# Business Requirements Document

# Mobile Application

## Document Control

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## 1. Introduction

### 1.1 Purpose

This document outlines the business requirements for the Mobile Application component of the Emtelaak Platform. The mobile app will provide investors and property issuers with a comprehensive mobile experience that delivers all core platform functionality in a user-friendly, secure, and performant mobile application.

### 1.2 Scope

The Mobile Application will provide the following capabilities: - User registration and authentication - Property browsing and discovery - Investment processing - Portfolio management - Secondary market trading - Notification management - Document access and management - Map-based property exploration - Offline capabilities for essential functions

### 1.3 References

* Project Charter (project-charter.docx)
* Development Approach and Tech Stack (development-approach.docx)
* Feature Comparison with Similar Platforms (emtelaak-feature-comparison.docx)

## 2. Stakeholders

### 2.1 Business Stakeholders

* Executive Sponsors
* Product Owner
* Marketing Team
* Customer Support Team

### 2.2 Technical Stakeholders

* Project Manager
* Technical Architect
* Mobile Development Team
* Backend Development Team
* QA Team
* UX/UI Design Team

### 2.3 End Users

* Investors (Individuals and institutions)
* Property Issuers
* Platform Administrators

## 3. Business Objectives

### 3.1 Primary Objectives

1. Develop a cross-platform mobile application with feature parity to the web platform
2. Provide an intuitive and engaging user experience optimized for mobile devices
3. Enable secure authentication with biometric options
4. Implement offline capabilities for essential functions
5. Integrate push notifications for timely updates and engagement
6. Incorporate location-based features and map integration
7. Support all core investment and portfolio management functions

### 3.2 Success Criteria

1. Mobile app available on both iOS and Android platforms
2. 90% feature parity with web platform
3. Excellent app store ratings (4.5+ out of 5)
4. 60% of active users accessing via mobile app
5. 30% increase in user engagement compared to web-only access
6. Sub-3 second response time for critical functions

## 4. Business Requirements

### 4.1 User Access Requirements

#### 4.1.1 Authentication & Security

1. **Authentication Methods**
   * Email and password authentication
   * Biometric authentication (fingerprint, facial recognition)
   * PIN code authentication
   * Multi-factor authentication
   * Persistent login option with security measures
2. **Session Management**
   * Secure session handling
   * Automatic logout after inactivity
   * Background session management
   * Device-specific session tracking
   * Concurrent session management
3. **Security Features**
   * App-level encryption
   * Secure storage for sensitive data
   * Certificate pinning
   * Jailbreak/root detection
   * Secure keyboard for financial data entry

#### 4.1.2 Profile Management

1. **User Profile**
   * Profile viewing and editing
   * Contact information management
   * Password change
   * Two-factor authentication setup
   * Communication preferences
   * Profile picture management
2. **Settings Management**
   * App preferences
   * Notification settings
   * Biometric authentication toggle
   * Dark/light mode
   * Language selection
   * Regional settings (currency, date format)

### 4.2 Property Discovery Requirements

#### 4.2.1 Property Browsing

1. **Property Listings**
   * Grid and list view options
   * Property card with key information
   * High-quality property images
   * Quick filters and sorting options
   * Saved searches
   * Recently viewed properties
2. **Search Functionality**
   * Advanced search filters
   * Location-based search
   * Investment criteria search
   * Keyword search
   * Search history
   * Search suggestions
3. **Property Categories**
   * Property type categorization
   * Featured properties section
   * New listings highlight
   * Trending properties
   * Recommended properties based on preferences
   * Similar property suggestions

#### 4.2.2 Property Details

1. **Property Information**
   * Comprehensive property details
   * High-resolution photo gallery
   * Floor plans and architectural drawings
   * Property specifications
   * Location information
   * Financial details and projections
2. **Virtual Tours**
   * 360° panoramic views
   * Interactive 3D tours
   * Video walkthroughs
   * Augmented reality features
   * Virtual staging options
3. **Map Integration**
   * Property location on map
   * Neighborhood information
   * Points of interest around property
   * Transportation options
   * Schools and amenities
   * Street view integration

#### 4.2.3 Offering Information

1. **Investment Details**
   * Offering structure
   * Minimum investment amount
   * Expected returns
   * Fee structure
   * Investment timeline
   * Exit strategy
2. **Offering Documents**
   * Offering memorandum
   * Financial projections
   * Legal documents
   * Property reports
   * Document download for offline viewing
3. **Investor Tools**
   * Investment calculator
   * Return estimation tool
   * Comparison tool
   * Investment simulation
   * Historical performance of similar investments

