

Water 4.0: Benefits of digitization of monitoring networks



Working on behalf of the Canton of Aargau, EBP examined the area of hydrometry to assess the opportunities associated with the introduction of digitized and networked systems on the Industry 4.0 model to the area of environmental monitoring.

Hydrometric observation and other means of environmental monitoring that are carried out in the Canton of Aargau provide an important service for lawmakers, public administrators and society in general. The data that are made available provide a basis for decision making on the part of lawmakers and also help to raise public awareness of the importance of environmental issues.

Hydrometric applications in the Canton of Aargau

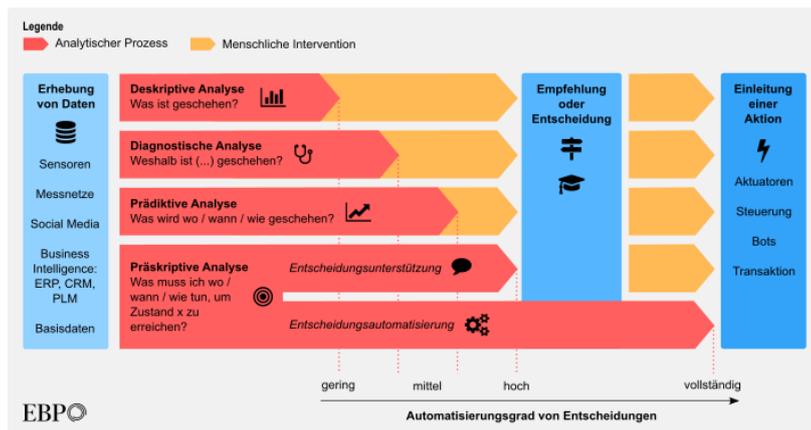
We begin our Water 4.0 study by describing the current state of hydrometry in the Canton of Aargau, focusing on its aims, the monitoring networks, instrumentation and management practices that support it and the means used for data transmission, storage, analysis and visualization. We provide descriptive, diagnostic and predictive assessments of the current analytic capacity of hydrometric applications and analyze the strengths and weaknesses of the current systems.

Client

Canton of Aargau Department of Development, Transportation and the Environment

Facts

Period	2017
Project Country	Switzerland
Selected examples of digitization	14
Connections to cantonal strategies	9
Identified Wasser-4.0 components	17



Analysis levels (© EBP)

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Digitization, Industry 4.0 and Administration 4.0

We then go on to define the relevant digitization terms and assess its application to facilitate various public-agency processes (e-government and Administration 4.0). While doing so, we also outline the relationship of digitization to important cantonal strategies.

Water 4.0: the national and international best practices

We also address the opportunities associated with the digitization of environmental monitoring networks, particularly with reference to "Water 4.0" and illustrate these opportunities with reference to numerous examples of digitization applications used at home and abroad. The examples are categorized according to target groups (public agencies, business, and civil society) and the most important digitization instruments.

Water 4.0 in the Canton of Aargau: vision and implementation

Using these investigations as a basis, we conferred with our client to outline a vision for the application of Water-4.0 solutions in the Canton of Aargau. This vision addresses four areas of environmental monitoring:

- Monitoring-network operation
- Monitoring-network maintenance
- Data management and analytics
- Services

In all four areas, we identify and describe innovative applications and functionalities used in the area of environmental monitoring in accordance with the Water 4.0 paradigm. The study also specifies important conditions for successful implementation and describes the relationship of individual components to strategic goals and various legislative initiatives supported within the canton. Finally, the study also outlines the potential for improvement with regard to all of the components (greater efficiency and quality), specifies the prerequisites for improvement and highlights what can be done to enhance the strengths and remedy the weaknesses of the

current system.

Working on behalf of the Canton of Aargau, we used the qualitative evaluations of potential and prerequisites to derive a prioritization of the individual Water 4.0 components and to make additional recommendations for successful implementation.