

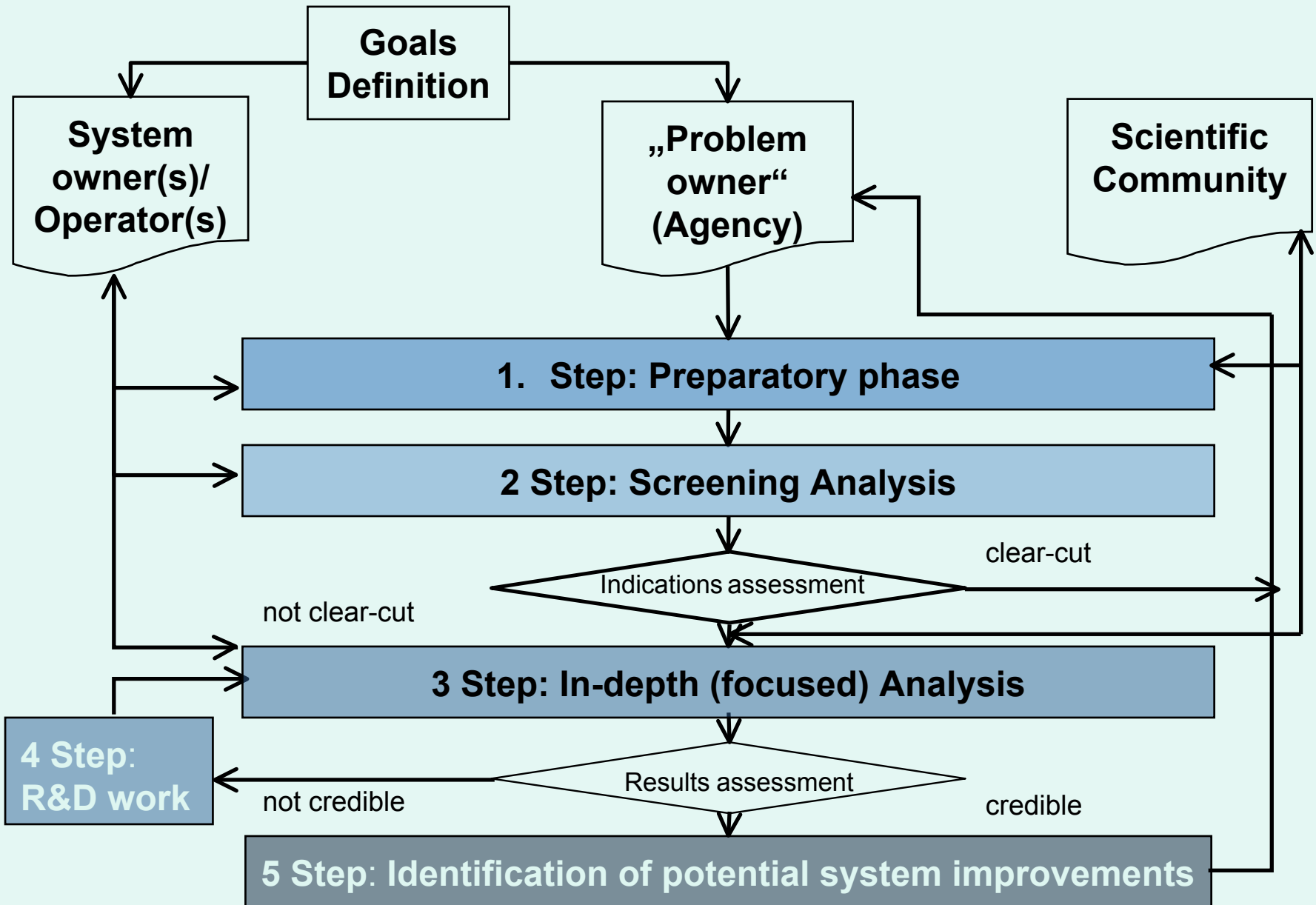
Towards to Methodical Framework for Vulnerability Analysis of Interconnected Infrastructures