### 4.3 Investment Requirements

#### 4.3.1 Investment Process

1. **Investment Flow**
   * Step-by-step investment process
   * Investment amount selection
   * Payment method selection
   * Document review and signing
   * Investment confirmation
   * Transaction receipt
2. **Payment Processing**
   * Secure payment gateway integration
   * Multiple payment method support
   * Payment verification
   * Transaction history
   * Saved payment methods
3. **Investment Tracking**
   * Pending investment status
   * Investment confirmation
   * Funding progress tracking
   * Offering status updates
   * Post-investment next steps

#### 4.3.2 Portfolio Management

1. **Portfolio Dashboard**
   * Portfolio overview
   * Investment performance metrics
   * Dividend history and projections
   * Property valuation updates
   * Total return calculation
   * Asset allocation visualization
2. **Investment Details**
   * Individual investment details
   * Ownership confirmation
   * Distribution history
   * Document access
   * Property updates
   * Performance vs. projections
3. **Portfolio Analytics**
   * Performance analytics
   * Portfolio diversification metrics
   * Historical performance charts
   * Comparison to benchmarks
   * Risk assessment
   * Future projection tools

### 4.4 Secondary Market Requirements

#### 4.4.1 Trading Functionality

1. **Market Overview**
   * Available properties for trading
   * Market statistics
   * Price information
   * Trading volume
   * Market trends
   * Watchlist functionality
2. **Order Management**
   * Buy/sell order placement
   * Order modification
   * Order cancellation
   * Order status tracking
   * Order history
   * Trade confirmations
3. **Market Data**
   * Real-time pricing (where applicable)
   * Historical price charts
   * Order book visualization
   * Market depth information
   * Price alerts

#### 4.4.2 Portfolio Trading

1. **Portfolio Trading**
   * Direct sell from portfolio holdings
   * Buy additional shares of owned properties
   * Transfer shares to other users
   * Trading eligibility verification
   * Tax lot selection for selling
2. **Trading History**
   * Comprehensive transaction history
   * Cost basis tracking
   * Realized gain/loss calculation
   * Tax reporting information
   * Trade confirmation documents

### 4.5 Communication Requirements

#### 4.5.1 Notification System

1. **Push Notifications**
   * Investment opportunities
   * Transaction confirmations
   * Dividend announcements
   * Property updates
   * Document notifications
   * Market alerts
   * System notifications
2. **Notification Management**
   * Notification preferences
   * Notification history
   * Notification grouping
   * Quick actions from notifications
   * Silent notifications
3. **In-app Notifications**
   * Notification center
   * Unread notification indicators
   * Notification priority levels
   * Action-required notifications
   * Notification detail view

#### 4.5.2 Messaging System

1. **Inbox**
   * Message center
   * Message categorization
   * Read/unread status
   * Message search
   * Message archiving
2. **Support Communication**
   * In-app support chat
   * Support ticket creation and tracking
   * Document sharing with support
   * FAQ access
   * Help center integration

### 4.6 Offline Capabilities

#### 4.6.1 Offline Access

1. **Cached Content**
   * Previously viewed properties
   * Downloaded documents
   * Portfolio information
   * Transaction history
   * User profile information
2. **Offline Actions**
   * Draft investment intentions
   * Save property searches
   * Queue orders for execution
   * Form completion offline
   * Document review offline
3. **Synchronization**
   * Background synchronization when online
   * Selective content synchronization
   * Sync status indicators
   * Conflict resolution
   * Data usage controls

## 5. Integration Requirements

### 5.1 Backend Integration

1. **API Integration**
   * RESTful API connectivity
   * GraphQL support (if applicable)
   * API version management
   * Endpoint security
   * Rate limiting handling
   * Caching strategies
2. **Real-time Updates**
   * WebSocket connections for real-time data
   * Push notification service integration
   * Market data streams
   * Live property updates
   * Status change propagation
3. **Offline Sync**
   * Conflict resolution algorithms
   * Data prioritization for sync
   * Background synchronization
   * Retry mechanisms
   * Data integrity verification

### 5.2 Third-party Integrations

1. **Map Services**
   * Google Maps/Apple Maps integration
   * Location services
   * Geolocation capabilities
   * Map rendering optimization
   * Custom map styling
   * Points of interest integration
2. **Payment Gateways**
   * Secure payment processing
   * Multiple payment method support
   * 3D Secure implementation
   * Payment verification
   * Receipt generation
3. **Document Services**
   * Document viewer integration
   * PDF rendering
   * Document annotation
   * E-signature integration
   * Document storage optimization
4. **Analytics**
   * Mobile app analytics
   * User behavior tracking
   * Conversion tracking
   * Error reporting
   * Performance monitoring
   * A/B testing support

## 6. Non-functional Requirements

### 6.1 Performance Requirements

1. **Response Times**
   * App launch < 2 seconds
   * Screen transitions < 0.5 seconds
   * Data loading < 3 seconds
   * Search results < 2 seconds
   * Image loading optimization
2. **Resource Utilization**
   * Battery usage optimization
   * Memory footprint management
   * CPU usage optimization
   * Network bandwidth efficiency
   * Storage optimization
3. **Offline Performance**
   * Graceful degradation without network
   * Clear offline status indicators
   * Minimal functionality disruption
   * Background sync efficiency
   * Offline content access speed

