest hub app on my mobile devices.			
	1.2 As a user, I want to upgrade my app when new features are available.	Push notifications should alert users about new features.	Update prompt screen. App pop ups, email and SMS notification options	Phase 1
2. Account creation	2.1 As a farmer, trader or buyer, I want to create an account so I can access HarvestHub services which include post-harvest management tools.	Users can sign up using their email, phone or existing social media accounts. Users must verify their identity via OTP or email verification	Sign up screen	Phase 1
		Users can enter personal and business details. Profile	Profile setup page	

	2.2 As a user, I want to set up my profile with relevant information (e.g farm size, products, location, farm name, buyer's profile etc)	customization should allow for logistics and notification		
3. Login page	3.1 As a user, I want a secure login process	Users can login via email, phone number or existing social media accounts	Login screen page with security features.	Phase 1
	3.2			
4. create and edit energy listings	4.1 As a farmer, I want to list my harvested produce, so buyers can see and purchase it.	- Farmers input product details (name, quantity, price, expiration date, storage conditions). - Option to upload photos.	Listing form with input fields & image upload.	Phase 1 & 2

		- Users can edit product details or remove listings from the marketplace.	Edit button on the product listing page.	
	4.2 As a seller, I want to edit or remove my listings when necessary.			
5. Browse produce Listings	5.1 As a buyer, I want to browse available produce, so I can make a purchase.	- Buyers can filter products by category, location, freshness, and price.	Marketplace screen with filtering options.	Phase 1
	5.2 As a buyer, I want to see recommended products based on my preferences.	- AI-based recommendation system.	"Recommended for You" section on homepage.	Phase 2
6. Manage profile	6.1 As a user, I want to update my profile information.	- Users can update name, phone number, location, and	Profile settings page with editable fields.	Phase 2

		business type.		
7. Manage Settings	7.1 As a user, I want to control notifications and privacy settings.	- Enable/disable notifications.	7.1 As a user, I want to control notifications and privacy settings.	Phase 1
8. Analytics	8.1 As a seller, I want to track my sales and inventory trends.	- Dashboard showing total sales, revenue, and stock alerts.	Graphical analytics dashboard with sales data.	Phase 2
	8.2 As a buyer, I want to track my past purchases.	Order history with details of previous transactions.	"My Orders" section showing past purchases.	

➢ REQUIREMENTS PER RELEASE (OPTIONAL)

Release	Feature	User Story	Requirement/s
Release 1	Storage Management System	As a farmer, I want a cloud-based dashboard to manage storage units efficiently.	Cloud-based storage system with real-time alerts and notifications for storage issues.
	Logistics and Transportation Optimization	As a farmer, I want to match with transport providers to move my produce efficiently.	Matching system for farmers and transport providers with real-time tracking of produce movement.
	Digital Marketplace	As a farmer, I want to connect directly with buyers for fair trade and better pricing.	Direct farmer-to-buyer connection, price transparency, demand forecasting, and secure payment processing.
	Real-Time Training and Support	As a farmer, I want mobile-accessible training on post-harvest handling.	AI-driven chatbot and mobile-accessible training modules for real-time support.

	Data and Analysis	As a farmer, I want insights on storage and logistics efficiency.	Reports on storage performance, transportation efficiency, and demand forecasting.
Release 2	Advanced AI and Predictive Analytics	As a farmer, I want AI-powered predictive modeling for market trends and demand forecasting.	AI-driven analytics to predict market demands.
Release 3	Mobile App Additions	As a user, I want USSD support for areas with no internet	USSD support for mobile applications to support users in low-connectivity regions

➢ OUT OF SCOPE

Category	Out of scope items	Reason for exclusion

Hardware & IoT	Owning our own warehouse and cold rooms.	Requires specialized IoT infrastructure; we will use third-party partners.
AI & Machine Learning	AI-based crop disease detection	High development complexity; will be considered in future AI-powered releases.
Payments	Cryptocurrency payments	Regulatory and adoption challenges in the target market.
International Expansion	International trade and export logistics	Focus is on local farmers and buyers before expanding globally.
Logistics	Internal delivery fleet for produce	Instead, partnerships with third-party logistics providers will be explored.
Government Programs	Direct subsidy disbursement	Requires regulatory approvals and partnerships; may be considered in later versions.
Advanced Analytics	AI-driven market demand forecasting	Will be introduced in later releases after data collection and market validation.
Social Features	Full-fledged community forums or social networking	Core focus is on transactions; user feedback features will be prioritized instead.

➤ QUESTIONS AND DECISION TRACKER

Date	Question/ Decision	Answer
20-Mar-2025	Should the app support multiple languages from launch?	Yes, the app will launch in English. Yoruba, Hausa and Igbo. More African languages will be added later as we expand.
22-Mar-2025	Will Harvest Hub handle direct payments, or integrate with third-party payment platforms?	We'll integrate with existing platforms like Flutterwave and as many other trusted payments options as possible.
24-Mar-2025	Should there be an offline mode for data entry?	Yes, offline access will be through USSD codes and SMS alerts, since a fully offline app isn't feasible.
26-Mar-2025	How will logistics and transportation be handled?	Third-party logistics (3PL) partnerships for delivery.
28-Mar-2025	Should Harvest Hub offer a B2B marketplace from the start?	No, the initial focus will be on farmers and local buyers (B2C). B2B features will come later.

28-Mar-2025	What type of data analytics will be available in the first release?	Basic reports on produce availability, pricing trends, and demand insights. More advanced analytics will come later.