PROJECT REPORT

Project Title: Power BI Inflation Analysis Journeying Through Global Economic Terrain.

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1. INTRODUCTION

1.1 Project Overview

Inflation is a critical economic factor that affects global markets, businesses, and consumers. This project leverages **Power BI** to analyze and visualize inflation trends, providing real-time insights and predictive analytics. The system integrates **real-time financial data, economic indicators, and AI-driven forecasting models** to help policymakers, businesses, and researchers make informed decisions.

1.2 Purpose

To provide **real-time** and **historical** inflation data visualization.

To **correlate inflation with key economic indicators** such as GDP, interest rates, and unemployment

To utilize **predictive analytics** for inflation forecasting.

To offer an **interactive, user-friendly dashboard** for businesses, policymakers, and researchers.

2. IDEATION PHASE

2.1 Problem Statement

Traditional methods of analyzing inflation trends rely on **static reports and spreadsheets**, which lack **real-time insights and predictive capabilities**. This project aims to create a **Power BI-based solution** that provides **dynamic visualizations, AI-driven predictions, and interactive dashboards** to simplify inflation analysis.

2.2 Empathy Map Canvas

Thinks: "How does inflation impact economic stability?"

Sees: Static government reports, scattered data.

Says: "We need real-time, interactive analytics."

Hears: Economic experts discuss inflation trends.

Pains: Lack of real-time data, manual analysis.

Gains: AI-powered forecasts, automated reports.

2.3 Brainstorming

Real-time API integration for live inflation data.

Interactive Power BI dashboards with filters.

AI/ML-based predictive modeling.

Correlation insights between inflation and other economic indicators.

User role-based access for decision-makers.

3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

User logs into Power BI dashboard.

Selects region, timeframe, and economic indicator filters.

Analyzes inflation trends and correlations.

Generates reports and forecasts.

Exports reports for decision-making.

3.2 Solution Requirement

Functional: Real-time data integration, visual analytics, AI forecasting.

Non-Functional: Security, scalability, high performance.

3.3 Data Flow Diagram

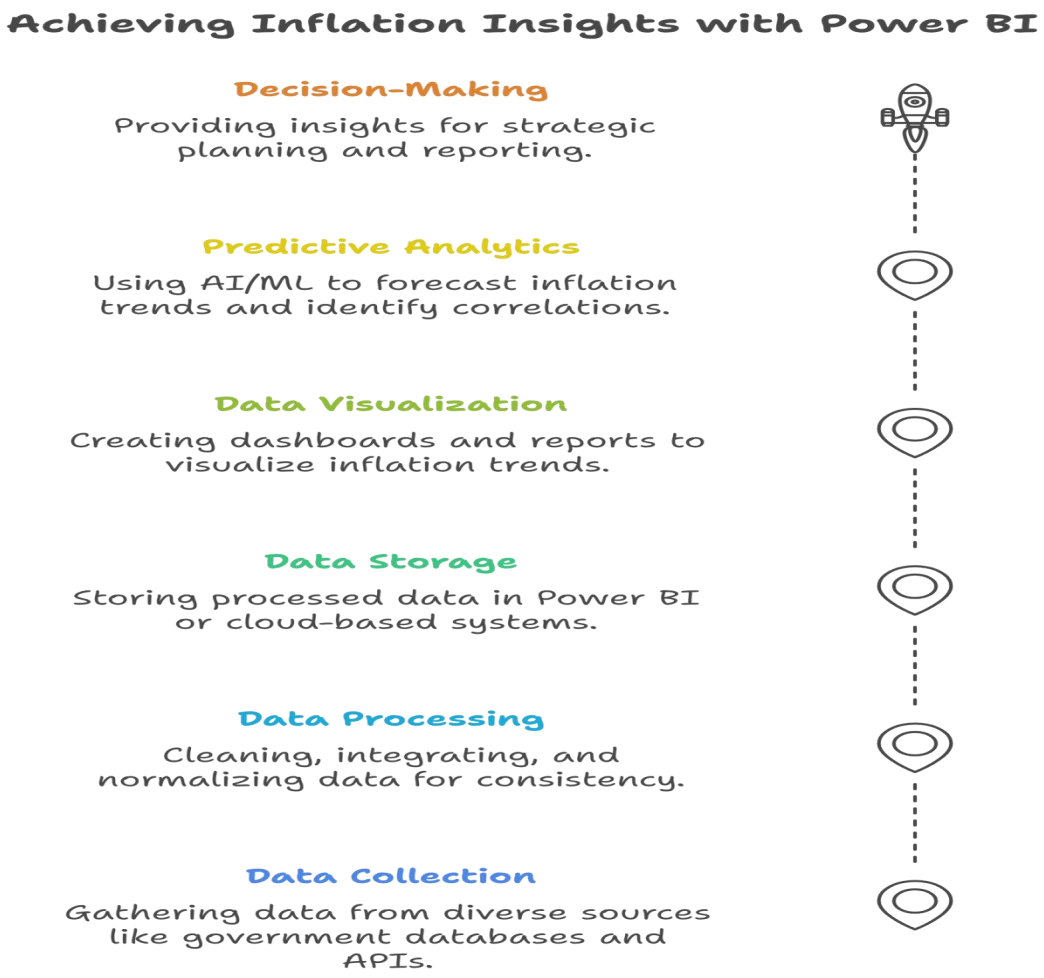
Data Sources: IMF, World Bank, OECD, APIs.

