

Irish Retail Analytics & Demand Forecasting Dashboard

1. Executive Summary

This project delivers an end-to-end **Retail Analytics & Demand Forecasting solution** built for the Irish retail sector.

It combines **Power BI, DAX, data modelling**, and a full **Business Analyst layer** to provide a single decision-making system that covers:

- Sales performance
- Demand behaviour
- Inventory risk
- Price sensitivity
- Promotional impact
- Inflation-adjusted performance
- Market context (CPI trends, retail index)

The system is built to mimic a real analytics environment that an Irish retailer like **Tesco, Dunnes, Musgraves, Lidl, or Primark** would use.

2. Business Problem

Irish retailers struggle with:

- Fragmented reporting across stores, products, and time periods
- Slow/fast moving inventory not being identified in time
- No unified view of price sensitivity or promotion effectiveness
- Inflation masking the true business performance
- Lack of automated insights for decision-makers

Retail leaders need a **single source of truth** that highlights what is happening, why it's happening, and what needs to be done next.

3. Project Objectives

- Build a dynamic BI solution that provides sales and demand insights across time
- Identify slow-moving and high-demand products for inventory optimisation
- Analyse price elasticity and promotional uplift
- Integrate CPI so performance is evaluated in real economic terms

- Produce actionable insights for retail operations, pricing, and supply chain
 - Deliver professional BA documentation (BRD, requirements, user stories)
-

4. Stakeholders

Stakeholder	Goal	Value From Dashboard
Retail Ops Manager	Performance tracking	High-level KPIs, store insights
Supply Chain Manager	Stock planning	Slow/high movers, rolling demand
Pricing Manager	Price optimisation	Elasticity, price vs demand
Category Manager	Promo planning	Promo uplift, spikes
Finance Analyst	Economic interpretation	CPI comparison, inflation-adjusted sales
BI Manager	Governance	Model efficiency, quality measures

5. Data Sources Used

- M5 Retail Dataset (Sales, Stores, Items)
 - Sell Prices Dataset
 - Calendar Table
 - Irish CPI Dataset (CSO)
 - Irish Retail Index (CSO – RSM08)
-

6. Solution Overview

Page 1 — Sales Performance Overview

- Total Units Sold, Revenue KPIs
- YOY trends and seasonality
- Category/store breakdown
- Item-level insights

Page 2 — Demand & Inventory Insights

- Rolling 7D & 30D demand
- Slow-moving vs high-demand segmentation
- Store–Item heatmaps
- Inventory alerts

Page 3 — Pricing & Promotions Analytics

- Price vs demand correlations
- Promo uplift analysis
- Category sensitivity differences
- Seasonal price-demand behaviour

Page 4 — Irish Macroeconomic Context

- CPI vs Sales trend
 - Inflation-adjusted sales
 - Retail Index KPI (context marker)
-

7. Key Insights Generated

1. **Demand moves in waves, not straight lines.**
Rolling demand revealed clear peaks and troughs, proving that retail forecasting must be pattern-based.
 2. **Huge performance gaps between stores.**
Some locations sold 11M+ units; others less than half. A one-size strategy cannot work.
 3. **Slow-moving products leak silent losses.**
Some items sold as little as 0.03 units/day — strong indicator of overstock risk.
 4. **Promotional events radically change demand.**
Certain promotions drove >200K unit spikes.
 5. **Inflation changed the entire story.**
After adjusting for CPI, several “growth years” flattened or dropped — proving inflation was boosting revenue, not true demand.
-

8. Business Value Delivered

- Smarter replenishment
 - Better pricing strategy
 - Data-backed promotional planning
 - True performance evaluation (inflation-adjusted)
 - Clear narrative for leadership
 - Foundation for forecasting models
-

9. User Stories

Story 1 - Sales Overview

“As a Retail Operations Manager, I want a dashboard showing sales trends so I can identify strong and weak periods.”

Story 2 - Inventory Health

“As a Supply Chain Manager, I want to view slow/high movers so I can optimise stock levels.”

Story 3 - Pricing Intelligence

“As a Pricing Analyst, I want price-demand insights so I can adjust pricing strategy effectively.”

Story 4 - Economic Context

“As a Finance Analyst, I want inflation-adjusted metrics so I can interpret performance accurately.”

10. Conclusion

This project demonstrates not only technical BI ability but also **business understanding**, **analytical thinking**, and **end-to-end BA execution**.

It mirrors the type of multi-stakeholder project expected in retail organisations across Ireland.