

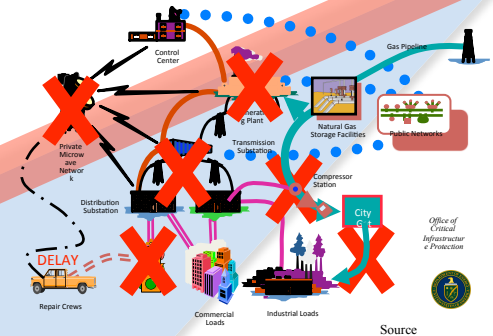


Tools for Real Time Service Level Risk Analyses for Interdependent Critical Infrastructures

On Line Interdependency Estimator

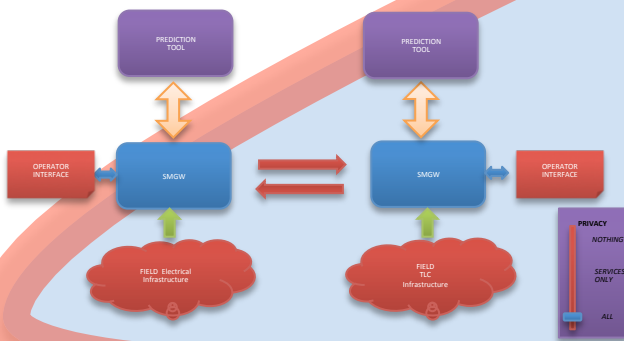
The Problem

Infrastructures are typically equipped with a detailed simulator, while there is poor comprehension of the interactions with other infrastructures.



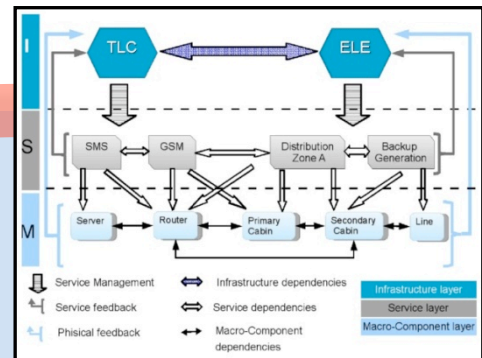
MICIE Framework

Allows to take into account mutual interactions and share the information, leading to a more predictive decision-support system.



Key Features

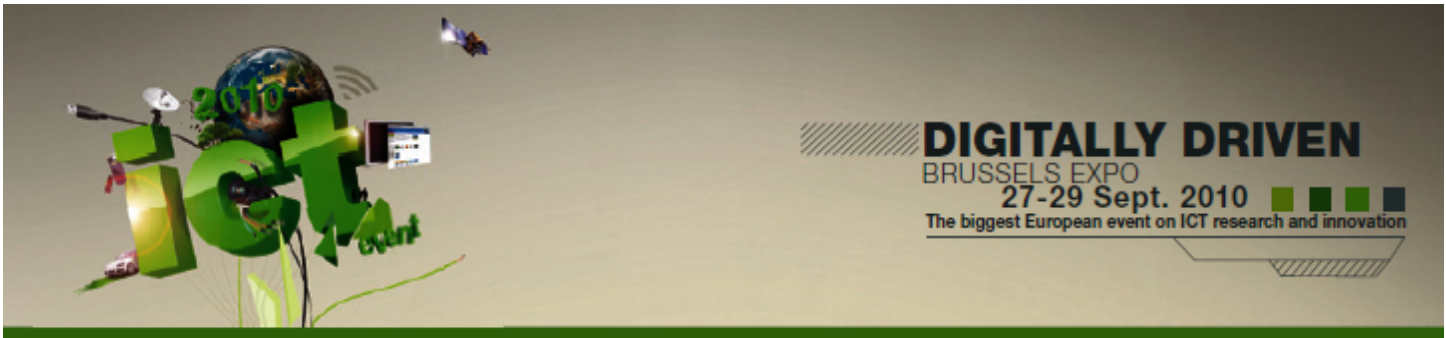
- Based on MHR interdependency Model
- Reliable and Secure communication
- Customizable disclosure of information
- Interfaces and data collection based on IFIX
- Validated on a real scenario



Challenges

- Modeling complex systems
- Handling uncertainty and vagueness
- Synchronize nonlinear systems
- Support decisions with a wider perspective





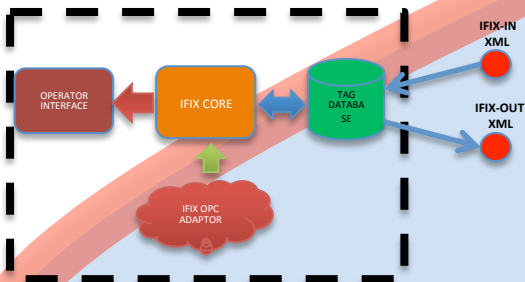
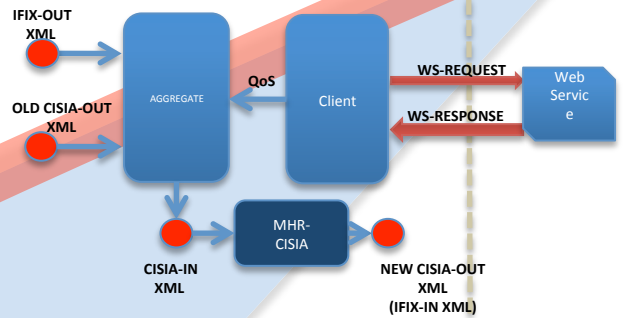
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Technology Adopted

Each prediction tool is composed of a java web-service engine and an IFIX-based graphical interface and data management system

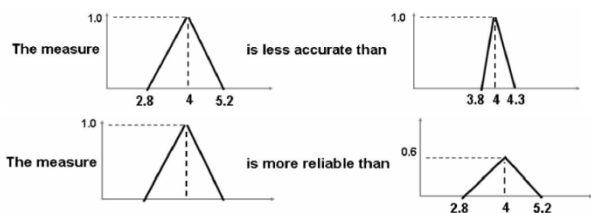
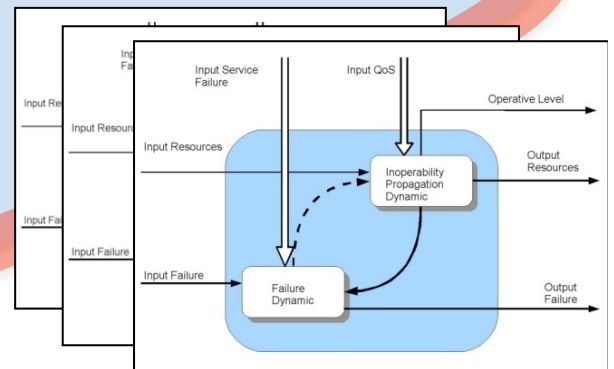


MHR Interdependency Model

Represent each infrastructure, at the same time, as a whole, as a set of components and as a set of functional entities . The model is tuned with the expert's knowledge, representing uncertainty with fuzzy numbers

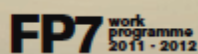
Security

The Secure Mediation Gateways are able to handle the routing of information among the tools, to manage permissions and security aspects.



Final Objective

Validate the system in a real-world scenario



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