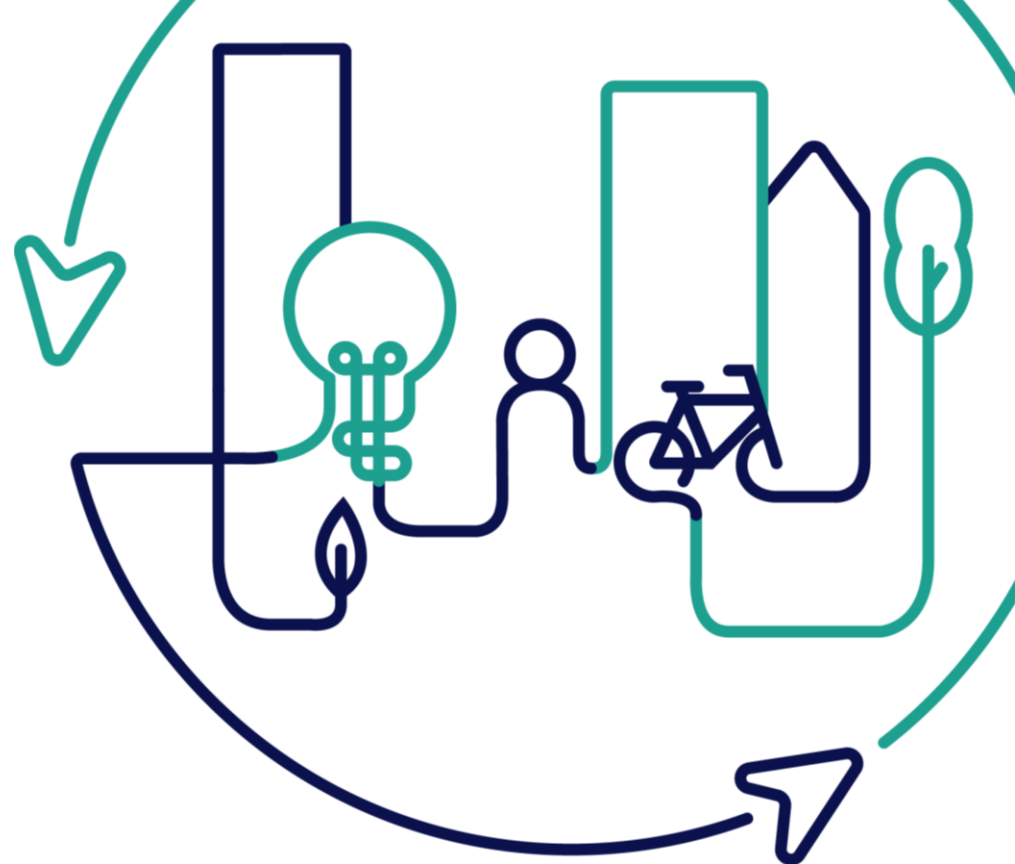


# EUROPEAN U R B A N INITIATIVE



Co-funded by  
the European Union

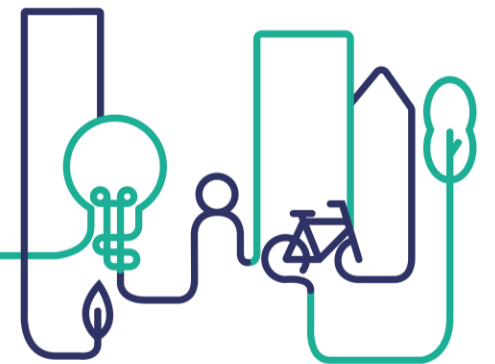
## Parallel Workshops:

# Design & Delivery - Operational Solutions for Creative Regeneration & Shared Sparks – Governance and partnership solutions for creative regeneration

Thursday 27<sup>th</sup> November 2025 – 11.00 to 12.30

Facilitated by Derville Brennan

Case Study: Löfstad Manor, Sweden



Co-funded by  
the European Union



# Session Aims

**1**

**To understand some of the technical and operational challenges faced by the Lönstads Manor project**

**2**

**To discuss in groups those technical and operational challenges and co-produce potential solutions**

**3**

**To share your potential solutions with the project and hear from them what happened in reality**

**4**

**To apply learning to your local contexts in Ireland**



# Session Plan

**11:00**

**Introduction**

**11:05**

**Case Study Presentations  
(Challenges)**

**11:25**

**Group Activity**

**12:00**

**Feedback and Discussion**

**12:15**

**Case Study Response  
(Solutions)**

**12:25**

**Wrap Up**



**Let's hear from  
Gustaf  
Leijonhufvud on  
the Löstad Manor  
project**



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## A DIGITAL TWIN OF LÖFSTAD MANOR.