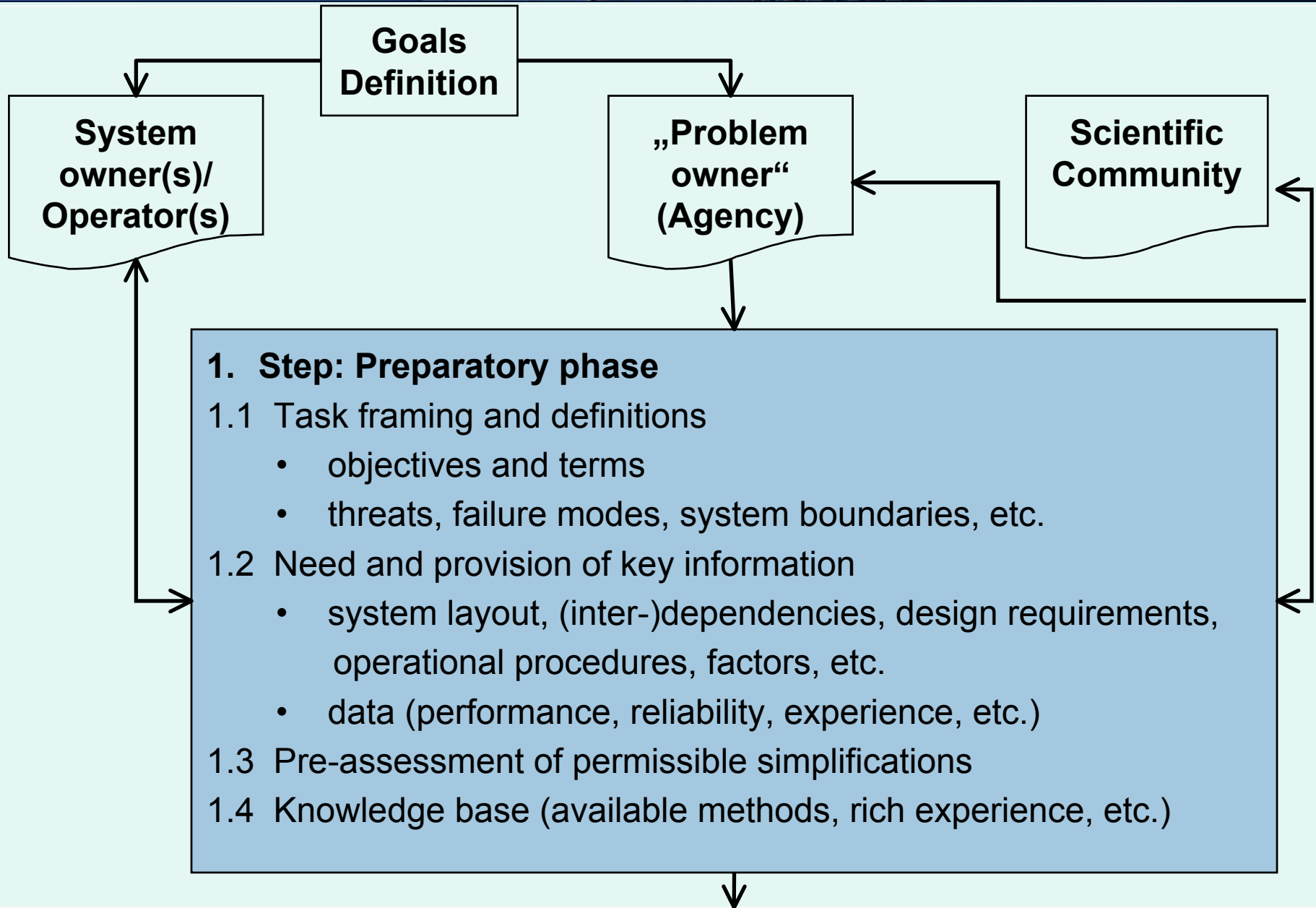
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