**Module Development Plan for Land Fortune Marketplace (LFM)**

**Module 1: Core Identity & Membership Management System**

This is the foundational module that gates access to all others.

* **Sub-Module 1.1: User Onboarding & Registration**
  + **Details:** Multi-step form capturing entity type (Individual Farmer, Corporate Farm, Buyer, Input Supplier, etc.), personal/business details, tax IDs, bank account information, and geographic location (integrated with GIS for mapping).
  + **Function:** KYC (Know Your Customer) verification checks, document upload (scans of ID, business licenses). Assigns a unique LFM Member ID.
* **Sub-Module 1.2: Membership Tier Management**
  + **Details:** System to manage the three tiers:
    - **Registered Member:** Flags in DB granting access to basic marketplace features, loyalty programs, and member specials. *No ZMX platform access.*
    - **Clearing Member:** Additional flags granting full privileged access to the ZMX trading platform (futures, spot trading). Requires signed LFM Membership Agreement and link to a Margin Account.
    - **Non-Member:** Limited, read-only access to certain marketplace listings. No benefits.
  + **Function:** Automated permission sets based on membership level. Upgrade/downgrade workflows.
* **Sub-Module 1.3: Smart Card & Digital Profile Integration**
  + **Details:** A digital twin of the physical **Fortune Smart Card**. This sub-module stores and displays all data that would be on the card: Member ID, photo, transaction history, current **Fortune $** balance, linked Warehouse Receipts, loan status and input allocation history.
  + **Function:** QR code/barcode generation for the physical card. API endpoints for external systems (warehouses, banks) to validate the card and update transactions in real-time.

**Module 2: Financial Engine & Fort$ Management**

The economic circulatory system of the platform.

* **Sub-Module 2.1: Fort$ (Fortune Dollar) Ledger**
  + **Details:** A secure, internal ledger system that manages the creation, transaction, and redemption of the virtual currency. Each member has a Fort$ account balance.
  + **Function:** Records every Fort$ credit (e.g., from sale of goods) and debit (e.g., payment for inputs, services). Must be atomic (ensure transactions are all-or-nothing to prevent errors).
* **Sub-Module 2.2: Fiat Currency Gateway**
  + **Details:** Integration with banks and mobile money providers (e.g., EcoCash) via APIs. Allows members to top up their Fort$ accounts with real currency and cash out Fort$ into real currency.
  + **Function:** Processes deposits/withdrawals. Manages exchange rates between Fort$ and USD/ZWL. Handles transaction fees for LFF.
* **Sub-Module 2.3: Margin Account Management**
  + **Details:** Exclusive to **Clearing Members**. Interface with member banks to view and validate the balance in the member's designated Margin Account.
  + **Function:** The core of the "lock-in funds" requirement. Before a trade is placed, this system must receive confirmation (via API or secure upload) that sufficient funds are available and locked in the member's bank account.
* **Sub-Module 2.4: Payment Processing & Settlement**
  + **Details:** Orchestrates the end-of-trade financial settlement. When a trade is complete, it calculates the final amount, deducts LFF's fees, and initiates transfers.
  + **Function:** Instructs the Fort$ ledger to transfer Fort$ from buyer to seller. Or, via the banking gateway, instructs the bank to transfer fiat currency. Generates automated notifications to all parties.

**Module 3: Marketplace & Trading Hub (ZMX Platform Integration)**

The central nervous system for trading. This is the "ZMX Platform" mentioned throughout the document.

* **Sub-Module 3.1: Product Listing & Catalog Management**
  + **Details:** Allows sellers (and LFF itself) to list commodities (maize, cotton, livestock), inputs (seeds, fertilizer), and other sector goods (from construction to ICT). Fields must include: product type, grade, quantity, quality certifications, photos, and location (warehouse ID or farm location).
  + **Function:** Search and filter functionality for buyers. Inventory level management linked to the Warehouse Management System (WMS).
* **Sub-Module 3.2: Contract Management System**
  + **Details:** Digital creation, signing, and management of complex contracts.
    - **Forwards/Futures Contracts:** UI to set commodity, quantity, quality, price, and *specific future delivery date*.
    - **Spot Trade Contracts:** For immediate purchase and delivery.
  + **Function:** Automated alerts and notifications as contract maturity dates approach. Tracks contract fulfillment status.
* **Sub-Module 3.3: Auction & Bidding Engine**
  + **Details:** For commodities where price discovery is needed. Allows buyers to place bids, and sellers to accept the highest bid or set a reserve price.
  + **Function:** Real-time bid updating. Timer functionality. Automatic winner determination and contract generation.
* **Sub-Module 3.4: Requisition & Order Management**
  + **Details:** Manages the entire flow detailed in Figure 5. A "Purchase Requisition" is created by a buyer, triggering the fund lock-in process. Once funds are verified, it becomes an official "Order".
  + **Function:** Tracks the status of each requisition/order (e.g., Pending Funding, Approved, Awaiting Fulfillment, Completed). The core workflow engine for trades.

**Module 4: Warehouse Management System (WMS) & Receipt System**

Bridges the digital world with the physical inventory.

