

What nuclear and radiological emergency management can learn from non-nuclear: a case study

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Introduction

The project SECURITY2People (Secure IT-Based Disaster Management System to Protect and Rescue People) that is part of the German Security Research initiative, aims at exploring the needs for and the structure of an integrated disaster management system. This system should be applicable for all types of emergencies and at all levels of disaster management from the local to the Federal Government

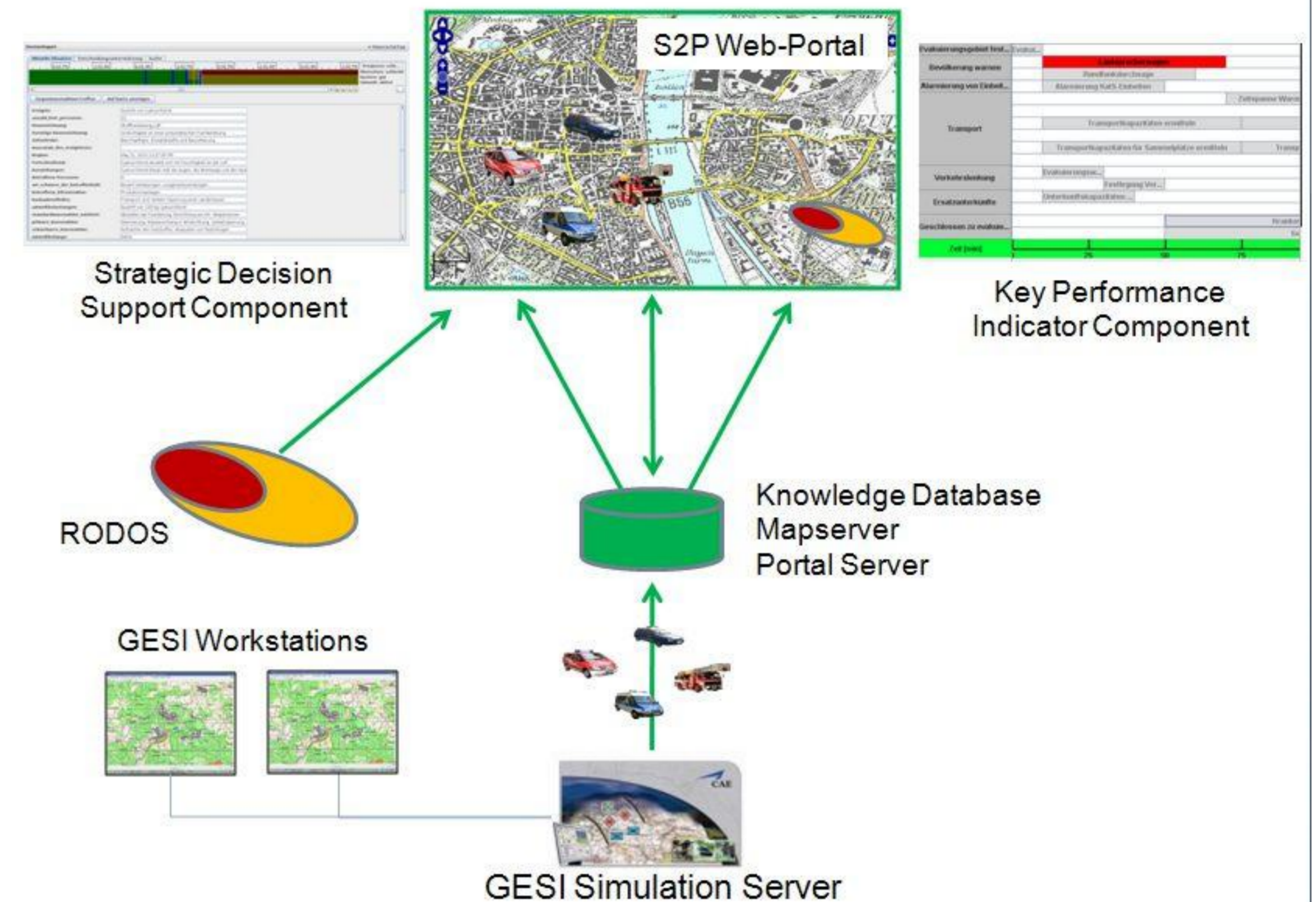


Figure 1: S2P layout with external components integrated

Features of S2P

The system architecture uses state of the art data bases such as PostgreSQL und modern web functions such as Portlets. The user interacts with the system via a Web Portal. The web portal is based on open source software products. All Portlets can be seen in figure 2. In figure 1, exemplarily Portlets for the strategic level (Strategic Decision Support) and the tactical level (Key Performance Indicators) are presented. All information is stored in knowledge data bases that also contain information from historic events. External simulation systems, here the RODOS (Real-time Online DecisiOn Support) system, can be coupled to exchange information. An important component is the GESI system that can simulate resources in real-time.