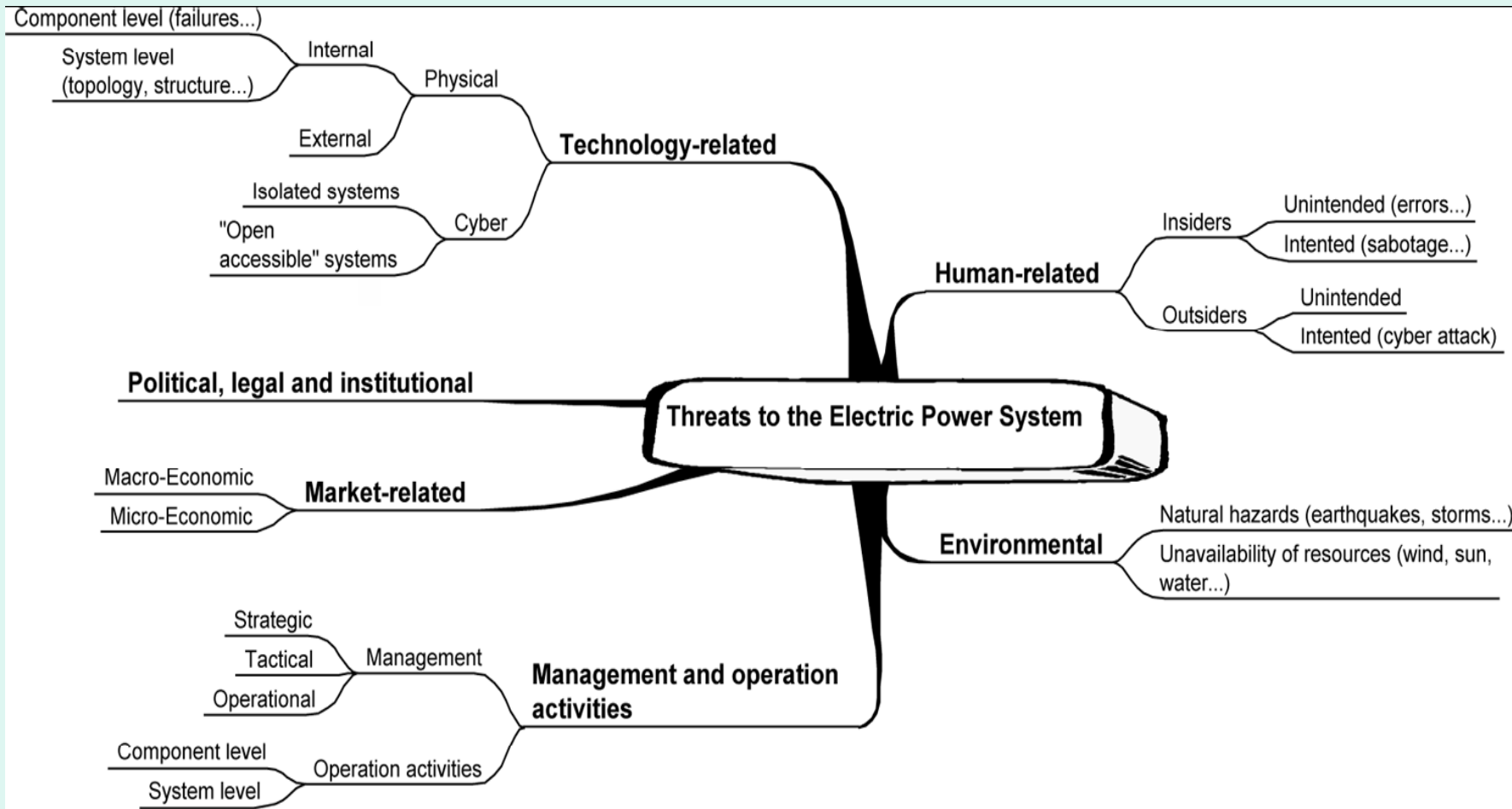
Motivation

