

The Art and Science of Modern Delivery: From Factory to Final Mile

PostgreSQL Project



Polytechnique Institute of Paris
Applied Mathematics and Statistics - Master degree
Database Management Systems - Garima Gaur
Winter Semester 2026 - M1 APPMS

Katerina Michenina, Aya Matmata, Nicolas Valety
03.02.2026 - v0.1.0 - draft



Contents

1 Introduction	3
1.1 Context	3
1.2 Aim and Objectives	3
1.2.1 Aim	3
1.2.2 Objectives	3
1.3 Datasets	3



1 | Introduction

1.1 Context

In an era where speed, reliability, and sustainability are critical, the efficiency of delivery networks—from factory to supply depot, and ultimately to the end customer—is a cornerstone of global commerce. The rise of e-commerce, automation, and real-time tracking technologies has transformed traditional logistics, pushing businesses to innovate continuously. *How can companies optimize their delivery processes to balance cost, technology, and environmental impact while maintaining seamless logistics?*

The answer lies in leveraging data-driven strategies: *automation, predictive analytics, and alternative delivery methods* (such as drones and autonomous vehicles). This project explores the journey of goods through the supply chain and investigates cutting-edge solutions to enhance delivery efficiency, reduce operational costs, and minimize environmental footprints.

1.2 Aim and Objectives

1.2.1 Aim

Optimize the delivery process from factory to customer by integrating data analytics and PostgreSQL database management.

1.2.2 Objectives



At this point, objectives may change regarding to the usability of the datasets.

1. *Route Optimization:* Minimize delivery times and maximize cargo load efficiency for each delivery vector (trucks, drones, etc.).
2. *Inventory Management:* Ensure optimal stock levels in supply depots to prevent stockouts and overstocking, aligning with demand forecasts.
3. *Sustainability Integration:* Explore eco-friendly delivery methods and technologies to reduce carbon emissions, in line with France's and the EU's environmental goals.

1.3 Datasets

To achieve these objectives, the following datasets could be utilized to build a comprehensive logistics database:

1. Logistics and Supply Chain Dataset – Focuses on shipment tracking, delivery times, and supply chain efficiency metrics.
2. Delivery Logistics Dataset – Contains data on delivery routes, timings, and performance indicators, useful for route optimization and last-mile delivery analysis.
3. Transportation and Logistics Tracking Dataset – Includes real-time tracking data for shipments, ideal for studying transportation efficiency and delays.
4. Amazon Delivery Dataset – Focuses on last-mile logistics and delivery performance, with insights into delivery times, distances, and customer satisfaction.



5. Logistics Shipment On-Time Delivery Classification Dataset – Useful for predictive modeling to determine on-time delivery probabilities based on historical data.