Automated Replenishment Dashboard
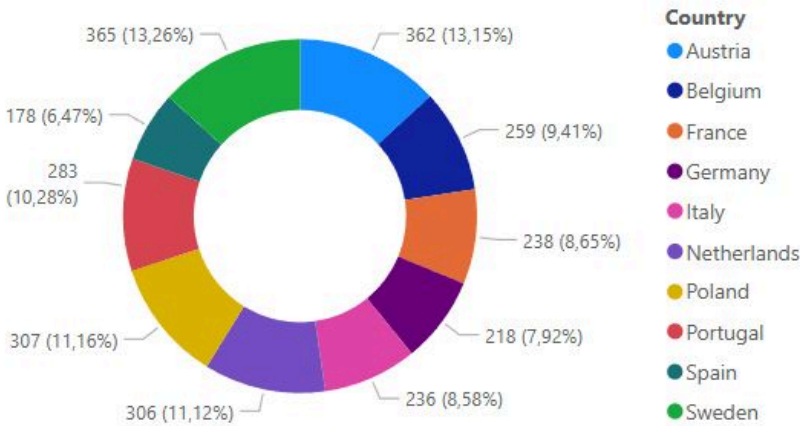
A PowerBI Solution for Monitoring Supply Chain Performance

Automated Replenishment Overview
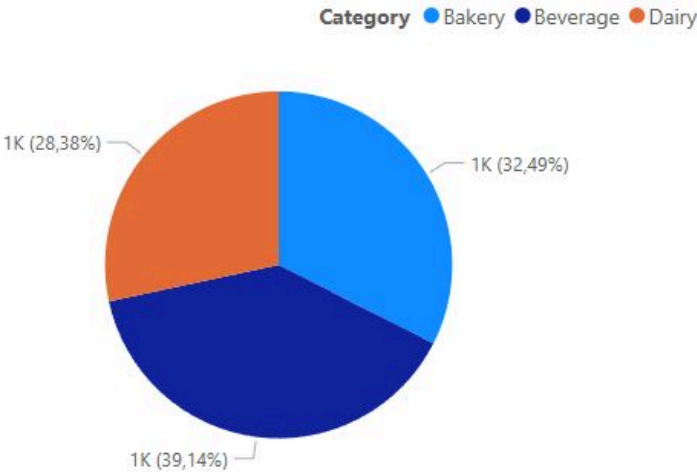
Stores

30

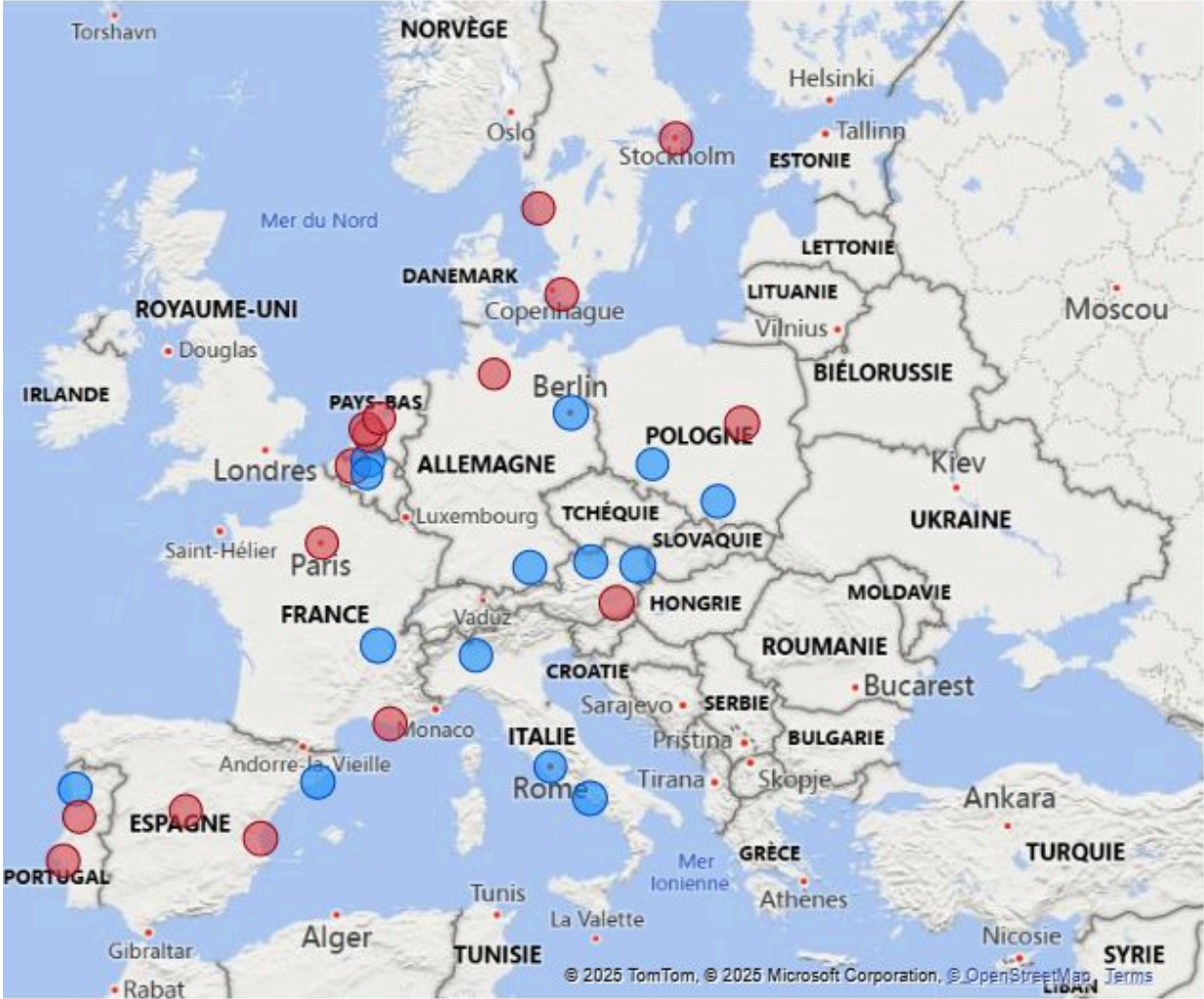## Products

20

Somme de QuantitySold par Country

Country
● Austria
● Belgium
● France
● Germany
● Italy
● Netherlands
● Poland
● Portugal
● Spain
● Sweden

362 (13,15%)
259 (9,41%)
238 (8,65%)
218 (7,92%)
236 (8,58%)
306 (11,12%)
307 (11,16%)
283 (10,28%)
178 (6,47%)
365 (13,26%)

Sales

Category ● Bakery ● Beverage ● Dairy

1K (28,38%)
1K (32,49%)
1K (39,14%)

overview of shortages

average replenishment success rate

Moyenne de...

