



WHAT IS ROUTE OPTIMIZATION?

The Definitive Guide to Logistics Route Planning

DOWNLOAD PDF!

By clicking on DOWNLOAD PDF, you acknowledge having read our Privacy notice



Route Optimization: Definition

In simple terms, Route Optimization refers to the process of finding the shortest and most cost-effective route between any two points on the earth. However, there's more to it than just finding the shortest route between location A and location B. The best routes for a business usually depend on a lot of different factors – where the customers are located, when they want to be serviced, or which driver or vehicle is needed to do the job.

Why use Route Optimization (RO) for Logistics?

It's not quite that simple to find the shortest distance between two locations on earth, especially when there are a number of touchpoints. The number of possible ways to travel between different locations grows exponentially, as the number of places to be visited increases.

The below infographic shows the magnitude of the problem:



The grains in 1 kg of sand



Atoms in 20 grains of sand. Also,grains of sand of Earth, including deserts



With just nine locations to visit, the number of possible ways of traveling equals the grains in 1 kg of sand. When you increase the number of locations to 22, the possibility of routes increases to the number of grains of sand in the entire universe. Take the number of stops to 102 and the possibilities of the ways to travel become incomprehensible.

The route optimization software market is expected to witness a growth at a CAGR of 10.9% over the forecast period of 2020-2025. Route optimization helps drivers to complete day-to-day tasks in less time and eliminates the daily manual hours of planning with automated multi-stop route planning ability.

What does a Logistics Route Planning Software do?

Broadly defined, Route Optimization (RO) is the process of finding the most cost-effective route, given a set of specific business parameters. However, it is more complex than simply finding the shortest distance between point A and B.



Logistics Route Optimization software can quickly test various 'what-if' scenarios and consider business constraints such as vehicle availability, traffic congestion, suitable rider, etc. to provide the best possible route.

Some modern decision-making platforms are using AI-based technology to solve the RO problem. Route Optimization takes historical data and real-life road constraints into account to provide optimal routes for businesses all over the world.

To get an in-depth understanding of Route Optimization and how it can help you optimize your logistics, <u>Read More!</u>.

With proper route optimization tools, your business could save up to 20% in mileage and improve your order capacity by as much as 100% without increasing your fleet.

Gain better ROI from your business.

TRY LOCUS DISPATCHER

Route Optimization Constraints

Here is the list of constraints your Route Optimization solution should consider:

Real-Time Traffic Consideration

A Route Optimization software should ideally consider real-time traffic conditions to save your logistics costs, ensure <u>on-time delivery</u> and better adherence to key SLAs for increasing customer delight.

Order-Vehicle Constraints

Often software tends to focus on cold, hard data and ignore real life order-vehicle constraints. For instance, different categories of products such as electronics and perishables cannot be shipped together. Sometimes, a specific kind of product, say medicines can only be dispatched in a special fleet. An ideal RO software considers these order-vehicle constraints and has a better chance of helping businesses in real-world scenarios.

| Data Inspection | Inspecting historical data to offer logistics insights for better decision making |
|--------------------------------|---|
| Historical Data Inspection | Your Route Optimization software should also examine historical data on three levels- Riders, Customers and Time of the day. |
| Rider Preference Consideration | A major challenge in implementing a route planning software is resistance from the on-ground staff such as drivers and delivery agents. These teams are used to working in a traditional manner, and to change their entire operating system is a huge transformation for them. To ensure smooth implementation of AI-based routing solutions, it is important that the software takes preferences from on-ground resources to phase out the traditional system gradually rather than trying changing the entire procedure on a single go. |

Importance of Geocoding



Geocoding, in layman's terms, is the process of converting raw input data such as names of buildings, landmarks and complex addresses into precise latitude/longitude coordinates on a map.

Locus' proprietary geocoding engine distills and converts even the most ambiguous addresses into precise geographic coordinates that can be

easily identified on a map. Powered by Artificial Intelligence and Machine Learning algorithms, the geocoding engine is capable of distilling the most useful parts of the address and creating a geocode that represents each individual address correctly on the map.

