

Project Risk Management

Using AI to Identify and Predict External Threats

A Panoramic Risk Perspective

Highlights:

- Time-effective means to monitor the breadth of external influencers
- Proactive decision-making to inform project risk-management

Business Context

Large infrastructure projects exist in a dynamic global environment and are impacted by a breadth of external domains such as economics, finance, geopolitics, and environment. A finger on the pulse of these external influencers enables managers to make informed decisions and take mitigating actions against certain risks. The challenge, however, is that individuals have certain blind spots and biases born from their personal experiences. They are not able to continually monitor and absorb the vast amount of information about global demand and supply patterns, their drivers, and the many associated uncertainties. Individual managers have widely varying experiences and viewpoints, which lead to substantial differences of opinion. And managers often cannot articulate their levels of uncertainty in a way that allows for a consensus to be synthesized.

Leveraging advanced machine learning and AI capabilities helps mitigate individuals' limitations, but the complexities in domain knowledge, computational limits, knowledge fusion, and interdependencies among domains pose a challenge in designing a flexible risk management framework. Top 500 multinational construction companies seek such a risk management framework, a clean and consolidated source of reliable risk forecasts and insights regarding the multitude of external factors influencing large-scale projects. Accounting for different risk perspectives would inform decisions based on foresight intelligence. With such a tool, traditionally reactive companies can become proactive decision-makers and resilient to the world in which they operate.

Decision

Take the Luhri Hydro Dam project as an example. The project was initiated by the World Bank in 2010 and dropped in 2015, estimated to be a \$1.15 billion project with the World Bank committing \$650 million. Key stakeholders included:

- The World Bank
- Asian Development Bank
- SJVN Ltd (contractor)
- USAID (environmental/social impacts)
- Indian central and state governments, prime minister's office, the Power Corporation of India

But why exactly did this project fail? The project could have closed as a result of numerous, likely interconnected, reasons, including:

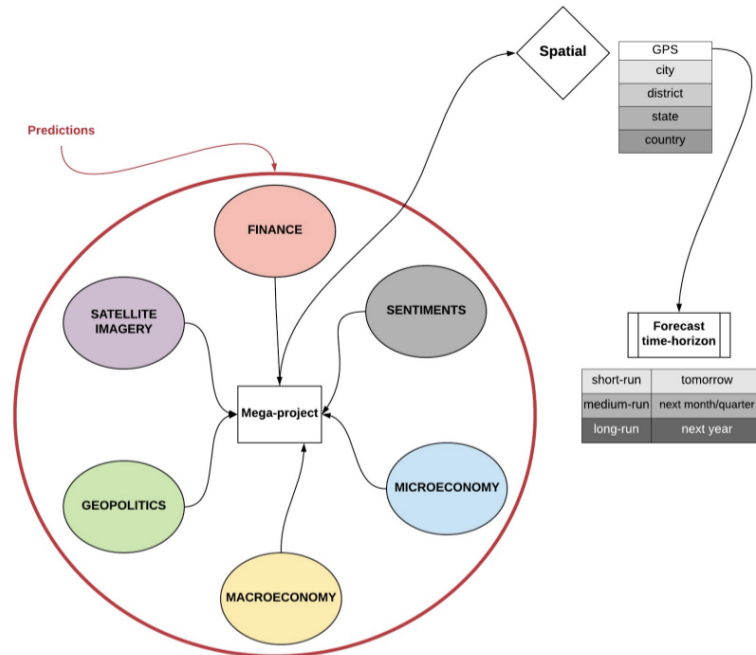
- Lack of foresight into potential economic, environmental, geopolitical, or financial threats
- Underestimation of land area
- Poor public sentiment and protests
- Pollution, environmental degradation, and soil erosion
- State level economic performance

Customer Pain Points

Complex infrastructure projects such as the Luhri Hydro Dam are notoriously endeavors characterized by large investment commitments, organizational complexities, and long-term impact on the local economy, environment, and society. The breadth of impacting externalities is extensive making it easy to miss trending risks without a risk monitoring system that consolidates reliable insights and forecasts into a single source.

The Solution: Taiyō Infra, Project Risk

Large infrastructure organizations use Taiyō Infra's Project Risk page as a risk radar to simultaneously monitor cross-domain forecasts on specified time-frequencies (daily, weekly, monthly, quarterly). Taiyō's AI methods can provide predictions at multiple time-horizons, can quantify the related uncertainties, and track changes and shocks dynamically as they occur. Risk forecasts can include financial performance of contractors, governance, economic growth, jobs related to the infrastructure sector, trade, social and economic development relevant to a project's particular geolocation. Trending risks provide a high-level alert signal for executives and can trigger contingent actions ranging from tweaking resource allocation, to deferring some actions, to (in the extreme case) abandoning the project to cut losses.



One third of the reason why large infrastructure projects fail is due to “out of hand” uncertainty. Taiyō Infra uses advanced data and AI capabilities to create a risk monitoring system, a tool to reduce the impact of externalities. Accounting for different risk perspectives and incorporating accurate and reliable forecasts at early stages can help risk-management practices by informing decisions based on more complete and prospective intelligence. Project managers have the most control in the early stages of the project. As project phases proceed, the costs increase and ability to influence the project decreases. Taiyō can be used at the earliest stage of project scoping to inform the project specific and portfolio-wide global strategy.