Processing: ETL pipelines, data transformation.

Storage: Azure SQL, Google BigQuery.

Visualization: Power BI dashboards.

User Interaction: Policymakers, businesses, researchers.



3.4 Technology Stack

Frontend: Power BI Embedded.

Backend: Python (ETL, API handling).

Database: Azure SQL, MySQL.

Cloud Services: Microsoft Azure, AWS.

AI/ML: ARIMA, LSTM, Prophet (Forecasting Models).

4. PROJECT DESIGN

4.1 Problem Solution Fit

This project transforms inflation tracking by **automating data collection, processing, and visualization**, enabling real-time decision-making and forecasting.

4.2 Proposed Solution

A **cloud-based Power BI system** that **aggregates inflation data, applies ML-based forecasting, and visualizes economic trends dynamically**.

4.3 Solution Architecture

Data Collection: API, Excel, SQL import.

Data Processing: ETL pipeline, transformation.

Analysis & Forecasting: AI/ML models.

Visualization: Power BI dashboards.

User Access: Secure authentication, role-based views.

5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Sprint 1: Data Collection & Preprocessing.

Sprint 2: Model Building & Deployment.

Sprint 3: Dashboard Customization & Optimization.

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

Load Testing: Ensuring dashboards load in under **3 seconds**.

Scalability Testing: Handling **large datasets smoothly**.

Security Testing: API authentication, data encryption.

7. RESULTS

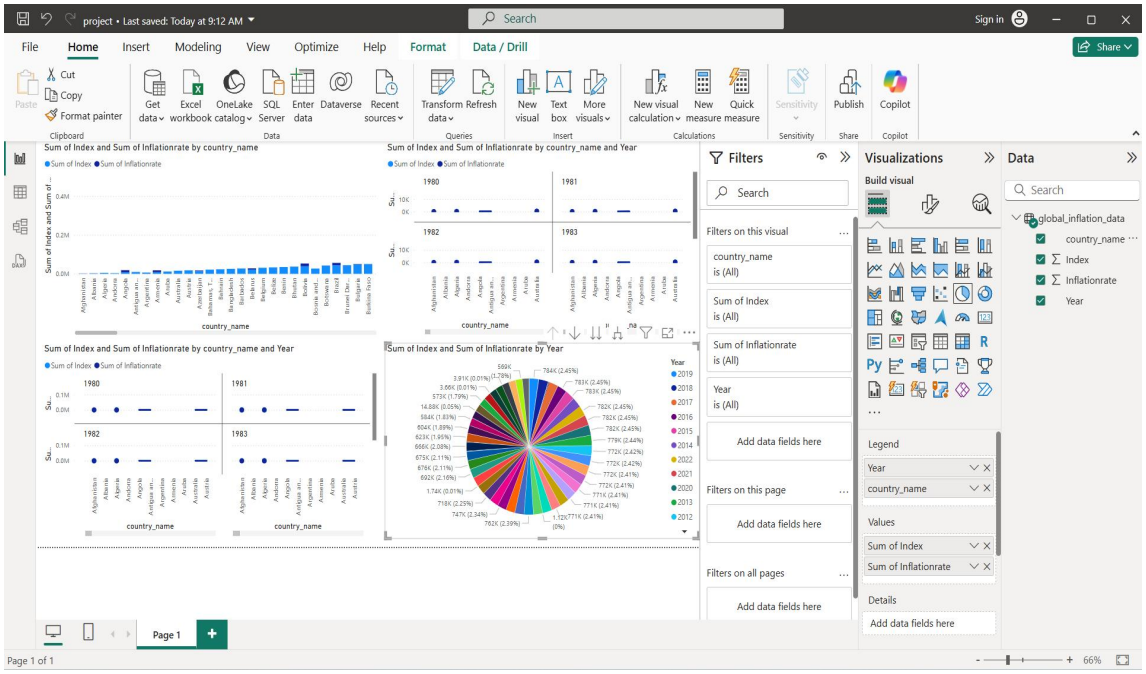
7.1 Output Screenshots

Real-time Inflation Trends Dashboard.

Predictive Forecasting Graphs.

Correlation Analysis Between Inflation and GDP.

Custom Reports and Filters in Power BI.



8. ADVANTAGES & DISADVANTAGES

Advantages:

Real-time inflation tracking

AI-powered predictive analytics.

Interactive, customizable dashboards.

Scalable and secure architecture.

Disadvantages:

Dependency on external APIs for real-time data.

Requires cloud resources for optimal performance.

9. CONCLUSION

This project **revolutionizes inflation analysis** by integrating **real-time data, predictive analytics, and interactive visualization tools**. It enables policymakers, businesses, and researchers to **understand, predict, and respond to inflation trends effectively**.

10. FUTURE SCOPE

AI-driven sentiment analysis on inflation-related news. **Blockchain-based inflation tracking** for transparent data sharing. **Integration with financial planning tools** for investment insights.