PROJECT REPORT

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

Team ID : PNT2025TMID07133

Team Size : 01

Team member : Pothapragada Vidhya Shekeena

1. Introduction:

1.1. Project Overview:

This project aims to leverage Power BI to analyze inflation data across multiple global markets. The goal is to provide multinational corporations with actionable insights to optimize pricing strategies, mitigate risks, and make informed investment decisions in response to inflation trends.

1.2. Purpose:

1. **Enhance Decision-Making:** Provide business leaders with real-time, interactive visualizations to track inflation trends.
2. **Standardize and Integrate Global Inflation Data:** Address challenges related to inconsistent inflation reporting across different regions.
3. **Improve Predictive Capabilities:** Identify long-term patterns and economic interdependencies to support proactive decision-making.
4. **Support Strategic Business Planning:** Provide policymakers and financial analysts with deep insights into macroeconomic conditions.

2.Ideation Phase:

1. Problem Statement:

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	A Corporate Executives	use inflation insights to adjust company strategies and optimize investments.	struggle to develop long-term financial strategies	inflation data is inconsistent and lacks standardizatio n across global markets.	Frustrated by inconsistent inflation data and reporting formats. .
PS-2	Government & Policy Makers	Use inflation analysis for monetary policies and economic industries	struggle to implement effective economic policies	data inconsistencie s and unpredictable impact of inflation on different industries.	Uncertain about long-term economic trends.

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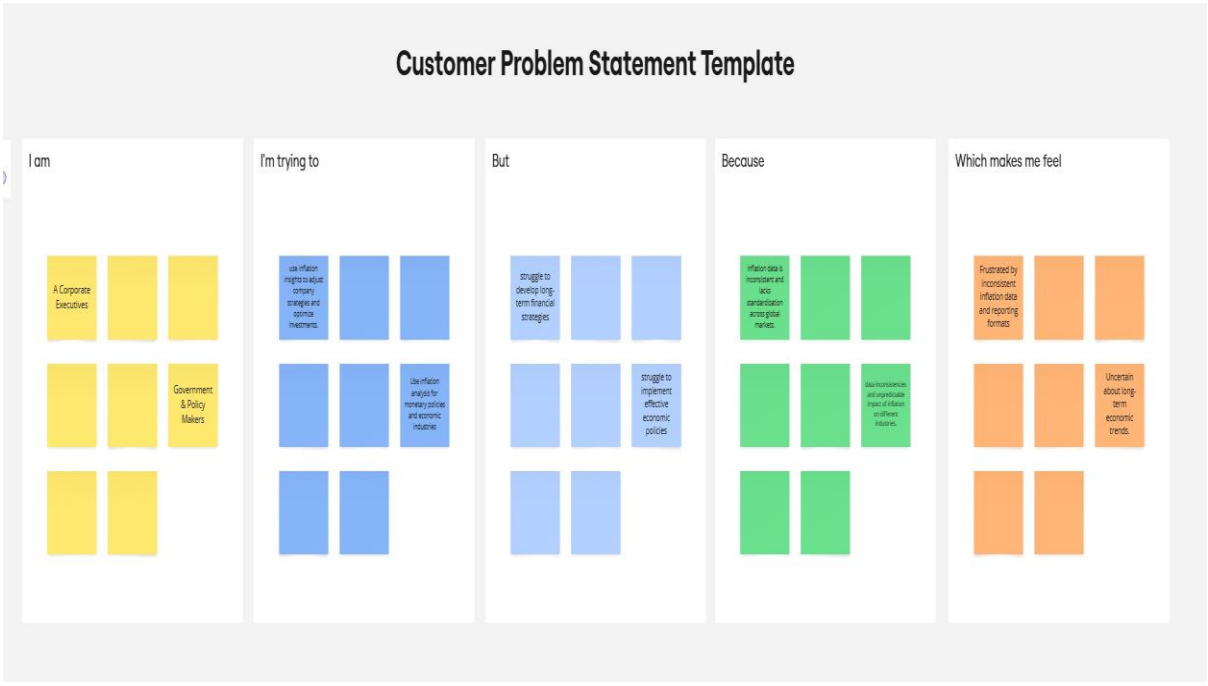
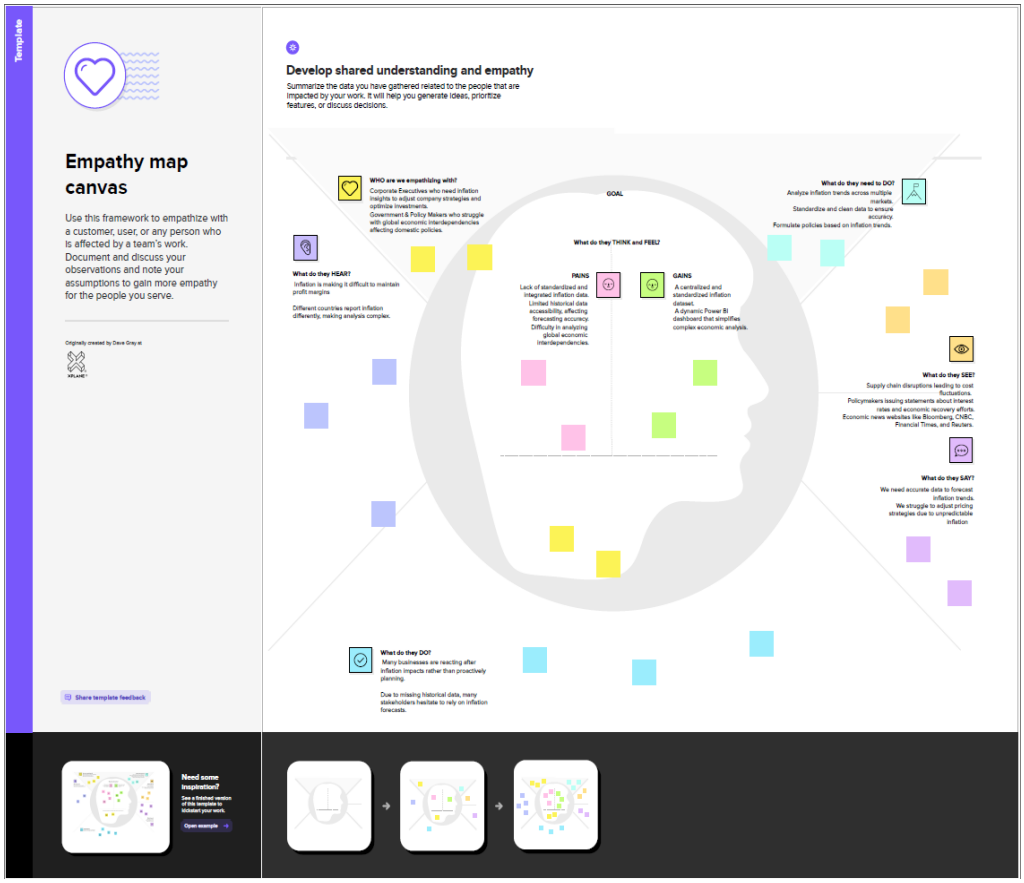
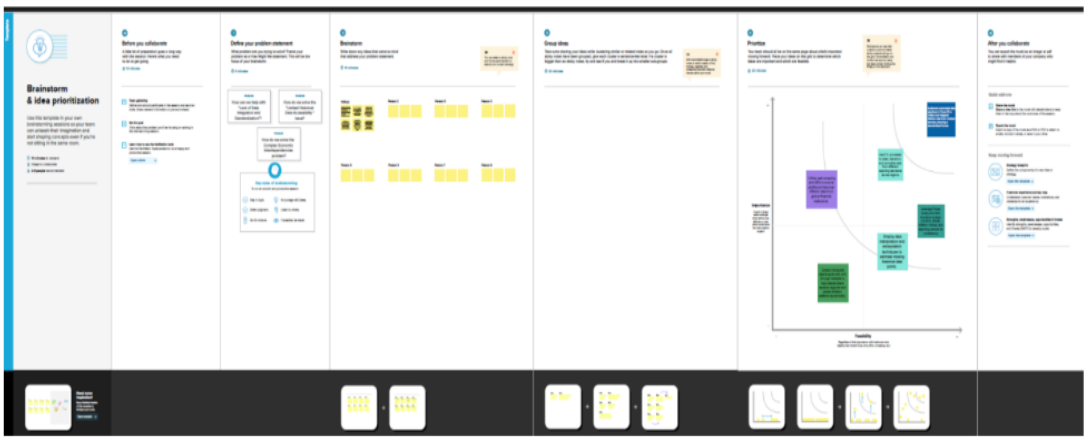


