Research. Transfer. Sustainabilty.

Has the wastewater industry arrived in the digital age?

Maturity Model Wastewater disposal 4.0 – from the maturity model to the digitalisation roadmap

With the participation of 17 wastewater disposal companies and associations as practice partners, the digital development status was systematically recorded. The companies analysed their digital development path and answered the following strategic questions: Where do we stand in terms of digitalization? What development opportunities are there? Where do we want to go and what is beneficial for our company in its context? In addition to the main processes, each of the four design fields of resources, information systems, organization and culture were considered to specifically determine the maturity level of a wastewater disposal company.

Under the leadership of IWW Mühlheim (Germany), a standardised maturity model for the evaluation of the digital development status of a drinking water supplier, the so-called "Maturity Model Water Supply 4.0", has been developed. The project is a R&D project funded by the DVGW (German Technical and Scientific Association for Gas and Water) with the participation of 15 practical partners (including for example Berliner Wasserbetriebe, Gelsenwasser, Hamburg Wasser, RheinEnergie) and was realised from October 2017 to February 2019. The currently running project "Maturity Model Wastewater Disposal 4.0" wants to help wastewater operators to systematically analyse their digital development and to answer the following strategic questions:

- Where do we stand in terms of digitalization?
- What digital development opportunities exist?
- Where do we want to go and what is beneficial for our company?

In addition to the project partners IWW Zentrum Wasser und MOcons GmbH & Co. KG, a total of 17 wastewater disposal companies/associations are involved as practice partners (including, for example, Emschergenossenschaft, hanseWasser Bremen, StE Dresden, StEB Köln, Ruhrver-

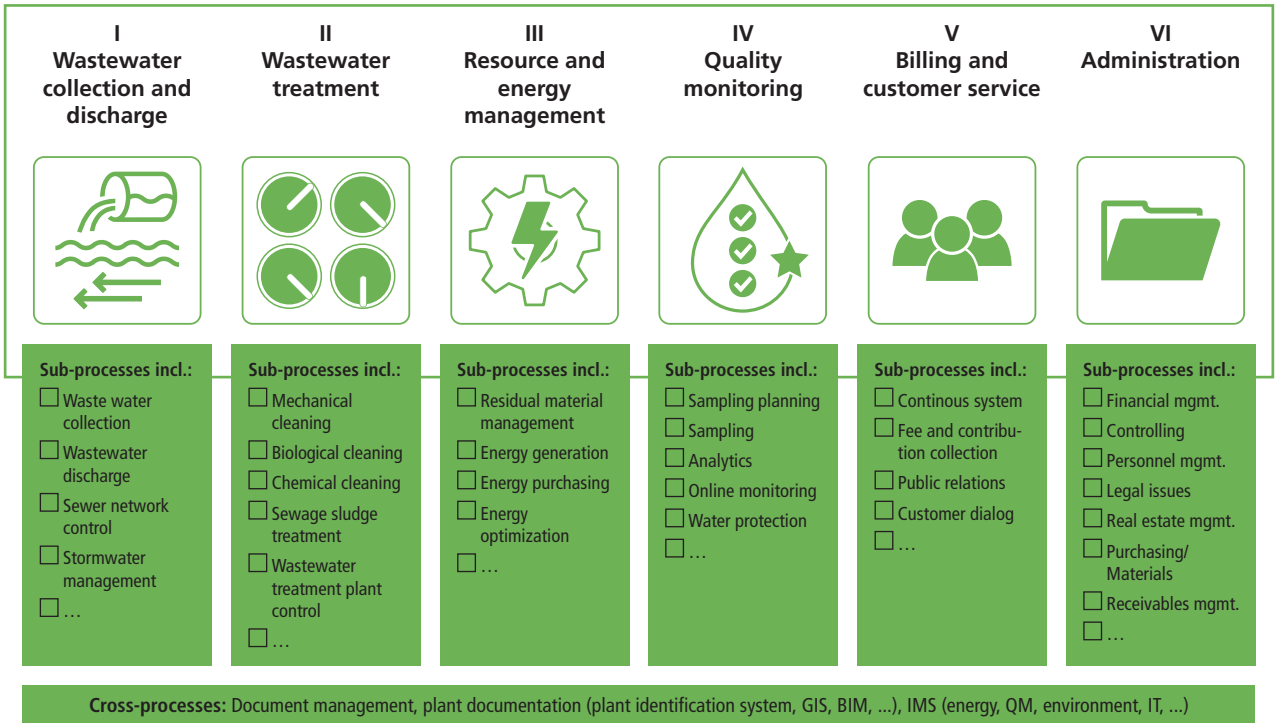

Fig. 1: Main and sub-processes within the maturity model. © FiW e. V., IWW, MOcons

band, Wupperverband). This ensures that the model can be successfully adapted to wastewater disposal.

Activities of FiW as part of the „Wastewater disposal maturity model 4.0" project:

- Definition and development of main and sub-processes of wastewater disposal
- Conducting and evaluating interviews
- Organization and implementation of workshops

Successful conclusion

After 14 intensive months, the „Wastewater disposal maturity model 4.0" project was successfully completed with the last project workshop in online format on November 13, 2020. Based on the six main and associated sub-processes, 36 digitalization criteria were analyzed from the perspectives of resources, information systems, organization and culture and the digital maturity level (= level of development) was determined as a result (see Figure 1).

It is clear that the industry has created a good basis for exploiting the benefits of digitalization as part of wastewater disposal 4.0. In many cases, a digital twin of the process with current process data is already being created. In the area of wastewater treatment plants, this has already been implemented in many cases through the intensive use of measurement and control technology and the bundling of data in the process control system. The challenges of the coming years will lie in linking all the data required and available in the company, analyzing it and presenting it in a suitable form for the user. The aim here should always be to gain further knowledge about the company's own processes and thus make wastewater disposal even safer and more efficient.

After determining the current state of digital development, the practice partners are now faced with the task of using the findings from the application of the maturity model and incorporating them into their own digitization projects and strategies. The way in which this is to be done is as varied as the starting position of the individual companies. For example, some companies had just set up a digitalization team within the company at the start of the project or were planning to do so. Almost half already had an existing digitalization strategy. Taking into account the different starting points, some companies will use the

results as a comparison with existing digital roadmaps and add new findings. Others will build on the results to define digitalization goals in a further step and derive possible measures to achieve the set digitalization goals.

Outlook

The maturity model developed is also available to other interested wastewater disposal companies/associations after the project has been completed. For example, the Wastewater 4.0 maturity check (www.reifegrad-check-abwasser.de) can be used as an initial digitalization self-test. In addition, the project partners offer to apply the maturity model in two-day interview workshops at interested companies on site to determine the individual status quo of digitalization in individual main processes (e. g. wastewater treatment or energy and resource management). In combination with two further workshops to define objectives and plan measures, this can support the development of an individual digitalization roadmap. The project team will be happy to answer any questions you may have regarding the application of the maturity model in your company.

Project overview

PROJECT TITLE

Maturity Model Wastewater disposal 4.0

PROJECT PERIOD

12/2019 – 12/2020

PROJECT PARTNERS

IWW Zentrum Wasser; MOcons GmbH & Co. KG

CUSTOMER

Wastewater disposal operators

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