ChecklistGuro

Route Optimization Analysis Checklist

Data Gathering & Preparation

Focuses on collecting and cleaning the data needed for route optimization. This includes location data, traffic patterns, delivery windows, vehicle characteristics, and constraints.

Describe Data Sources (e.g., GPS data, TMS, customer addresses)

Write something...

Upload Customer Address Data (CSV, Excel, etc.)

Upload File

Number of Delivery Locations

Enter a number...

Define Depot Location (Latitude/Longitude)

Set My Current Location

Data Format of Location Data

- [ ] Latitude/Longitude
- [ ] Street Address
- [ ] Other

Average Package Weight (kg/lbs)

Enter a number...

Date Data Was Extracted/Collected

Enter date...

Describe any Data Cleaning/Transformation Steps

Write something...

Problem Definition & Objective Setting

Clearly defines the optimization problem and establishes specific, measurable objectives. This ensures the analysis focuses on the right goals.

Describe the overall logistical challenge this route optimization aims to address.

Write something...

Define the maximum allowable increase in delivery time (in minutes).

Enter a number...

What is the primary objective of the route optimization?

- [ ] Minimize Total Distance
- [ ] Minimize Travel Time
- [ ] Minimize Fuel Consumption
- [ ] Maximize Number of Deliveries
- [ ] Balance Distance & Time

Which constraints must be considered during optimization? (Select all that apply)

- [ ] Time Windows
- [ ] Vehicle Capacity
- [ ] Driver Hours
- [ ] Road Restrictions (e.g., weight limits, no-truck zones)
- [ ] Service Level Agreements (SLAs)

Define the total number of deliveries to be optimized.

Enter a number...

What is the start date for the optimization analysis?

Enter date...

Describe any specific customer requirements or service level agreements (SLAs) that must be adhered to.

Write something...

Algorithm Selection & Model Configuration

Choosing the appropriate route optimization algorithm (e.g., Traveling Salesperson, Vehicle Routing Problem solvers) and configuring it with relevant parameters.

Primary Optimization Algorithm

- [ ] Traveling Salesperson Problem (TSP)
- [ ] Vehicle Routing Problem (VRP)
- [ ] Genetic Algorithm
- [ ] Simulated Annealing
- [ ] Other (Specify in Long Text)

Number of Vehicles Considered

Enter a number...

Algorithm Specific Configuration Details (e.g., mutation rates, crossover probabilities)

Write something...

Objective Function Weighting (if applicable)

- [ ] Distance
- [ ] Time
- [ ] Fuel Consumption
- [ ] Cost

Maximum Route Deviation (for feasibility)

Enter a number...

Constraints Applied

- [ ] Time Windows
- [ ] Vehicle Capacity
- [ ] Driver Hours
- [ ] Road Restrictions
- [ ] Traffic Patterns

Input Data File (e.g., CSV, Excel)

Upload File

Any specific limitations or assumptions applied to the algorithm.

Write something...

Base Route Analysis & Key Performance Indicators (KPIs)

Establish a baseline route and measure initial performance using key metrics like distance, time, fuel consumption, and cost.

Total Route Distance (Miles/KM)

Enter a number...

Total Travel Time (Hours/Minutes)

Enter a number...

Fuel Consumption (Gallons/Liters)

Enter a number...

Total Vehicle Operating Cost ($)

Enter a number...

Number of Deliveries/Pickups

Enter a number...

Vehicle Type Used for Baseline Route

- [ ] Van
- [ ] Truck
- [ ] Car
- [ ] Other

Notes on Baseline Route Challenges/Inefficiencies

Write something...

Date of Baseline Route Assessment

Enter date...

Starting Location of Baseline Route

Set My Current Location

Optimization Scenario Testing

Experiment with different optimization strategies, constraints, and parameters to identify potential improvements.

Number of Vehicles to Test

Enter a number...

Traffic Scenario Type

- [ ] Normal Traffic
- [ ] Rush Hour
- [ ] Holiday Traffic
- [ ] Construction Zones

Maximum Distance Deviation (%),

Enter a number...

Maximum Time Deviation (minutes)

Enter a number...

Constraints to Relax (for sensitivity analysis)

- [ ] Time Windows
- [ ] Vehicle Capacity
- [ ] Driver Hours
- [ ] Route Priorities

Notes on specific test configurations

Write something...

