End to End Project on Supply Chain Logistic Domain for Business Analysts

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Project Name: Real-Time Supply Chain Visibility Platform Implementation

Project Objective: To implement a centralized, real-time supply chain visibility platform that enhances tracking of shipments, optimizes inventory management, reduces operational costs, and improves decision-making across the supply chain network.

Project Justification: The company is experiencing inefficiencies due to a lack of transparency in the supply chain, leading to delayed shipments, increased costs, and customer dissatisfaction. A real-time visibility platform will address these issues by providing accurate, timely information, thereby improving operational efficiency and competitive advantage.

Business Problem: The existing supply chain lacks end-to-end visibility, resulting in:

- Delayed shipments due to unforeseen disruptions.
- Inaccurate inventory levels causing stockouts or overstocking.
- Manual tracking processes leading to errors and inefficiencies.
- Inability to make proactive decisions due to outdated information.
- Poor communication between suppliers, carriers, and internal teams.

AS-IS State:

- **Processes:** Manual tracking of shipments and inventory using spreadsheets and emails.
- **Technology:** Disparate systems with limited integration; no centralized platform.
- **Data Management:** Inconsistent data formats; delayed data updates.

- **Communication:** Reactive communication with suppliers and carriers; siloed information.
- **Performance:** High operational costs; low customer satisfaction due to delays.

To-Be State:

- **Processes:** Automated tracking and inventory management with real-time updates.
- **Technology:** Centralized platform integrating all supply chain systems.
- **Data Management:** Standardized data formats; real-time data analytics.
- **Communication:** Proactive collaboration with all stakeholders via the platform.
- **Performance:** Reduced costs; improved customer satisfaction; data-driven decisions.

Project Stakeholders:

- **Project Sponsor:** Chief Operations Officer (COO)
- **Business Analyst**

- **Project Manager**
- **IT Department**
- **Supply Chain Management Team**
- **Warehouse Managers**
- **Suppliers and Carriers**
- **Sales and Customer Service Teams**
- **Customers**
- **Regulatory Compliance Team**

RACI Matrix:

Activity	Responsible	Accountable	Consulted	Informed
Requirements Gathering	Business Analyst	Project Manager	Supply Chain Team, IT Dept.	Stakeholders
System Design	IT Dept.	Project Manager	Business Analyst	Stakeholders
Vendor Selection	Business Analyst	Project Sponsor	IT Dept., Procurement	Stakeholders

Integration Development	IT Dept.	Project Manager	Suppliers, Carriers	Stakeholders
Testing and QA	IT Dept.	Project Manager	Business Analyst	Stakeholders
Training and Deployment	Business Analyst	Project Manager	Supply Chain Team	All Users
Post-Implementation Support	IT Dept.	Project Manager	Business Analyst	Stakeholders

Project In Scope Use Case:

- Implementing a platform for real-time tracking of shipments and inventory.
- Integration with suppliers' and carriers' systems for seamless data exchange.
- Providing dashboards and reports for supply chain analytics.

- Setting up alerts and notifications for delays or inventory issues.
- Training users on the new platform functionalities.

Project Out of Scope Use Case:

- Redesigning physical logistics networks.
- Changing suppliers or carriers.
- Overhauling the existing ERP system.
- Developing in-house hardware solutions.

Business Requirements:

1. **BR1:** The platform shall provide end-to-end visibility of the supply chain.
2. **BR2:** It shall integrate with existing internal systems and external partners' systems.
3. **BR3:** The system shall improve inventory accuracy to 99%.
4. **BR4:** It shall reduce shipment delays by 30% within the first year.

5. **BR5:** The platform shall enhance customer satisfaction ratings by providing accurate delivery estimates.

Functional Requirements:

1. **FR1:** The system must allow users to track shipments in real-time.
2. **FR2:** It must automatically update inventory levels upon shipment receipt.
3. **FR3:** The platform must generate alerts for delays, stockouts, and other exceptions.
4. **FR4:** It must provide role-based access control to protect sensitive data.
5. **FR5:** The system must generate customizable reports and analytics dashboards.

Non-Functional Requirements:

1. **NFR1:** The platform must be accessible 24/7 with 99.9% uptime.
2. **NFR2:** Data updates must reflect in the system within 2 minutes of occurrence.

