Module1 : Functional Design Document for SCM Procurement/Purchase Module

1. Introduction

This document provides a detailed functional design for the **Procurement/Purchase** module as part of a **Supply Chain Management (SCM)** system. The purpose of this module is to automate and manage the processes related to procurement, vendor management, order creation, purchase requisitions, purchase orders, goods receipt, and invoice management.

1.1 Purpose of the Procurement Module

The Procurement module within the SCM system will streamline and automate the processes of sourcing, ordering, and receiving goods and services. It ensures transparency, accuracy, and efficiency in managing supplier relationships, purchasing costs, and inventory levels. The module will integrate with inventory management, financial accounting, and other SCM functions.

1.2 Scope

The module will cover the following primary functionalities:

- Purchase Requisition Management
- Vendor Management
- Purchase Order Creation and Management
- Goods Receipt
- Invoice Verification and Management
- Reporting and Analytics

1.3 Objectives

- Automate procurement processes to reduce manual intervention.
- Ensure effective vendor selection and management.
- Improve order visibility and delivery tracking.
- Optimize inventory levels and stock replenishment.
- Integrate with financial systems for invoice processing and payment.

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2. Functional Requirements

2.1 Purchase Requisition Management

A purchase requisition is a formal request to procure goods or services.

2.1.1 Functionality:

- **Create Purchase Requisition (PR)**: Users can create requisitions for items required within the organization.
    - Input: Item description, quantity, estimated cost, required delivery date, department, reason for procurement.
    - Approval Workflow: The requisition goes through a predefined approval process before converting it to a purchase order.
    - Priority Levels: The ability to set priority levels (high, medium, low).
- **Approve/Reject PR**: Authorized users (e.g., procurement manager, department head) can approve or reject requisitions based on business rules.
    - Workflow configuration based on approval limits (e.g., dollar limits for different user roles).
- **PR Tracking**: Users can track the status of the requisition (e.g., submitted, approved, pending, rejected).
- **Convert PR to Purchase Order (PO)**: Once approved, a PR can be converted into a Purchase Order (PO) with minimal data entry.

2.1.2 Business Rules:

- Approval workflow based on cost thresholds.
- Only authorized users can create requisitions.
- History of all PRs (created, approved, rejected) must be stored for auditing.

2.2 Vendor Management

Vendor management involves maintaining a list of approved suppliers and their respective details.

2.2.1 Functionality:

- **Vendor Registration**: The system should support registering new vendors with necessary details such as name, contact information, products/services offered, pricing, and contract terms.
- **Vendor Rating**: Vendors are rated based on performance metrics like delivery time, quality, and service. This information should be captured and used for future procurement decisions.

- **Vendor Contracts**: The ability to associate vendor contracts with specific terms and conditions, including pricing, lead times, and warranties.
- **Preferred Vendor Selection**: Users can select a preferred vendor based on historical performance and contractual terms.

2.2.2 Business Rules:

- Vendor details should be validated before adding to the system.
- Vendor rating should be updated based on periodic performance reviews (e.g., quarterly, annually).
- Vendors must be associated with specific categories of goods/services.

2.3 Purchase Order Management

A Purchase Order (PO) is a document issued by the buyer to a vendor indicating types, quantities, and agreed prices for products or services.

2.3.1 Functionality:

- **Create PO**: Procurement users can create a Purchase Order based on approved requisitions or manual creation.
    - Input: Vendor selection, delivery location, terms and conditions, quantity, unit price, delivery date.
    - PO Number Generation: A unique PO number is automatically generated.
- **PO Approval Workflow**: Similar to requisition, the PO goes through an approval process before being finalized.
- **PO Changes**: Users can request changes to the PO (e.g., quantity adjustments, price changes) after initial creation, subject to approval.
- **PO Tracking**: Users can track the status of POs (e.g., open, partially delivered, closed).
- **PO Receiving**: Once goods are received, a Goods Receipt (GR) document is created in the system.