To learn more about Locus' advanced geocoding engine and make your logistics simpler with an easy address verification tool (AccuPin), click here.

<u>SIMPLE ROUTE PLANNING</u>

SCHEDULED ROUTE OPTIMIZATION

Scheduled Route Optimization

<u>Scheduled Route Optimization</u> on the other hand has the ability to accept operational dynamism and complex business constraints to determine an optimized route.

Scheduled Route Optimization software accepts daily planning related data, not limited to, order details, location details, fleet details, volumetric data, etc along with operational constraints such as workload balance, rider preferences, tribal knowledge and skills, etc. to suggest the most efficient way to successfully execute the deliveries.

Why do you need Route Optimization?

Enterprises in the 21st century supply chain need technology to automate logistics activities from end-to-end in order to save time, improve efficiencies and reduce human dependency. Using advanced Route Optimization software also helps in streamlining delivery processes and optimizing on-ground operations, including shipment, transportation, <u>last-mile delivery</u> and <u>reverse</u> <u>logistics</u>.

Route Optimization is the method of using Artificial Intelligence technology to figure out the shortest and most efficient route to all your stops and destinations. By testing multiple 'what if' scenarios, <u>Route optimization engine</u> gives various route options according to the cost involved and the resources available. It allows you to cut down operating costs, save time, and improve workforce productivity.

Why Locus DispatchIQ Is the Solution to All Your Route Optimization Issues?

CLICK HERE

What to look out for in a Route planning software?



Autonomous Route Planning

AI-driven route planning that can reduce errors caused by human negligence and minimize human intervention



Intelligent Vehicle Allocation

Smart vehicle allocation based on traffic, shipment,

vehicle type, etc.



Accurate Geocoding

Advanced geocoding abilities that can convert fuzzy addresses into precise geographic coordinates on the map



Cost-based Route Optimization

Considering multiple cost variants to offer the most economical route.



Optimal Fleet Mix

Offering a best-fitting fleet mix based on consumer preferences.

<u>First Attempt Delivery</u>

Ensuring deliveries in one go, saving you storage and

re-delivery costs.



Delivery">



Single Route Plan

Intelligent forward and reverse logistics in a single route plan by clubbing returns along with regular deliveries



Automated Escalation

Notifying authorities in case of route divergence or contingencies



Historical Data Inspection

Analyzing historical data such as riders' tribal knowledge, delivery preferences, customers' preferred time slots, etc. to plan routes effectively

| I | | | |
|---|--|--|--|
| | | | |

Rider Preferences

Taking into account rider skills, expertise, and preferences for a smooth transition from traditional routing to AI-based route planning platform.

What is Real-Time Dynamic Routing Software?



Rerouting on the go is a feature that is being increasingly preferred by businesses. Real-time <u>dynamic routing software</u> optimally handles on-demand orders along with scheduled orders. In case the orders/preferences of the customers change while the rider is out to deliver, it can change and create new routes for the rider instantly.

With routing requirements of companies becoming complex, it is of prime importance that companies choose <u>Vehicle</u> <u>Routing solutions</u> according to their needs. Solutions that operate in real-time can help plan routes intelligently to improve delivery efficiency and reduce costs.

Better results with better routes

SCHEDULE DEMO WITH LOCUS

How route optimization helps solve the last mile problem?



Last-mile delivery is the end-point in the supply chain, and perhaps the most important one, because this is the point where the customer and your brand interacts in person. Customer experience is therefore a top priority for businesses in the supply chain, above and beyond cutting down logistics costs and improving productivity in operations. Route Optimization helps in improving this <u>last-mile</u> <u>experience</u> and solves two of the most challenging computer science problems: the <u>Traveling Salesman Problem</u> (TSP) and the <u>Vehicle Routing Problem</u> (VRP).

