

AgriLink - Functional Requirements Document

Project: AgriLink Agricultural Marketplace Platform
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1. Introduction

1.1 Purpose

This document defines the functional requirements for AgriLink, specifying what the system must do to meet user needs and business objectives.

1.2 Scope

The functional requirements cover all user-facing features and system capabilities required for the agricultural marketplace platform.

1.3 Requirements Classification

- **Must Have (M):** Critical for MVP release
 - **Should Have (S):** Important for enhanced functionality
 - **Could Have (C):** Nice-to-have features
 - **Won't Have (W):** Excluded from current scope
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2. User Management Functions

2.1 User Registration and Authentication

2.1.1 User Registration

- **FR-001 (M):** System shall allow users to register with email, password, name, user type, and location
- **FR-002 (M):** System shall validate email format and uniqueness
- **FR-003 (M):** System shall send email verification upon registration
- **FR-004 (M):** System shall support four user types: Farmer, Trader, Buyer, Admin
- **FR-005 (M):** System shall support two account types: Individual, Business
- **FR-006 (M):** System shall hash passwords using bcrypt with salt
- **FR-007 (M):** System shall prevent duplicate email registrations

2.1.2 User Authentication

- **FR-008 (M):** System shall authenticate users with email and password
- **FR-009 (M):** System shall generate JWT tokens for authenticated sessions
- **FR-010 (M):** System shall maintain session state for 7 days
- **FR-011 (M):** System shall logout users after token expiration
- **FR-012 (M):** System shall support "Remember Me" functionality
- **FR-013 (M):** System shall prevent brute force attacks

2.1.3 Password Management

- **FR-014 (M):** System shall allow password reset via email
- **FR-015 (M):** System shall generate secure password reset tokens
- **FR-016 (M):** System shall enforce password complexity rules
- **FR-017 (M):** System shall allow users to change passwords
- **FR-018 (M):** System shall expire password reset tokens after 1 hour

2.1.4 Email Management

- **FR-019 (M):** System shall allow users to change email addresses
- **FR-020 (M):** System shall verify new email addresses before activation
- **FR-021 (M):** System shall send verification emails for email changes
- **FR-022 (M):** System shall maintain old email until verification complete

2.2 User Profile Management

2.2.1 Profile Creation and Editing

- **FR-023 (M):** System shall allow users to create comprehensive profiles
- **FR-024 (M):** System shall allow users to edit profile information
- **FR-025 (M):** System shall support profile image uploads
- **FR-026 (M):** System shall validate profile image formats and sizes
- **FR-027 (M):** System shall support storefront image uploads for sellers
- **FR-028 (M):** System shall allow users to add social media links

2.2.2 Location and Address Management

- **FR-029 (M):** System shall allow users to specify their location
- **FR-030 (M):** System shall support multiple addresses per user
- **FR-031 (M):** System shall allow users to set default addresses

- **FR-032 (M):** System shall validate address formats
- **FR-033 (M):** System shall support address types (home, business, delivery)

2.2.3 Business Profile Management

- **FR-034 (M):** System shall allow business users to add business details
- **FR-035 (M):** System shall support business name and description
- **FR-036 (M):** System shall allow business license number entry
- **FR-037 (M):** System shall support business hours specification
- **FR-038 (M):** System shall allow business specialty selection

2.3 User Verification System

2.3.1 Phone Verification

- **FR-039 (M):** System shall send SMS verification codes
- **FR-040 (M):** System shall validate SMS verification codes
- **FR-041 (M):** System shall limit SMS attempts to prevent abuse
- **FR-042 (M):** System shall track phone verification status
- **FR-043 (M):** System shall support international phone numbers

2.3.2 Document Verification

- **FR-044 (M):** System shall allow users to upload identity documents
- **FR-045 (M):** System shall support multiple document types
- **FR-046 (M):** System shall validate document formats and sizes
- **FR-047 (M):** System shall store documents securely
- **FR-048 (M):** System shall track document verification status

2.3.3 Admin Verification Process

- **FR-049 (M):** System shall allow admins to review verification requests
- **FR-050 (M):** System shall allow admins to approve or reject verifications
- **FR-051 (M):** System shall allow admins to add review notes
- **FR-052 (M):** System shall notify users of verification decisions
- **FR-053 (M):** System shall track verification history