0,52

Total Stockouts

216

Somme de shortage

StoreName		ProductName	Somme de Quantity	OrderStatus ▼	Somme de Days Late
Antwerp_store	⚠	Product 1	302	Pending	83
Barcelona_store		Product 1	191	Pending	53
Coimbra_store	⚠	Product 1	230	Pending	80
Gothenburg_store		Product 1	319	Pending	52
Graz_store		Product 1	102	Pending	40
Krakow_store		Product 1	74	Pending	28
Lyon_store		Product 1	88	Pending	31
Madrid_store		Product 1	185	Pending	52
Malmo_store		Product 1	133	Pending	26
Marseille_store		Product 1	64	Pending	36
Munich_store	⚠	Product 1	257	Pending	82
Stockholm_store		Product 1	64	Pending	37
Berlin_store	✖	Product 10	346	Pending	105
Ghent_store		Product 10	89	Pending	26
Naples_store	⚠	Product 10	214	Pending	80
Rome_store	⚠	Product 10	230	Pending	79
Rotterdam_store		Product 10	167	Pending	31
Stockholm_store		Product 10	54	Pending	34
Valencia_store		Product 10	125	Pending	37
Antwerp_store		Product 11	127	Pending	30
Barcelona_store		Product 11	161	Pending	34
Marseille_store		Product 11	193	Pending	47
Porto_store		Product 11	140	Pending	35
Rome_store		Product 11	132	Pending	52
Total			**62783**		**18945**
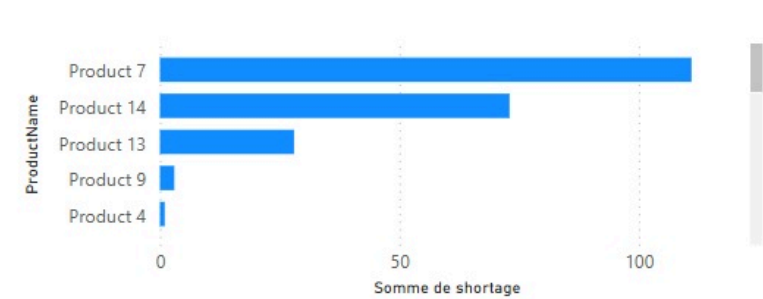
mean late deliveries in days

Moyenne de Days Late

37,89

Agenda

1. Project Context

2. Key Objectives

3. Data Modeling

4. Visualizations Overview

5. Challenges Faced

6. Recommendations & Next Steps

7. Q&A

Project Context

- **Objective:** Implement a monitoring system for replenish several stores

- **Role:** Data Scientist designing a monitoring dashboard.

- **Goal:** Ensure product availability while minimizing overstock.

- **Challenge:** Visualize stock levels, sales trends, and order statuses.

Key Objectives

1. **Monitor Current Performance**
   - Track stock levels and replenishment success.

2. **Highlight Issues**
   - Identify low stock, delayed orders, and underperforming stores.

3. **Enable Manual Intervention**
   - Provide insights for managing exceptions.

4. **Facilitate Data Exploration**
   - Filtering by store, product, or region.

Synthetic Data Generation

Data Sources

- **Sales Data:** Daily transactions, product categories, revenue.

- **Inventory Data:** Stock levels, thresholds, trends.

- **Replenishment Orders:** Order dates, statuses, delivery timelines.

- **Store Locations:** Country, city, latitude, longitude.

