Systems Analysis: Requirements

Milestone 2 Systems Analysis: Requirements

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# Background

## Problem Statement

## The inefficiencies in our current asset management system are multifaceted, stemming from an outdated framework incapable of accurately tracking the lifecycle of assets across various departments and geographical locations. This system's shortcomings have led to frequent instances of duplicated entries, asset misplacements, and a significant lack of accountability. Such issues compromise operational efficiency and directly impact the financial standing of the organization by inflating costs and diverting resources from critical areas of operation. The absence of real-time data and automated processes exacerbates these challenges, hindering effective decision-making and strategic asset planning.

## Technology Solution

  We propose the development of an integrated asset management system designed to unify serialized asset tracking with advanced stockroom management capabilities. This new system will harness state-of-the-art technology to deliver real-time asset tracking and automated inventory management. By integrating advanced algorithms and machine learning models, the system will predict maintenance needs and optimize stock levels, thereby reducing operational downtime and minimizing costs. Enhanced security measures, including biometric access and encrypted data storage, will safeguard sensitive information, ensuring compliance with global data protection regulations and reinforcing system integrity against cyber threats.

# Fact Finding Techniques

For our asset management system, we focus on Joint Application Development (JAD) sessions and detailed interviews to ensure comprehensive requirement gathering and stakeholder engagement. These methods are especially effective in capturing diverse input and facilitating collaborative decision-making.

**Joint Application Development (JAD):**

JAD sessions are highly effective in developing business and system requirements through collaborative and structured workshops involving key stakeholders. These sessions are pivotal in fostering a collaborative environment where stakeholders from IT, operations, finance, and executive leadership actively participate in shaping the system. Scott Tilley describes JAD as “a popular fact-finding technique that brings users into the development process as active participants.” (Tilley, 2019, p. 109) We leverage JAD sessions to accelerate the requirements gathering process while fostering an environment of mutual understanding and collaborative problem-solving. These sessions also facilitate preemptive identification and resolution of potential discrepancies in system requirements, ensuring a unified vision and approach before development commences. During these sessions:

* Setup and Preparation: Pre-session preparation involves selecting participants, defining objectives, and preparing materials. Careful planning ensures that sessions are focused and productive.
* Facilitated Workshops: A trained facilitator guides participants through the process of discussing existing systems and proposing enhancements. Tilley notes that "JAD workshops help in clarifying requirements for both users and developers, reducing ambiguities that often arise during the development process" (Tilley, 2020, p. 110).
* Interactive Requirement Gathering: Stakeholders from various departments, including IT, operations, and finance, collaboratively define requirements. This interactive approach ensures that all voices are heard, and that the final system reflects the needs of all users.
* Consensus and Approval: Before concluding the sessions, requirements are reviewed, prioritized, and approved by all stakeholders, ensuring alignment with business objectives and technical feasibility.
* JAD Additional Benefits: Beyond gathering requirements, JAD sessions will serve as a platform for preemptive troubleshooting and innovation brainstorming. These sessions will include real-time prototype testing where possible, allowing immediate feedback and iterative design adjustments.

**Interviews**

Conducting structured interviews with end-users and stakeholders across the organization provides invaluable insights into individual and department-specific challenges. According to Scott Tilley, To get an accurate picture, the analyst must select the right people to interview and ask them the right questions.” (Tilley, 2019, p. 116) The insights gathered are analyzed to distill common themes and unique needs, which are crucial in designing a user-centric solution that enhances productivity and user satisfaction.

* Preparation and Conduct: Interviewers prepare by understanding the background of the interviewees and tailoring questions to their area of expertise. This preparation ensures that the information gathered is relevant and comprehensive.
* Analysis of Responses: Responses are analyzed to identify common themes and unique insights. This analysis helps in understanding the range of user needs and preferences, contributing significantly to the design of user-centric solutions.
* Feedback Integration: Feedback from interviews is integrated into the system design process to ensure that the system aligns with user workflows and enhances productivity.
* Interviews Follow-ups: Enhanced interview processes will include follow-up sessions to validate the information gathered and ensure all stakeholder concerns are addressed. This iterative interview process will help refine system specifications and user interfaces according to direct user feedback and evolving organizational needs.

