École Nationale Supérieure
d'Informatique et d'Analyse des Systèmes
- Rabat

Projet BI

BBS Statistical DW : Industry Business Wing

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Introduction

This design deliverable is part of the implementation of a **Statistical Data Warehouse** for the **Bangladesh Bureau of Statistics (BBS)**. Its main objective is to define the **Datamart modeling** as well as the **design of reports and dashboards** dedicated to decision support.

The *Industrial & Business* module is structured into three main analytical areas :

— Industry
— Internal Business
— External Business

Each area is designed independently while remaining fully aligned with the global BI architecture.

1 Industry

1.1 Datamart Objectives

The Industry Datamart aims to analyze industrial performance in Bangladesh through key statistical indicators related to production, value added, employment, and sectoral growth.

1.2 Key Performance Indicators (KPIs)

- **IndustrialCost** : Represents the total costs directly related to industrial production activities, including manufacturing operations and production processes.
- **NonIndustrialCost** : Captures costs not directly linked to production, such as administrative, marketing or support services expenses.
- **IntermediateConsumption** : Measures the value of goods and services consumed during production, excluding fixed assets, and is a core component in value-added calculation.
- **GrossOutput** : Represents the total value of goods produced before deducting intermediate consumption.
- **IndustrialTax** : Measures taxes paid by industrial establishments, reflecting their fiscal contribution to public revenue.
- **RawMaterialCost** : Represents the total cost of raw materials used in the production process, enabling analysis of input dependency and production efficiency.
- **EnergyCost** : Measures expenditure on energy consumption, supporting analysis of energy intensity and cost structure.
- **TotalPersonEngaged** : Represents the total number of persons engaged in industrial activity, including employees and working owners.
- **SalaryandWages** : Captures total monetary compensation paid to employees.
- **CashBenefits** : Measures additional cash-based employee benefits beyond salaries and wages.
- **NonCashBenefits** : Represents the value of in-kind benefits provided to employees, such as housing or transportation.
- **SocialSecurityCost** : Captures employer contributions to social security and insurance schemes.
- **OpeningValue** : Represents the opening balance value of fixed assets at the beginning of the accounting period.
- **Depreciation** : Measures the reduction in value of fixed assets due to wear, obsolescence or aging.
- **CapitalExpenditure** : Represents investments in new or improved fixed assets during the period.
- **NetFixedAssets** : Measures the net value of fixed assets after depreciation.

1.3 Datamart Dimensions

- **Time Dimension** : Enables temporal analysis of industrial indicators by year, quarter or month, supporting trend and growth analysis.
- **Industrial Class Dimension** : Represents industrial activity classification based

on standardized codes (e.g. ISIC), enabling sector-level comparison and aggregation.

— **Establishment Class Dimension** : Segments establishments by size or category, supporting structural analysis between small, medium and large units.
— **Employment Type Dimension** : Distinguishes types of employment (permanent, temporary, skilled, unskilled), allowing workforce structure analysis.
— **Assets Type Dimension** : Classifies assets by type (machinery, buildings, vehicles), supporting detailed capital structure analysis.

1.4 Datamart Modeling

The following figure presents the logical schema of the Industry Datamart.

