Business Analyst Project: QuickShip Logistics Route Optimization Project.

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Project Title

QuickShip Logistics Route Optimization Project.

Background

QuickShip Logistics is experiencing operational issues, including rising delivery costs and increased customer complaints regarding delayed shipments. The laborious and inefficient route design method fails to consider important elements including real-time traffic, vehicle load capacity, and balanced route assignments, contributing to these challenges. This has resulted in poor delivery performance, increased fuel usage, and strained customer relations.
The current dispatch and routing workflow involves manual order scheduling, basic route creation without advanced optimization, and limited real-time delivery tracking. Inefficiencies have an impact on customer happiness, operational expenses, and employee productivity.

Problem Statement

QuickShip Logistics is facing challenges due to inefficient delivery operations, resulting in high delivery costs and frequent late shipments.

- Frequent late shipments
- High delivery cost
- Inefficient delivery operation
- Increased fuel consumption

Having a solution for these problems will boost sales, improve customers satisfaction, reduce costs and most importantly enhance operational flow.

Project Objectives

- **Primary Objective:** Improve delivery efficiency and customer satisfaction by optimizing the dispatch and routing process.

- **Supporting Objectives (SMART - Specific, Measurable, Achievable, Relevant, Time-bound):**
    - **Reduce Delivery Costs:** Decrease average delivery costs by 15% within the next 6 months through optimized routing and fuel consumption management.
    - **Improve On-Time Delivery Rate:** Increase the on-time delivery rate from the current 75% to 95% within the next 6 months.
    - **Reduce Customer Complaints:** Decrease in the number of customer complaints related to late deliveries by 40% within the next 3 months.
    - **Automate Route Planning:** Implement a route optimization system that automates the route planning process for 90% of deliveries within the next 4 months.
    - **Improve Dispatcher Efficiency:** Reduce the average time spent by dispatchers on route planning per delivery by 50% within the next 3 months.
    - **Enhance Real-Time Visibility:** Provide real-time tracking of all vehicles and deliveries to dispatchers and customers within the next 4 months.
    - **Ensure Regulatory Compliance**: Ensure that all routes and driver schedules comply with relevant regulations (e.g., driver work-hour limits) within the next 2 months.

Requirement Gathering

● Stakeholders Engagement

I engaged with dispatchers, truck drivers, warehouse managers, vendors, and customers.

Why: To learn about their pain areas and expectations.

Result: I compiled a list of user needs such as frequent routes, real-time dashboards, customers complaints and automated order systems.

● Process Mapping

To better understand the root cause of the QuickShip Logistics problem, I drafted out a visual workflow of the existing manual route planning process being used.

Why: To identify and focus on the areas of delay, customers dissatisfaction, high cost consumption and overall inefficiency.

Result: I unraveled issues such as late updates, manual route planning, delayed delivery, etc.

- ## Requirements Documentation

Captured essential route planning requirements: real time tracking, automated route generation.

Why: To ensure that the proposed solution solves the actual business problems, needs.

Result: Integrate the route optimization software tool like Routific, Onfleet, OptimoRoute.

- ## Scope Definition

Helped define in-scope and out-of-scope

Why: To keep the project on track and achievable in 90 days or less.

Result: A well-structured scope document, clear timeline is developed.

In-Scope and Out-of-Scope

In-Scope

- **Assessment of Current Dispatch and Routing Processes:** Analyzing the existing workflows, data, and technologies used for order scheduling, route creation, and delivery tracking.
- **Requirements Gathering for a Route Optimization System:** Identifying and documenting the functional, non-functional, data, and interface requirements for a new or improved route optimization system. This includes stakeholder interviews and data analysis.
- **Evaluation of Route Optimization Solutions:** Researching and comparing different route optimization software options, including off-the-shelf solutions and potential custom development.
- **Development of a To-Be Process Design:** Creating a future-state process map that incorporates the route optimization system and outlines improved workflows.
- **High-Level Implementation Planning:** Developing a high-level plan for implementing the chosen route optimization solution, including key steps, timelines, and resource considerations.
- **Focus on Last-Mile Delivery:** The project will primarily focus on optimizing the "last mile" delivery process, from the warehouse to the customer's location.
- **Integration with GPS Mapping Services:** Ensuring the route optimization system integrates with GPS mapping services like Google Maps or Waze for real-time traffic data and navigation.

Out-of-Scope

- **Warehouse Management System (WMS) Implementation:** The project will *not* include a complete overhaul or replacement of the existing warehouse management system. However, integration with the WMS *is* in scope if required for data exchange.
- **Fleet Management:** The project will *not* focus on vehicle maintenance, fuel purchasing, or other aspects of fleet management, except where they directly impact route optimization (e.g., vehicle capacity).
- **Sales and Marketing Process Improvements:** The project will *not* address issues related to sales, marketing, or customer acquisition.
- **Detailed Software Development:** The project will *not* involve detailed software development or coding. The focus is on requirements gathering, solution evaluation, and high-level implementation planning.
- **Call Center Operations:** Improvements to the call center or customer service processes are out of scope, except where they directly relate to delivery status updates.
- **Global Supply Chain Optimization:** This project is focused on the local delivery operations and does not extend to optimizing the broader global supply chain.

Key Stakeholders

- Dispatchers
- Warehouse Managers
- Truck Drivers
- Customer Service Representatives
- IT Department
- Executive Management

Tools Used

- Google sheet and Slides: For presentations and documentations
- Microsoft Excel & PowerBI: For exploratory data analysis and interactive dashboard creation.
- Visio & Drawio: To visualize processes, map stakeholders relationships.

Project Deliverables

- As-Is Process Map of the current delivery workflow.
- Requirements Document for the route optimization system.
- Evaluation Report of potential route optimization solutions.
- To-Be Process Map of the future delivery workflow.
- High-Level Implementation Plan.
- Recommendation Report with findings and proposed solution.

Project Charter

The Project Charter PDF outlines the full project scope, objectives, and planning details. You can view and download the document for further details.

Outcome

Following a thorough evaluation of the clear, data-driven business case, the leadership team approved the QuickShip Logistics Route Optimization project. This paved the way for QuickShip Logistics to start its route optimization project. The approved pilot sought to cut operational expenses by 25% while reducing delivery costs and improving customer satisfaction.

Lessons Learned

Embarking on this project has helped me hone and sharpen these skills:

- Organize user requirements to guide decision making.
- Translate business challenges into data-backed solutions
- Collaboratively work with others, the team and efficiently use technical tools.
- Develop an on track and attainable scope for delivery