- Aim to develop IoT-sensors and cloud integration for historic buildings
- Seasonal use as historic house museums
- Moisture-related problems
- High energy costs

### LÖFSTAD



### STJERNSUND



### JULITA





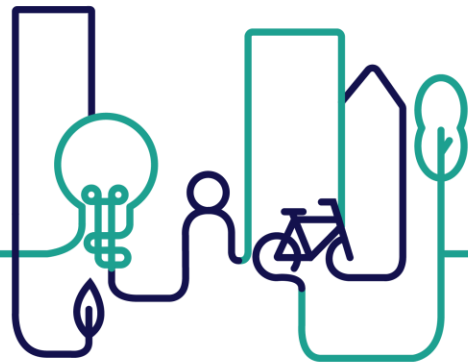
# LÖFSTAD MANOR

- 17th century
- Major fire in 1750
- Building owner: Riddarhuset
- Collections: Östergötlands museum
- Public museum since 1942
- Moisture problems ground floor
- Direct electric heating and high energy costs
- Seasonal use



VÄRLDENS HISTORIA

AXEL VON FERSEN &  
MARIE ANTOINETTE











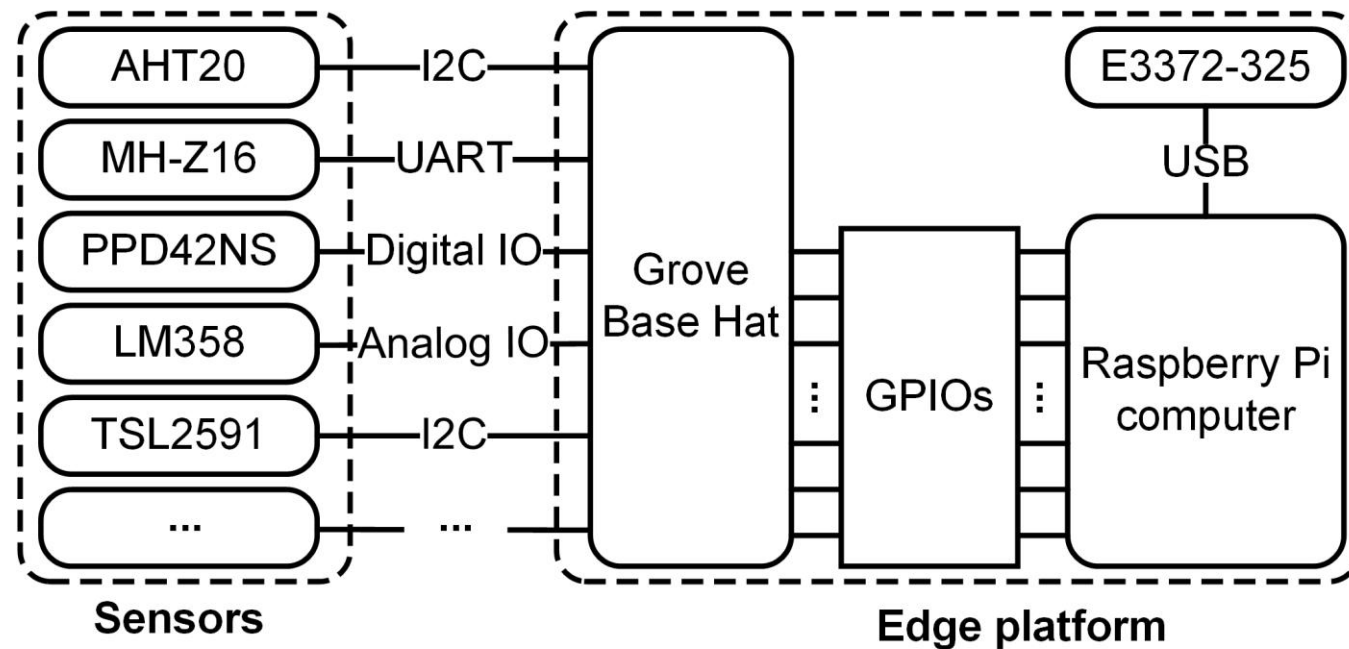
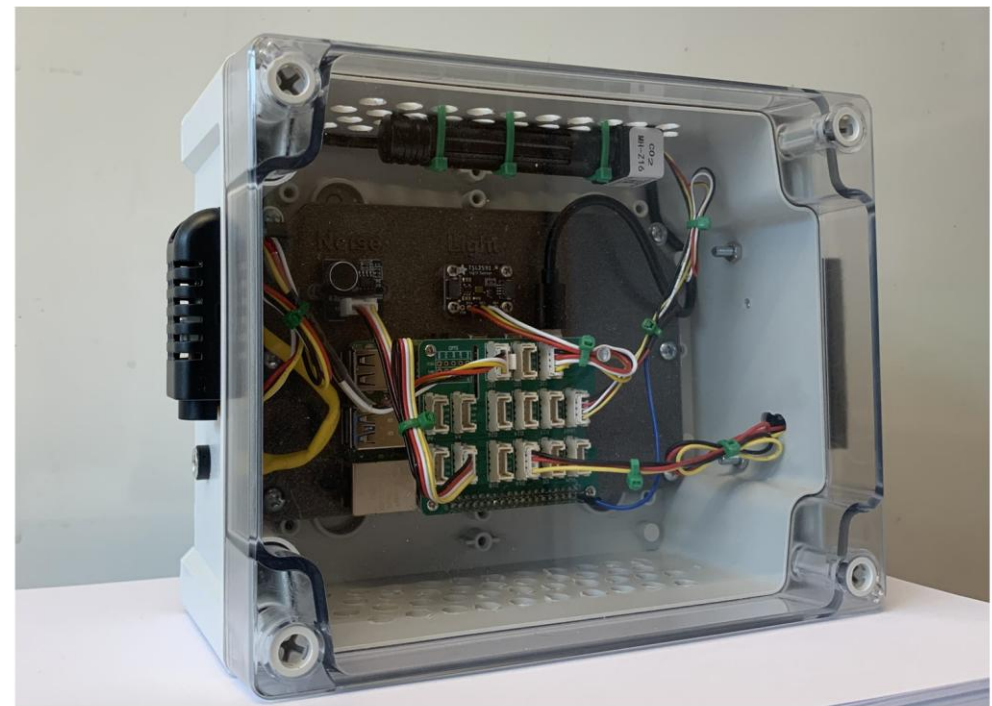
Moisture surplus in the ground  
floor/first floor