3. **NFR3:** The system must comply with industry data security standards (e.g., ISO 27001).
4. **NFR4:** The platform should support up to 500 concurrent users without performance degradation.
5. **NFR5:** It must be user-friendly to minimize training requirements.

API Requirements:

1. **API1:** The system must provide RESTful APIs for data exchange with external systems.
2. **API2:** APIs must support secure authentication (e.g., OAuth 2.0).
3. **API3:** The platform must handle API requests and responses in JSON format.
4. **API4:** APIs should support batch data processing for bulk updates.

Integration Requirements:

1. **IR1:** Integration with suppliers' order management systems for purchase orders.

2. **IR2:** Integration with carriers' tracking systems for shipment status updates.
3. **IR3:** Integration with internal ERP and WMS for inventory synchronization.
4. **IR4:** Support for EDI standards to communicate with partners lacking API capabilities.

Database Requirements:

1. **DB1:** The database must store transactional data for at least 5 years.
2. **DB2:** It must support real-time data replication and backups.
3. **DB3:** The database should enforce data integrity and referential constraints.
4. **DB4:** It must be scalable to accommodate data growth over the next 10 years.

Transition Requirements:

1. **TR1:** Develop a data migration plan from legacy systems to the new platform.

2. **TR2:** Provide comprehensive training programs for all user groups.
3. **TR3:** Establish a support system for issues post-implementation.
4. **TR4:** Phase out old systems gradually to ensure business continuity.

Data Dictionary:

- **ShipmentID:** Unique identifier for each shipment.
- **OrderID:** Unique identifier for each customer order.
- **ProductID:** Unique identifier for each product.
- **LocationCode:** Code representing warehouse or distribution center.
- **Status:** Current status of the shipment (e.g., In Transit, Delivered).
- **ETA:** Estimated Time of Arrival for shipments.
- **InventoryLevel:** Current stock level of a product at a specific location.

Project Risks:

1. **Risk1:** Delays in system integration due to incompatible technologies.
    a. *Mitigation:* Conduct a thorough technical assessment during planning.
2. **Risk2:** Data security breaches during data transmission.
    a. *Mitigation:* Implement robust encryption and security protocols.
3. **Risk3:** Resistance to change from employees.
    a. *Mitigation:* Engage stakeholders early and provide change management support.
4. **Risk4:** Budget overruns due to unforeseen technical challenges.
    a. *Mitigation:* Include contingency funds in the budget.

Project Dependencies:

1. **Dependency1:** Availability of APIs from suppliers and carriers for integration.
2. **Dependency2:** Completion of internal system upgrades prior to integration.

3. **Dependency3:** Timely procurement of necessary hardware and software.
4. **Dependency4:** Regulatory approvals for data sharing with external partners.

Project Issues:

1. **Issue1:** Inconsistent data formats received from different partners.
    a. *Resolution:* Implement a data standardization module in the platform.
2. **Issue2:** Limited technical expertise within the team for new technologies.
    a. *Resolution:* Hire external consultants or provide training to the team.
3. **Issue3:** Network latency affecting real-time data updates.
    a. *Resolution:* Upgrade network infrastructure and optimize data transmission protocols.

Project Constraints:

1. **Constraint1:** The project must be completed within 12 months.
2. **Constraint2:** The budget is capped at $2 million.
3. **Constraint3:** The platform must comply with international trade regulations.

Project Assumptions:

1. **Assumption1:** All external partners are willing to participate in system integration.
2. **Assumption2:** No major changes in regulatory requirements during the project timeline.
3. **Assumption3:** Necessary resources (personnel, equipment) will be available as scheduled.

Glossary:

- **API (Application Programming Interface):** A set of protocols for building software applications.
- **EDI (Electronic Data Interchange):** The computer-to-computer exchange of business documents.

- **ERP (Enterprise Resource Planning):** Business process management software.
- **WMS (Warehouse Management System):** Software applications that support warehouse operations.
- **IoT (Internet of Things):** Network of physical objects embedded with sensors and software.
- **RFID (Radio-Frequency Identification):** Technology to encode digital data in RFID tags.
- **Supply Chain Visibility:** The ability to track products in transit from manufacturer to end-use