2. 2 Empathy Map:

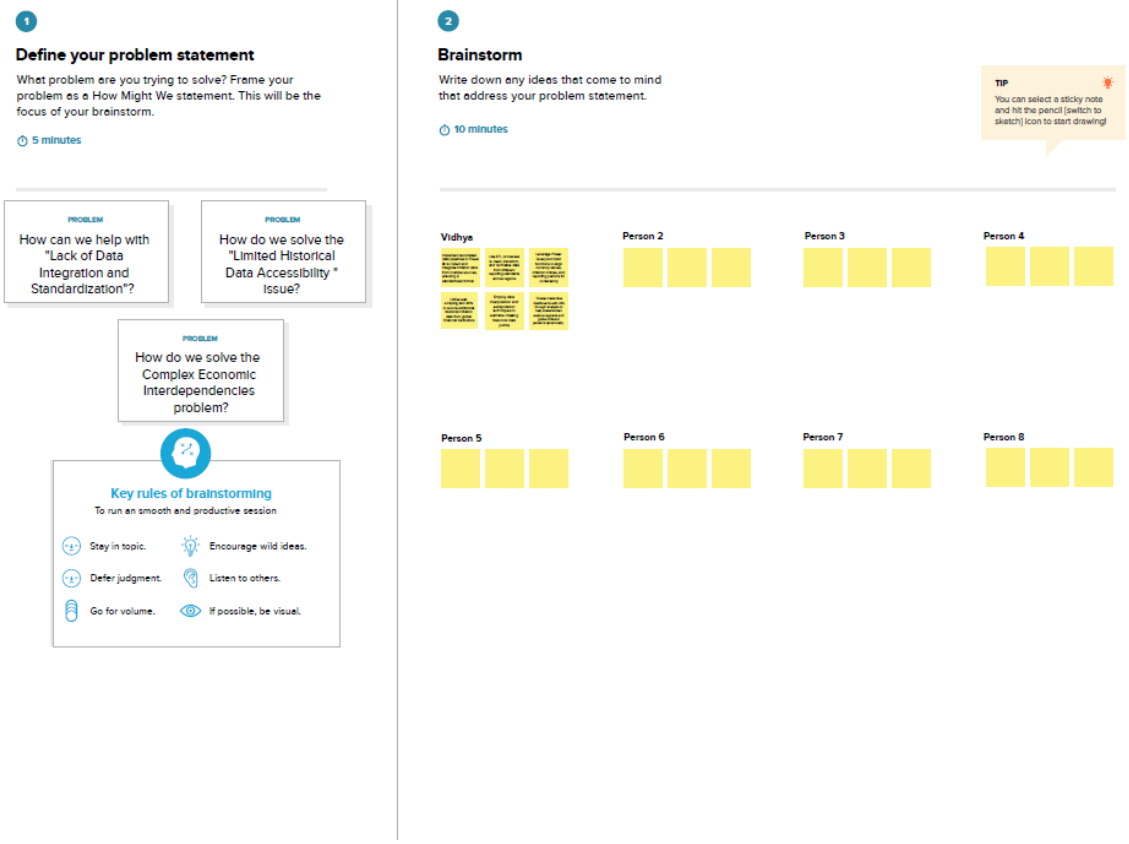


2.3 BrainStroming:

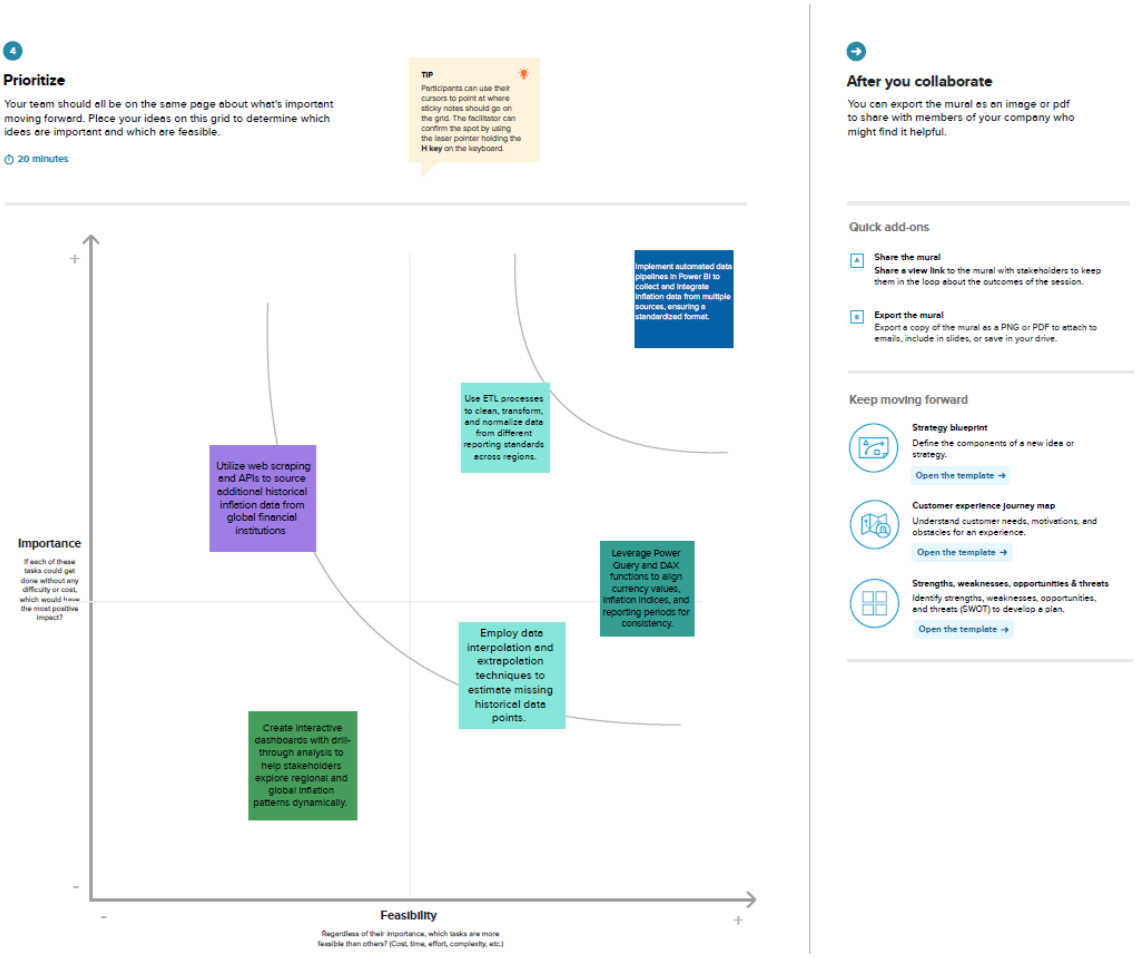
Step-1: Team Gathering, Collaboration and Select the Problem Statement



Step 2- Idea Listing and grouping:



Step 3 – Idea Prioritization:



3.Requirement Analysis:

3.1 Customer Journey Map:

3.2 Solution Requirements:

Functional Requirements:

Following are the functional requirements of the proposed solution.

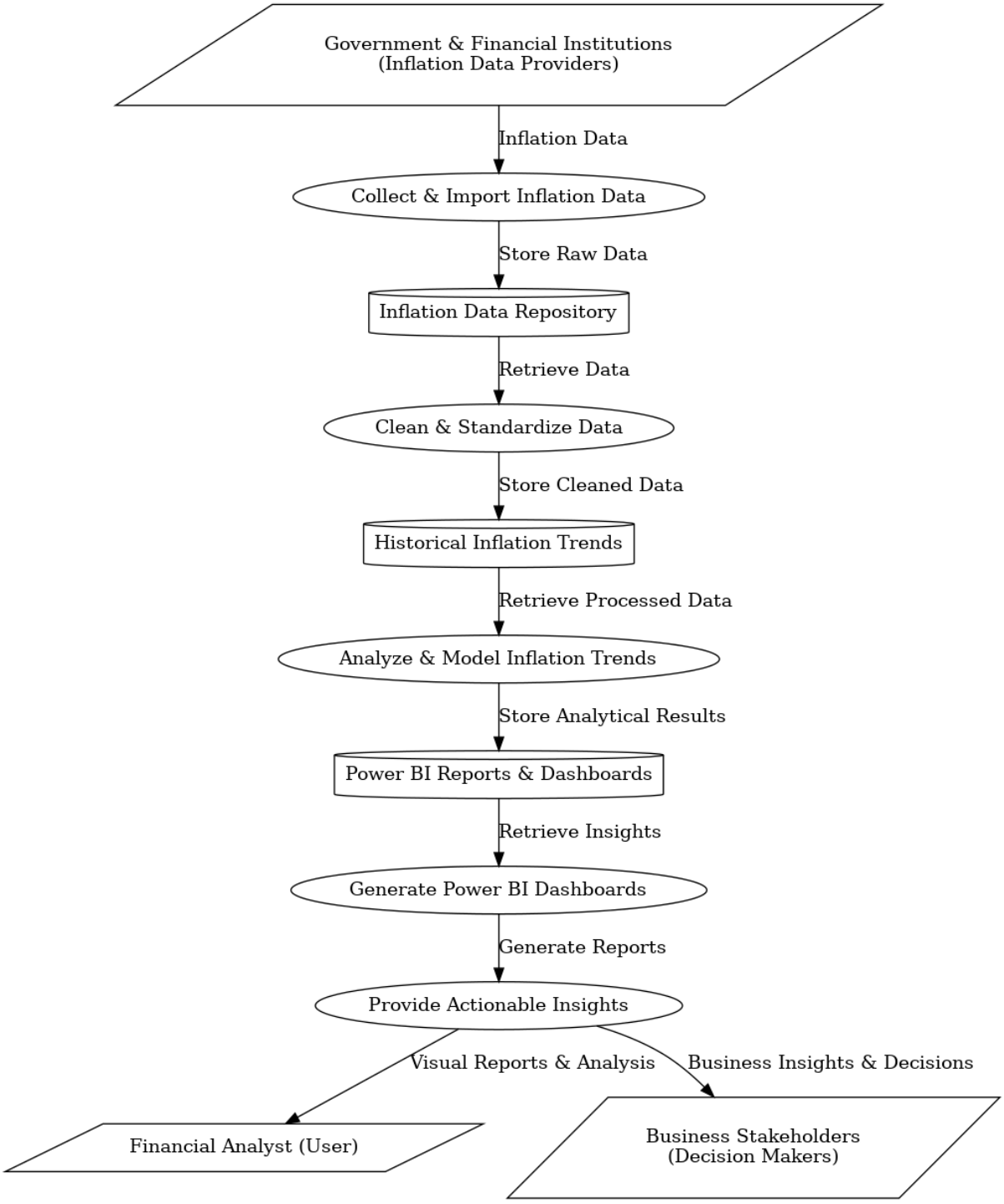
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail Registration through LinkedIN
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Data Collection & Integration	Aggregation of inflation data from multiple sources, data cleansing, and standardization
FR-4	Data Visualization in Power BI	Interactive dashboard with inflation trends, real-time and historical data views
FR-5	Predictive Analytics & Forecasting	Machine learning models for inflation prediction, correlation analysis with economic indicators
FR-6	Risk Assessment & Decision Support	Scenario analysis for business impact, automated reporting and insights