Key Columns

- `StoreID` , `ProductID` , `Category` , `StockLevel` , `ReplenishmentThreshold`

- `OrderDate` , `DeliveryDate` , `OrderStatus` , `SupplierID`

- `Latitude` , `Longitude`

Data Modeling
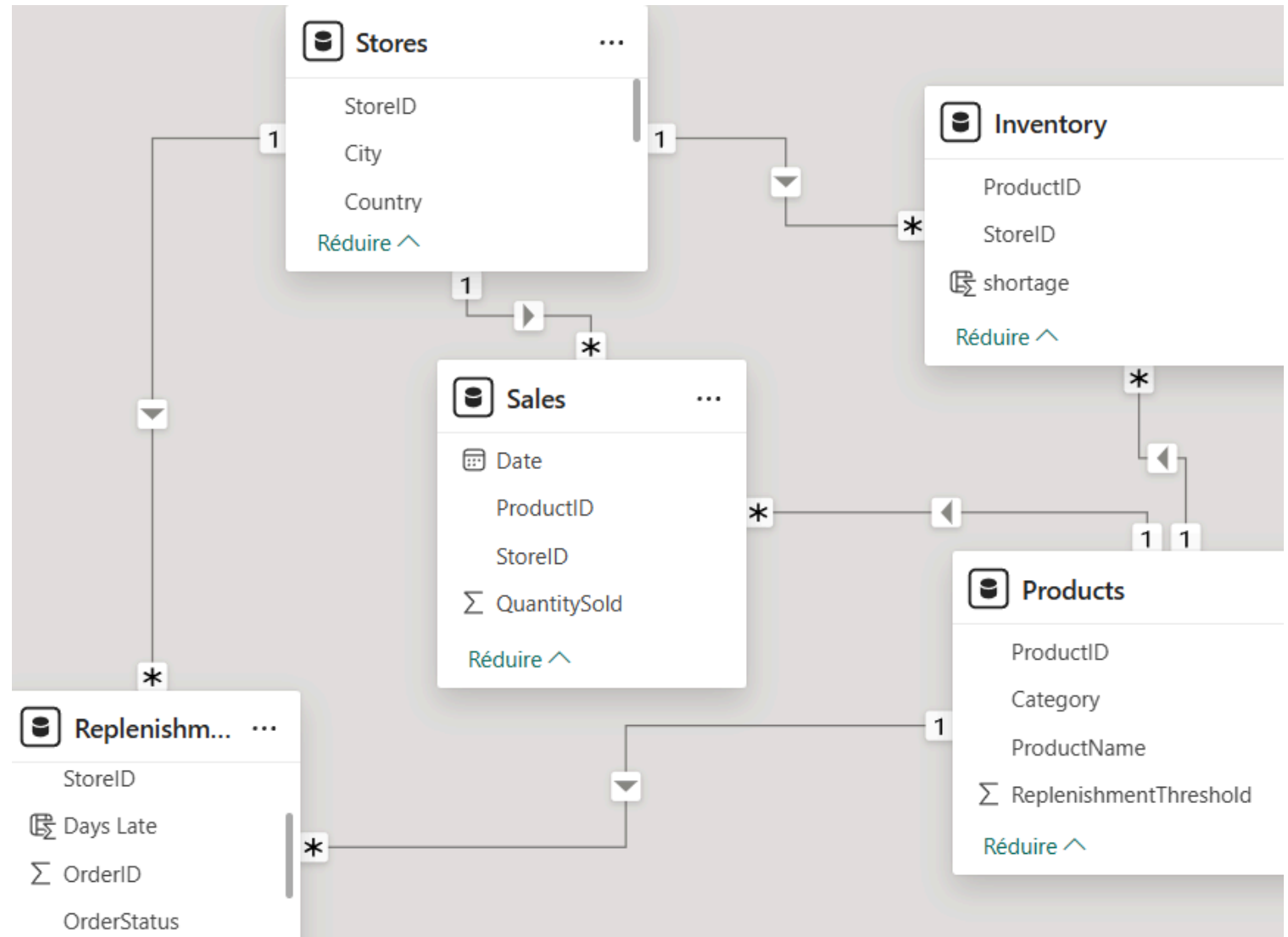
the Product Table

ProductID	ProductName	Category	ReplenishmentThreshold
1	Product 1	Bakery	6
2	Product 2	Beverage	11
3	Product 3	Beverage	12

the Inventory Table

StoreID	ProductID	StockLevel
1	1	92
1	2	85
1	3	48

the Store Table

StoreID	Country	City	Latitude	Longitude	StoreName
1	France	Paris	48.8566	2.3522	Paris_store
2	France	Lyon	45.764	4.8357	Lyon_store
3	France	Marseille	43.2965	5.3698	Marseille_store

the Replenishment Orders Table

OrderID	StoreID	ProductID	OrderStatus	Quantity	DeliveryDate
1	13	19	Pending	130	2025-01-27
2	15	6	Pending	71	2025-01-14
3	23	8	Pending	184	2025-01-13