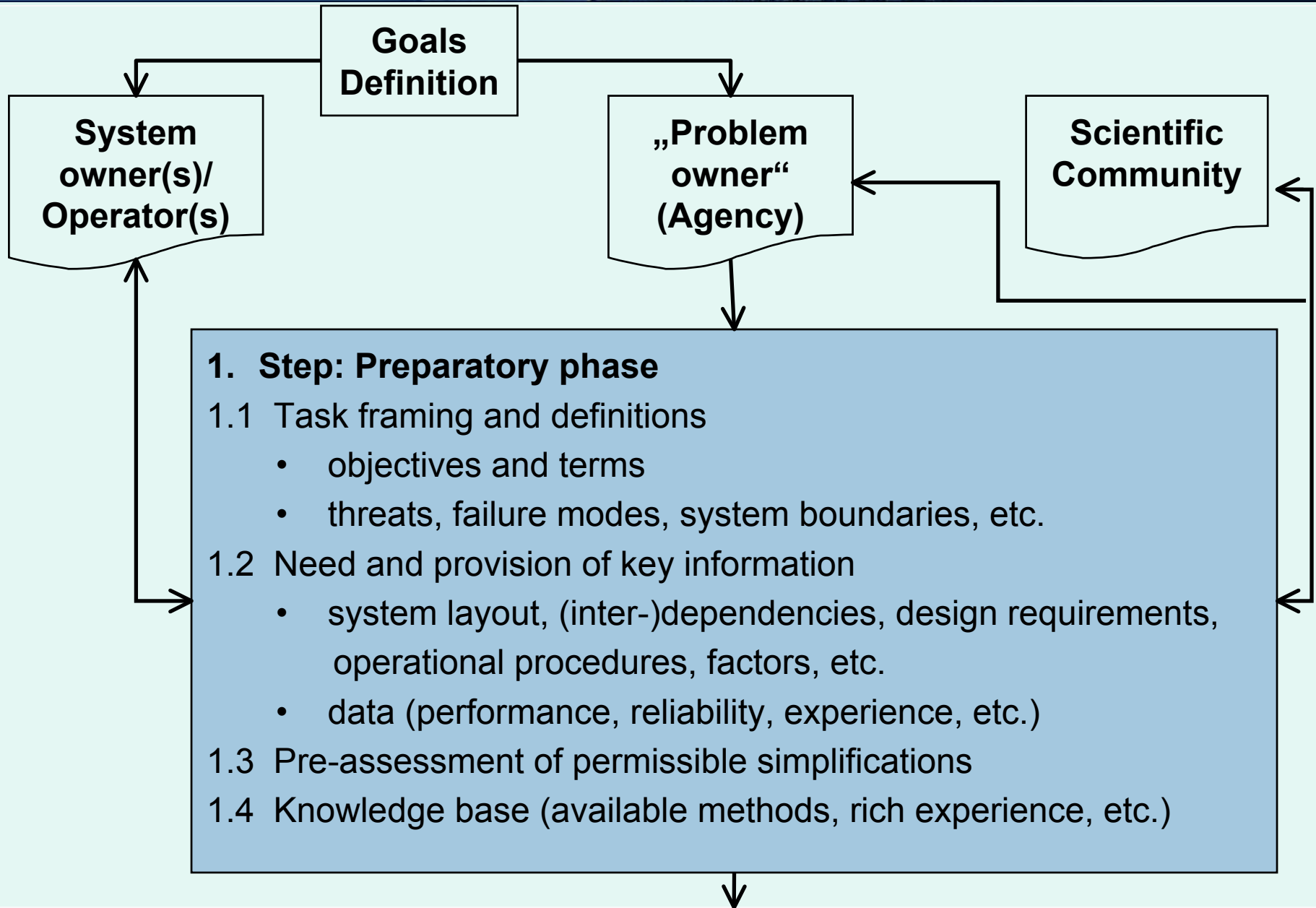
- **Requirements:** Vulnerability analysis of interconnected infrastructures calls for ‘system-of-systems thinking’, suitable techniques and problem-oriented approach.
- **Available:** Many models for analyzing individual critical infrastructures
- **Missing:** Comprehensive framework for modeling and simulation of interdependencies