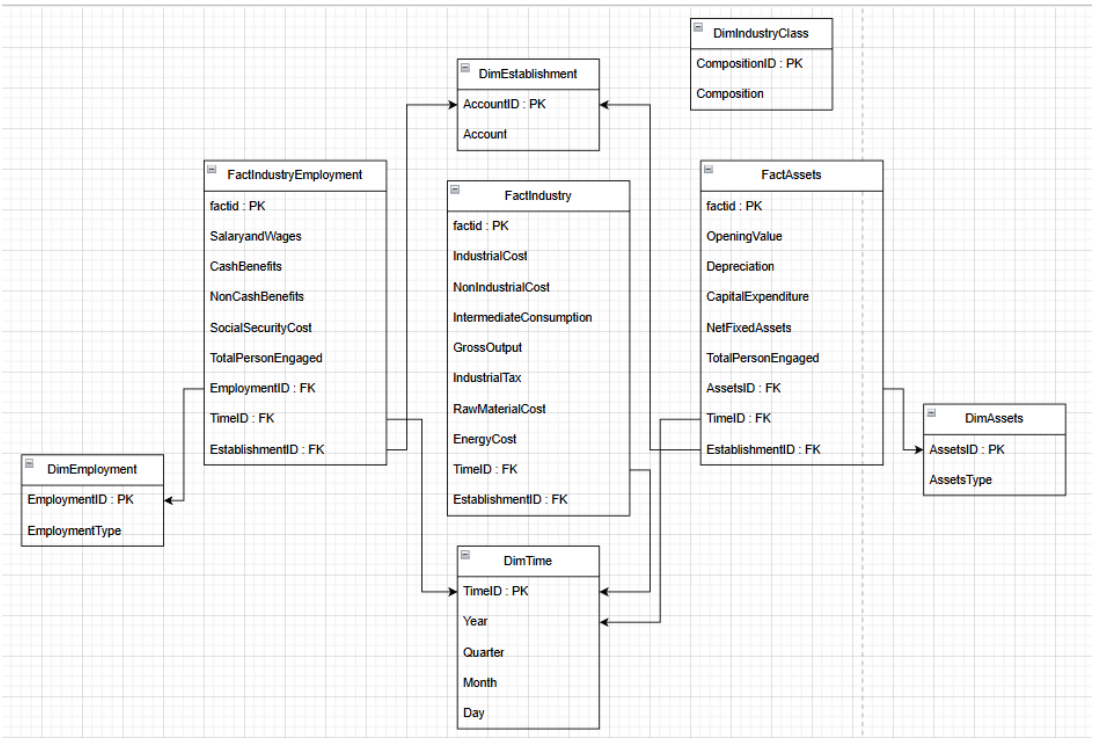

FIGURE 1 – Industry Datamart Schema

1.5 Report and Dashboard Design

The reports and dashboards allow monitoring industrial performance across time, Establishments, and classes.