By utilizing JAD sessions and interviews, we aim to create a well-rounded approach to requirement gathering that not only accelerates the process but also enhances stakeholder buy-in and satisfaction. These techniques, as highlighted by Scott Tilley, are instrumental in bridging the gap between user expectations and technological capabilities, ensuring the development of a system that is both effective and well-accepted by its users.

# Business Function 1: Serialized Asset Tracking

## Purpose

## The primary purpose of the Serialized Asset Tracking system is to maintain accurate and real-time records of all assets throughout their lifecycle. This system is crucial for ensuring asset accountability, optimizing asset utilization, and supporting financial and compliance reporting.

## Process Map



## Business Requirements

* The system must allow for the registration and tagging of each asset with a unique serial number and other relevant metadata.
* It should provide facilities for tracking the location, status, and condition of each asset in real-time.
* Asset assignments to individuals or departments must be trackable with history logs to maintain accountability.
* The system should generate alerts for maintenance schedules and facilitate the logging of maintenance and repair activities.
* Comprehensive reporting features are required for asset tracking, valuation, depreciation, and compliance purposes.
* Integration with IoT devices for real-time location tracking of assets.
* Advanced analytics capabilities for predictive maintenance and asset depreciation models.
* Enhanced user interface customized to different user roles, providing relevant data visualization and reporting tools.

# Business Function 2: Stockroom Management

## Purpose

Stockroom Management is designed to efficiently manage the inventory of IT assets within an organization’s various stockrooms. The system will enhance the storage, retrieval, and security of assets, thereby improving operational efficiency and reducing asset misplacement.

## Process Map



## Business Requirements

* Each stockroom must have distinct identification within the system to track multiple locations effectively.
* Real-time inventory tracking capabilities with automated alerts for low stock levels and potential stock-outs.
* Secure access control systems must be integrated to manage and monitor access to the stockrooms.
* The system should provide detailed logs of asset movements in and out of stockrooms to ensure traceability.
* Reporting functionalities are needed for inventory management, usage tracking, and audit trails.

# Business Function 3: Asset Entry and Request

## Purpose

## The purpose of the Asset Entry and Request Process is to ensure a seamless transition of assets from acquisition to deployment, facilitating efficient asset management and availability for operational use. This process enhances accountability and asset utilization by providing an organized method for asset entry, request, and fulfillment.

## Process Map



## Business Requirements

* The system must provide a comprehensive interface for asset entry that captures all necessary asset details and automatically generates unique identifiers for new assets.
* Employees must be able to easily submit requests for assets, view asset availability in real-time, and receive updates on the status of their requests.
* Automated alerts should notify the service team of new requests and remind them of pending fulfillment tasks.
* The system should maintain detailed logs of asset entries, requests, and status updates to support tracking and reporting requirements.
* Integration with existing organizational tools for notifications and communications is required to ensure seamless updates to employees.

# Business Function 4: Security System

## Purpose

The purpose of the System Security process is to safeguard the asset management system against unauthorized access and ensure that data integrity and confidentiality are maintained. This process supports compliance with organizational security policies and external regulations. The security system is designed not just to protect against unauthorized access but also to ensure that all interactions with the asset management system are traceable and auditable. This transparency supports stringent compliance requirements and fosters trust in the system's reliability and integrity.

## Process Map



## Business Requirements

* The system must integrate seamlessly with the existing SSO solution to ensure secure and simplified access management.
* Mandatory enforcement of two-factor authentication for all users to enhance security protections.
* Configurable role-based access controls must be established, allowing for the definition and adjustment of access permissions as organizational roles evolve.
* Comprehensive logging of all user activities and security events within the system, with secure storage of logs for a predefined period.
* Regular security audits must be facilitated by the system, capable of generating audit reports for review by the security team.

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# References

Tilley, S. (2019). *System Analysis and Design.* Boston, MA: Cengage.