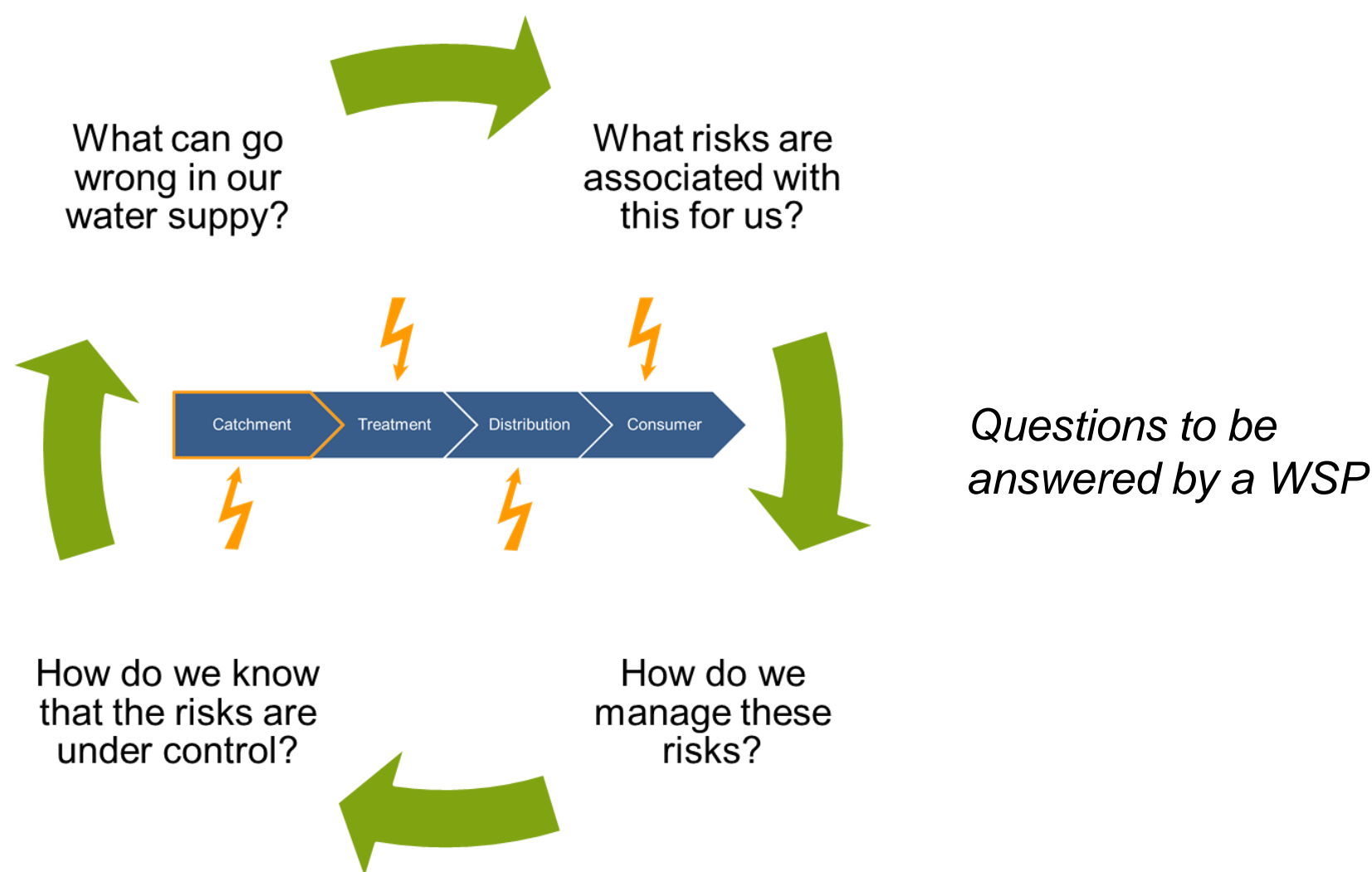# Designing an application for risk management of drinking-water catchments according to the Water Safety Plan approach

Motivation

Various disruptive factors pose risks to drinking-water. A solution to meet these challenges is the Water Safety Plan (WSP) approach, which contributes to the safety of drinking-water through systematic risk management of the drinking water supplies. The implementation of the WSP approach in practice is a cumbersome and costly process.


What can go wrong in our water suppy?

What risks are associated with this for us?

Catchment → Treatment → Distribution → Consumer

Questions to be answered by a WSP

How do we know that the risks are under control?

How do we manage these risks?

Objective

Development and prototypical implementation of a software tool supporting the user in risk management of drinking-water catchments.