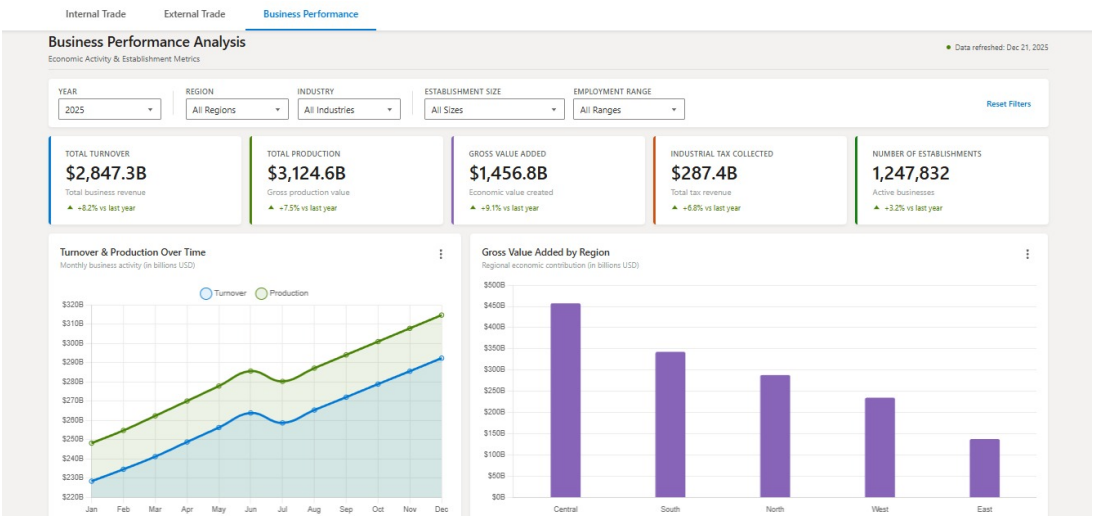

FIGURE 2 – Industry Dashboard Mockup

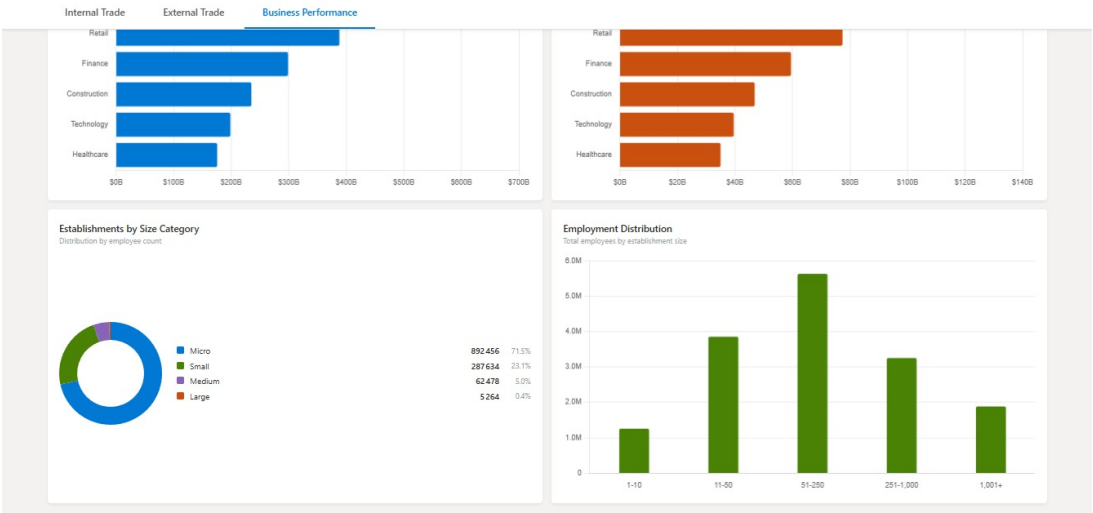

FIGURE 3 – Industry Dashboard Mockup

2 Internal Business

2.1 Datamart Objectives

The Internal Business Datamart focuses on the analysis of domestic economic activities, particularly the performance of local enterprises and their contribution to the national economy.

2.2 Key Performance Indicators (KPIs)

— **MarketSales** : Represents the total value or volume of goods sold in domestic markets, reflecting commercial activity and demand.
— **Prices** : Captures observed prices of goods across markets, serving as the basis for inflation and price variation analysis.

2.3 Datamart Dimensions

— **Time Dimension** : Allows analysis of market trends and price evolution over time.
— **Market Type Dimension** : Differentiates between retail and wholesale markets to analyze pricing structures and distribution channels.

