**PROJECT DESIGN**

|  |  |
| --- | --- |
| Date | 29-05-2025 |
| Team ID | LTVIP2025TMID28829 |
| Project Name | Medical Inventory Management |
| Maximum Marks | 2 Marks |

**4.1 Problem-Solution Fit Matrix**

**Introduction**

A **Problem-Solution Fit Matrix** is a design thinking tool used to systematically map core problems faced by end-users with targeted, implementable solutions. For our project, the primary users — hospital inventory managers, procurement officers, and administrative staff — face several operational inefficiencies due to manual processes, lack of visibility, and poor alert systems.

This matrix ensures that **every pain point identified** during the ideation and requirement phases is addressed through a **feature, process, or tool** in the Salesforce-based implementation.

**Methodology**

We structured the Problem-Solution Fit Matrix in the following steps:

1. Collected real-world pain points through empathy maps and stakeholder interviews.
2. Validated problems by frequency and impact severity.
3. Mapped each problem to a direct or indirect solution (process, feature, or automation).
4. Grouped solutions into categories: Automation, Visibility, Compliance, and Usability.

Each row in the matrix answers:  
**“What’s the problem, and how are we solving it?”**

**Problem-Solution Fit Matrix**

| **Problem Statement** | **Proposed Solution** | **Salesforce Feature Used** | **Impact Level** |
| --- | --- | --- | --- |
| Frequent stockouts of critical medical supplies | Automated stock threshold alerts and reordering reminders | Flow Builder, Email Alerts, Inventory Object | High |
| Manual inventory updates lead to errors and delays | Barcode-based check-in and digital record updates | Custom Object + Mobile UI | High |
| Lack of visibility into product expiry | Expiry date tracking with 30/60/90-day alert system | Scheduled Flows, Expiry Field | High |
| Tedious multi-level procurement approvals | Streamlined approval processes with role-based automation | Salesforce Approval Process | High |
| No centralized vendor management | Unified vendor database with ratings, categories, and delivery history | Custom Vendor Object | Medium |
| No proper tracking of delivered vs ordered quantity | Delivery reconciliation system during stock entry | Apex Trigger + Stock\_Log\_\_c | High |
| Delayed reporting for audits and procurement forecasting | Auto-generated reports and dashboards showing stock trends and expiry risks | Salesforce Reports & Dashboards | High |
| Difficulty in monitoring multiple department stocks simultaneously | Real-time dashboard showing departmental stock levels | Lightning Dashboard + Filters | High |
| Lack of mobile access during ward rounds | Mobile-responsive UI using Salesforce Mobile App | Lightning App + Salesforce1 | Medium |
| Risk of data loss due to spreadsheet dependency | All records stored on cloud with daily backup and audit logs | Salesforce Cloud Database + Setup Audit Trail | High |
| No way to evaluate vendor performance objectively | Vendor performance report based on on-time delivery, quality, and order fulfillment | Custom Formula Fields + Reports | Medium |
| Inconsistent naming/data formats across departments | Validation rules and picklists to standardize data entry | Validation Rules + Global Picklists | Medium |
| No alerts for near-expiry or idle stock | Automated idle stock and expiry alerts | Scheduled Flows + Reports | High |
| Lack of approval transparency (who approved what, when) | Approval tracking with audit trail and timestamped logs | Approval History + Field History Tracking | High |

**Solution Categorization by Functional Area**

| **Category** | **Mapped Features/Solutions** |
| --- | --- |
| **Automation** | Reordering Flows, Approval Processes, Alert Triggers, Report Scheduling |
| **Visibility** | Dashboards, Vendor History, Expiry Reports, Departmental Stock Views |
| **Compliance** | Audit Logs, Record Histories, Delivery Logs, Standardized Naming Conventions |
| **Usability** | Mobile Access, Validation Rules, Simplified UIs, Quick Actions for Stock Updates |

**Examples of Problem-Solution Fit in Action**

**Use Case 1: Preventing Expiry-Based Wastage**

* **Problem**: Medical supplies are discarded because expiry is detected late.
* **Solution**: Each inventory item has an expiry field. Scheduled flows scan the database weekly and send alerts for items expiring in 30/60/90 days.
* **Salesforce Tools Used**: Flow Builder, Scheduled Jobs, Reports

**Use Case 2: Improving Procurement Efficiency**

* **Problem**: Manual PO generation and follow-ups delay the process.
* **Solution**: The moment a stock request is approved, a Purchase Order is auto-generated and sent to the vendor’s email.
* **Salesforce Tools Used**: Approval Process, Flow, Email Alert, PO Object

**Use Case 3: Enhancing Audit Readiness**

* **Problem**: During audits, reports are incomplete or scattered.
* **Solution**: Pre-built dashboards include monthly consumption, vendor logs, and delivery logs exportable in one click.
* **Salesforce Tools Used**: Lightning Dashboards, Reporting API

**Prioritization Matrix: Problem Severity vs Solution Feasibility**

| **Quadrant** | **Examples** |
| --- | --- |
| High Severity, High Feasibility | Expiry alerts, Stock threshold warnings, Approval automation |
| High Severity, Low Feasibility | Real-time 3rd-party procurement API (planned for future) |
| Low Severity, High Feasibility | Vendor rating calculation, UI enhancements |
| Low Severity, Low Feasibility | AI-based demand forecasting (marked for future scope) |

**Conclusion**

The Problem-Solution Fit Matrix has guided every key decision in our system architecture. It ensured that:

* Each pain point is backed by a specific solution
* Solutions are technically feasible within the Salesforce ecosystem
* High-impact issues are resolved first to deliver maximum value early

By aligning problems with platform capabilities, we’ve ensured the **design is user-centric, scalable, and ready for real-world hospital operations**.