

J.A.C.O.S.

Core Methodology & System Architecture

Target Audience: Strategic Tech Partners, Open Data Funds, and Infrastructure Donors

1. Executive Summary & Core Concept

J.A.C.O.S. (Joint Analytical Country Optimization System) is an advanced, data-driven visualization engine designed to eliminate localized bias in macro-economic and infrastructure data. Instead of presenting fixed, pre-calculated global rankings, J.A.C.O.S. introduces a reactive data pipeline where global macro-metrics are dynamically calculated based on custom user-defined priorities. By shifting the weighting control entirely to the user, the platform acts as an unbiased boundary layer for complex international data registry interpretation.

2. System Architecture & Data Pipeline

The core platform architecture is built around three distinct computational phases:

- **Multi-Scale Data Ingestion:** Safely streams incompatible data structures (e.g., EV station integers, GDP raw value, inflation percent) into a synchronized layer, applying a 3-standard-deviation outlier clamp.
- **Linear Scale Normalization:** Converts external datasets into a unitless 0–100 spectrum using a strict Min-Max scaling algorithm:

$$N(x) = \frac{x - x_{min}}{x_{max} - x_{min}} \times 100$$

- **Reactive Composite Aggregation:** Executes client-side matrix multiplication when a user scales metric sliders, ensuring the sum of all coefficients perfectly maintains integrity ($\sum w_i = 1.0$).

3. Sustainability & Operational Scale

J.A.C.O.S. achieves long-term tech sustainability by serving as an open infrastructure layer. It allows institutional partners and developers to pull localized statistical frameworks via decoupled API integrations, creating a foundation for reliable B2B data analytics.