2.4 Datamart Modeling

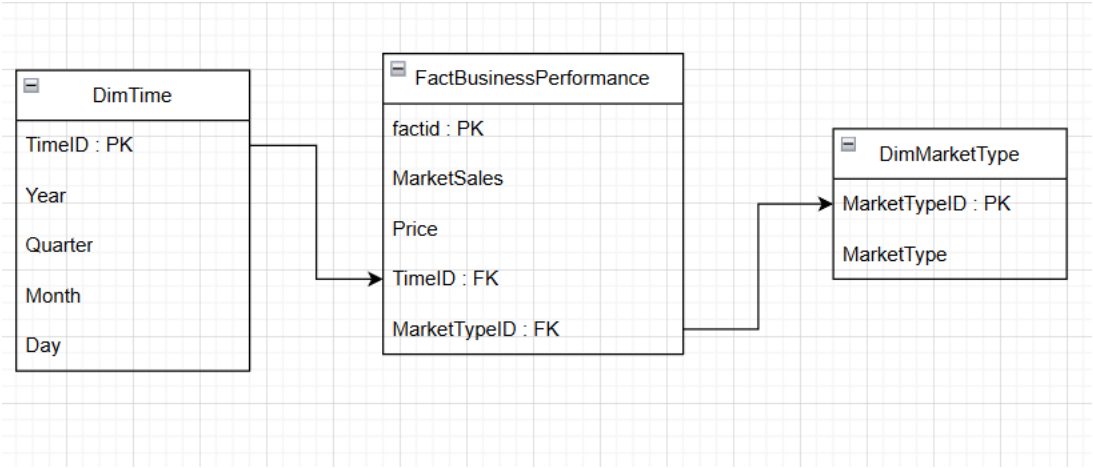

FIGURE 4 – Internal Business Datamart Schema

2.5 Report and Dashboard Design

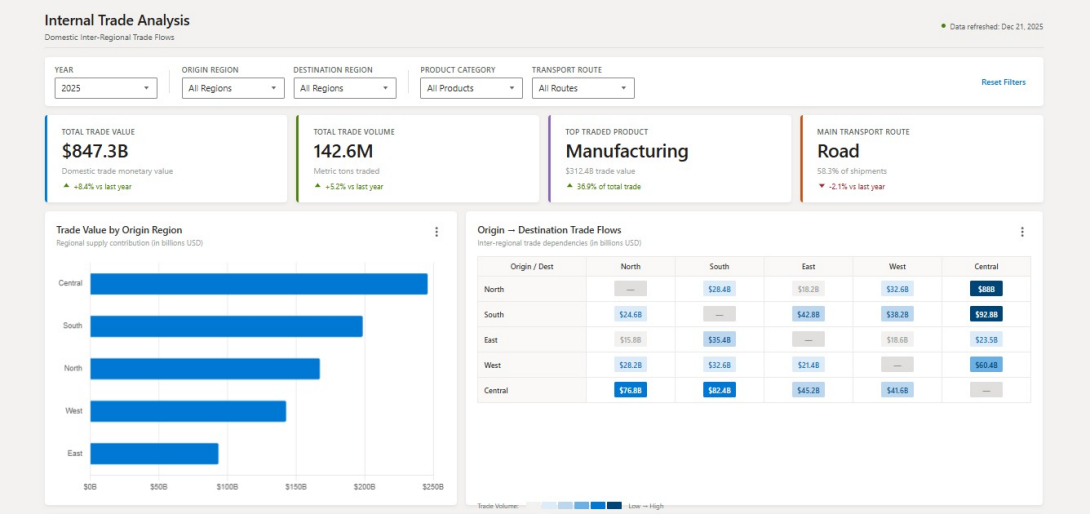

FIGURE 5 – Internal Business Dashboard Mockup

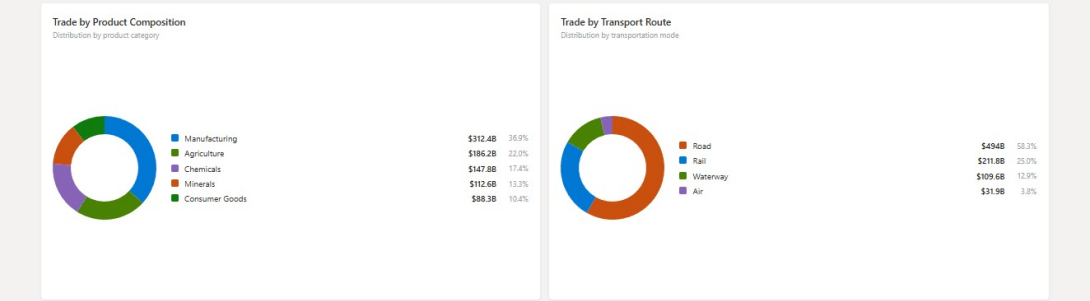

FIGURE 6 – Internal Business Dashboard Mockup

3 External Business

3.1 Datamart Objectives

The External Business Datamart is dedicated to the analysis of international trade activities, including imports, exports, and trade balance indicators.

3.2 Key Performance Indicators (KPIs)

- **Export Volume** : Measures the quantity or value of exported goods, indicating international competitiveness and external demand.
- **Import Volume** : Represents the quantity or value of imported goods, reflecting dependency on foreign markets.

3.3 Datamart Dimensions

- **Time Dimension** : Enables temporal monitoring of trade flows and seasonality.
- **Composition Dimension** : Classifies traded goods by product composition or category.
- **Account Dimension** : Differentiates trade flows by account type (private, government, semi-government).
- **Route Dimension** : Represents the transport route used for trade (sea, land, air), enabling logistics and infrastructure analysis.