Non-functional Requirements:

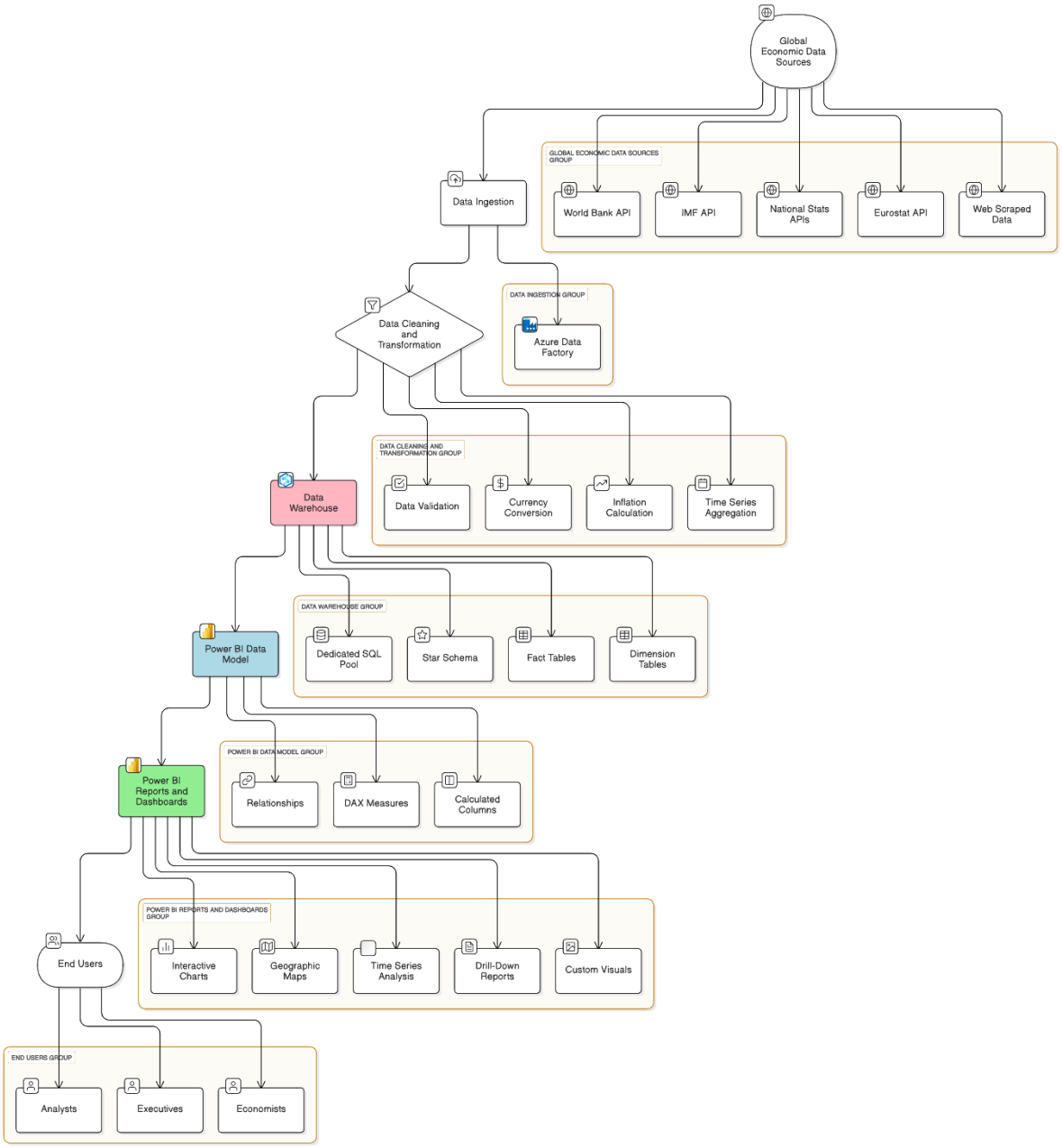
Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	User-friendly dashboard with intuitive UI/UX
NFR-2	**Security**	Data encryption, role-based access contro
NFR-3	**Reliability**	High availability of data sources and stable dashboard performance
NFR-4	**Performance**	Fast data loading, real-time updates
NFR-5	**Availability**	System accessible 24/7 with minimal downtime
NFR-6	**Scalability**	Ability to accommodate increasing data volume and new markets

3.3DataFlow Diagram:

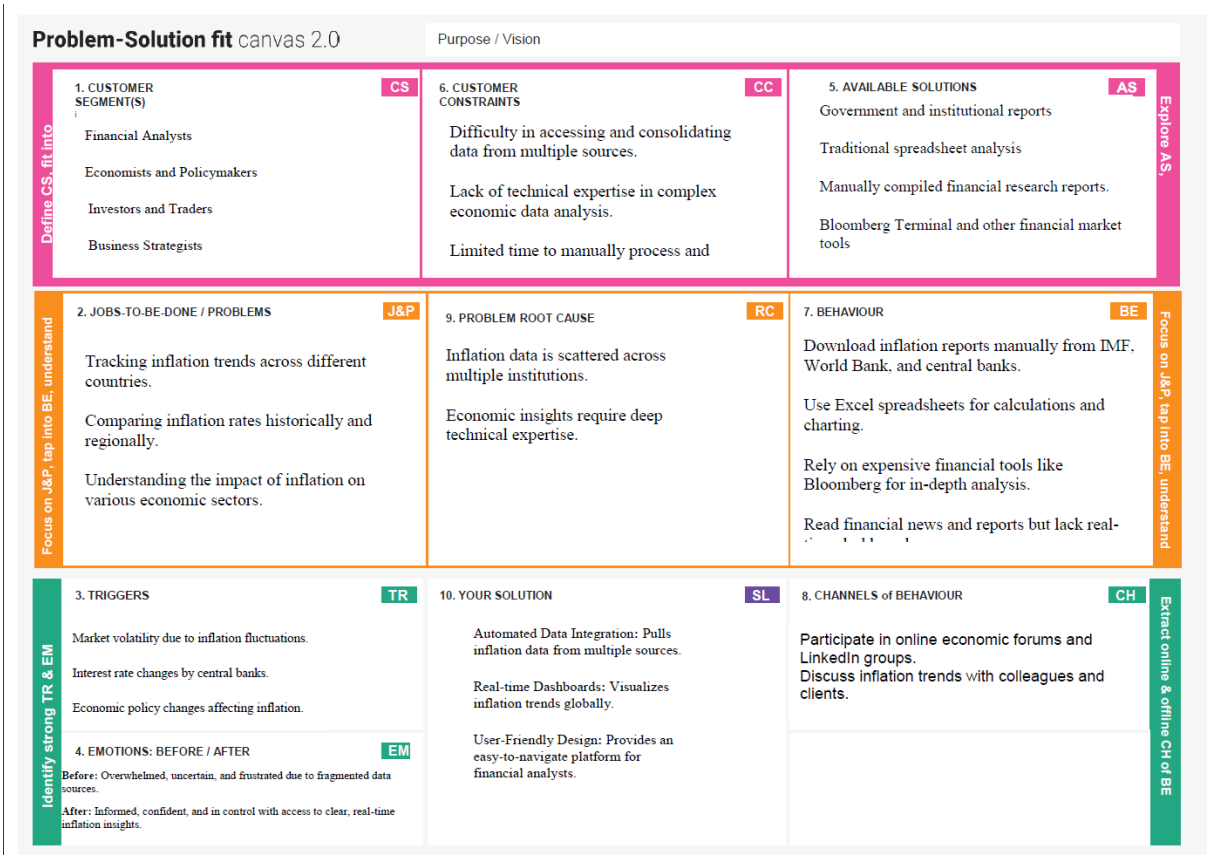


3.4 Technology Stack:



4.Project Design Phase:

4.1Solution Fit:

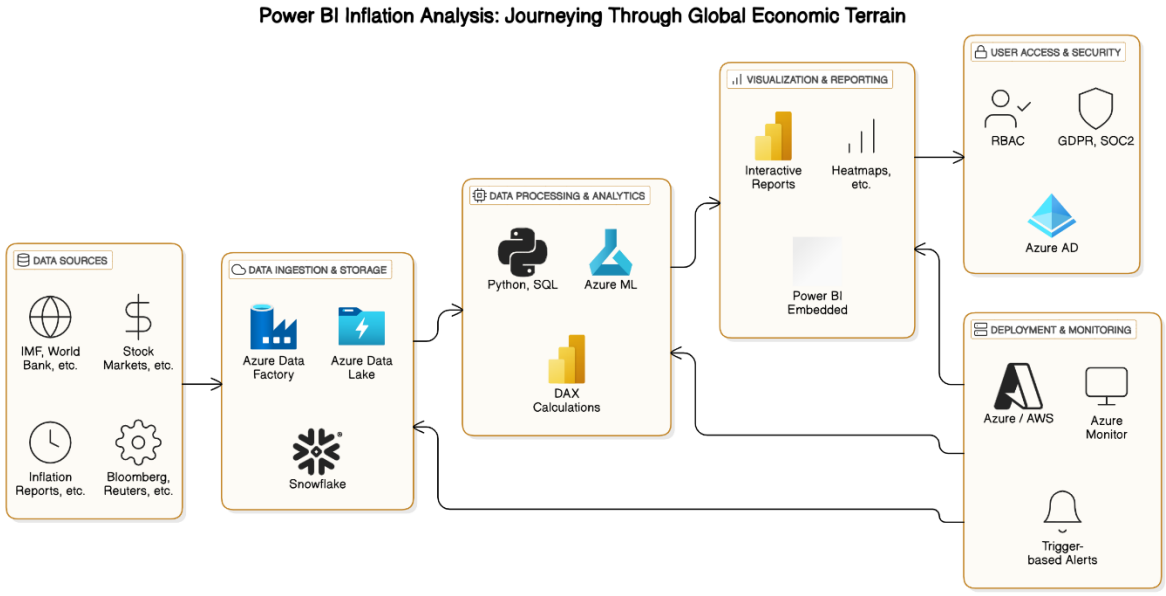

Problem-Solution fit canvas 2.0
Purpose / Vision
Define CS, fit into
1. CUSTOMER SEGMENT(S)
CS
Financial Analysts
Economists and Policymakers
Investors and Traders
Business Strategists
6. CUSTOMER CONSTRAINTS
CC
Difficulty in accessing and consolidating data from multiple sources.
Lack of technical expertise in complex economic data analysis.
Limited time to manually process and
5. AVAILABLE SOLUTIONS
AS
Government and institutional reports
Traditional spreadsheet analysis
Manually compiled financial research reports.
Bloomberg Terminal and other financial market tools
Explore AS,
Focus on J&P, tap into BE, understand
2. JOBS-TO-BE-DONE / PROBLEMS
J&P
Tracking inflation trends across different countries.
Comparing inflation rates historically and regionally.
Understanding the impact of inflation on various economic sectors.
9. PROBLEM ROOT CAUSE
RC
Inflation data is scattered across multiple institutions.
Economic insights require deep technical expertise.
7. BEHAVIOUR
BE
Download inflation reports manually from IMF, World Bank, and central banks.
Use Excel spreadsheets for calculations and charting.
Rely on expensive financial tools like Bloomberg for in-depth analysis.
Read financial news and reports but lack real-
Focus on J&P, tap into BE, understand
Identify strong TR & EM
3. TRIGGERS
TR
Market volatility due to inflation fluctuations.
Interest rate changes by central banks.
Economic policy changes affecting inflation.
4. EMOTIONS: BEFORE / AFTER
EM
Before: Overwhelmed, uncertain, and frustrated due to fragmented data sources.
After: Informed, confident, and in control with access to clear, real-time inflation insights.
10. YOUR SOLUTION
SL
Automated Data Integration: Pulls inflation data from multiple sources.
Real-time Dashboards: Visualizes inflation trends globally.
User-Friendly Design: Provides an easy-to-navigate platform for financial analysts.
8. CHANNELS of BEHAVIOUR
CH
Participate in online economic forums and LinkedIn groups.
Discuss inflation trends with colleagues and clients.
Extract online & offline CH of BE

4.2Proposed System:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Multinational corporations struggle with inconsistent inflation data, limited historical records, and complex economic interdependencies, making it difficult to analyze global inflation trends and make informed pricing, risk mitigation, and investment decisions
2.	Idea / Solution description	a standardized, integrated, and interactive Power BI solution that consolidates inflation data, enhances predictive modeling, and accounts for economic interdependencies, enabling businesses to optimize pricing strategies, mitigate risks, and make informed investment decisions.
3.	Novelty / Uniqueness	Our approach leverages Power BI's advanced analytics and visualization capabilities to standardize inflation data across multiple regions, integrate diverse historical datasets for trend analysis, and model complex economic interdependencies. This holistic, interactive, and predictive solution enables real-time decision-making by providing actionable insights tailored to each market's unique economic conditions—something traditional static reports and fragmented data sources fail to achieve.
4.	Social Impact / Customer Satisfaction	**Global Economic Equity:** Standardizing inflation data across regions promotes transparency and fairness in economic decision-making. **Interactive & User-friendly Dashboards:** Power BI's visualization tools make complex economic data easy to interpret for both experts and non-experts.
5.	Business Model (Revenue Model)	The proposed business model focuses on leveraging Power BI's data visualization and analytics capabilities to provide real-time, data-driven insights into global

		inflation trends. The model aims to serve businesses, policymakers, and financial institutions by offering customizable dashboards, predictive analytics, and consulting services to help them make informed economic decisions.
6.	Scalability of the Solution	The Power BI Global Inflation Analysis solution is highly scalable, leveraging cloud-based infrastructure to handle increasing data volumes, expanding user bases, and diverse economic datasets. It seamlessly integrates global economic data sources, supports real-time updates, and offers multi-tenant access for businesses, policymakers, and financial institutions. With customizable dashboards, the platform ensures efficient performance and adaptability across industries and regions. Its cloud-native architecture allows for on-demand scaling, making it future-proof and capable of addressing evolving economic analysis needs on a global scale.

4.3Solution Architecture:



5.Project Planning:

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Data Collection & Extraction	PBIA-1	Collect relevant data for analysis	2	High	P. Vidhya Shekeena
	Gather relevant data to generate insights	PBIA-2	Process the data	2	High	P. Vidhya Shekeena
	Data Preparation	PBIA-3	Transform and load the data	3	High	P. Vidhya Shekeena
Sprint-2	Data Analysis and Modeling	PBIA-4	Utilize Power BI's analytical tools to explore relationships between environmental factors and plant growth stages	7	High	P. Vidhya Shekeena
	Dashboard Design	PBIA-5	Design user-friendly interfaces that allow stakeholders to easily access and interpret data	7	High	P. Vidhya Shekeena

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
	Implementation	PBIA-6	Provide training and support to users to ensure they can effectively utilize the dashboards for decision-making	5	Medium	P. Vidhya Shekeena
Sprint-3	Feedback	PBIA-7	Gather feedback from stakeholder on initial dashboard	8	High	P. Vidhya Shekeena
	Evaluation	PBIA-8	Analyze user engagement with the dashboards and gather feedback for enhancements. Foster a culture of data-driven decision-making within the organization to maximize the benefits of the project.	4	Medium	P. Vidhya Shekeena

Project Tracker, Velocity & Burndown Chart: (4 Marks)

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	7	3 Days	22 Mar 2025	24 Mar 2025	6	24 Mar 2025
Sprint-2	20	3 Days	24 Mar 2025	26 Mar 2025	18	26 Mar 2025
Sprint-3	20	2 Days	26 Nov 2022	27 Mar 2025	17	27 Mar 2025

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)

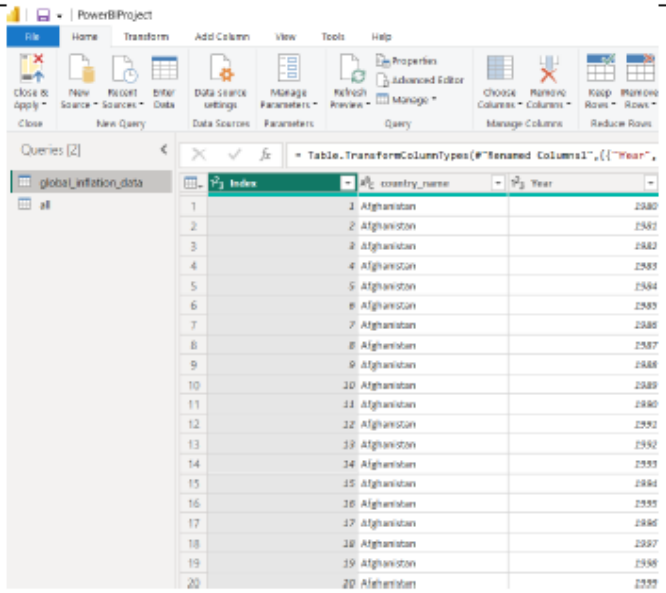
Velocity:
Total Story Points Completed : 41