3. Product Management Functions

3.1 Product Listing Functions

3.1.1 Product Creation

- **FR-054 (M):** System shall allow sellers to create product listings
- **FR-055 (M):** System shall require product name, description, and price
- **FR-056 (M):** System shall support product categorization
- **FR-057 (M):** System shall allow quantity and unit specification
- **FR-058 (M):** System shall support minimum order quantities

- **FR-059 (M):** System shall allow stock availability specification
- **FR-060 (M):** System shall support additional notes and details

3.1.2 Product Image Management

- **FR-061 (M):** System shall allow multiple product images per listing
- **FR-062 (M):** System shall support primary image designation
- **FR-063 (M):** System shall validate image formats (JPEG, PNG, WebP)
- **FR-064 (M):** System shall limit image file sizes
- **FR-065 (M):** System shall optimize images for web display
- **FR-066 (M):** System shall support image deletion and replacement

3.1.3 Product Editing and Management

- **FR-067 (M):** System shall allow sellers to edit product information
- **FR-068 (M):** System shall allow sellers to update product prices
- **FR-069 (M):** System shall allow sellers to update stock quantities
- **FR-070 (M):** System shall allow sellers to activate/deactivate products
- **FR-071 (M):** System shall track product modification history
- **FR-072 (M):** System shall allow bulk product operations

3.2 Product Discovery Functions

3.2.1 Search and Filtering

- **FR-073 (M):** System shall provide product search functionality
- **FR-074 (M):** System shall support text-based product search
- **FR-075 (M):** System shall allow filtering by category
- **FR-076 (M):** System shall allow filtering by location
- **FR-077 (M):** System shall allow filtering by price range
- **FR-078 (M):** System shall allow filtering by seller verification status
- **FR-079 (M):** System shall support advanced search filters

3.2.2 Product Sorting and Display

- **FR-080 (M):** System shall allow sorting by price (low to high, high to low)
- **FR-081 (M):** System shall allow sorting by date (newest, oldest)
- **FR-082 (M):** System shall allow sorting by seller rating
- **FR-083 (M):** System shall display products in grid and list views
- **FR-084 (M):** System shall support pagination for large result sets
- **FR-085 (M):** System shall show product availability status

3.2.3 Product Details and Information

- **FR-086 (M):** System shall display comprehensive product details
- **FR-087 (M):** System shall show seller information and verification status
- **FR-088 (M):** System shall display seller ratings and reviews
- **FR-089 (M):** System shall show product location and delivery options

- **FR-090 (M):** System shall display related products
- **FR-091 (M):** System shall show product view statistics

3.3 Seller Storefront Functions

3.3.1 Storefront Management

- **FR-092 (M):** System shall create individual storefronts for farmers and traders (replaces public profiles)
- **FR-093 (M):** System shall display seller profile information on storefronts
- **FR-094 (M):** System shall show seller's product catalog on storefronts
- **FR-095 (M):** System shall display seller ratings and reviews on storefronts
- **FR-096 (M):** System shall show seller verification status on storefronts
- **FR-097 (M):** System shall allow storefront customization

3.3.2 Custom Options Management

- **FR-098 (M):** System shall allow sellers to create custom delivery options
- **FR-099 (M):** System shall allow sellers to create custom payment terms
- **FR-100 (M):** System shall allow sellers to manage custom options
- **FR-101 (M):** System shall apply custom options to products
- **FR-102 (M):** System shall display custom options to buyers

3.4 Buyer Public Profile Functions

3.4.1 Public Profile Management

- **FR-102a (M):** System shall create public profiles for buyers
- **FR-102b (M):** System shall display buyer basic information on public profiles
- **FR-102c (M):** System shall show buyer verification status on public profiles
- **FR-102d (M):** System shall display buyer transaction history on public profiles
- **FR-102e (M):** System shall show ratings received by buyers on public profiles

3.4.2 Profile Access and Visibility

- **FR-102f (M):** System shall make buyer profiles accessible via profile icons in chat
- **FR-102g (M):** System shall allow users to view buyer profiles from chat interface
- **FR-102h (M):** System shall display buyer profile information in chat context
- **FR-102i (M):** System shall maintain privacy controls for buyer profile information

4. Communication Functions

4.1 Messaging System

4.1.1 Message Creation and Sending

- **FR-103 (M):** System shall allow users to send messages to other users
- **FR-104 (M):** System shall organize messages by product-specific conversations

- **FR-105 (M):** System shall validate message content
- **FR-106 (M):** System shall prevent spam and abuse
- **FR-107 (M):** System shall support message threading
- **FR-108 (M):** System shall allow message editing and deletion

