

Chair of Bioprocess Engineering

# Laboratory Automation:

## Petrijet platform for microbial testing of drinking- and process water

Dipl.-Ing Christoph Otto

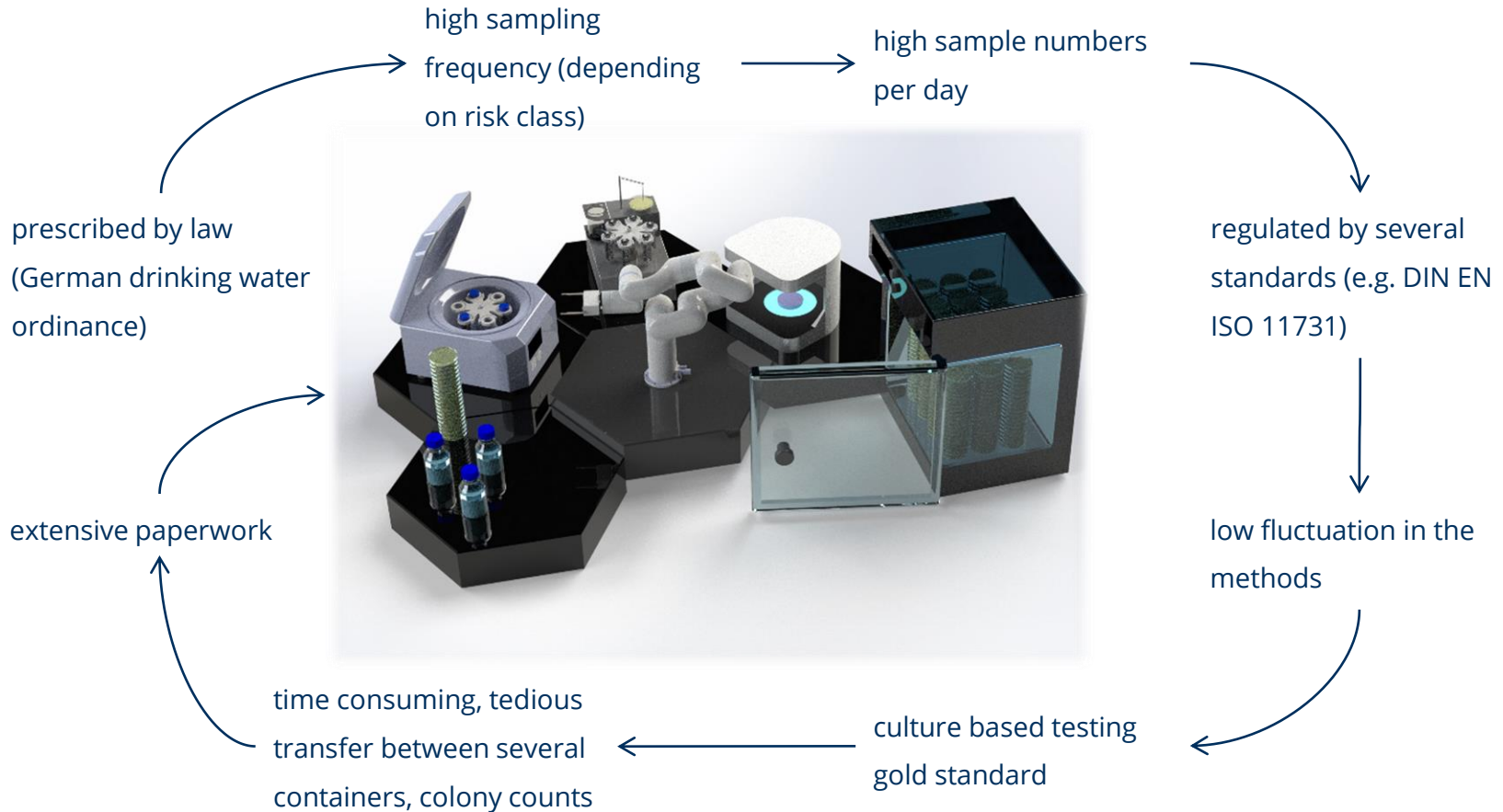
Contact:

[Christoph.otto@tu-dresden.de](mailto:Christoph.otto@tu-dresden.de)