### 6.2 Scalability Requirements

1. **User Scalability**
   * Support for 100,000+ mobile app users
   * Concurrent user support (10,000+)
   * Performance consistency at scale
2. **Content Scalability**
   * Efficient handling of 10,000+ property listings
   * Large portfolio management (100+ investments)
   * Document library scaling
   * Image gallery performance with many images

### 6.3 Reliability Requirements

1. **App Stability**
   * Crash rate < 0.5%
   * Automatic crash reporting
   * Error recovery mechanisms
   * State preservation after crashes
   * Graceful error handling
2. **Network Resilience**
   * Handling of poor network conditions
   * Connection retry logic
   * Data integrity during connection issues
   * Timeout management
   * Network change handling

### 6.4 Compatibility Requirements

1. **Platform Support**
   * iOS 15.0 and above
   * Android 10.0 and above
   * Tablet optimization
   * Screen size adaptability
   * Orientation support (portrait/landscape)
2. **Device Compatibility**
   * Support for wide range of device capabilities
   * Adaptive UI for different screen sizes
   * Accessibility support
   * Device feature detection
   * Graceful feature degradation

### 6.5 Security Requirements

1. **Data Security**
   * Sensitive data encryption
   * Secure storage implementation
   * Credential management
   * Session security
   * Screen security (screenshot prevention for sensitive data)
2. **App Security**
   * Code obfuscation
   * Tamper detection
   * Secure communication
   * Certificate pinning
   * Jailbreak/root detection

## 7. User Experience Requirements

### 7.1 User Interface

1. **Design System**
   * Consistent design language
   * Component library
   * Typography system
   * Color system
   * Iconography
   * Animation guidelines
2. **Navigation Patterns**
   * Intuitive navigation hierarchy
   * Tab-based main navigation
   * Gesture navigation support
   * Deep linking
   * Screen transitions
   * Back navigation behavior
3. **Accessibility**
   * Screen reader support
   * Dynamic text sizes
   * Color contrast compliance
   * Touch target sizing
   * Keyboard navigation (external keyboards)
   * Voice control compatibility

### 7.2 User Flows

1. **Onboarding**
   * First-time user experience
   * Feature introduction
   * Progressive disclosure
   * Contextual help
   * Tutorial elements
   * Setup wizards
2. **Core Flows**
   * Property discovery flow
   * Investment flow
   * Portfolio review flow
   * Trading flow
   * Document access flow
   * Settings management flow
3. **Error Handling**
   * User-friendly error messages
   * Recovery suggestions
   * Error prevention
   * Validation feedback
   * Progress preservation during errors
   * Error reporting options

## 8. Reporting and Analytics

### 8.1 User Analytics

1. **Usage Analytics**
   * User engagement metrics
   * Feature usage statistics
   * Session duration and frequency
   * User retention metrics
   * Conversion funnel analytics
   * Drop-off points identification
2. **Performance Analytics**
   * App performance metrics
   * Screen load times
   * API response times
   * Crash reporting
   * Error tracking
   * Network performance analytics
   * Resource utilization tracking

### 8.2 Business Analytics

1. **Conversion Analytics**
   * Property view to investment conversion
   * Registration to investment conversion
   * Notification to action conversion
   * Abandoned investment analysis
   * Effective marketing channels
2. **Feature Effectiveness**
   * Feature usage correlation with engagement
   * Feature usage correlation with investment
   * Search effectiveness analysis
   * Navigation path analysis
   * Content engagement metrics

## 9. Constraints and Assumptions

### 9.1 Constraints

1. Must maintain feature parity with web platform where appropriate
2. Must comply with App Store and Google Play Store guidelines
3. Must support minimum iOS and Android versions specified
4. Must function effectively with varying network conditions
5. Must optimize for mobile device resource limitations

### 9.2 Assumptions

1. Users will have access to modern mobile devices
2. Backend APIs will be designed to support mobile-specific requirements
3. Users will accept push notifications for important updates
4. Flutter framework will provide adequate performance and capability
5. Third-party integrations will have mobile-compatible APIs or SDKs

## 10. Appendices

### 10.1 Glossary

* **API**: Application Programming Interface
* **SDK**: Software Development Kit
* **UI**: User Interface
* **UX**: User Experience
* **Push Notification**: Message sent to a mobile device when the app is not in use
* **Deep Linking**: Technology that takes users directly to specific in-app content

### 10.2 Related Documents

* Mobile App Wireframes
* Mobile App User Flow Diagrams
* API Specifications for Mobile
* Mobile App Design System
* Flutter Architecture Document