Approach

- Development of an approach for risk management of drinking-water catchments.
- Design of an application and consulting with domain experts.
- Development of an executable software prototype, using Grails and the web GIS Cadenza Web.
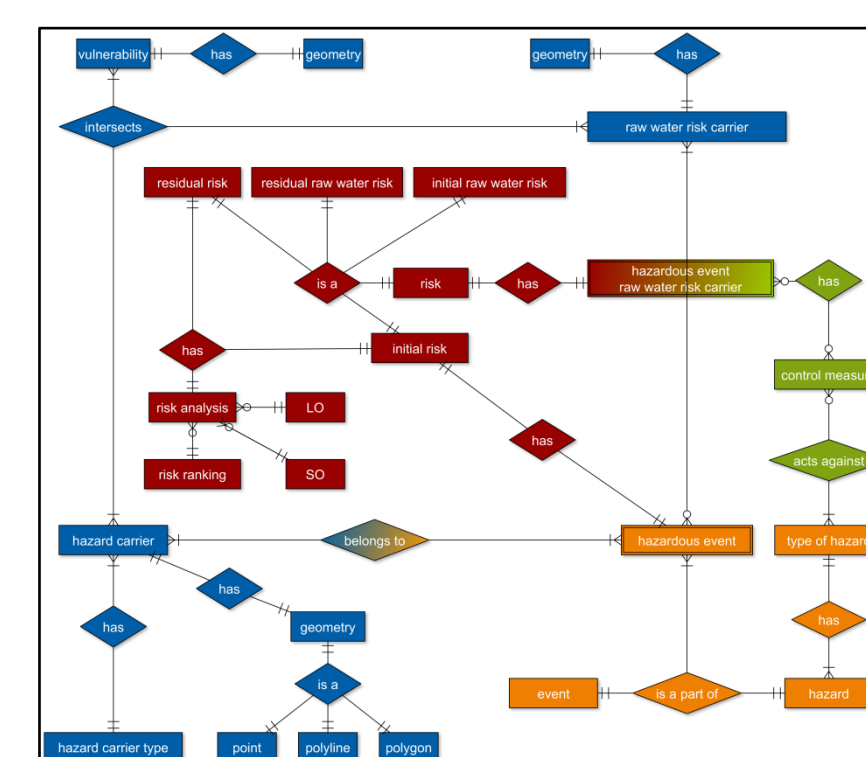- Validation by a usability test.
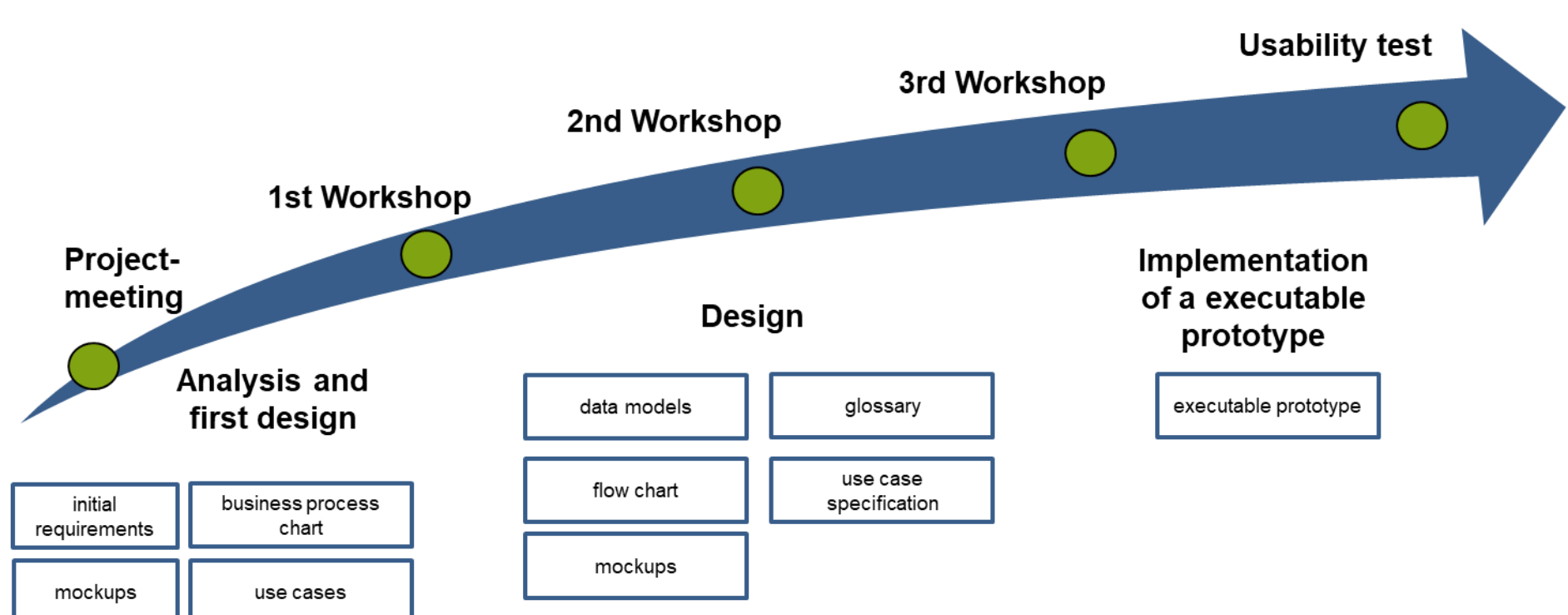
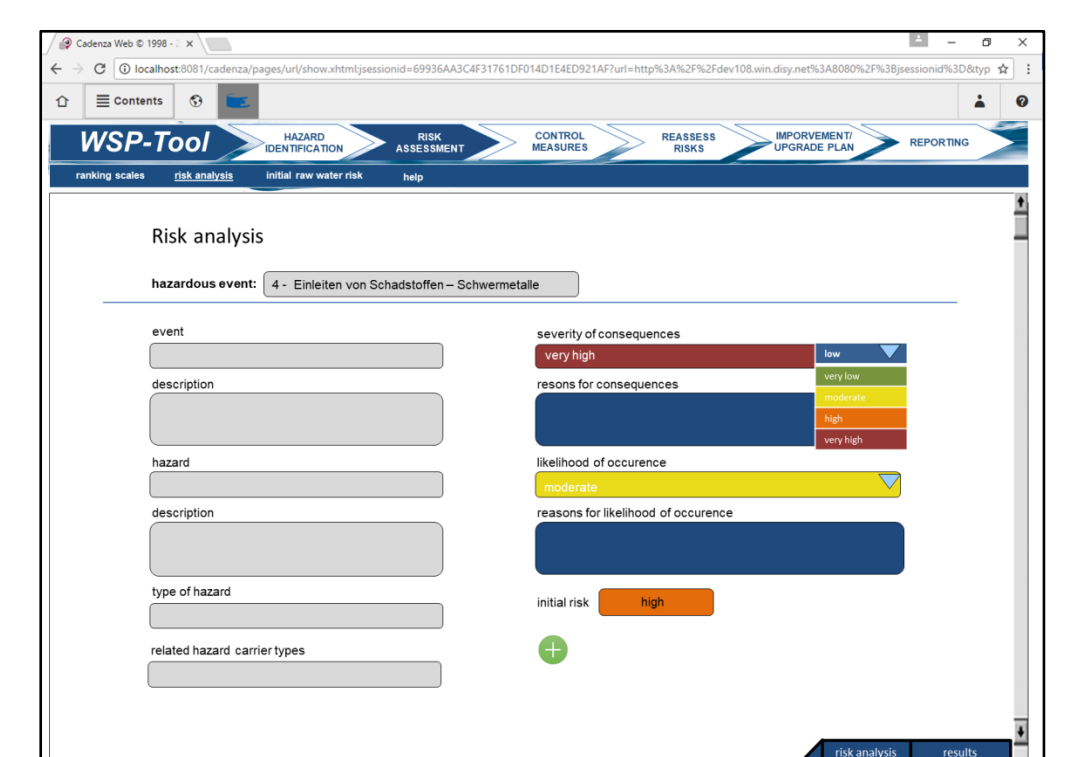*Steps and components in the development process of the risk management tool*