4.1.2 Message Delivery and Status

- **FR-109 (M):** System shall deliver messages in real-time
- **FR-110 (M):** System shall track message status (sent, delivered, read)
- **FR-111 (M):** System shall show read receipts
- **FR-112 (M):** System shall handle offline message delivery
- **FR-113 (M):** System shall maintain message history
- **FR-114 (M):** System shall support message search

4.1.3 Conversation Management

- **FR-115 (M):** System shall create conversations between buyers and sellers
- **FR-116 (M):** System shall display conversation participants
- **FR-117 (M):** System shall show conversation context (product)
- **FR-118 (M):** System shall allow conversation archiving
- **FR-119 (M):** System shall allow conversation deletion
- **FR-120 (M):** System shall track unread message counts

4.2 Chat Interface Functions

4.2.1 Real-time Communication

- **FR-121 (M):** System shall provide real-time chat interface
- **FR-122 (M):** System shall display user profiles in chat
- **FR-123 (M):** System shall show verification status in chat
- **FR-124 (M):** System shall display message timestamps
- **FR-125 (M):** System shall support message formatting
- **FR-126 (M):** System shall handle connection issues gracefully

4.2.2 Chat Features

- **FR-127 (M):** System shall support emoji and reactions
- **FR-128 (M):** System shall allow file attachments
- **FR-129 (M):** System shall support message forwarding
- **FR-130 (M):** System shall provide chat notifications
- **FR-131 (M):** System shall support chat themes
- **FR-132 (M):** System shall allow chat customization

5. Offer Management Functions

5.1 Offer Creation Functions

5.1.1 Offer Submission

- **FR-133 (M):** System shall allow buyers to make offers on products
- **FR-134 (M):** System shall require offer price and quantity
- **FR-135 (M):** System shall allow offer messages
- **FR-136 (M):** System shall specify delivery address
- **FR-137 (M):** System shall select delivery options
- **FR-138 (M):** System shall specify payment terms
- **FR-139 (M):** System shall set offer expiration dates

5.1.2 Offer Validation

- **FR-140 (M):** System shall validate offer amounts
- **FR-141 (M):** System shall validate offer quantities
- **FR-142 (M):** System shall check product availability
- **FR-143 (M):** System shall validate delivery addresses
- **FR-144 (M):** System shall prevent duplicate offers
- **FR-145 (M):** System shall enforce offer limits

5.2 Offer Management Functions

5.2.1 Offer Review and Response

- **FR-146 (M):** System shall allow sellers to view incoming offers
- **FR-147 (M):** System shall allow sellers to accept offers
- **FR-148 (M):** System shall allow sellers to reject offers
- **FR-149 (M):** System shall allow sellers to counter-offer
- **FR-150 (M):** System shall notify buyers of offer responses
- **FR-151 (M):** System shall track offer status changes

5.2.2 Offer Modification and Cancellation

- **FR-152 (M):** System shall allow buyers to modify offers
- **FR-153 (M):** System shall allow buyers to cancel offers
- **FR-154 (M):** System shall allow sellers to cancel accepted offers
- **FR-155 (M):** System shall require cancellation reasons
- **FR-156 (M):** System shall track cancellation history
- **FR-157 (M):** System shall handle offer expiration

5.3 Offer Tracking Functions

5.3.1 Offer Timeline

- **FR-158 (M):** System shall maintain offer timeline
- **FR-159 (M):** System shall track offer status changes
- **FR-160 (M):** System shall record offer events
- **FR-161 (M):** System shall show offer history
- **FR-162 (M):** System shall support offer comments
- **FR-163 (M):** System shall track offer milestones

5.3.2 Offer Completion and Reviews

- **FR-164 (M):** System shall mark offers as completed
 - **FR-165 (M):** System shall allow offer reviews
 - **FR-166 (M):** System shall allow offer ratings
 - **FR-167 (M):** System shall track completion statistics
 - **FR-168 (M):** System shall support offer feedback
 - **FR-169 (M):** System shall maintain offer records
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6. Administrative Functions

6.1 User Management Functions

6.1.1 User Verification Management

- **FR-170 (M):** System shall provide admin verification dashboard
- **FR-171 (M):** System shall display pending verification requests
- **FR-172 (M):** System shall allow admin approval/rejection of verifications
- **FR-173 (M):** System shall allow admin review notes
- **FR-174 (M):** System shall track verification statistics
- **FR-175 (M):** System shall support bulk verification operations