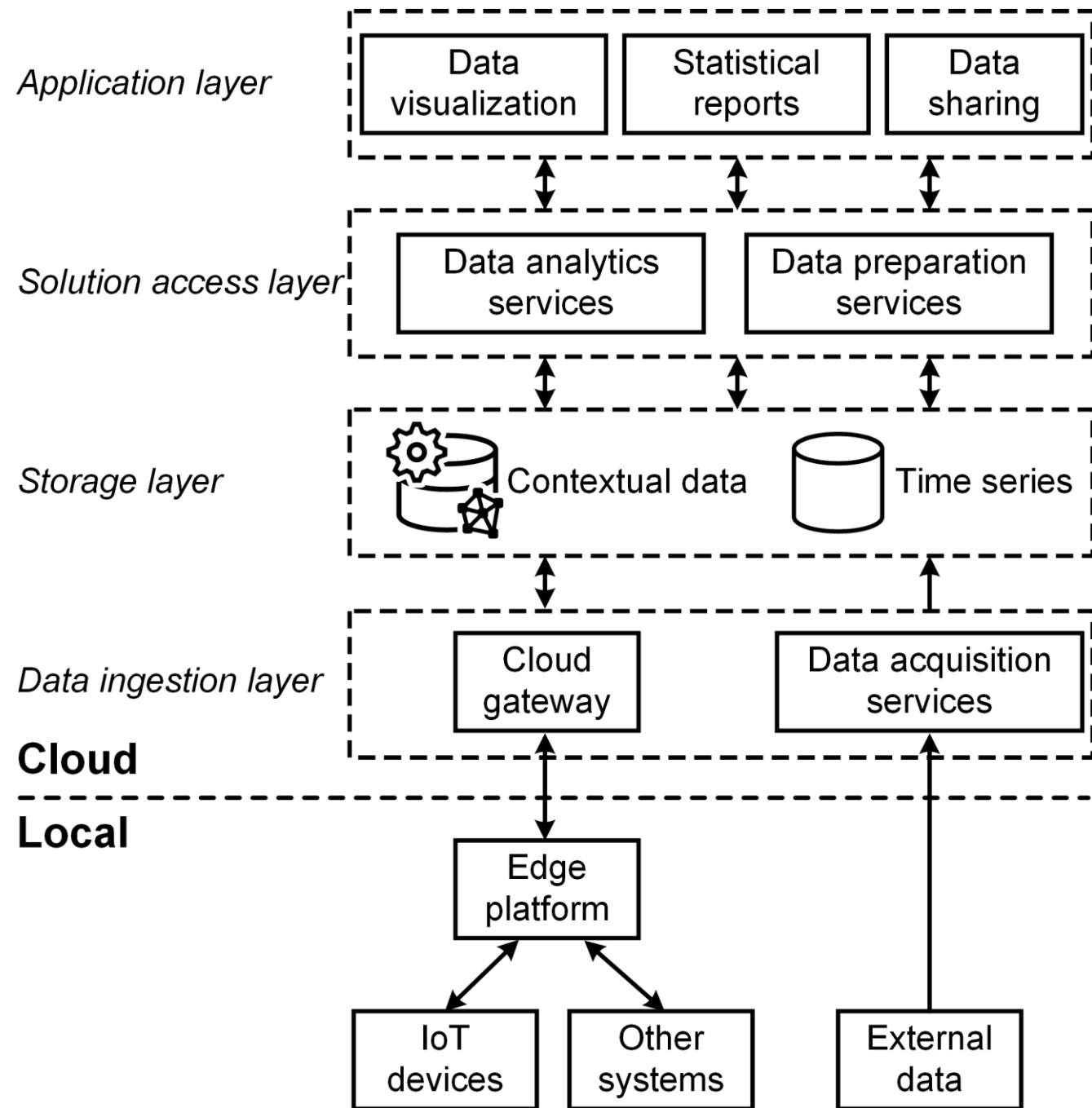


# SENSOR BOXES

- Temperature
- Relative Humidity
- CO2
- Noise
- Dust concentration
- Light intensity



