项目文档

# Functional Requirement

ID Function Requirement  
AMS-TRACK-001 Asset Tracking The system shall track the location, status, and ownership of assets across departments and projects.  
AMS-TRACK-002 Asset Tracking The system shall allow users to update asset status (e.g., moved, repaired, retired) using a streamlined interface that minimizes user input.  
AMS-TRACK-003 Asset Tracking The system shall support barcode scanning to enable on-the-go asset status updates and tracking.  
AMS-REPORT-001 Reporting The system shall generate audit reports that include expense breakdowns by department and project.  
AMS-REPORT-002 Reporting The system shall generate budget planning reports that compare historical forecasts with actual figures.  
AMS-REPORT-003 Reporting The system shall allow users to filter reports by cost center, vendor, category, and timeline.  
AMS-REPORT-004 Reporting The system shall enable users to export reports to PDF and Excel formats.  
AMS-REPORT-005 Reporting The system shall provide a real-time dashboard to visualize the status of all asset-related requests and workflows.  
AMS-WF-001 Workflow Management The system shall implement a step-by-step approval process for asset transfers and purchases.  
AMS-WF-002 Workflow Management The system shall automatically route approval requests to the appropriate approvers and notify them via email or in-app alerts.  
AMS-WF-003 Workflow Management The system shall allow users to attach justifications and supporting documentation at each step of the approval process.  
AMS-WF-004 Workflow Management The system shall enforce compliance checks, such as preventing the transfer of retired assets.  
AMS-IMP-001 Data Import The system shall support automated data import from CSV, Excel, and PDF files.  
AMS-IMP-002 Data Import The system shall validate data during import to flag inconsistencies or missing fields.  
AMS-IMP-003 Data Import The system shall enable scheduled automated exports for regular reporting needs.  
AMS-IMP-004 Data Import The system shall ensure data exports are presented in a clean, consistent format.  
AMS-INT-001 Integration The system shall automatically extract key data from emails (e.g., customer name, order number, date) and populate the relevant asset records.  
AMS-INT-002 Integration The system shall integrate with HR systems to update user permissions automatically when roles or departments change.  
AMS-INT-003 Integration The system shall support integration with procurement and finance systems to enable seamless approval and budget tracking.

# External Description

The system shall comply with all university and regulatory standards for asset depreciation and software usage.  
  
| Constraint ID | Statement | Priority | Rationale | Source | Acceptance Criteria |  
|---------------|-----------|----------|-----------|--------|---------------------|  
| R-Reg-001 | The system shall comply with university and regulatory standards for asset depreciation and software usage. | Must Have | Compliance is essential to avoid legal and financial penalties. | NFR-4 | All asset depreciation calculations and software usage records are auditable and align with current regulatory guidelines. |  
  
## 5.2 Hardware Constraints  
  
The system shall operate within the following hardware constraints:  
  
| Constraint ID | Statement | Priority | Rationale | Source | Acceptance Criteria |  
|---------------|-----------|----------|-----------|--------|---------------------|  
| H-Hard-001 | The system shall support desktop or laptop computers with modern processors and a minimum of 8 GB RAM. | Should Have | Ensures compatibility with the majority of current organizational devices. | 5.1.1 | The system shall be fully functional on devices meeting the specified hardware requirements. |  
| H-Hard-002 | The system shall support mobile devices with camera support for barcode scanning. | Must Have | Enables on-site personnel to perform asset updates efficiently. | 5.1.2 | The mobile interface shall support barcode scanning and function correctly on a range of mobile devices. |  
  
## 5.3 Interface Constraints  
  
The system shall be compatible with the following interfaces and protocols:  
  
| Constraint ID | Statement | Priority | Rationale | Source | Acceptance Criteria |  
|---------------|-----------|----------|-----------|--------|---------------------|  
| I-Int-001 | The system shall provide a web-based user interface compatible with modern browsers (Chrome, Firefox, Edge). | Must Have | Ensures accessibility and usability for a wide range of users. | 5.2.1 | The system shall function correctly on the specified browsers. |  
| I-Int-002 | The system shall integrate with existing HR, finance, and procurement systems (exact APIs and protocols to be defined). | Must Have | Ensures seamless data synchronization and compliance with internal policies. | 5.2.2 | Integration shall be functional and secure, with defined APIs and protocols. |  
| I-Int-003 | The system shall maintain an immutable audit log of all user actions and system events. | Must Have | Provides a secure and tamper-proof record of all system activity. | 5.2.3 | Audit logs shall be unalterable and accessible for compliance and audit purposes. |  
| I-Int-004 | The system shall support integration with email systems to extract key data from emails (e.g., customer name, order number, date) and populate the relevant asset records. | Should Have | Enhances data entry efficiency and reduces manual input errors. | FR-17 | Email integration shall be able to extract and populate asset records accurately. |  
  
## 5.4 Design and Implementation Constraints  
  
The system shall adhere to the following design and implementation constraints:  
  
| Constraint ID | Statement | Priority | Rationale | Source | Acceptance Criteria |  
|---------------|-----------|----------|-----------|--------|---------------------|  
| D-Des-001 | The system shall implement role-based access control (RBAC) to ensure data confidentiality and integrity. | Must Have | Prevents unauthorized access and ensures data security. | 5.2.5 | RBAC shall be implemented and enforce user access at asset, field, or role level. |  
| D-Des-002 | The system shall support granular access control at the asset, field, or role level. | Must Have | Provides flexibility and security for diverse user roles. | NFR-5 | Access control shall be configurable at the asset, field, or role level. |  
| D-Des-003 | The role and permission model shall be flexible and easily adaptable to accommodate new departments or changes in user roles. | Must Have | Ensures the system remains usable as the organization evolves. | NFR-6 | Role and permission changes shall be implemented without requiring major system modifications. |  
| D-Des-004 | The system shall use TLS 1.3 or higher for all data transfers. | Must Have | Ensures secure communication between the system and its users. | 5.2.6 | All data transfers shall be encrypted using TLS 1.3 or higher. |  
| D-Des-005 | The system shall handle 500+ asset records efficiently, with quick data retrieval and processing times. | Should Have | Ensures performance is acceptable for typical organizational usage. | NFR-1 | The system shall process and retrieve 500+ asset records within 2 seconds. |  
| D-Des-006 | The system shall support future expansion, including the addition of new asset types and departments. | Should Have | Ensures the system remains scalable and adaptable to organizational growth. | NFR-2 | The system shall be able to add new asset types and departments without major rework. |  
  
## 5.5 Other Constraints  
  
The system shall operate within the following constraints:  
  
| Constraint ID | Statement | Priority | Rationale | Source | Acceptance Criteria |  
|---------------|-----------|----------|-----------|--------|---------------------|  
| O-Other-001 | The system shall be accessible via a secure, internal network with optional external access through a secure gateway. | Must Have | Ensures secure access for both internal and external users. | 5.3.1 | The system shall be accessible via a secure internal network and a secure external gateway. |  
| O-Other-002 | Mobile access shall require a stable internet connection and support offline data caching for limited scenarios. | Should Have | Ensures usability in scenarios with limited connectivity. | 5.3.2 | The system shall support offline data caching on mobile devices for limited use cases. |  
| O-Other-003 | Legacy data will be migrated to the system at a later stage, with the exact method to be determined. | Not Applicable | Migration method is a future task and not a current requirement. | 2.4.3 | The system shall be designed to support legacy data migration once the method is determined. |