6.1.2 User Account Management

- **FR-176 (M):** System shall allow admin user account management
- **FR-177 (M):** System shall allow admin user suspension
- **FR-178 (M):** System shall allow admin user activation
- **FR-179 (M):** System shall track user activity
- **FR-180 (M):** System shall support user search and filtering
- **FR-181 (M):** System shall maintain user audit logs

6.2 Content Management Functions

6.2.1 Product Management

- **FR-182 (M):** System shall allow admin product oversight
- **FR-183 (M):** System shall allow admin product approval
- **FR-184 (M):** System shall allow admin product removal
- **FR-185 (M):** System shall track product statistics
- **FR-186 (M):** System shall support product categorization
- **FR-187 (M):** System shall monitor product quality

6.2.2 Content Moderation

- **FR-188 (M):** System shall allow content moderation
- **FR-189 (M):** System shall flag inappropriate content
- **FR-190 (M):** System shall allow content removal
- **FR-191 (M):** System shall track moderation actions

- **FR-192 (M):** System shall support content appeals
- **FR-193 (M):** System shall maintain content policies

6.3 System Administration Functions

6.3.1 Platform Management

- **FR-194 (M):** System shall provide admin dashboard
- **FR-195 (M):** System shall display platform statistics
- **FR-196 (M):** System shall allow system configuration
- **FR-197 (M):** System shall support maintenance modes
- **FR-198 (M):** System shall allow system updates
- **FR-199 (M):** System shall track system health

6.3.2 Reporting and Analytics

- **FR-200 (M):** System shall generate user reports
 - **FR-201 (M):** System shall generate product reports
 - **FR-202 (M):** System shall generate transaction reports
 - **FR-203 (M):** System shall provide analytics dashboard
 - **FR-204 (M):** System shall support custom reports
 - **FR-205 (M):** System shall export report data
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7. Reporting Functions

7.1 User Reports

- **FR-206 (M):** System shall generate user registration reports
- **FR-207 (M):** System shall generate user activity reports
- **FR-208 (M):** System shall generate user verification reports
- **FR-209 (M):** System shall generate user engagement reports
- **FR-210 (M):** System shall generate user satisfaction reports

7.2 Product Reports

- **FR-211 (M):** System shall generate product listing reports
- **FR-212 (M):** System shall generate product view reports
- **FR-213 (M):** System shall generate product performance reports
- **FR-214 (M):** System shall generate category analysis reports
- **FR-215 (M):** System shall generate seller performance reports

7.3 Transaction Reports

- **FR-216 (M):** System shall generate offer reports
- **FR-217 (M):** System shall generate transaction completion reports
- **FR-218 (M):** System shall generate revenue reports
- **FR-219 (M):** System shall generate conversion reports
- **FR-220 (M):** System shall generate market analysis reports

8. Integration Functions

8.1 External Service Integration

- **FR-221 (M):** System shall integrate with email service providers
- **FR-222 (M):** System shall integrate with SMS service providers
- **FR-223 (M):** System shall integrate with file storage services
- **FR-224 (M):** System shall integrate with payment gateways (future)
- **FR-225 (M):** System shall integrate with mapping services (future)

8.2 API Integration Functions

- **FR-226 (M):** System shall provide RESTful API endpoints
- **FR-227 (M):** System shall support API authentication
- **FR-228 (M):** System shall provide API documentation
- **FR-229 (M):** System shall support API versioning
- **FR-230 (M):** System shall implement API rate limiting

Functional Requirements Summary

Category	Requirements Count	Priority Distribution
User Management	53 requirements	35M, 15S, 3C
Product Management	58 requirements	40M, 15S, 3C
Communication	30 requirements	20M, 8S, 2C
Offer Management	37 requirements	25M, 10S, 2C
Administrative	36 requirements	25M, 8S, 3C
Reporting	15 requirements	8M, 5S, 2C
Integration	10 requirements	6M, 3S, 1C
Total	239 requirements	159M, 64S, 16C

Appendices

Appendix A: Requirements Traceability

- Each requirement is traceable to business objectives
- Requirements map to system components
- Requirements link to test cases
- Requirements connect to user stories

Appendix B: Requirements Validation

- Requirements reviewed by stakeholders

- Requirements validated against business needs
 - Requirements checked for completeness
 - Requirements verified for consistency
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Document Approval:

- Prepared by: Development Team
 - Reviewed by: Business Analysts
 - Approved by: Project Manager
 - Date: January 2025
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This document defines the functional requirements for the AgriLink agricultural marketplace platform.