# FROM SENSOR DATA TO VISUALIZATION





**Attic:** 6 sensors

**2F:** 18 sensors

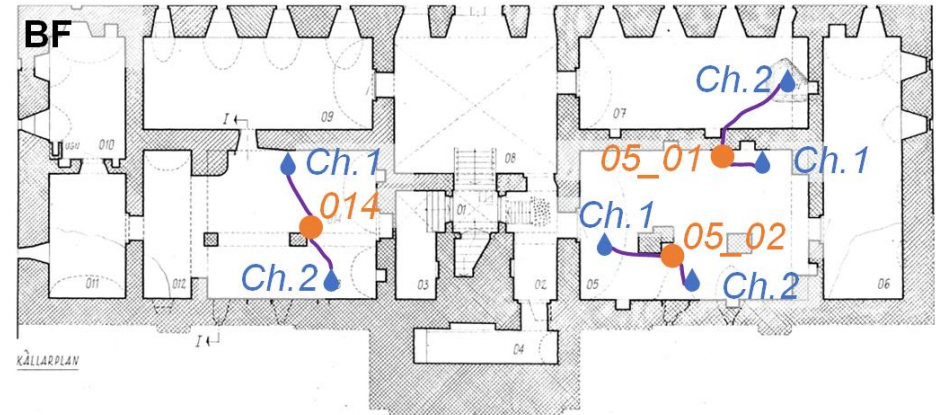
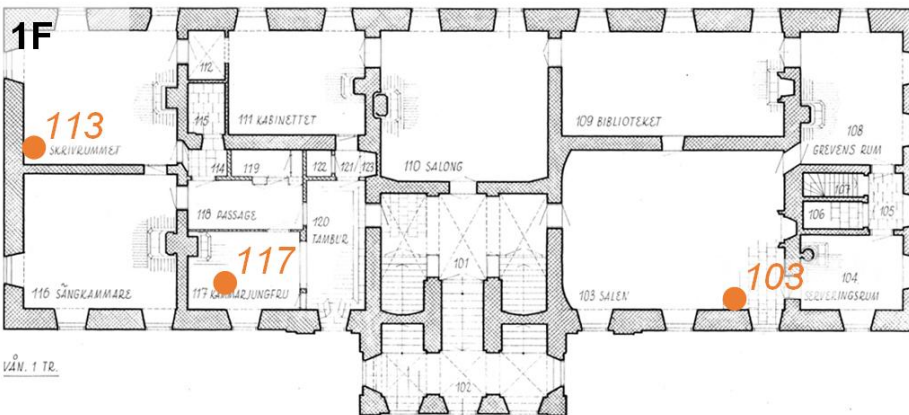