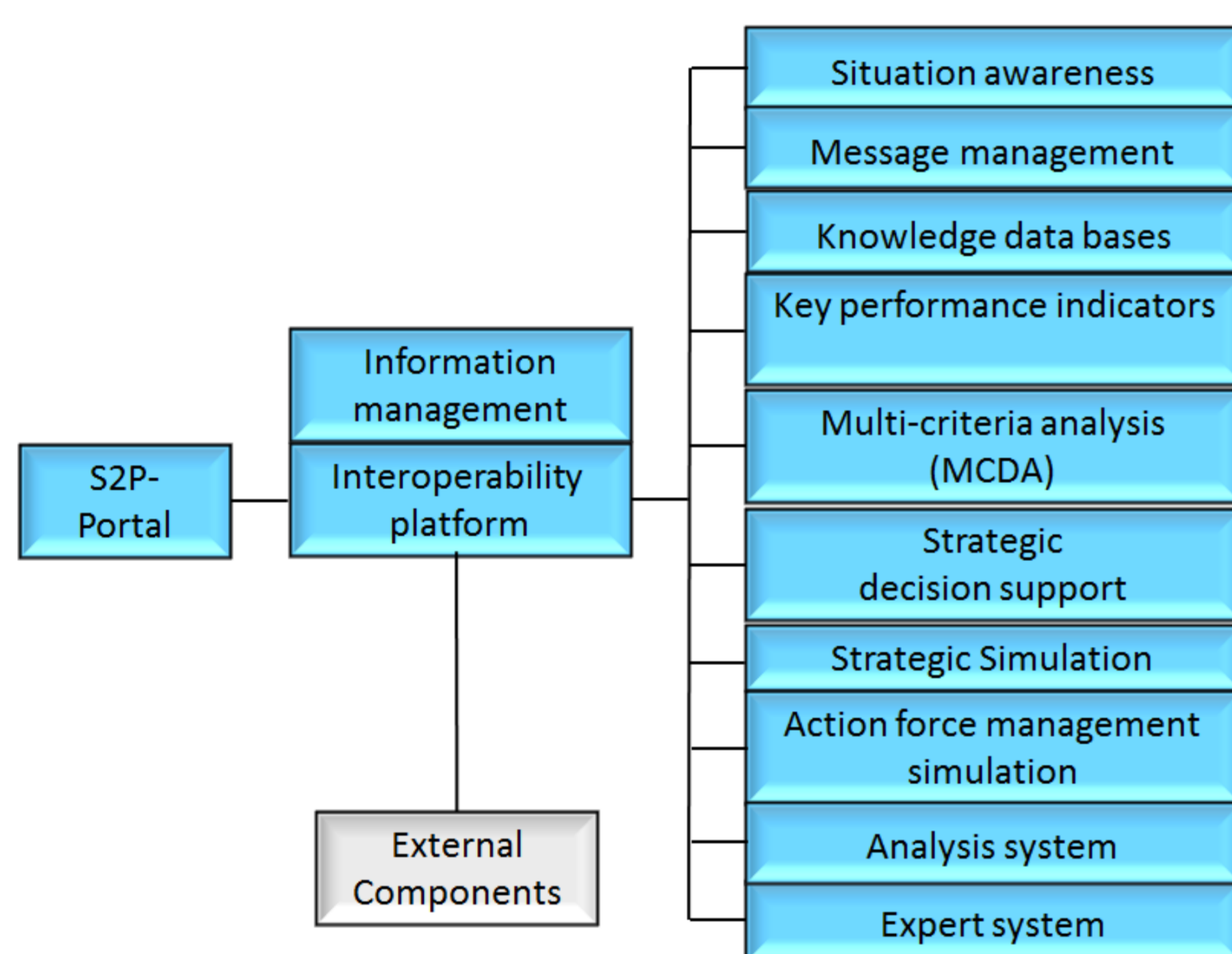


Figure 2: Functions of S2P

Used Case

To demonstrate the functionality of the system, a disaster scenario was selected based on a release of toxic gases out of a chemical factory requiring decisions about evacuation, sheltering and further environmental or economic consequences.

