



Advanced Transportation Intelligence & Decision Analytics

Subtitle: End-to-End Logistics Analytics using Excel, SQL, Python & Power BI

Domain: Transportation & Supply Chain Analytics

Framework: CRISP-DM + Analytics Maturity Model

The organization operates a multi-vehicle logistics fleet

Materials are transported daily between:

- Multiple suppliers
- Multiple customers

Operations depend on:

- Driver discipline
- Vehicle utilization
- Distance compliance
- Current decision-making is reactive and manual



Core Business Problem

The organization faces inefficiencies and risks due to:

- Drivers not meeting minimum daily distance targets
- Uneven vehicle utilization across vehicle types
- No standard driver performance measurement
- No early identification of high-risk trips
- Supplier-customer transport inefficiencies are not measurable



Why This Is a Critical Problem

Distance non-compliance leads to:

- Delivery delays
- Contract penalties
- Customer dissatisfaction
- Underutilized vehicles increase:
 - Fixed operational costs
 - Idle asset losses
- Lack of performance metrics causes:
 - Biased decisions
 - Ineffective incentives & penalties



Business Impact Areas

This problem directly affects:

- Operational Efficiency
- Cost Optimization
- Risk Management
- Driver Accountability
- Supplier Performance

Management



Existing Data Availability

The organization already captures the following data:

- Transportation distance
- Vehicle type
- Minimum required daily distance
- Driver details
- Customer information
- Supplier information
- Material shipped
- However, the data is not structured for decision-making



Problem Statement

The organization lacks a data-driven framework to monitor transportation distance compliance, driver performance, vehicle utilization, and trip risk, resulting in operational inefficiencies, higher costs, and delayed corrective actions.

Role of Analytics in This Project

Analytics will be used to:

- Measure performance objectively
- Detect inefficiencies and risks
- Predict future non-compliance
- Recommend corrective actions

Outcome: Decision-ready insights, not just dashboards



Project Phases Overview

- Phase 1: Business & Decision Design
- Phase 2: Data Architecture & Engineering
- Phase 3: Diagnostic Analytics
- Phase 4: Predictive Modeling
- Phase 5: Prescriptive Analytics
- Phase 6: BI & Deployment