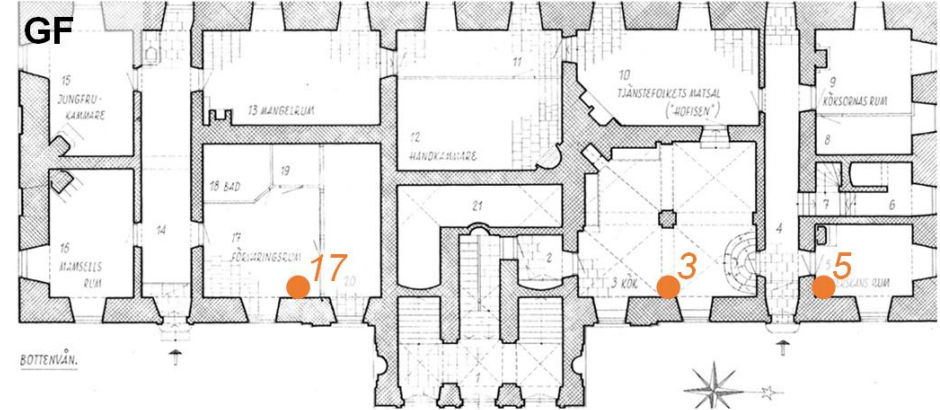
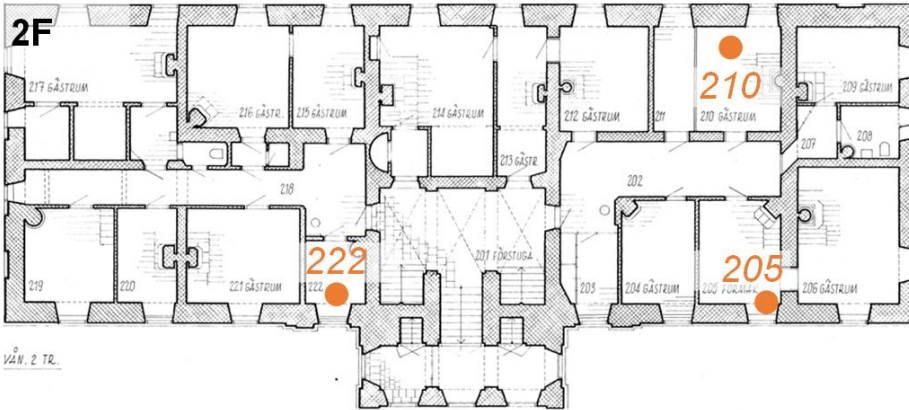
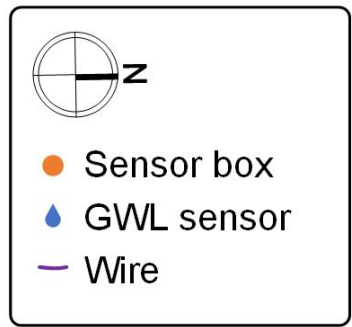
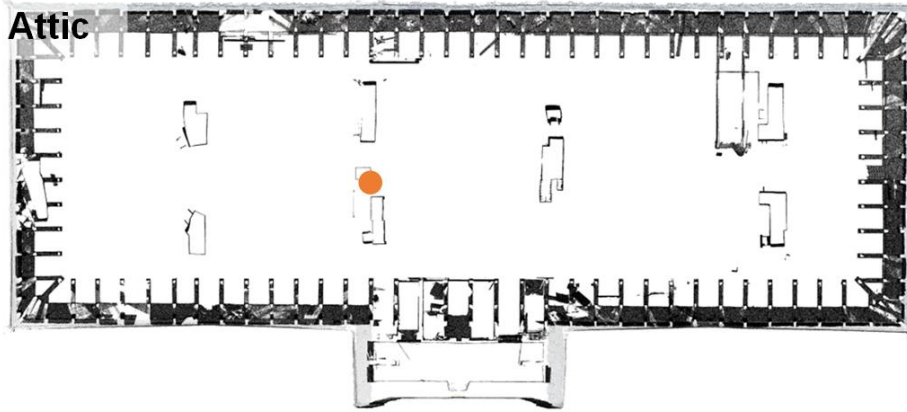
**1F:** 18 sensors