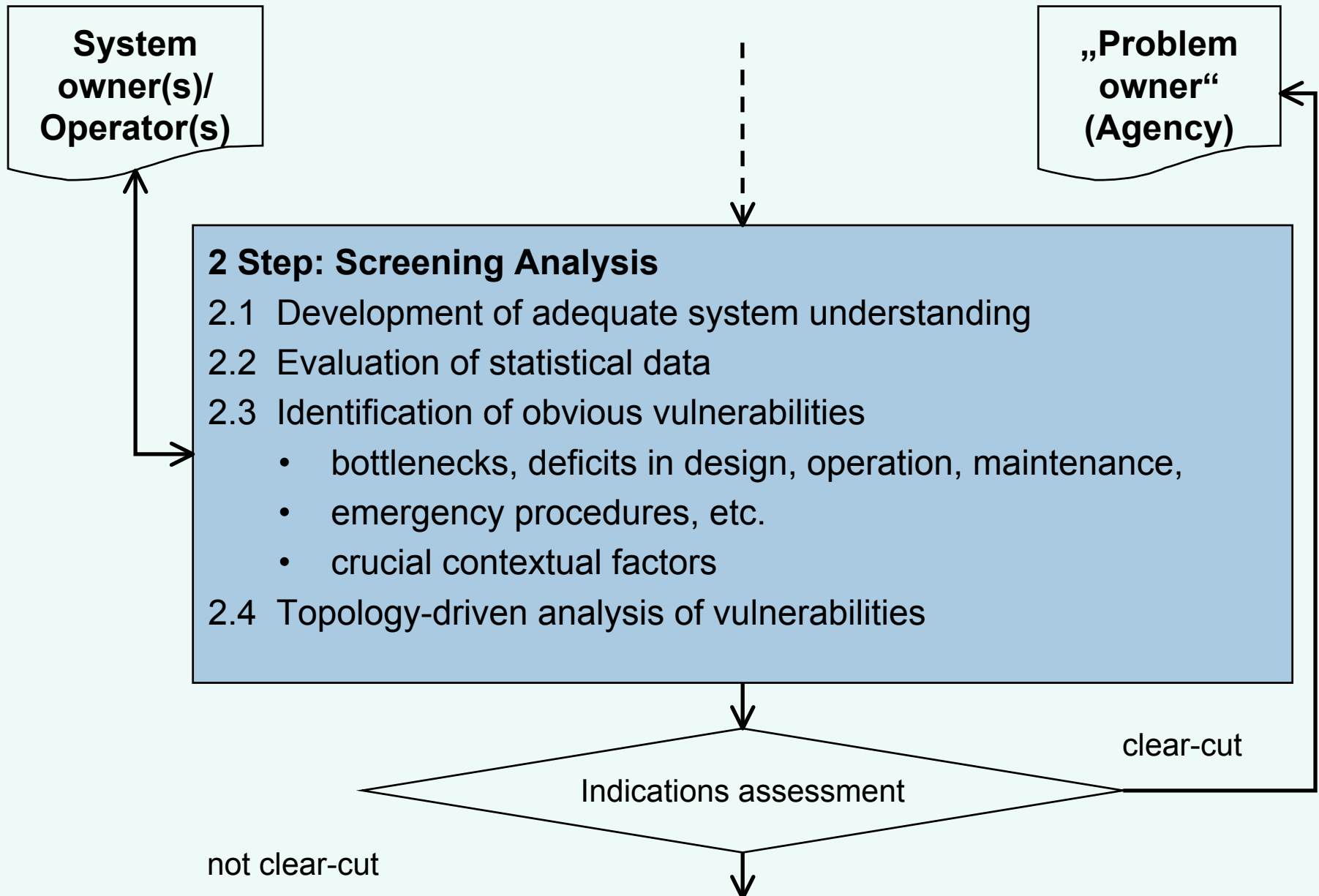




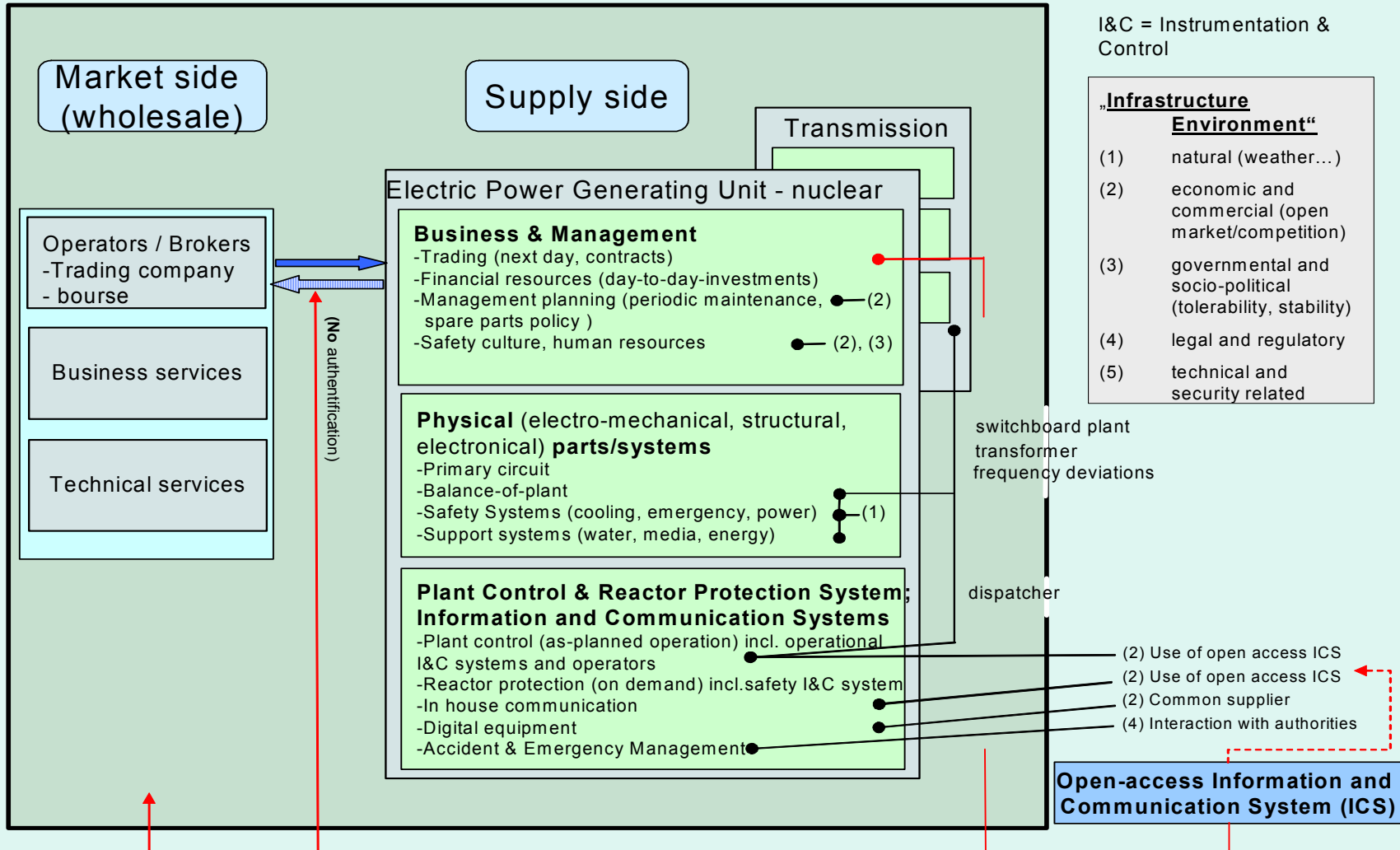
Threats to Electric Power Supply Infrastructure

