

Digital Technologies and Interoperability Project - Open Specification for Analytics Interoperability

Project Aim

Overview

To survive today's extremely competitive market, energy organisations must operate efficiently and effectively without interruption in supply while minimising cost.

Typically, organisations rely on data-driven analytics to identify and rectify any potential drawbacks. Due to the complex interdependent nature of these infrastructures, the analysis results may present only a limited view due to the lack of interoperability. It is, therefore, necessary for information to be shared across operational areas and organisations to achieve a holistic view to facilitate large scale decision making.

The Problem

Data in interdependent critical infrastructure is typically in silos, and the lack of interoperability and a shared language to communicate the data has caused extensive challenges across the energy sector.

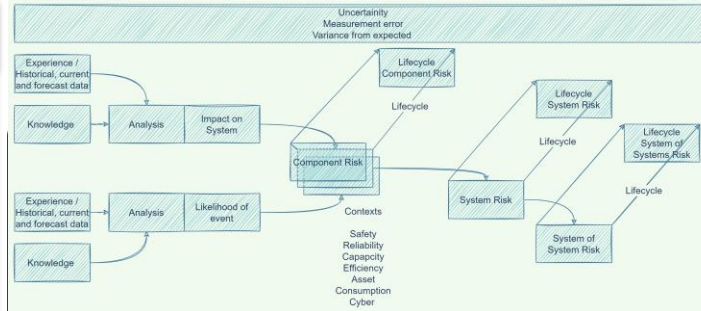
Investment in advanced analytics capabilities does not eliminate this issue since there is still a lack of interoperability of the underlying data systems.

This project offers a standards-based interoperability approach to facilitate data analytics toward a holistic view for large scale decision making.

The Team

Presenter: Dr. Karamjit Kaur, Foundation Fellow, FEnEx CRC

UniSA - Prof. Markus Stumpfner, Prof. John Boland, Dr. Georg Grossmann, Dr. Matt Selway, Dr. John Wondoh, Mansi Patel
QUT - Prof. Ian McKinnon, Dr. Jonathan Love
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Use Case Analysis

Given the interconnected nature of critical infrastructure in the energy sector, the ability to model, monitor and manage risk, and assess the impact of risk within the connected infrastructure is critical for avoid cascading failures.

We are working on two use cases for demonstrating the benefits of interoperable risks analytics -

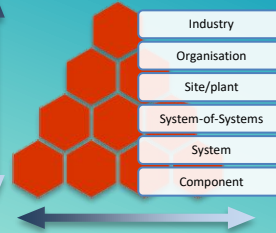
OIIE Use Case 1: Risk Model Development and Continuous Improvement

OIIE Use Case 2: Risk Model Linkages (how risks & impact are propagated across interconnected systems and organisations)

Standards-based Interoperable Approach

Establishing horizon and vertical OIIE-based information exchanges across critical infrastructure participants at scale.

Enabling integrated hierarchical analysis towards a holistic situational root cause and impact analysis



Risk cascades quickly across interdependent critical infrastructure

Impact & Value

- Enables cross-silo decision support
- Mitigates risk of vendor lock-in
- Synthesise internal and external capability
- Systematic management-of-change
- Reduced cost of adopting new technologies
- Adaptable to bring in new technologies
- Scale to required level of detail & certainty
- Applicable for an asset's whole life-cycle