+49 351 463-32781

# Context and Motivation

## Microbial testing of drinking- and process water

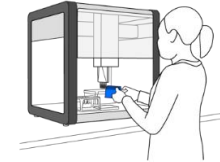


# Applied Techniques

## Process Analysis:

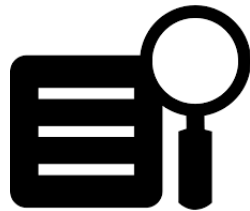


manual → fully/semi automatic  
method adaption/development



## Preliminary Testing

- concentration experiments
- image acquisition



## Device Engineering

- mechanical design  
modelling/construction/CAD  
drawings for production
- electrical engineering  
PCB design  
design of electrical and electronic components
- Software development/ standard development  
MCU/embedded systems/SBC  
backend, middleware, frontend development C++,  
GUI design, program development, interface design

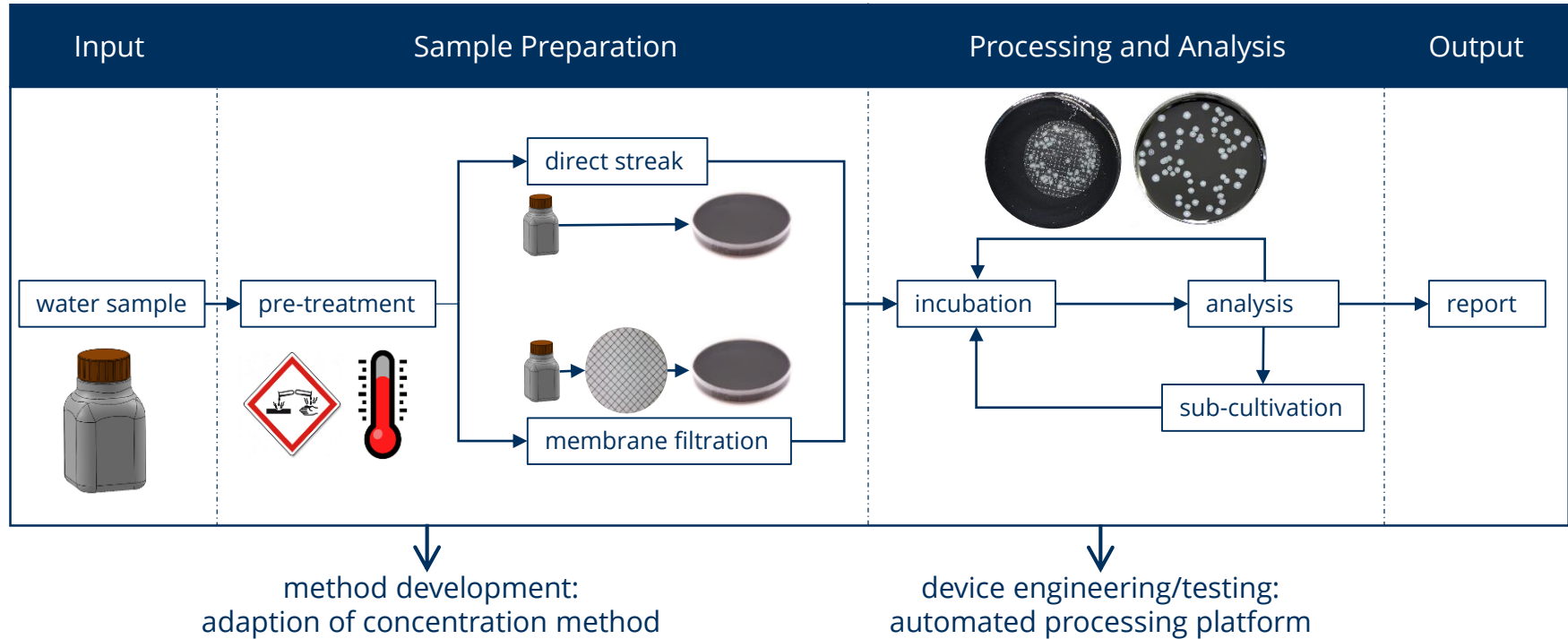


## Validation

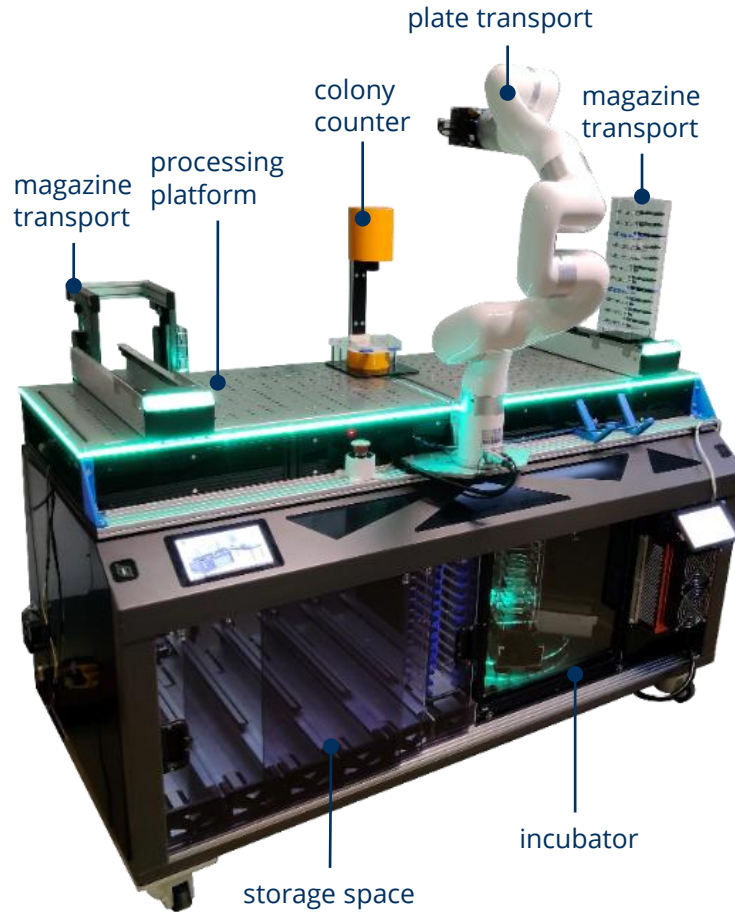