Total Number of Sprints = 3

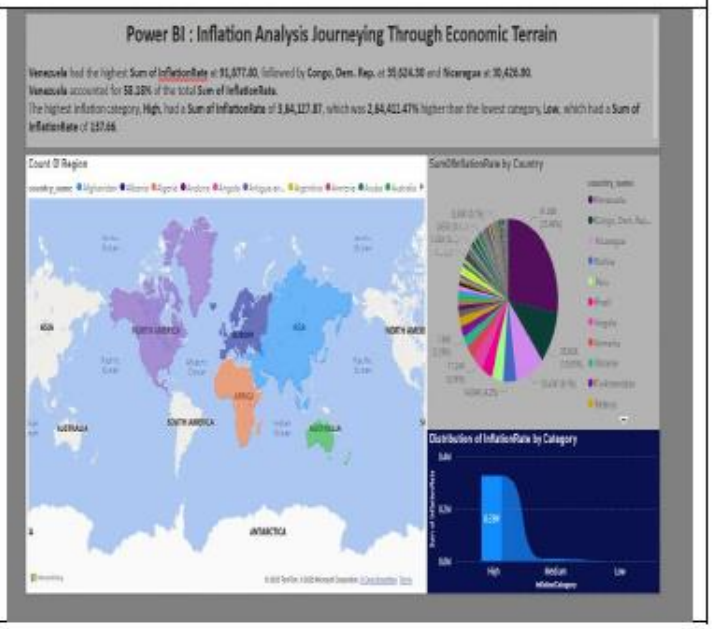
Velocity = Total Story Points / Number of Sprints

Velocity = 41/3 =20.5

6.Performance Testing:

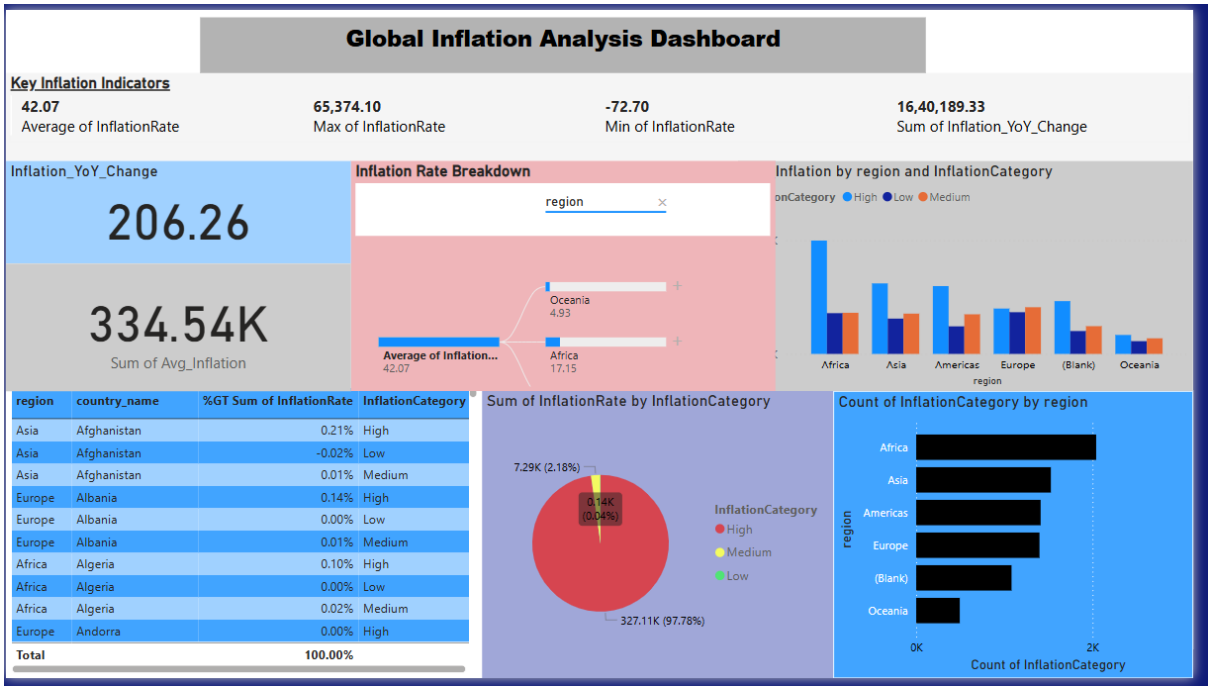
S.No.	Parameter	Screenshot / Values
1.	Data Rendered	10 columns, 8,201 rows
2.	Data Preprocessing	
3.	Utilization of Data Filters	Data cleaning i.e, removal of unwanted columns and calculations were done.
4.	DAX Queries Used	AdjustedInflationRate = 'global_inflation_data'[InflationRate] * 0.1

```
InflationDiff = 'global_inflation_data'[InflationRate] -
'global_inflation_data'[AdjustedInflationRate]


InflationCategory =
  IF('global_inflation_data'[InflationRate] < 2, "Low",
    IF('global_inflation_data'[InflationRate] < 5, "Medium",
"High")
  )

High_Inflation_Countries =
  COUNTROWS(FILTER('global_inflation_data',
'global_inflation_data'[InflationCategory] = "High"))

Medium_Inflation_Countries =
  COUNTROWS(FILTER('global_inflation_data',
'global_inflation_data'[InflationCategory] = "Medium"))

Low_Inflation_Countries =
  COUNTROWS(FILTER('global_inflation_data',
'global_inflation_data'[InflationCategory] = "Low"))

Inflation_YoY_Change =
  VAR PrevYearInflation =

CALCULATE(AVG('global_inflation_data'[InflationRate]),
            FILTER('global_inflation_data',
                'global_inflation_data'[Year] =
MAX('global_inflation_data'[Year]) - 1))
  RETURN
    IF(NOT(ISBLANK(PrevYearInflation)),
      (AVG('global_inflation_data'[InflationRate]) -
PrevYearInflation) / PrevYearInflation * 100,
      BLANK())
```