Date of Scenario Test

Enter date...

Time of Scenario Test

Constraint Management & Feasibility Checks

Ensuring proposed routes comply with all logistical constraints, including time windows, vehicle capacity, driver hours, and legal regulations.

Maximum Vehicle Capacity (Weight/Volume)

Enter a number...

Maximum Driver Hours per Day

Enter a number...

Vehicle Type Restrictions (e.g., bridges, roads)

- [ ] None
- [ ] Restricted Bridges
- [ ] Restricted Roads
- [ ] Low Emission Zones

Earliest Delivery/Pickup Time (Per Stop)

Latest Delivery/Pickup Time (Per Stop)

Time Window Conflicts (Select all that apply)

- [ ] Weekend Delivery Restrictions
- [ ] Holiday Delivery Restrictions
- [ ] Specific Hour Restrictions

Legal Regulations Compliance

- [ ] Checked - Complies with all relevant regulations
- [ ] Requires Review

Notes on Specific Route Restrictions/Comments

Write something...

Route Visualization & Validation

Visualizing the optimized routes to assess feasibility, identify potential issues, and ensure driver usability.

Describe the visualization tool used (e.g., Google Maps, dedicated routing software)

Write something...

Upload screenshots of the optimized route visualization.

Upload File

Identify any critical delivery locations (e.g., high-volume stops) on the visualization for review.

Set My Current Location

Number of deviations from the original route identified during visual inspection.

Enter a number...

Select any potential issues observed during visualization (check all that apply).

- [ ] Route appears illogical
- [ ] Distance seems excessive
- [ ] Time estimates appear inaccurate
- [ ] Potential traffic bottlenecks
- [ ] Unsafe driving conditions identified
- [ ] No issues observed

Summarize feedback received from drivers regarding the proposed route (if available).

Write something...

Validation Status: Is the proposed route deemed feasible and acceptable?

- [ ] Yes
- [ ] No
- [ ] Needs Modification

Cost-Benefit Analysis & ROI Calculation

Evaluating the potential cost savings and return on investment (ROI) associated with implementing the optimized routes.

Estimated Fuel Savings (per week/month/year)

Enter a number...

Estimated Driver Labor Savings (per week/month/year)

Enter a number...

Estimated Vehicle Maintenance Cost Savings (per year)

Enter a number...

Implementation Cost (Software/Hardware/Training)

Enter a number...

Ongoing Software Subscription/Maintenance Costs (per year)

Enter a number...

Assumptions Underlying Savings Estimates

Write something...

Projected Payback Period (in months)

Enter a number...

Estimated Annual ROI (%)

Enter a number...

Notes/Caveats Regarding Cost-Benefit Analysis

Write something...

Implementation & Communication

Planning for the rollout of the optimized routes, training drivers, and communicating changes effectively.

Draft Communication Plan for Drivers

Write something...

Driver Training Method

- [ ] In-Person Workshop
- [ ] Online Video Tutorial
- [ ] Printed Manual
- [ ] Combination of Methods

Training Session Start Date

Enter date...

Number of Drivers Requiring Training

Enter a number...

Communication Channels to Drivers

- [ ] Email
- [ ] Team Meeting
- [ ] Mobile App Notification
- [ ] Notice Board

Outline key talking points for driver briefings.

Write something...

Designated Point Person for Driver Support

- [ ] Logistics Manager
- [ ] Dispatch Team
- [ ] Dedicated Route Optimization Support

Upload training materials (e.g. route maps, guidelines)

Upload File

Monitoring & Continuous Improvement

Establishing mechanisms to monitor route performance post-implementation and making adjustments as needed to maintain efficiency.

Average Route Deviation (km/route)

Enter a number...

Fuel Consumption Variance (%)

Enter a number...

Delivery Time Variance (minutes)

Enter a number...

Driver Feedback Frequency

- [ ] Daily
- [ ] Weekly
- [ ] Monthly
- [ ] Quarterly

Summary of Driver Feedback (Last Review)

Write something...

Last Route Optimization Review Date

Enter date...

Areas for Potential Improvement (select all that apply)

- [ ] Traffic Prediction Accuracy
- [ ] Driver Skillset
- [ ] Vehicle Maintenance
- [ ] Delivery Window Accuracy
- [ ] Route Sequencing

Number of Unplanned Stops/Diversions (per month)

Enter a number...