Results

Risk management approach
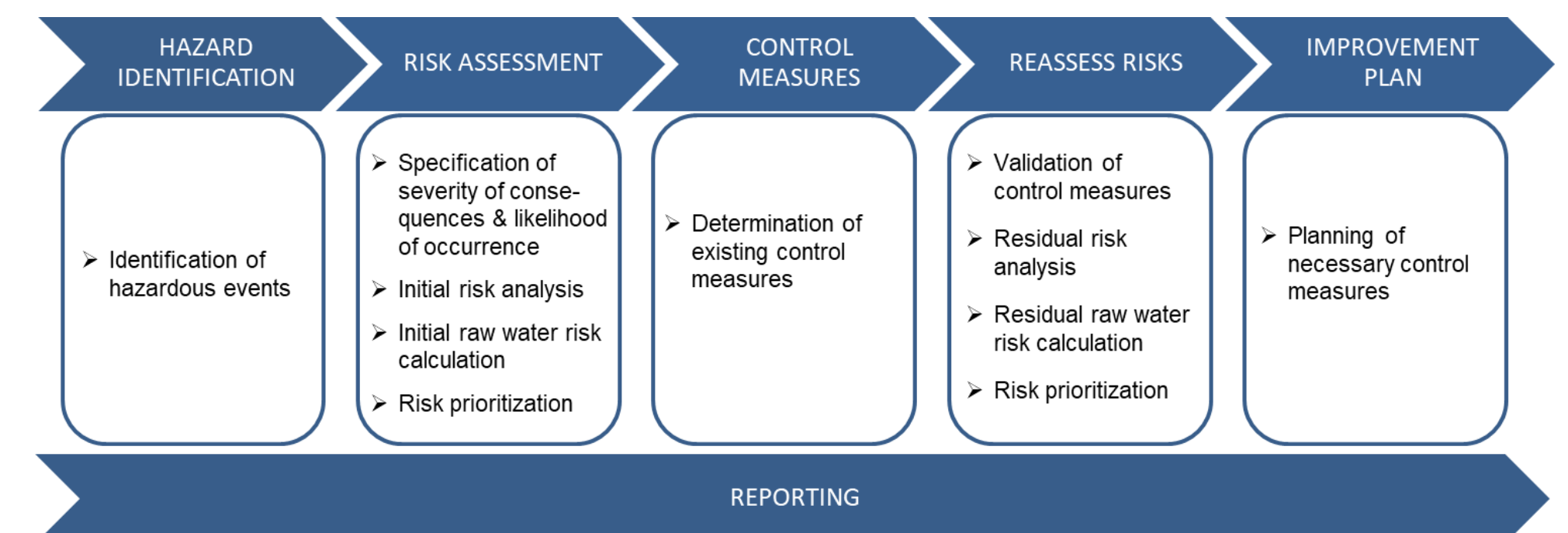
### Examples of the design and modeling process

ER-model

Mockup: Form for risk analysis

Components of the risk management tool

- GIS component for visualizing risks, vulnerability and for assigning hazardous events and control measures to hazard carriers
- Forms for hazardous events, control measures and risk analysis
- Customizable semi-quantitative scales for specifying likelihood of occurrence, severity of consequences, vulnerability and classification of risk
- Reporting features and overview tables for visualizing input data like hazardous events
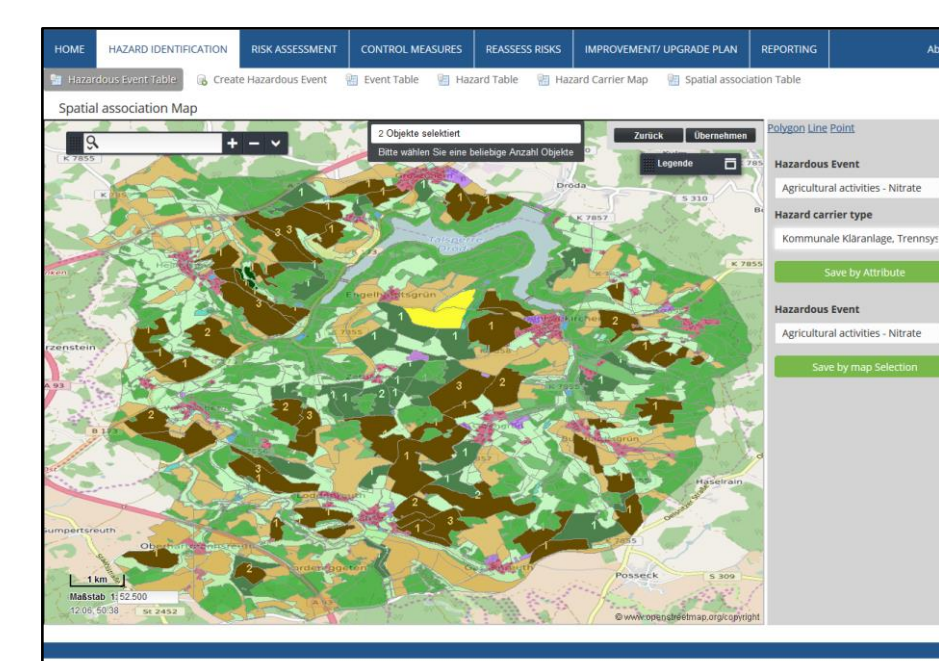
Prototype screenshot: assigning hazardous events to hazard carriers

Prototype screenshot: Input form for hazardous events

Jonas Gottwalt
Disy Informationssysteme GmbH
Ludwig-Erhard-Allee 6
76131 Karlsruhe, Germany
Tel. +4972116006-000
www.disy.net

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