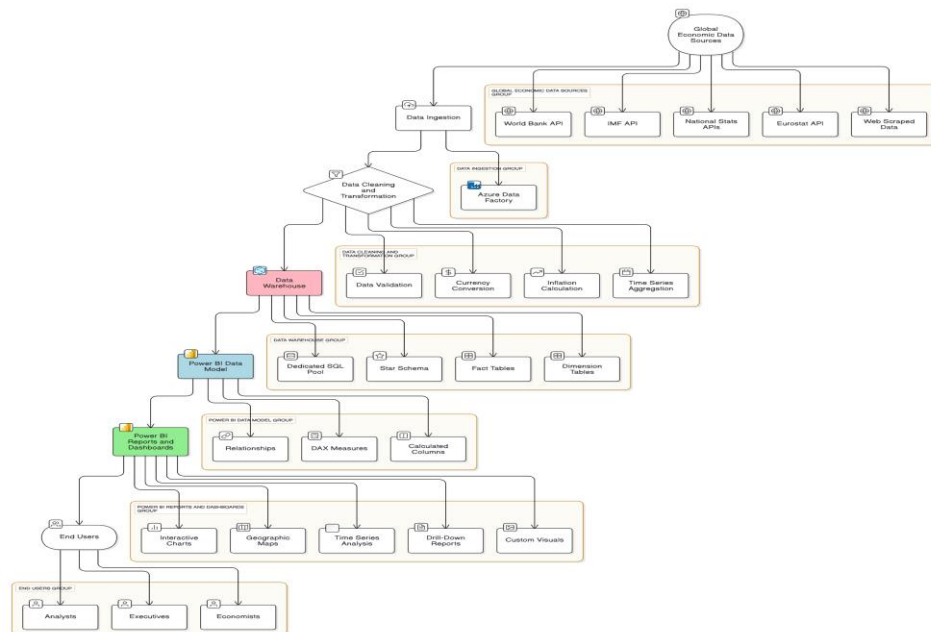


## Project Design Phase-II Technology Stack (Architecture & Stack)

Date	25 March 2025
Team ID	PNT2025TMID07133
Project Name	Power BI Inflation Analysis: Journeying Through Global Economic Terrain
Maximum Marks	4 Marks

### Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2



**Table-1 : Components & Technologies:**

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	Data processing & transformation	Power Query, DAX
3.	Application Logic-2	Advanced analytics & trend forecasting	Python, R in Power BI
4.	Database	Storage of historical & real-time inflation data	SQL Server, PostgreSQL, Azure Synapse
5.	Cloud Database	Cloud storage for large datasets	Azure SQL Database, Google BigQuery.
6.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local Filesystem
7.	External API-1	Fetching global economic indicators	World Bank API, IMF API, Eurostat API
8.	External API-2	Financial market data integration	Yahoo Finance API, Alpha Vantage API
9.	Machine Learning Model	Predictive modeling for inflation trends	Azure ML, AutoML, TensorFlow.
10.	Infrastructure (Server / Cloud)	Deployment environment	Microsoft Azure, AWS, Google Cloud.

**Table-2: Application Characteristics:**

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Frameworks used for data analysis and visualization	Pandas, NumPy, Matplotlib, Plotly
2.	Security Implementations	Access controls, encryption, and authentication methods	Azure IAM, OAuth 2.0, SSL/TLS

S.No	Characteristics	Description	Technology
3.	Scalable Architecture	Supports high-volume data and multi-regional access	Microservices, Serverless Architecture
4.	Availability	Ensuring minimal downtime and failover redundancy	Load Balancers, Distributed Cloud Servers
5.	Performance	Optimized queries, caching, and data refresh strategies	Azure Data Factory, Power BI Service, CDN