2.3.2 Business Rules:

- POs cannot exceed the approved budget or requisition amount.
- PO amendments require proper approval and audit trails.
- POs must be matched with invoices before processing payments.

2.4 Goods Receipt Management

The Goods Receipt (GR) document acknowledges that the items have been physically received.

2.4.1 Functionality:

- **Create GR Document**: Users can create a GR document upon receipt of goods, which includes item details, quantities, and supplier information.
- **GR Matching**: The GR document is matched against the PO for quantity, quality, and pricing accuracy. Any discrepancies are flagged for review.
- **Receiving Quality Check**: A quality control step should be included in the GR process to verify that items meet the required standards.
- **GR Close/Complete**: Once all items in the PO have been received, the GR can be marked as complete.

2.4.2 Business Rules:

- GR must be created before the invoice can be processed.
- Goods receipt discrepancies (e.g., over-shipments, damaged goods) must be documented and reviewed.

2.5 Invoice Management

Invoice management involves receiving and processing supplier invoices for payment.

2.5.1 Functionality:

- **Invoice Creation and Matching**: Users can create an invoice in the system. The invoice should be automatically matched against the PO and GR to ensure consistency.
    - If the invoice amount differs from the PO, the system should flag it for manual review.
- **Invoice Approval Workflow**: Invoices require approval before being sent for payment.
    - Different levels of approval depending on the amount (e.g., small invoices may need one approval, large invoices need multiple approvals).
- **Invoice Payment**: Once approved, the invoice is sent to the finance module for payment processing.

- **Discrepancy Resolution**: If there are discrepancies in the PO, GR, and invoice, these must be resolved before payment is made.

2.5.2 Business Rules:

- Invoices should match the PO and GR based on quantity, unit price, and total amount.
- Invoices with discrepancies require manual intervention and approval.
- Payment terms (e.g., net 30, net 60) should be adhered to.

2.6 Reporting and Analytics

Reporting is critical for monitoring procurement performance and financial planning.

2.6.1 Functionality:

- **Purchase Order Report**: Shows all open and closed POs, including vendor details, quantities, and delivery status.
- **Vendor Performance Report**: Provides data on vendor reliability, delivery times, quality, and cost-effectiveness.
- **Spend Analysis**: Displays total spend by vendor, department, and category.
- **Procurement Cycle Time**: Measures the time taken to complete a requisition from request to purchase.
- **Audit Trail**: Track changes and approvals in procurement transactions for auditing purposes.

2.6.2 Business Rules:

- Reports should be configurable to allow for custom filtering based on date range, vendor, department, etc.
- All reports should be exportable in formats like PDF, Excel, or CSV.

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3. System Integration

3.1 Integration with Inventory Management:

- Automatically update inventory levels based on GR.
- Trigger automatic reordering based on predefined stock levels.

3.2 Integration with Financial Accounting:

- Invoices should be sent directly to the accounting system for payment processing.
- Ensure accounting entries are created for PO creation, GR, and invoice payment.

3.3 Integration with Supplier Relationship Management (SRM):

- Synchronize vendor data (e.g., contact information, pricing) with the SRM system.

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4. Non-Functional Requirements

4.1 Security:

- Role-based access control for different functionalities (e.g., only procurement users can create POs).
- Secure authentication mechanisms (e.g., single sign-on, two-factor authentication).

4.2 Performance:

- The system should support at least 100 concurrent users without degradation in performance.
- All transactions (e.g., PR creation, PO generation) should be processed within 5 seconds.

4.3 Scalability:

- The system should be scalable to handle a growing number of users, vendors, and transactions.

4.4 Usability:

- The interface should be intuitive and easy to navigate, with minimal training required for end users.

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5. Conclusion

The Procurement module within the SCM system will improve operational efficiency, ensure compliance with procurement policies, and strengthen supplier relationships. By automating key procurement functions, organizations will benefit from streamlined workflows, enhanced visibility into purchasing activities, and better decision-making capabilities.

This document outlines the core functionality required for the procurement process. Future iterations may include additional capabilities based on user feedback and evolving business needs.