the Sales Table

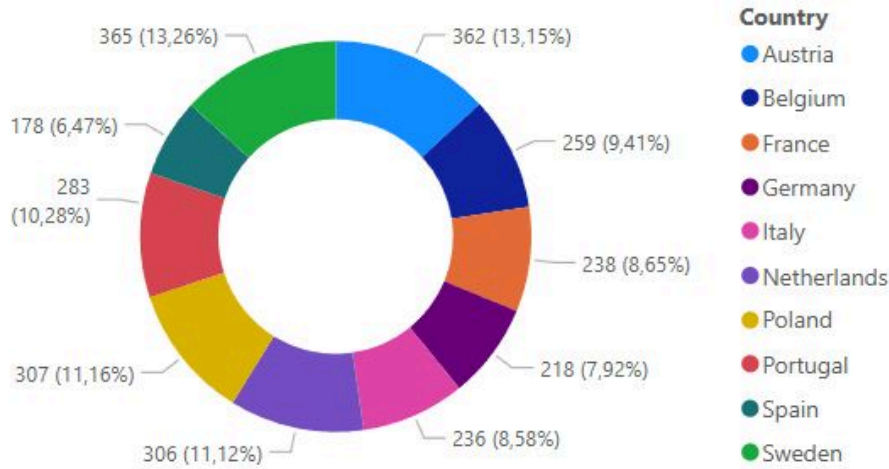| Date	ProductID	QuantitySold	StoreID	Revenue
2025-01-19	16	5	12	27
2025-01-02	16	6	1	16
2025-01-11	8	5	1	41

Why visualize?

- **Visualize KPIs:** Total Stores, Stockouts, Replenishment Success Rate.

- **Stock Trends:** Compare stock levels vs. thresholds.

- **Sales Trends:** Analyze trends over time.

- **Replenishment Table:** Track order statuses.

- **Store Performance:** Compare performance by store.

- **Geospatial Map:** Visualize stockout risks by country.
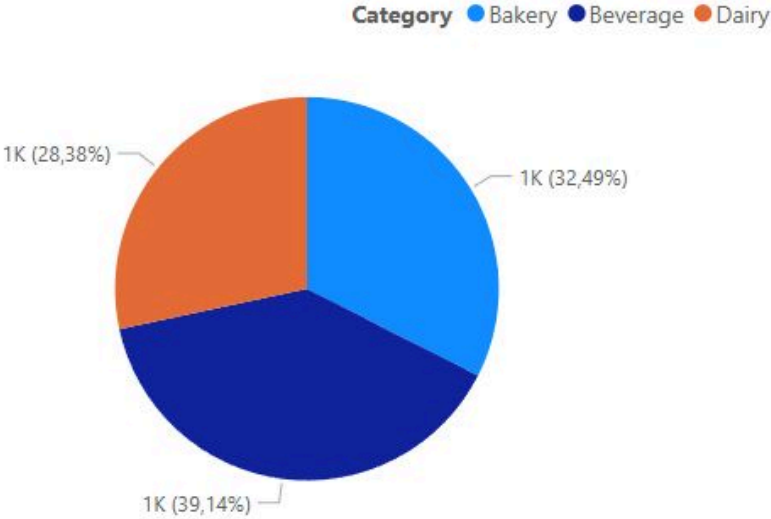
Automated Replenishment Overview