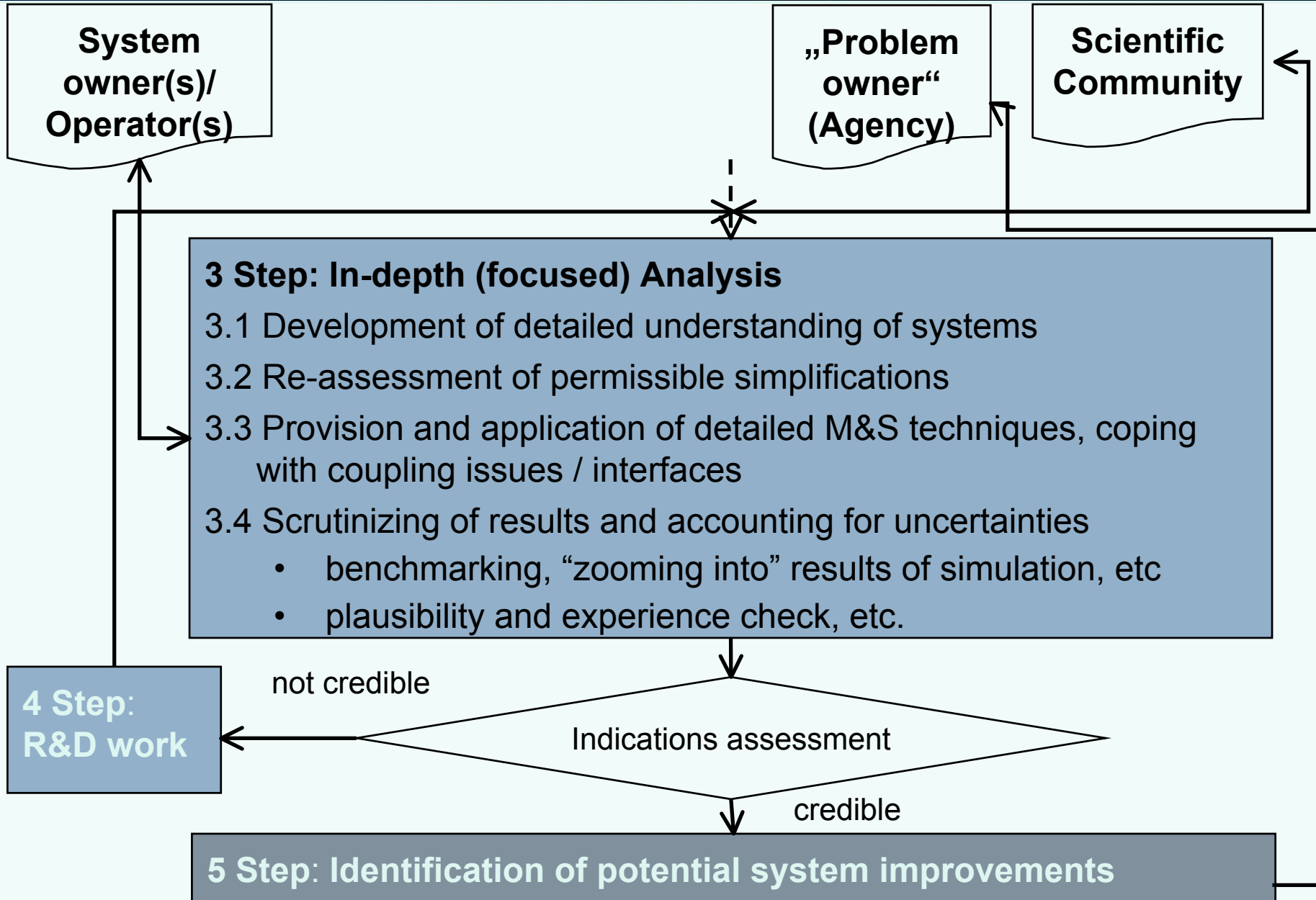




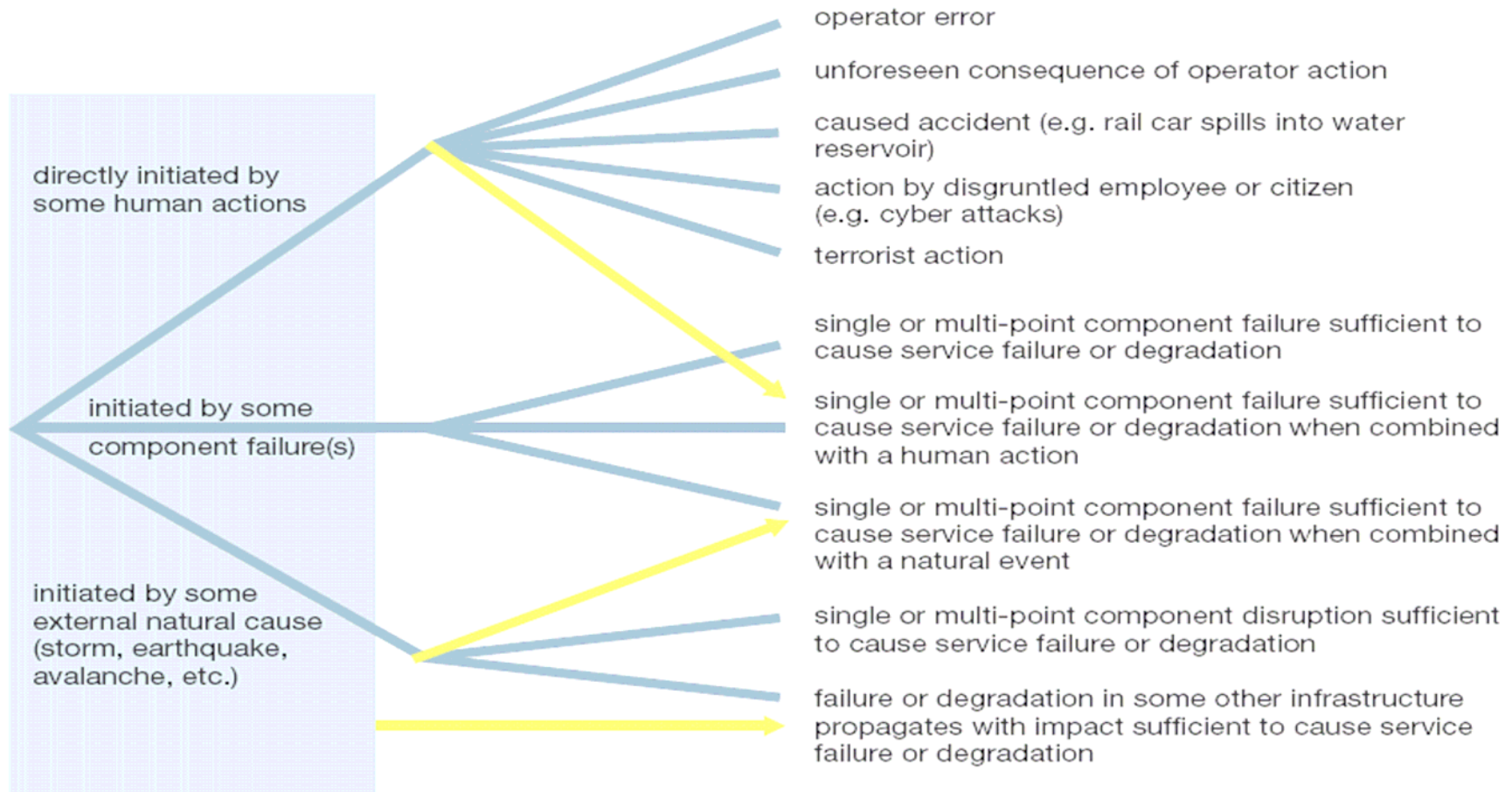


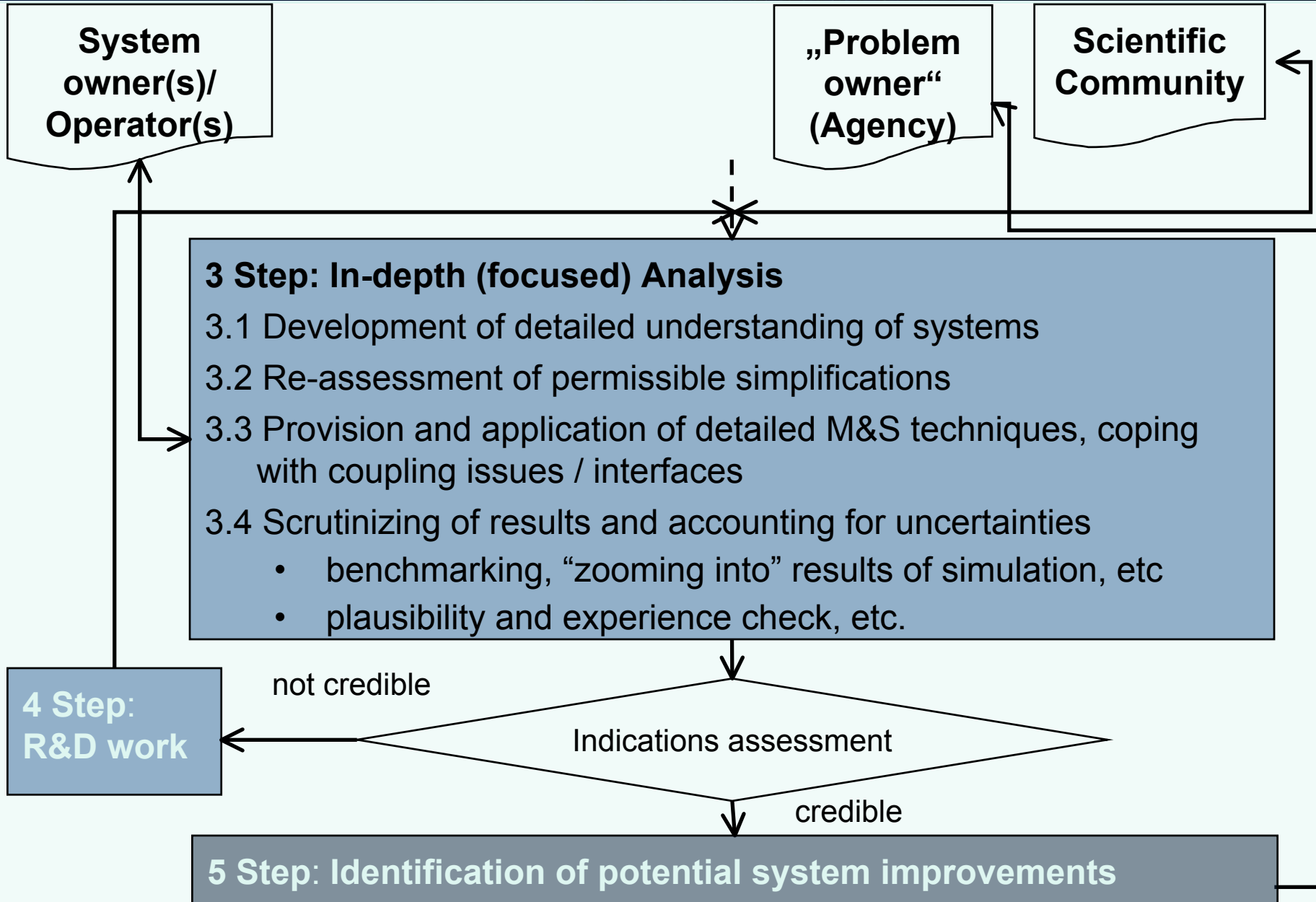
Electric Power Supply Infrastructure and its environment, detailed for a nuclear power generating unit interacting with ICS



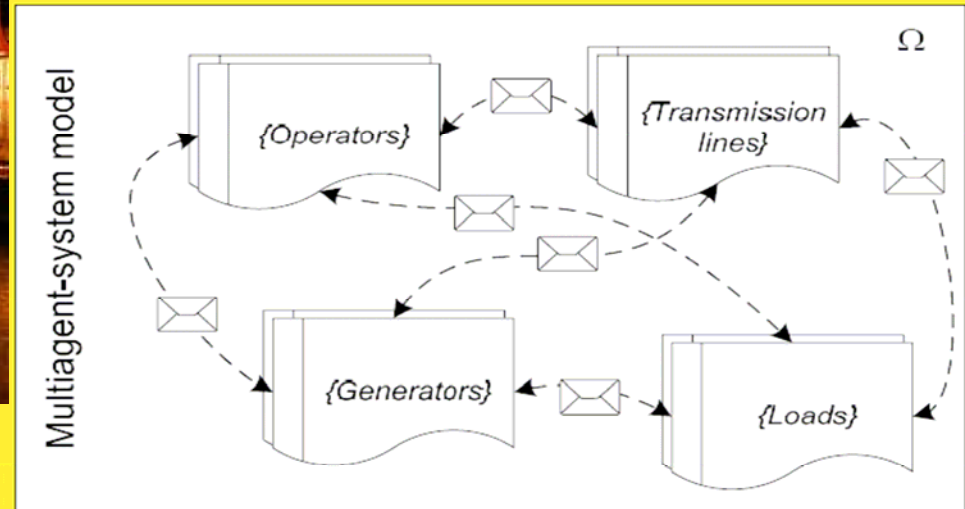


Simplified illustration of events that can result in degradation of infrastructures and of a few interactions



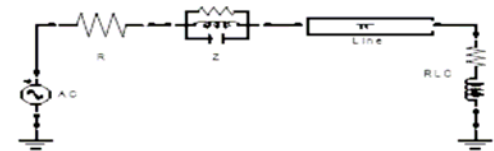


Two-layer-approach to model the Electric Power Supply Infrastructure



perception

action

Physical
network
model

Conclusions and outlook

- Framework for the analysis of CI proposed
- Steps described and illustrated by examples
- Its applicability and usefulness confirmed
- It needs to be further developed, e.g.
by external reviews and by envisaged case studies

Definitions:

- *Vulnerability* - degree of loss and damage depending on internal characteristics of the element at risk or/and a population's capacity to cope with a disaster, absorb, and recover as a measure of their capacity for adaption/capacity of resilience.
- *Risk* refers – in general terms – to the possibility (frequency) of loss, damage or injury and their extent (impact indicators).