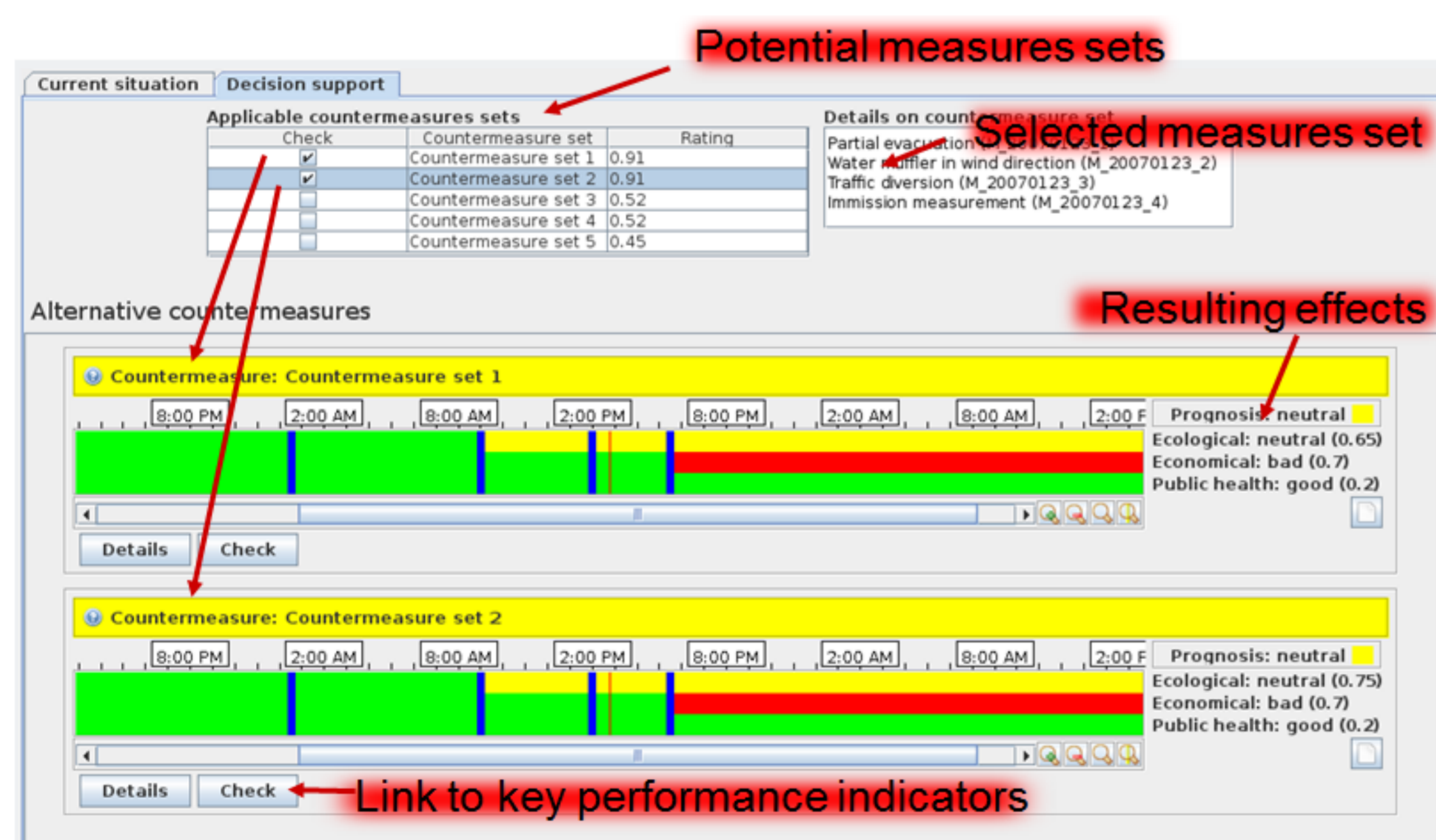


Figure 3: Strategic Decision Support

Results

S2P provides support at all stages of the emergency. It triggers a dispersion run, identifies the area of interest, identifies potential countermeasure strategies with the case based reasoning algorithm (Figure 3) and provides a first estimation about time and resources needed to perform the necessary actions.

Usage in nuclear emergency management?

Integrating external simulation systems such as RODOS, S2P can be used also in nuclear emergency management providing e.g. more realistic assessments of proposed countermeasures