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Sales

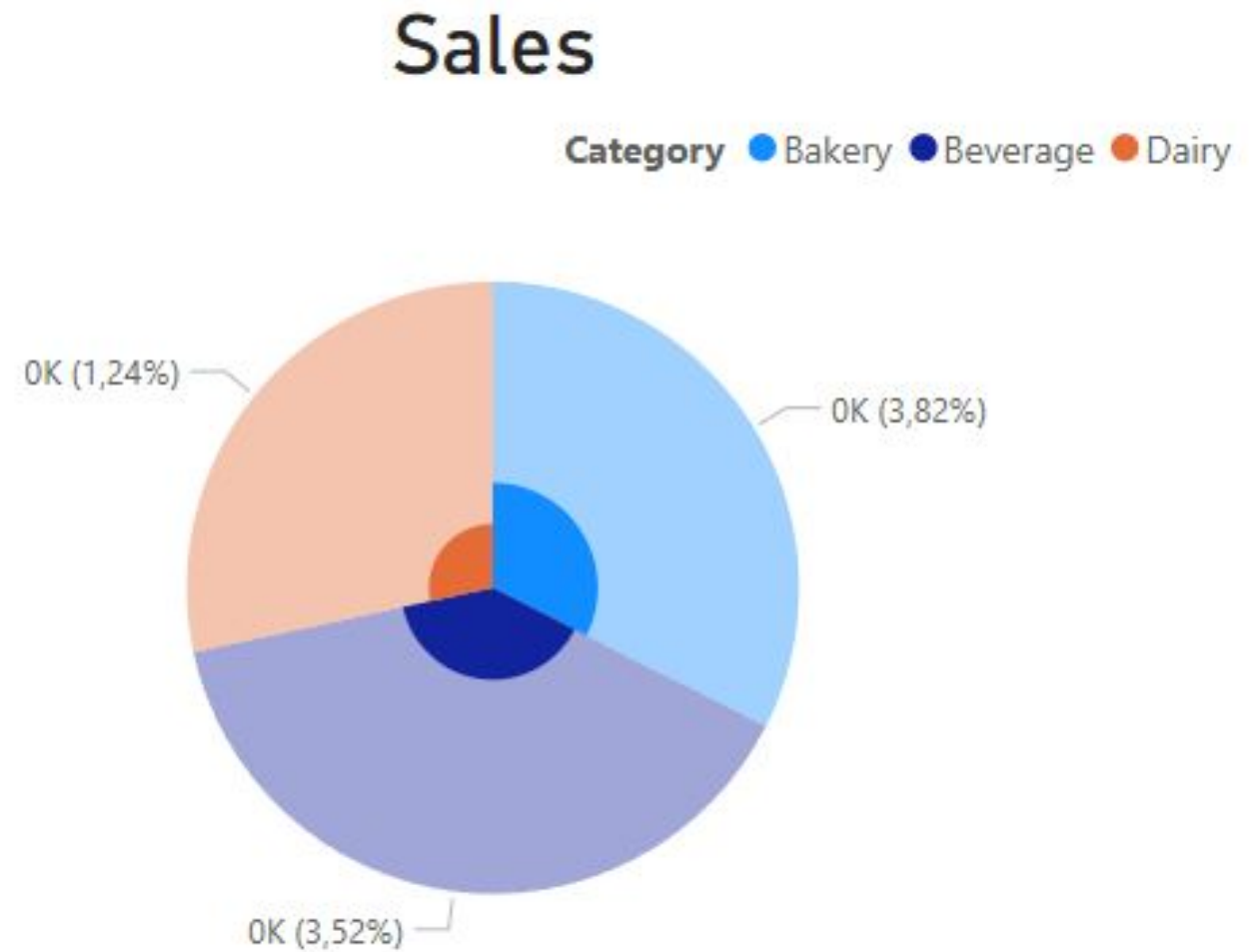**Category** ● Bakery ● Beverage ● Dairy

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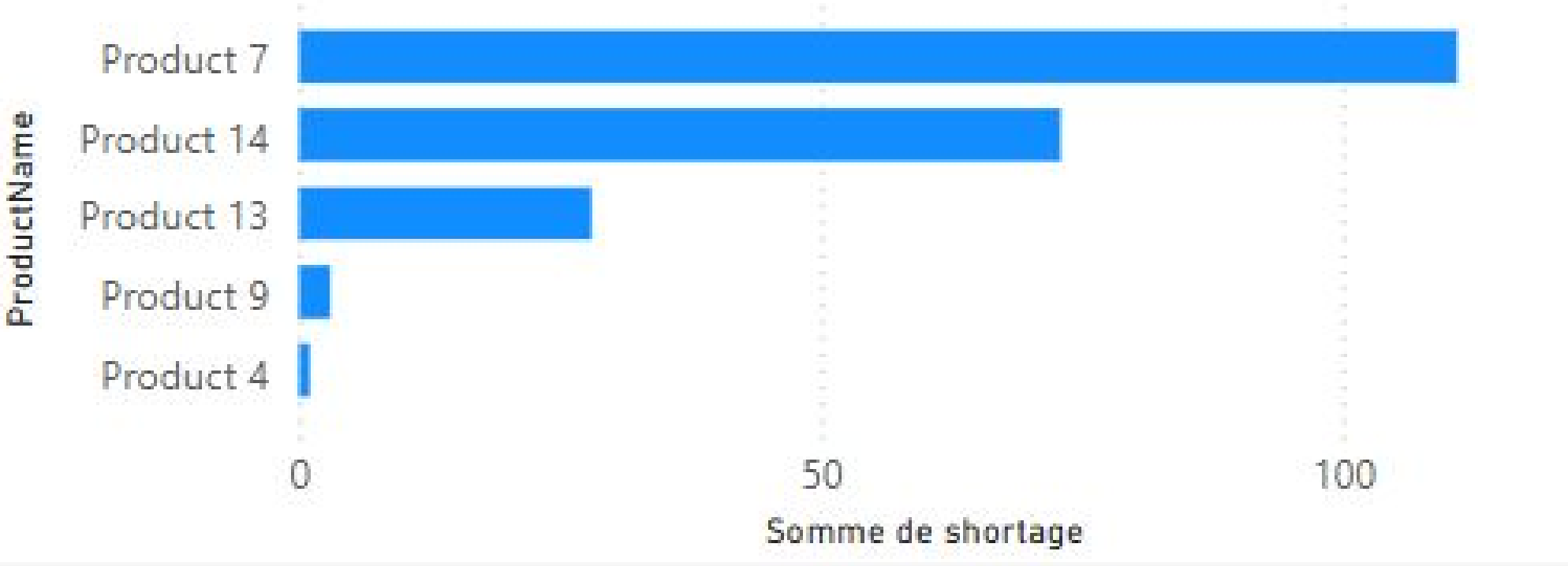the plots are interactives!

Dashboard Tab 2: Overview of shortages

Detailed Analysis

- **spatial information**
  - where do stockouts occur?

- **KPI cards**
  - Are the stockouts important?
  - Are the replenishment orders on time?

Dashboard Tab 3: Interactive order tracking

- **Replenishment Table**

  - Track repleishment order statuse

  - Filter by store, product, or order status.

  - inside symbols for days late range

- **products mostly late**

  - Which products are most often delayed

- **delivery delai statistics**

  - How many days late are the deliveries?

StoreName ▲	ProductName	Somme de Quantity	OrderStatus	Somme de Days Late
Amsterdam_store ⚠	Product 10	83	Delivered	25
Amsterdam_store	Product 12	168	Delivered	21
Amsterdam_store ⚠	Product 12	196	Pending	38
Amsterdam_store	Product 14	103	Delivered	12
Amsterdam_store	Product 15	106	Pending	8
Amsterdam_store	Product 18	113	Delivered	6
Amsterdam_store ⚠	Product 18	110	Pending	29
Amsterdam_store	Product 19	130	Pending	4
Amsterdam_store ✖	Product 4	421	Delivered	52

Recommendations & Next Steps

1. **Build Sale & Delay Predictive Models**
   - Improve demand forecasts, optimize inventory levels.

2. **Automate Reporting**
   - Set up scheduled email alerts for critical KPIs.

3. **Expand Scope**
   - Include supplier performance metrics and cost analyses.

4. **User Training**
   - Workshops for effective dashboard usage.

Thank You

a look on the dashboard

Questions?