# NeuroBuy Functional Requirements Specification (Integrated Version)

Version: 2.1  
Date: October 2025  
Project: NeuroBuy – AI-Driven Multivendor E-Commerce Platform  
Prepared for: uBotics / NeuroBuy Team

## 1. SYSTEM OVERVIEW

NeuroBuy is an AI-assisted multivendor e-commerce platform connecting customers, sellers, and logistics providers. The platform supports product sourcing from China and local resale in Cameroon and other regions. It integrates artificial intelligence for automation, personalization, and operational efficiency.

## 2. USER CATEGORIES

1. Customer (Buyer) – browses, buys, tracks, and reviews products.  
2. Seller (Vendor) – creates stores, uploads products, and manages orders.  
3. Logistics Partner – handles shipping and delivery tracking.  
4. Administrator – manages users, stores, coupons, and system operations.

## 3. FUNCTIONAL REQUIREMENTS

### 3.1 Customer Features

FR-001: The system shall allow customers to browse, search, and filter products by category, price, or AI-based recommendations.  
FR-002: The system shall display detailed product pages (name, price, images, reviews, ratings, and seller info).  
FR-003: The system shall enable users to perform visual and semantic searches (AI-002, AI-003).  
  
FR-004: The system shall support sign-up, login, and third-party authentication (e.g., Google, Clerk/Firebase).  
FR-005: The system shall allow users to manage profiles, saved addresses, and view order history.  
FR-006: The system shall enable users to switch between multiple accounts.  
  
FR-007: The system shall allow adding/removing items to/from the cart, applying coupon codes, and checking out.  
FR-008: The system shall support payments via Stripe, PayPal, and local mobile options (MTN/Orange Money).  
FR-009: The system shall automatically detect fraud during checkout (AI-012).  
FR-010: The system shall provide order tracking updates through email and dashboard notifications.  
  
FR-011: The system shall provide real-time personalized recommendations based on browsing and purchase history (AI-004).  
FR-012: The system shall display cross-sell and upsell suggestions (AI-005).  
FR-013: The system shall use sentiment analysis to identify product satisfaction levels and highlight trending items (AI-009).

### 3.2 Seller Features

FR-014: Sellers shall be able to create store profiles pending admin approval.  
FR-015: Sellers shall access a dashboard showing earnings, orders, and analytics (AI-014).  
FR-016: The system shall allow sellers to upload products manually or via image upload.  
FR-017: The system shall use AI to auto-generate product names, descriptions, and SEO content (AI-007).  
FR-018: The system shall auto-categorize products using image and text analysis (AI-001).  
FR-019: The system shall suggest optimal pricing (AI-006) and inventory restocking alerts (AI-010).  
FR-020: The system shall support background removal and enhancement for product images (AI-011).  
FR-021: Sellers shall view all customer orders and logistics status.  
FR-022: Sellers shall request delivery quotations and select logistics partners.  
FR-023: The system shall allow tracking of goods sourced from China to Cameroon via logistics API integration.

### 3.3 Logistics Partner Features

FR-024: The system shall allow logistics partners to register, define regions and rates, and receive order requests.  
FR-025: Logistics providers shall have dashboards to manage shipments and delivery confirmations.  
FR-026: The system shall track logistics from pickup (China) to delivery (Cameroon).

### 3.4 Admin Features

FR-027: Admins shall access a secure dashboard for system control.  
FR-028: Admins shall approve or deactivate stores.  
FR-029: Admins shall review and remove inappropriate or AI-flagged content.  
FR-030: Admins shall create, edit, and delete coupon codes with parameters like expiry and target users.  
FR-031: Admins shall view AI-generated campaign analytics (AI-013).  
FR-032: Admins shall access AI-powered analytics dashboards showing trends, market insights, and system KPIs (AI-014).

## 4. AI FUNCTIONAL MODULES SUMMARY

|  |  |  |
| --- | --- | --- |
| Module | Feature | Purpose |
| AI-001 | Smart Product Categorization | Auto-classify uploaded items into correct categories |
| AI-002 | Visual Search | Let users find products via images |
| AI-003 | Semantic Search | Understand user intent and misspellings |
| AI-004 | Personalized Recommendations | Suggest relevant products |
| AI-005 | Cross-selling & Upselling | Boost cart value |
| AI-006 | Dynamic Pricing | Optimize product pricing |
| AI-007 | SEO-Optimized Descriptions | Auto-generate product text |
| AI-008 | Chatbot | Support customer queries |
| AI-009 | Sentiment Analysis | Track user satisfaction |
| AI-010 | Demand Forecasting | Predict restock needs |
| AI-011 | Image Enhancement | Improve visual quality |
| AI-012 | Fraud Detection | Prevent fake transactions |
| AI-013 | AI Marketing Campaigns | Auto-generate emails/posts |
| AI-014 | Business Intelligence | Provide advanced analytics |
| AI-015 | Automated Content Creation | Generate blog & FAQ content |

## 5. PERFORMANCE & SECURITY REQUIREMENTS

PR-001: Response time for most operations < 5 seconds.  
PR-002: 99.9% uptime and scalability for 10,000+ concurrent users.  
PR-003: Data encrypted in transit and at rest.  
PR-004: Role-based access control and secure API endpoints.  
PR-005: Daily AI logs and fraud detection monitoring.

## 6. INTEGRATION REQUIREMENTS

Compatible with Supabase (database + authentication) and AI APIs (e.g., Gemini, OpenAI).  
RESTful architecture for backend (Node.js / Next.js / Supabase).  
Local payment gateway integration (MTN/Orange Pay).  
Real-time synchronization between frontend (React/Next.js) and backend.

## 7. SUCCESS METRICS

• 30% increase in user engagement.  
• 25% improvement in conversion rate.  
• 90% accurate AI categorization.  
• 95% fraud detection accuracy.  
• 4.5/5 customer satisfaction rating.