5.	Dashboard design	
6	Report Design	

7.Results:

7.1Dashboard:

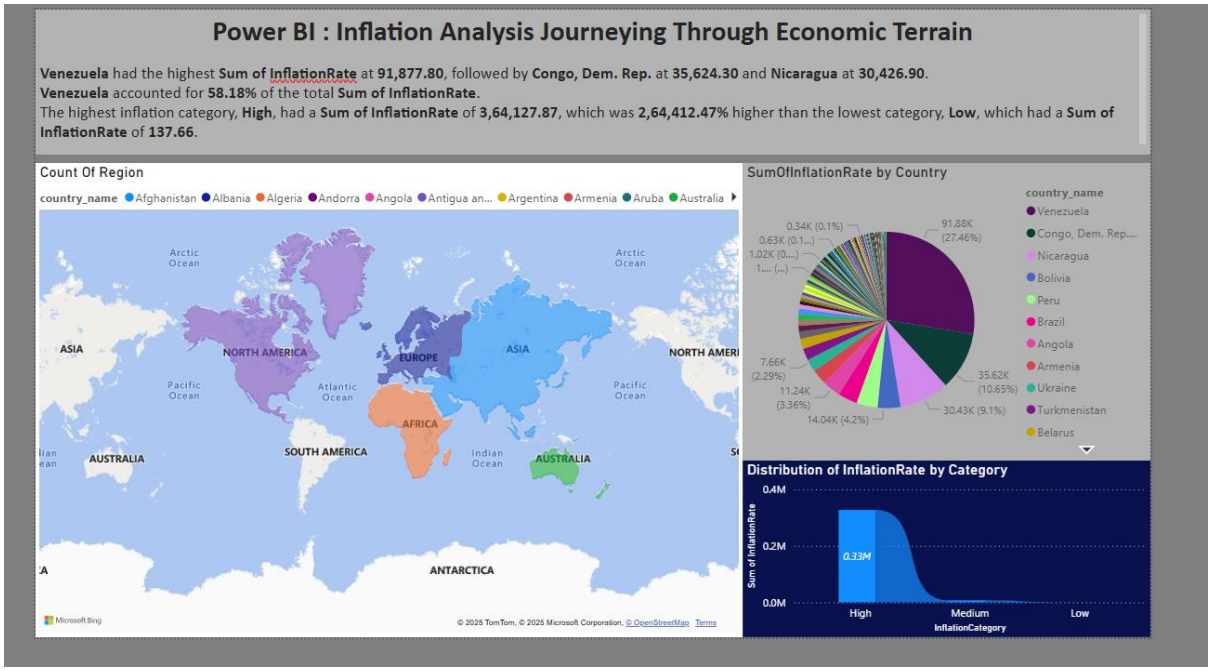


The **Global Inflation Analysis Dashboard** presents a comprehensive view of inflation trends across different regions and countries. The key metrics include:

- **Key Inflation Indicators** such as the average, maximum, and minimum inflation rates.
- **Inflation Rate Breakdown**, showing inflation trends by region.
- **Inflation Category Analysis**, categorizing inflation into **High, Medium, and Low** levels.
- **Regional Insights**, including bar charts and pie charts to visualize inflation distribution.
- **Inflation Data Table**, listing country-wise inflation details.
- **Geographical Distribution**, using a world map to highlight the distribution of inflation rates.

This dashboard allows users to interactively filter and analyze inflation trends across various dimensions.

7.2:Report:



The **Inflation Analysis Report** provides a deep dive into inflation trends with an emphasis on regional and categorical differences. The key highlights include:

- **Top countries with the highest inflation rates**, such as Venezuela, Congo, and Nicaragua.
- **Inflation rate distribution by category (High, Medium, Low)**.
- **A comparative study of inflation across continents**, highlighting significant inflation contributors.
- **Data Visualization**, including maps, pie charts, and histograms, to analyze inflation from multiple perspectives.

This report serves as a detailed analysis tool for understanding global economic trends related to inflation.

8.Advantages and Disadvantages:

8.1Advantages:

- **Visual Insights** – Easy-to-understand charts and graphs help in quick decision-making.

 Interactivity – Users can filter data by region, category, and country for detailed analysis.

 Comprehensive Data Representation – Combines tables, graphs, and maps to provide a holistic view.

 Comparative Analysis – Allows easy comparison of inflation rates across countries and categories.

 Real-Time Updates – If connected to live data sources, it can provide real-time insights.

8.2Disadvantages:

- **Complexity in Interpretation** – Some users may find the charts overwhelming without proper guidance.

 Data Accuracy – If the data source is outdated or incorrect, the analysis may be misleading.

 Limited to Available Data – The insights are only as good as the data provided.

 Performance Issues – Large datasets may slow down the dashboard's responsiveness.

 Dependency on Software – Requires Power BI or similar tools for visualization, which may have a learning curve.

9.Conclusion:

The **Global Inflation Analysis Dashboard and Report** provide a powerful tool for analyzing inflation trends across different regions. It helps economists, policymakers, and businesses understand inflation patterns, compare country-wise data, and make informed financial decisions. While it has some limitations, future improvements in real-time data integration and predictive analytics can further enhance its value.

10.Future Scope:

- **Integration with Live Data Feeds** – Connecting to real-time economic indicators for more accurate insights.

 Predictive Analysis – Using machine learning to forecast future inflation trends.

 More Granular Data Analysis – Breaking down inflation at the state/province level instead of just country-level.

 Enhanced User Experience – Adding more interactive features like drill-downs and dynamic reporting.

 Mobile-Friendly Version – Making the dashboard accessible on mobile devices for broader usability.

11.Appendix:

Dataset:

https://www.kaggle.com/datasets/sazidthe1/global-inflation-data?resource=download

Github:

https://github.com/Vidhya-Shekeena/Power-BI-Inflation-Analysis-Journeying-Through-Global-Economic-Terrain/tree/main

Demo:

https://drive.google.com/file/d/17nkas4AdylUBSstFUBSDJdIOxSAZHC3o/view?usp=sharing