**GF:** 18 sensors

**BF:** 24 sensors



Attic





**TO MEASURE IS TO  
KNOW**

**(BUT SOMEONE HAS  
TO ANALYZE THE  
DATA!)**

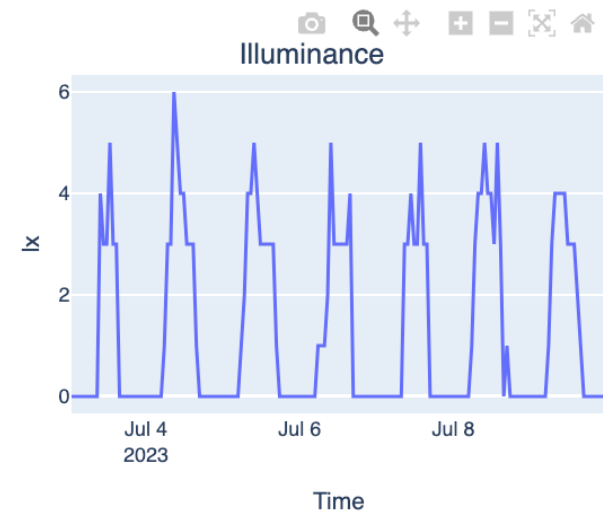
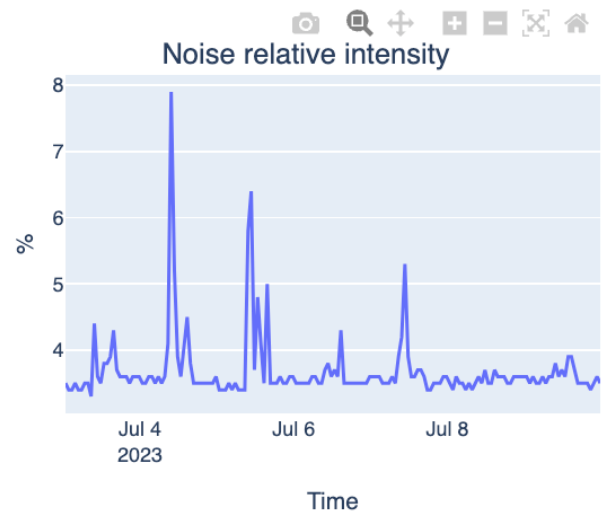
