

LAVA – Laboratory and plant data for test planning and assistance systems

Objective

Experimental trial on pilot facilities remains an indispensable tool for development of textile products and production technologies. However, limited resources require efficient planning of experiments to make. Coupling machine learning with real-time data acquisition allows to optimize the gain in understanding with each experiment as well as model creation. In production settings this would allow to achieve suitable working points of better performance in less time than so far. However, acquisition, storage and description of data must be more suitable to algorithmic processing than current approaches. Goal of the project is to meet technological and technical prerequisites for preferably automated acquisition, storage and short delay or real-time processing of laboratory, process and machine data.

Approach and results

With the highly complex Reicofil 4.5 spunbond pilot plant as an example, the following approach has been taken to explore and demonstrate valid approaches:

- Definition, selection and prioritisation of required laboratory, process and machine data as well as qualification of sensors and software interfaces for real-time acquisition and processing.
- Digital Retrofit for automated acquisition of essential data points.
- Extension of the pilot plant with a digital camera system for real-time process observation.
- Development of valid approaches to apply FAIR Principles with focus on textile industry.

As a result, automated near real-time processing of data from STFI's Reicofil 4.0 spunbond pilot plant has become possible and enables acquisition and storage of data according to the FAIR principles (Findable, Accessible, Interoperable, Reusable). This helps to achieve simpler and efficient reuse of data by humans and algorithms in the future.

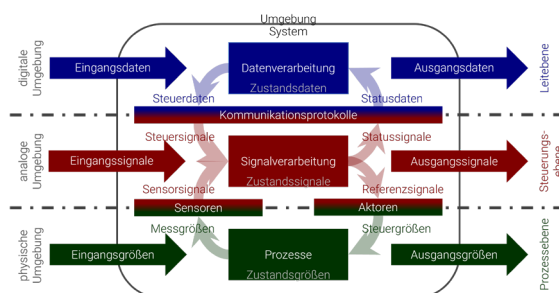


Illustration: LAVA – Motivation Scheme

Danksagung

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The final report on this project is available on request.

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