# **Requirements Document: NordicLoop Marketplace Platform**

## **1. Introduction**

### **1.1 Purpose**

This document defines the functional and non-functional requirements for the NordicLoop Marketplace, an online auction platform where businesses trade waste materials. The platform connects industries to buy and sell surplus waste, reducing costs and promoting sustainability through a bidding system, with features like user dashboards, admin oversight, subscriptions, and post-transaction chat.

### **1.2 Scope**

The NordicLoop Marketplace will enable:

* A redesigned homepage with a "Coming Soon" notice as the initial step.
* Business user registration with a unified role (users can act as both buyers and sellers).
* Posting and bidding on ads for waste materials, categorized by type.
* Listing all available ads on the platform
* Auction-style transactions with payment processing and pickup coordination.
* Dashboards for users to manage ads, bids, and transactions.
* Admin approval for businesses and platform oversight.
* Subscription tiers for enhanced features.
* Post-payment chat between auction winners and ad posters.

### **1.3 Stakeholders**

* **Business Users**: Industries that post ads for waste materials and bid on others’ ads.
* **Admins**: Platform operators approving businesses and managing operations.
* **Development Team**: Builders using Python Django, Next.js, and PostgreSQL.

## **2. Business Model Overview**

## **3. Functional Requirements**

### **3.1 User Management**

* Businesses register with details: company name, VAT, location, contact info, etc.
* Secure login/logout with unified user role (all users can post ads and bid).
* Profile management (e.g., update company details, view subscription status).
* **Admin must approve businesses before they can join and participate.**
* Password recovery via email.

### **3.2 Ad Posting and Management**

* Users can post ads for waste materials with fields: product name, price per kr (minimum bid), picture, category (e.g., metal, plastic, organic), quantity, and auction duration.
* Users can edit or delete their ads before the auction ends.
* Ads display sustainability details (e.g., type of waste, potential reuse).
* User can set the duration of the ads and terminate the ads before time

### **3.3 Bidding System**

* Users can browse available ads, filterable by category (e.g., metal waste, chemical waste).
* Users can place bids on ads they find appealing, with real-time updates on the highest bid.
* Each ad shows a list of bidding industries (named, timeof the bid, price per kr).
* Auction closes at the set duration; highest bidder wins and is notified.
* Users who post ads can also bid on other ads.

### **3.4 User Dashboard**

* Each user has a dashboard showing:
  + Their posted ads and current bid statuses.
  + Bids they’ve placed on other ads.
  + Completed transactions (won auctions or sold ads).
* Dashboard updates in real-time as bids are placed or auctions end.

### **3.5 Transaction and Payment**

* **FR5.1**: Upon auction close, the winner receives a notification with product details and mode of payment and other details.
* Payment processed via a secure gateway like escrwo.
* Transaction confirmation emailed to both winner and ad poster.
* Ad poster gets a dashboard for all transactions that occurred bothed faired or processed

### **3.6 Post-Transaction Chat**

* Chat feature unlocks between the bid winner and ad poster after payment is processed and approved.
* Chat supports communication for support, sample request, logistics, or other details.
* Chat history stored for reference within the platform.

### **3.7 Admin Dashboard**

* Admins can approve or reject business registrations based on verification.
* Admins can view, edit, or remove ads for compliance (e.g., inappropriate waste types).
* Admin dashboard tracks total auctions, transactions, and platform usage.

### **3.8 Subscription Feature**

* Businesses can opt into subscription tiers (e.g., basic, premium).
* Premium features include: priority ad visibility, bid analytics, or increased ad limits.
* Subscription status displayed and manageable in the user dashboard.

### **3.9 Homepage Redesign(PRIORITY)**

* Redesign and host the homepage at nordicloop.se with a "Coming Soon" notice.
* Include a brief tagline (e.g., "The Marketplace Where Waste Becomes a Resource") and a sign-up teaser for early access.
* Deploy on render as the first deliverable before full platform launch.

## **4. Non-Functional Requirements**

### **4.1 Performance**

* Handle 100 concurrent users with <2-second page loads.
* Real-time bid updates with <1-second latency.

### **4.2 Scalability**

* Support 1,000 active ads and 500 monthly auctions initially.
* Cloud-based infrastructure for scaling (e.g., AWS).

### **4.3 Security**

* Encrypt user data and bids (e.g., HTTPS, hashed passwords).
* Payment processed via Escrow gateway.

### **4.4 Usability**

* Intuitive, industry-focused UI, mobile-responsive.
* Clear bidding and ads status indicators.

### **4.5 Reliability**

* 95.9% uptime.
* Daily backups of ads, bids, and transactions.

## **5. Technical Requirements**

### **5.1 Tech Stack**

* **Backend**: Python Django with Django REST Framework for APIs.
* **Frontend**: Next.js for real-time UI and server-side rendering.
* **Database**: PostgreSQL for structured data (ads, bids, users).
* **Additional Tools**:
  + WebSockets (e.g., Django Channels) for real-time bidding.
  + AWS S3 for ad images.
  + Postmark for notifications and auction close tasks.

### **5.2 API Endpoints (Examples)**

* POST /api/auth/register/ - Business registration.
* POST /api/ads/ - Create a waste material ad.
* POST /api/bids/ - Place a bid on an ad.
* POST/api/category/-create a waste category
* GET /api/dashboard/ - Fetch user dashboard data.

### **5.3 Database Schema (Simplified)**

* **Users**: id, company\_name, industry, location, subscription\_tier.
* **Ads**: id, user\_id, product\_name, price\_per\_kr, category, image, quantity, auction\_end.
* **Bids**: id, ad\_id, user\_id, bid\_amount, timestamp.
* **Transactions**: id, ad\_id, winner\_id, payment\_status,
* **Chats**: id, transaction\_id, messages (JSON).
* **Waste\_category**: id, name , discription

## **6. Assumptions and Constraints**

### **6.1 Assumptions**

* Waste categories are predefined (e.g., metal, plastic, organic).
* Businesses handle pickup logistics post-auction.
* Initial focus on Nordic industries, expandable globally.

### **6.2 Constraints**

* Development timeline: ~4 months (homepage first, then platform).
* Dependency on real-time tech (e.g., WebSockets) for bidding.

## **7. Acceptance Criteria**

* **User Management**: Businesses register and are approved by admins.
* **Ads/Bidding**: Ads posted, bids placed, auctions completed successfully.
* **Dashboard**: Users see their ads, bids, and transactions.
* **Payment/Chat**: Payment unlocks chat between winner and seller.
* **Homepage**: "Coming Soon" page live at nordicloop.se.

## **8. Risks and Mitigation**

* **Risk**: Real-time bidding delays.
  + **Mitigation**: Use WebSockets and test under load.
* **Risk**: Low business adoption.
  + **Mitigation**: Launch with free tier and target waste-heavy industries.
* **Risk**: Homepage delays.
  + **Mitigation**: Prioritize and deploy as a static Next.js page early.

## **9. Future Enhancements**

* CO₂ savings calculator per transaction.
* Mobile app for on-the-go bidding.
* Multi-currency support beyond SEK.