* **Sub-Module 4.1: Stock-In Processing**
  + **Details:** When a farmer delivers commodities to a CBP/Warehouse, the warehouse operator uses this interface. Records: Member ID (via Smart Card scan), commodity type, weight (from integrated scale), grade (from 3rd party inspector input), and moisture content.
  + **Function:** Creates a unique Lot ID for the received goods. This triggers the option to either pay the farmer immediately or generate a **Warehouse Receipt**.
* **Sub-Module 4.2: Digital Warehouse Receipt (WR) Generator**
  + **Details:** Generates a cryptographically secure, non-fungible digital receipt. The WR is a digital asset tied to a specific lot of commodities in a specific warehouse. It contains: WR ID, Lot ID, Commodity Details, Grade, Weight, Warehouse Location, Issue Date, and Owner ID (Farmer's LFM ID).
  + **Function:** The WR can be digitally transferred (e.g., sold on the marketplace, used as collateral). Its status must be trackable (Issued, Pledged, Redeemed).
* **Sub-Module 4.3: Stock-Out & Release Management**
  + **Details:** When a buyer comes to collect goods, the warehouse operator scans the buyer's Smart Card and the digital WR from the trade.
  + **Function:** Verifies the buyer is the legitimate owner of the WR. Records the release, including final weight from weigh-bridge. Updates inventory levels. Changes WR status to "Redeemed".
* **Sub-Module 4.4: Inventory Dashboard**
  + **Details:** Real-time view for warehouse managers and LFF administrators of stock levels across all designated warehouses and silos, broken down by commodity, grade, and age.
  + **Function:** Essential for logistics planning, reporting, and preventing stockouts.

**Module 5: Logistics Management System (Fortune Logistics)**

* **Sub-Module 5.1: Transportation Booking & Management**
  + **Details:** UI for members to request transport for goods from point A (farm) to point B (warehouse) or from warehouse to buyer. Includes details like commodity type, weight, volume, pickup/delivery locations and times.
  + **Function:** Automated pricing engine based on distance and commodity. Assigns shipments to available logistics partners via API integrations. Provides tracking numbers and real-time status updates (Picked Up, In Transit, Delivered).
* **Sub-Module 5.2: Customs & Permits Management (For International Trade)**
  + **Details:** A form-driven system to collect all necessary data for cross-border shipments. Integrates with official systems where possible, or provides printable, pre-filled forms.
  + **Function:** Manages Incoterms 2010 selection (FOB, CIF, etc.) and automatically calculates responsibilities based on the chosen term.

**Module 6: Data Management & Evaluation, Monitoring & Reporting (EMR)**

The "big data" brain of the operation.

* **Sub-Module 6.1: Geo-Tagging & GIS Integration**
  + **Details:** Integrates with **Area Extension Officers (AEOs)** tablets. Allows AEOs to drop pins on a map for each farm, attach photos of crops, and input progress reports.
  + **Function:** Creates a visual, data-rich map of all registered farms, enabling monitoring of planting, growth, and harvest progress. Critical for crop forecasting and insurance assessment.
* **Sub-Module 6.2: Analytics & Reporting Dashboard**
  + **Details:** A powerful dashboard for LFF, financiers, and large buyers. Provides insights on: commodity price trends, regional production volumes, member trading activity, platform revenue, and logistics performance.
  + **Function:** Customizable reports. Data visualizations (charts, graphs). Ability to export data. This is a key sellable product to stakeholders.
* **Sub-Module 6.3: API Gateway**
  + **Details:** A secure set of APIs (Application Programming Interfaces) to allow controlled access to the DMS for partners: Banks, ZMX, Insurance companies, 3rd party inspectors.
  + **Function:** A bank's system can query a member's balance or WR ownership. An insurer can pull field data to assess a claim. This interoperability is critical.

**Module 7: Value-Added Services Portal**

* **Sub-Module 7.1: Insurance Marketplace**
  + **Details:** A curated portal within LFM where members can browse and purchase the listed insurance products (Agro, Health, Funeral, etc.) from partner providers.
  + **Function:** Secure checkout using Fort$ or linked payment methods. Application forms and digital policy issuance.
* **Sub-Module 7.2: Inputs Acquisition & Credit Facility**
  + **Details:** Digital catalog of inputs from suppliers. Farmers can apply for inputs on credit, which creates a loan obligation.
  + **Function:** Manages the entire workflow from Figure 2: application, eligibility check, approval, electronic notification to warehouse, and ultimately deducting the cost from the farmer's eventual sales proceeds.

**Module 8: Notification & Communication Engine**

* **Details:** A central system that triggers all automated communications.
* **Function:** Sends SMS, email, and mobile app push notifications for: trade confirmations, payment receipts, contract maturity alerts, warehouse receipt issuance, AEO visit schedules, and platform announcements. *This is not a UI module but a critical backend service.*

**Module 9: Administration & Compliance Panel**

* **Details:** A super-user panel for LFF staff to manage the entire platform.
* **Function:** User management, role-based access control, fee configuration, dispute resolution tools, audit logs, membership suspension/termination, and system health monitoring. Includes tools to enforce the detailed **Trading Rules and Regulations** (e.g., automatically blocking trades for members with overdue fees).