However, many RO solutions don't consider on-ground restrictions and lack the knowledge of regional elements. Advanced RO solutions follow global standards in terms of performance while incorporating local constraints, and help companies in creating a differentiating factor for their customers.

Last-Mile Delivery Challenges and Solutions

Route Optimization can help in improving last-mile delivery operations and cutting down logistics costs in the following ways:

Best-fitting <u>fleet mix</u> recommendations

considering business as well as ground restrictions such as traffic, complex geographies, etc.

Smart clubbing of orders based on factors such as preferred delivery time slots, priority orders, location preference, and order specifications

Predictable and convenient time windows of delivery for customers thereby increasing first attempt rates and higher customer experience

Electronic Proof of Delivery (EPOD)

for reducing friction with customers and digitization of last-mile delivery processes

Smart and easy-to-use mobile application

for logistics managers to monitor logistics operations, <u>send predictive alerts on delays</u>, vehicle breakdowns, idle time, live tracking, etc to improve both customer experience and efficiency of delivery executives

Geocoding and accurate address detection for automated sorting processes

Reduced turnaround time for the customer

by optimizing first-mile operations, sharing locations of warehouses/distribution centers in real-time, reducing sorting times at <u>fulfillment centers</u> and last-mile distribution centers

How to Map Multiple Stops Using Routing and Scheduling Software?

Modern Multi-Stop Route Planning and Optimization Solutions are a lot more than chaperones for guiding shipments from one location to another. Advanced Route Optimization solutions help companies in the supply chain manage fleets better, improve driving directions, add multiple stops if required, improve workforce productivity and increase SLA adherence. RO can thus lead to saving fuel costs, additional pick-up/delivery stops, reduction of labor overtime costs and minimizing human dependency.

Route Optimization software allows supply chain players to add multiple stops on the route and cover as many delivery locations in the vicinity as possible in a single go. The software takes input data of all the locations one has to deliver in a day and sends an efficient dispatch and delivery plan, with multiple stops between point A and B for faster and more planned deliveries, making lives easier for drivers and delivery agents. Know more about <u>Multi-stop route planning</u> and why is it important for enterprises?

Locus' Advanced Route Optimization Software - Dispatcher

Locus' AI-based RO solution, Dispatcher, provides supply chain enterprises with an automated route planning solution that considers multiple real-life constraints and distribution models. It is a comprehensive solution in logistics that enhances fulfillment operations and increases consistency in transport planning, with nearly no human intervention. The cloud-based tool also facilitates GPS tracking for monitoring vehicles and providing clients with accurate and real-time ETAs.

DispatchIQ optimizes delivery routes based on three different metrics - geography, time and vehicle, offering a single screen view of the distribution plans. The software considers real-life constraints and distribution models and offers the shortest and most effective delivery routes, ensuring optimization across freight costs, time on-road, distance on-road and compliance with SLAs.

Top features that differentiate Locus DispatchIQ from any other RO solution available in the market:

What are the benefits of an online route planning tool?

Immediate Return on Investment (ROI)

Investing on RO is one of the best financial decisions a company can take. Even though the solution can cost a little money in the beginning, the immediate savings on fuel & labour costs usually result in the route planning software paying for itself within the first month of purchase.

Reduced Fuel Costs

Industry research confirms that the fuel spend is usually 60% of the fleet's operating expenses. An optimum route will mean less distance covered and thus, less fuel required. Also, better <u>vehicle utilization</u> means less number of vehicles required which results in saving fuel costs.