- functionality
- mechanical/software stability
- sterility testing



# Current State



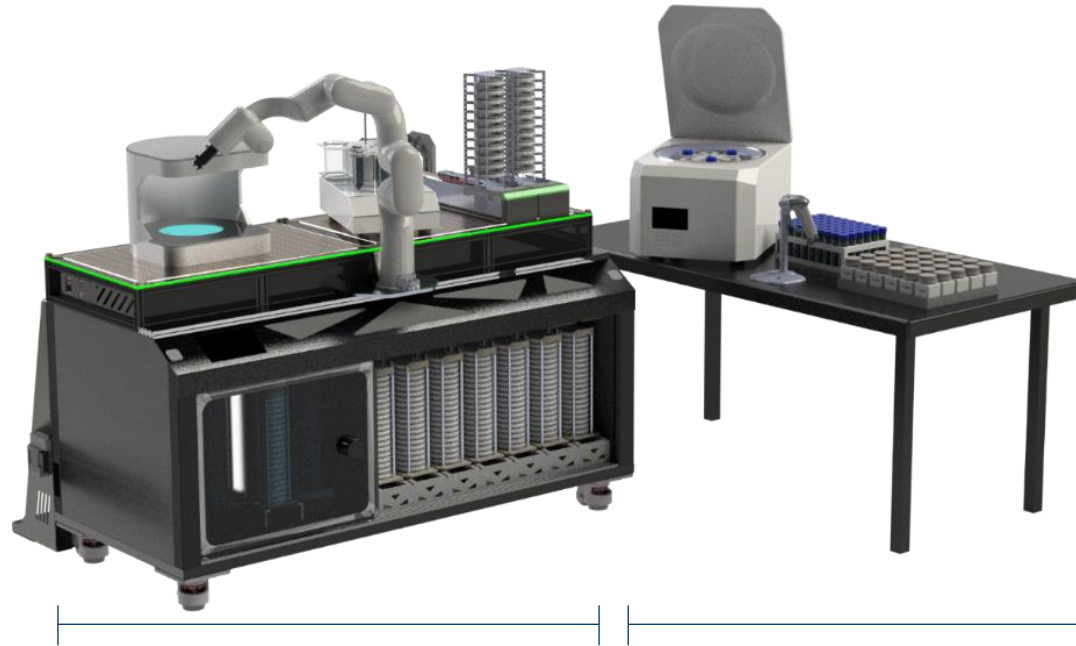
# Current State



Otto, C., Zirker, P., Walther, T., Lenk, F., *A Flexible System for Stepwise Automation of Microbial Testing of Drinking and Process Water*, *SLAS Technology*, **2021**, 1-13.

Lenk, F.; Otto, C.; Oberthür, P., *Automatische Inspektion von Kulturschalen mit der Petrijet-Plattform: Benchtop-Automation*, *BIOspektrum*, **2016**, 22, 476-479.

# Petrijet platform: Collaboration possibilities



- **Device development**

**Device for automatic  
concentration of bacteria from  
water samples**

- **Method development:**

**Enrichment of Legionella  
from water samples**

**Image analysis of Legionella  
cultures on Agar plates**