

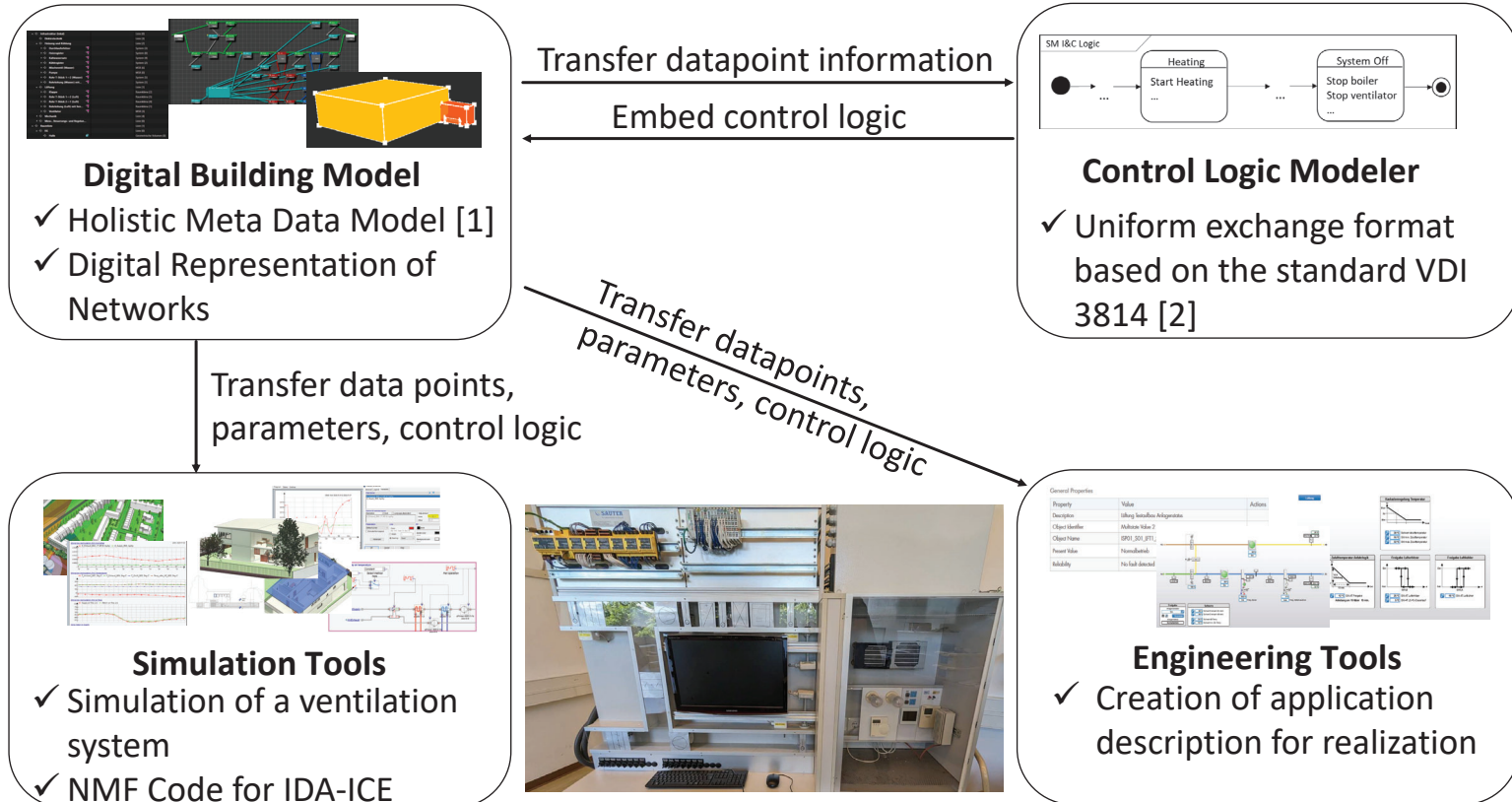
## Motivation & Challenges



Modeling and Testing of Building Automation and Control Systems (BACS) already at design phase

- **Operating buildings efficiently** is necessary to achieve **climate-neutral cities**
- Research has shown that the energy consumption during operation is higher than designed
- **Full energy-saving potential** is rarely **exploited**
  - **Building automation** only detailed during **commissioning**
  - **Lack of time and budget**
- **Break** between **design** and **implementation phase**
  - Information is lost
  - Logic may be mapped twice – time-consuming and error-prone
  - **Lack of method for translating** control logic from simulation tools to engineering tools

## Solution Architecture & Initial Results



- Structural information (devices, data points, ...) are stored in the Digital Building Model
- Control Logic Modeler
  - Data points of the digital building model can be used in the **UML state graph**
  - Creation of the control logic
- Model transformation to simulation or engineering
  - **IEC 61113-3 Structured Text (ST)**
  - **IDA ICE (NMF)**

## Next Steps

- Automate the workflow
- Consistently track changes during iteration phases
- Support of more source/target formats

### References:

[1] <https://github.com/bph-tuwien/SIMULTAN>, 16.05.2024

[2] Felix Knorr, Wolfgang Kastner: Towards a Uniform Exchange Format for Home and Building Automation using VDI 3814. ETFA 2023: 1-4

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