Reduced Labor Costs

With Locus' route planning software providing the most afficient routes



How to analyze route optimization results

Route optimization can have the following business impacts:



Increase in productivity of sales and service executives and delivery partners



Improved sales and service revenue with Dispatch Automation



Increase in operational efficiency



Reduction in sorting time



Reduction in operational costs



Reduction in dispatch planning time



Why Geocoding matters and the tech behind

it

<u>Read Story ></u>

On-demand hyperlocal delivery model

Read Story >

Vehicle Routing Problem Decoded: What, Why and How

<u>Read Story ></u>



Reduction in beat lengths using <u>Sales Beat Optimization</u> tools

White Glove Services: A Necessity in the **Post-Pandemic World?**

Read Story >

Impact of Route Optimization in Different Business Sectors

Let us have a look at how RO can help different industries:

Enterprises across different sectors need RO to serve different purposes. The retail industry is trying to fight the e-commerce players by having an omnichannel presence. On the contrary, the e-commerce sector is struggling with increasing customer expectations with respect to deliveries. There are a number of industries in the supply chain such as retail, 3PL, FMCG and home services that still rely on manual, time-consuming logistics processes. Many logistics activities involve human decision making, the processes are time-taking and prone to human errors and there is clearly a lack of visibility of logistics across these sectors.

With route planning software providing the most efficient routes for operations, industries can count on their work getting wrapped up quicker than before. This means no overtime costs for staff and less requirement for manual labor.



inside delivery centers

Optimization in E-

commerce

- Optimized routes and automatic allocation to riders based on historical data and dynamic planning.
- Improved vehicle utilization and balanced number of deliveries per driver to accommodate breaks in the schedule.
- End-to-end visibility of all vehicles, riders and other on-ground resources in a unified dashboard.
- Servicing when customers want by setting delivery windows and lesser number of failed deliveries leading to SLA adherence and better customer delight.



To know more about the benefits of RO, read our infographic

CLICK HERE

Resources



WHITEPAPER

Multi-Echelon SupplyChain Inventory Optimization – A mathematical perspective

Inventory optimization is a key strategy to ensure smooth and effective functioning of any supply chain. This white paper digs deeper into the concept of multi-echelon inventory optimization and brings out a mathematical perspective to solving the real-world challenges in inventory optimization.

READ STORY

WHITEPAPER

Locus' Guide To Omnichannel Fulfilment

<u>Read Story ></u>

WHITEPAPER

The Future Of Sales Transformation : Dynamic PJP

<u>Read Story ></u>

WHITEPAPER

FMCG Insight Report 2

<u>Read Story ></u>

CASE STUDY

How Locus helped Rollick save 8% of their logistics costs

SCHEDULE DEMO!

<u>Read Story ></u>

Route Optimization is the need of the hour to improve logistics performance, streamline last-mile operations and stay ahead in the supply chain landscape. Get started with your logistics optimization journey now.



Get in touch with our experts for a quick tour of our solutions.



Subscribe to our newsletter

I would also like to subscribe to the Exclusive Product Updates, Content & Event invitations and notifications by Locus in related areas. You can refer to our Privacy notice

| PRODUCTS | SOLUTIONS | RESOURCES | COMPANY | GUIDES |
|---|---|---------------------|-----------------------------|------------------------------|
| Locus DispatchIQ | Last-Mile Routing | Bulletin | <u>About Us</u> | <u>Direct Store Delivery</u> |
| Locus TrackIQ (Formerly MotionTrack) | Field Service Dispatch | Whitepaper | Customer Success | Logistics Route Planner |
| <u>Motionnack)</u> | rianning | <u>Case Studies</u> | Careers | Guide |
| Locus FieldIQ | <u>On-Demand Route</u> <u>Optimization</u> | Infographics | Partners | |
| <u>Locus NodelQ</u> | <u>Territory-Based Route</u> <u>Planning</u> | <u>Blogs</u> | <u>Trust & Security</u> | |
| Locus IntelliSort | | Videos | Newsroom | |
| Locus AccuPin | <u>Reverse / Returns</u> | News | | |
| <u>Locus FleetMix</u> | LOGISTICS | Glossary | | |
| Locus Labs | Industry Solutions | API | | |
| | <u>E-Commerce</u> | | | |
| | <u>3PL</u> | | | |
| | Home Services | | | |
| | Retail | | | |
| | <u>CPG & FMCG</u> | | | |
| | | | | |





© 2021 Mara Labs, Inc. All rights reserved. Privacy and Terms