3.4 Datamart Modeling

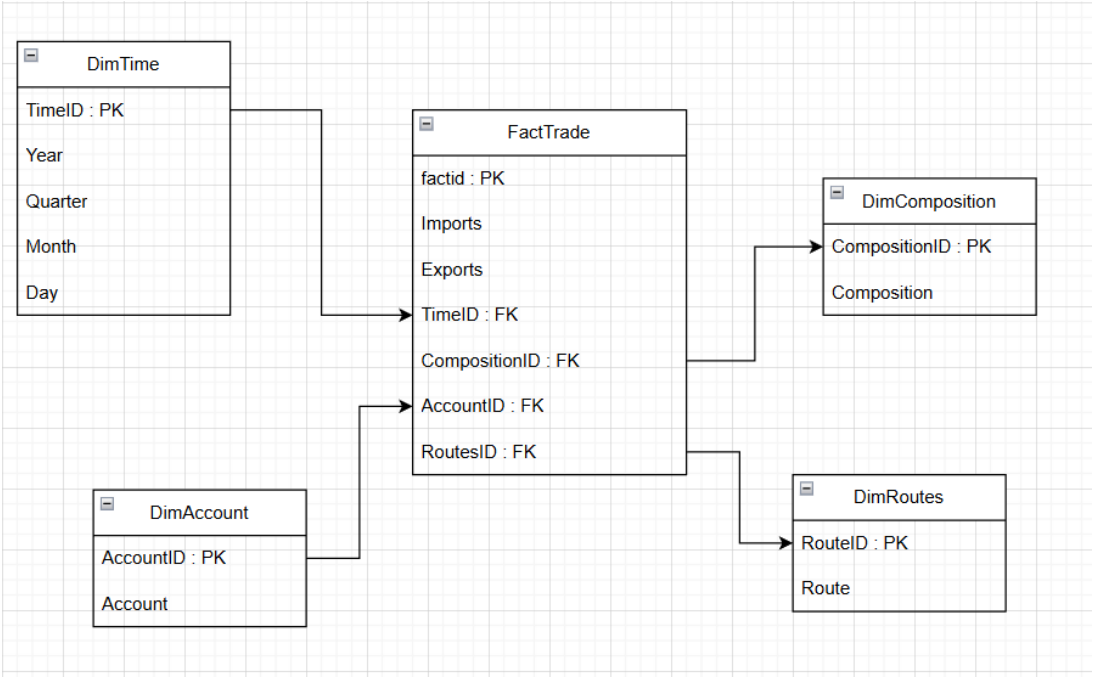

FIGURE 7 – External Business Datamart Schema

3.5 Report and Dashboard Design

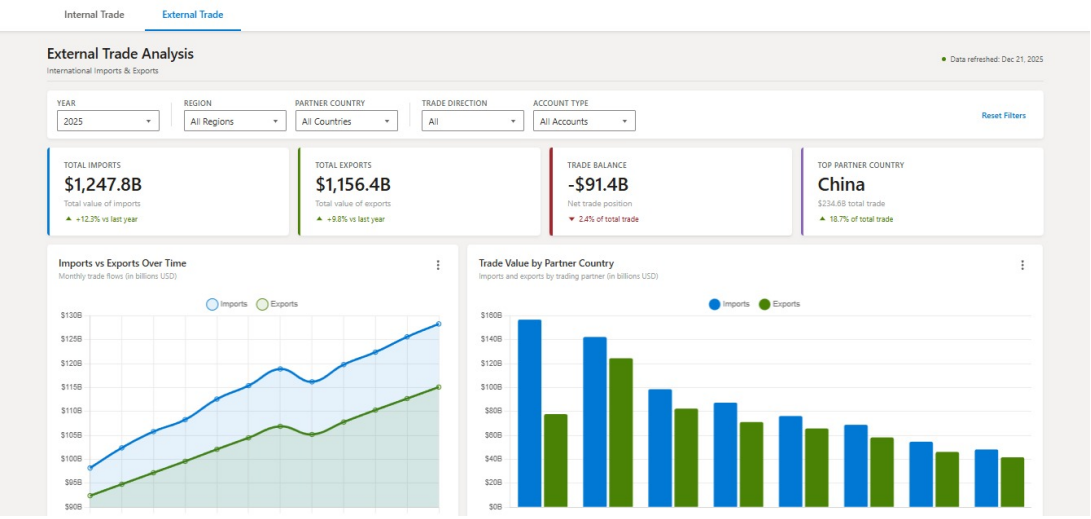

FIGURE 8 – External Business Dashboard Mockup

Conclusion

This design deliverable defines a clear and structured decision-support architecture for the *Industrial & Business* module. The Datamart modeling and dashboard design ensure reliable, coherent, and decision-oriented statistical analysis for the Bangladesh Bureau of Statistics.