**Solution Requirements**

Economic freedom represents each individual’s right to control their own labor and property. The Heritage Foundation’s Index of Economic Freedom measures this principle across 12 factors, grouped into four pillars: Rule of Law, Government Size, Regulatory Efficiency, and Open Markets. Our analytics solution ingests the Index data, enriches it with macro‑economic indicators, and delivers actionable insights for policy makers and researchers.

# Functional Requirements

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| FR No. | Functional Requirement (Epic) | Sub‑Requirement (Story / Task) |
| FR‑1 | Data Collection & Import | - Import Index CSV/API plus World Bank & IMF datasets - Automated validation for country codes & missing years |
| FR‑2 | Data Cleaning & Harmonization | - Standardise ISO country codes & region tags - Handle missing values, outliers, and scale differences |
| FR‑3 | User Authentication & Security | - Secure login (Flask/Django) - Roles: Analyst, Policy‑Maker, Viewer - Row‑level security on sensitive metrics |
| FR‑4 | Data Segmentation | - Filters: Year, Region, Income Group, Pillar - Custom country group comparisons (e.g., OECD, BRICS) |
| FR‑5 | Dynamic Visualization | - Choropleth maps, radar charts, heatmaps, trend lines - Interactive tooltips & drill‑downs |
| FR‑6 | Dashboard Customization | - Drag‑and‑drop layout in Tableau / Power BI - Save personal views & bookmarks |
| FR‑7 | Storyline Presentation | - Multi‑slide story from global to country views - Annotated insights & policy notes |
| FR‑8 | Stakeholder Communication | - Schedule weekly email briefs with latest scores - Auto‑generate PDF summaries |
| FR‑9 | Publication & Embedding | - Embed dashboards into a policy portal via iframe/API - Serve via HTTPS behind SSO |
| FR‑10 | Iteration & Feedback Integration | - Collect user feedback, version dashboards - Provide sandbox mode for analyst experiments |

# Non‑Functional Requirements

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| NFR No. | Non‑Functional Requirement | Description |
| NFR‑1 | Usability | Dashboards intuitive for business users; advanced options available for analysts. |
| NFR‑2 | Performance | Render maps & filters within 3 s for 30 years × 190 countries dataset. |
| NFR‑3 | Security | Role‑based access control; HTTPS encryption; secure credential storage. |
| NFR‑4 | Availability | 99 % uptime during business hours; scheduled nightly backups. |
| NFR‑5 | Maintainability | Modular ETL scripts and parameterised dashboards enable rapid updates. |
| NFR‑6 | Auditability | All data transformations & dashboard versions logged for rollback and traceability. |
| NFR‑7 | Scalability | Easily ingest additional indicators or quarterly updates without re‑engineering. |
| NFR‑8 | Integration Compatibility | REST/GraphQL endpoints and embeddable widgets integrate with existing intranet or ERP systems. |