**Solution Architecture**

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| **Date** | **19-06-2025** |
| **Team ID** | **LTVIP2025TMID48223** |
| **Project Name** | **Measuring the Pulse of Prosperity: An Index of Economic Freedom Analysis** |
| **Maximum Marks** | **4 marks** |

# What is Solution Architecture?

Solution Architecture serves as the framework that connects analytical objectives with technological execution. In the context of analyzing economic freedom, it bridges the gap between data from global indices and the visualization of insights that drive policy-making and awareness. This architecture ensures that diverse economic indicators are processed, visualized, and interpreted effectively.

The architecture outlines:

• The structure of the system including global index data sources, ETL workflows, and dashboard layers  
• How data flows from raw index datasets to meaningful visual insights  
• Technologies and integrations used for scalable analytics  
• Access control and deployment strategies for researchers, students, and policymakers

# Goals of the Solution Architecture for This Project:

• Integrate the Index of Economic Freedom data into an interactive Tableau environment  
• Visualize the 12 indicators across 4 pillars (Rule of Law, Government Size, Regulatory Efficiency, Open Markets)  
• Enable comparisons across countries, years, and indicators using interactive filters  
• Provide role-specific access to datasets and insights  
• Support future expansions such as predictive modeling or integration with other economic indicators (e.g., HDI, GDP)

# Core Components of the Architecture

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| **Layer** | **Component** | **Description** |
| Data Integration | ETL Process (e.g., Tableau Prep, Python Scripts) | Extracts and transforms raw index data from The Heritage Foundation and other databases. |
| Data Storage | Data Warehouse / Cloud Storage | Central repository where structured index data is stored and categorized by year, pillar, and country. |
| Analytics & Visuals | Tableau Desktop & Server | Interactive dashboards comparing economic freedom scores, pillar-level performance, and socio-economic correlations. |
| Security & Access | Tableau User Roles & Permissions | Controls dashboard access for policy researchers, academicians, and public viewers. |
| Reporting & Alerts | Automated Reporting and Insight Sharing | Scheduled reports and insights distributed to relevant stakeholders through subscriptions or downloads. |

# Data Flow within the System

User Journey and Data Movement:

1. Data Extraction: Economic index data is sourced from public repositories and government websites.  
2. Data Processing: Data is cleaned, standardized, and enriched in the data warehouse.  
3. Dashboard Development: Tableau connects to the processed data to build insightful visualizations showing country comparisons, trends, and pillar-level performance.  
4. User Interaction: Users interact with the dashboards via Tableau Server, applying filters and exploring insights.  
5. Scheduled Reporting: Automated updates and exports keep stakeholders informed of annual or quarterly economic freedom changes.

# Summary

This solution architecture ensures:  
• A well-structured integration of economic freedom indicators into a robust analytics framework  
• Interactive Tableau dashboards that drive awareness, policy decisions, and educational exploration  
• Controlled access to different user groups, ensuring relevance and data protection  
• A flexible infrastructure supporting additional indicators and historical comparisons