**To:** Analytics & Data Team  
 **From:** Northwind Traders Management  
 **Subject:** Request for Sales & Operations Analytics Solution

**Company Profile**

Northwind Traders is an international import and export company specializing in **food products** such as beverages, dairy items, condiments, grains, and specialty goods.

* **Customers**: We serve wholesalers, distributors, retailers, and restaurants across different regions.
* **Suppliers**: We source products from suppliers worldwide, ensuring quality and variety.
* **Employees**: Our sales representatives and support staff manage customer relationships and order processing.
* **Logistics**: We partner with multiple shipping companies to deliver goods on time to our customers.

Northwind has been growing steadily, and while our transaction systems record day-to-day operations, they do not provide the strategic insights we need to guide business decisions.

**Current Challenges**

Despite growth, management faces several difficulties:

* **Limited Sales Visibility**: We cannot easily track sales by region, product, or customer.
* **Unclear Profitability**: Discounts and supplier costs affect profit margins, but we lack clear analysis.
* **Customer Insights**: It is difficult to identify our top customers and understand regional buying patterns.
* **Employee Performance**: We want to measure how our sales representatives contribute to revenue.
* **Logistics Monitoring**: Shipping delays and costs are not well understood, making it hard to choose the best shipping partners.
* **Fragmented Reporting**: Teams rely on raw exports and ad-hoc reports, which are inconsistent and unreliable.

**Business Needs**

Northwind management requires a consolidated **analytics and reporting solution** that provides:

**Sales Insights**

* Total sales by product, category, customer, region, and sales representative.
* Identification of top 10 products and top 10 customers.
* Sales trends by month and quarter.

**Profitability Analysis**

* Profit margins by product category and supplier.
* Impact of discounts on overall revenue and profit.

**Customer & Employee Performance**

* Regional customer analysis (who buys the most, and where).
* Sales performance by employee (e.g., orders handled, revenue generated).

**Logistics & Delivery**

* Average delivery time (from order to shipment).
* Shipper performance comparison (cost and reliability).

**Expectations**

We expect the analytics solution to:

* Provide **accurate, consolidated, and easy-to-understand reports**.
* Become the **single source of truth** for management decision-making.
* Offer a foundation that can be **expanded in the future** to cover more areas of the business.

As the data & analytics team, your task is to design and implement the solution. The following deliverables are expected:

**Phase 1 – Business Understanding & Modeling**

* Translate management’s needs into **clear KPIs** and measurable metrics.
* Identify **business entities** (sales, customers, employees, products, suppliers, shipping).
* Design a **reporting-friendly data model** (e.g., star schema) to support management’s questions.

**Phase 2 – Data Preparation & ETL (using SQL)**

* Create a **staging area** for raw Northwind data.
* Develop an **ETL process** to clean, transform, and load data into the reporting model.
* Ensure **surrogate keys** and consistent data structures.

**Phase 3 – Data Warehouse Implementation**

* Implement **dimension tables**
* Implement **fact table/s**
* Populate the warehouse with historical data.

**Phase 4 – Reporting & Analytics**

* Provide a set of **SQL queries or dashboards** that answer management’s business questions (sales trends, top products/customers, profit margins, employee performance, shipper reliability).
* Deliver at least **5–7 meaningful reports/KPIs**.

**Phase 5 – Documentation & Presentation**

* A **short report (3–5 pages)** describing the business requirements, data model, ETL process, and how the final reports answer management’s needs.
* A **final presentation** (10–15 minutes) demonstrating results to “management”.