QuickShip Logistics Route Optimization Project

Requirement and Feasibility Assessment Analysis

The document outlines the design of the QuickShip Logistics Route Optimization Project plan. A digital solution designed to address the issue of manual route planning, order placement and customers dissatisfaction.

This document will consist of two major parts: the feasibility requirement (Answers question like, Is this really attainable, do we have the budget, what is the time frame like?) and requirement analysis (Gives details on what features should the system have and what's of most importance)

Review All Requirements and Identified Gaps

Requirements Overview

1. **Automated Order Validation**
    - **Need:** Ensure orders are complete and accurate upon placement.
    - **Gap:** Manual checks lead to delays and errors.
2. **Real-Time Inventory Management**
    - **Need:** Provide accurate product availability to customers.
    - **Gap:** Manual inventory checks cause inconsistencies.
3. **Automated Route Optimization**
    - **Need:** Improve delivery efficiency and reduce travel time.
    - **Gap:** Current manual route planning is inefficient.
4. **Centralized Communication System**
    - **Need:** Facilitate seamless communication between logistics, dispatchers, and drivers.
    - **Gap:** Fragmented communication slows response times.
5. **Real-Time Delivery Tracking**
    - **Need:** Offer customers visibility into their order status.
    - **Gap:** Limited tracking updates create uncertainty.
6. **Automated Delivery Confirmation**

- **Need:** Streamline the confirmation process post-delivery.
- **Gap:** Manual updates lead to inaccuracies in delivery records.

7. **Continuous Feedback Collection**
    - **Need:** Gather customer insights for ongoing service improvement.
    - **Gap:** Inconsistent feedback processes hinder responsiveness.

Identified Gaps Summary

Process Area	Gap Summary
Order Placement	Current manual validation vs. future automated checks.
Order Review	Manual inventory checks vs. real-time synchronization.
Route Planning	Inefficient manual planning vs. automated optimization.
Dispatch Notification	Manual notifications vs. centralized automated system.
Delivery Execution	Manual communication during delivery vs. real-time tracking tools.
Delivery Confirmation	Manual updates vs. automated status confirmations.
Post-Delivery Review	Inconsistent feedback collection vs. continuous integration.

MoSCoW Prioritization of Requirements Needed

Must-Have Requirements:

1. **Automated Order Validation**
    - Essential for reducing errors and ensuring order accuracy.
2. **Real-Time Inventory Management**
    - Critical for providing accurate product availability to prevent order issues.
3. **Automated Route Optimization**
    - Necessary for improving delivery efficiency and minimizing delays.

Should-Have Requirements:

4. Centralized Communication System

- Important for streamlining communication between teams, enhancing responsiveness.

5. Real-Time Delivery Tracking

- Valuable for increasing customer satisfaction through visibility into order status.

Could-Have Requirements:

6. Automated Delivery Confirmation

- Useful for streamlining post-delivery updates, but not critical.

7. Continuous Feedback Collection

- Beneficial for long-term improvements, though not immediately essential.

Won't-Have Requirements:

8. **Advanced Analytics Dashboards**

- While useful for insights, they are not necessary for the initial implementation and can be added later.

9. **Third-Party Integrations (Non-Essential)**

- Integrating with non-critical third-party systems can be deferred until core functionalities are established.

Critical Requirements, Trade-offs, Risks

Requirements	Importance	Trade-offs	Risk	Mitigation
Automated Order Validation	Essential for reducing errors and ensuring order accuracy.	Initial development costs and time required for implementation.	Implementation of delays due to unforeseen technical issues during development.	Conduct thorough testing and have a contingency plan in place.
Real-Time Inventory Management	Critical for providing accurate product availability to prevent order issues.	Potential integration challenges with existing systems may extend the timeline.	Integration with legacy systems may lead to data inconsistencies.	Plan for a phased integration approach and allocate resources for troubleshooting.
Automated Route Optimization	Necessary for improving delivery efficiency and minimizing delays.	Dependence on real-time data accuracy; requires reliable technology infrastructure.	Reliance on third-party data sources for traffic and routing could affect performance.	Evaluate multiple data sources and have backups to ensure reliability.

Feasibility Assessment Document

Feature	Budget Constraints	Technology Constraints	Timeline Constraints
Automated Order Validation	High. Cost-effective solutions exist, but initial investment is required for software development.	Requires new software but compatible with existing systems.	Short-term (3-6 months). Development can be completed quickly.
Real-Time Inventory Management	Moderate. Requires integration with existing systems,	Needs robust integration with current inventory	Medium-term (6-9 months). Integration may take longer due to

	which may increase costs	systems.	complexity.
Automated Route Optimization	High. Off-the-shelf solutions are available, but licensing fees need to be considered.	Utilizes GPS and mapping technologies, feasible with current infrastructure.	Short-term (3-6 months). Can be implemented alongside the order validation system.
Centralized Communication System	Moderate. Development costs depend on the complexity of the system.	May require new platforms, but many cloud-based solutions are available.	Medium-term (6-9 months). Requires careful planning and development.
Real-Time Delivery Tracking	High. Many existing platforms can be integrated within budget.	Can use existing GPS technology; integration is straightforward.	Short-term (3-6 months). Can leverage existing solutions.
Automated Delivery Confirmation	Moderate. Can be implemented alongside tracking systems, but additional costs may arise.	Simple integration with existing systems is feasible.	Medium-term (6 months). Should align with tracking implementation.
Continuous Feedback Collection	High. Simple tools are available that can fit within budget.	Can implement using basic survey tools; no major constraints.	Short-term (3 months). It can be initiated quickly with existing tools.