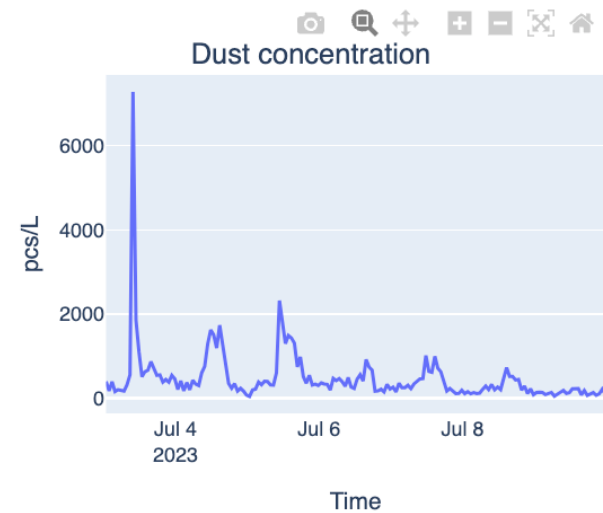
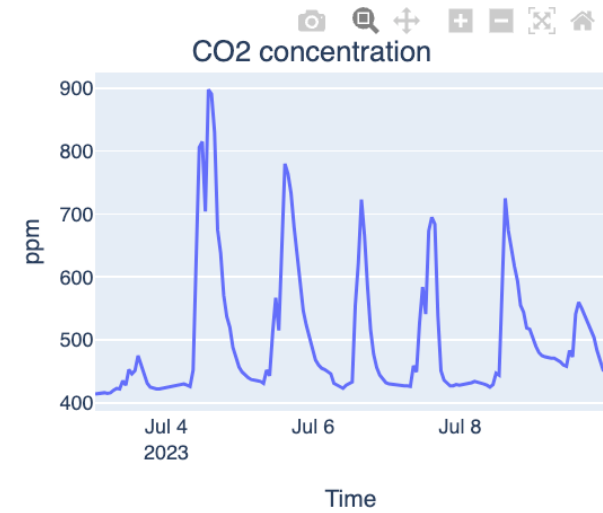
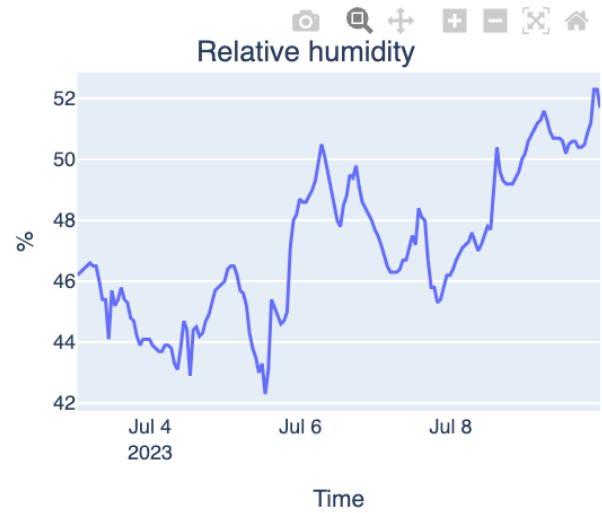
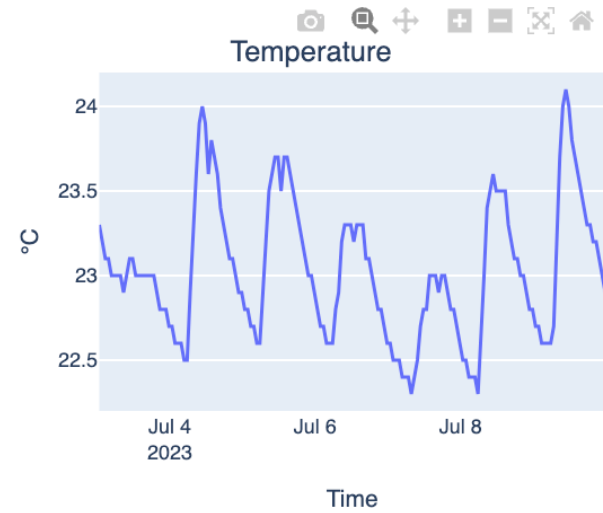
Show data for room:

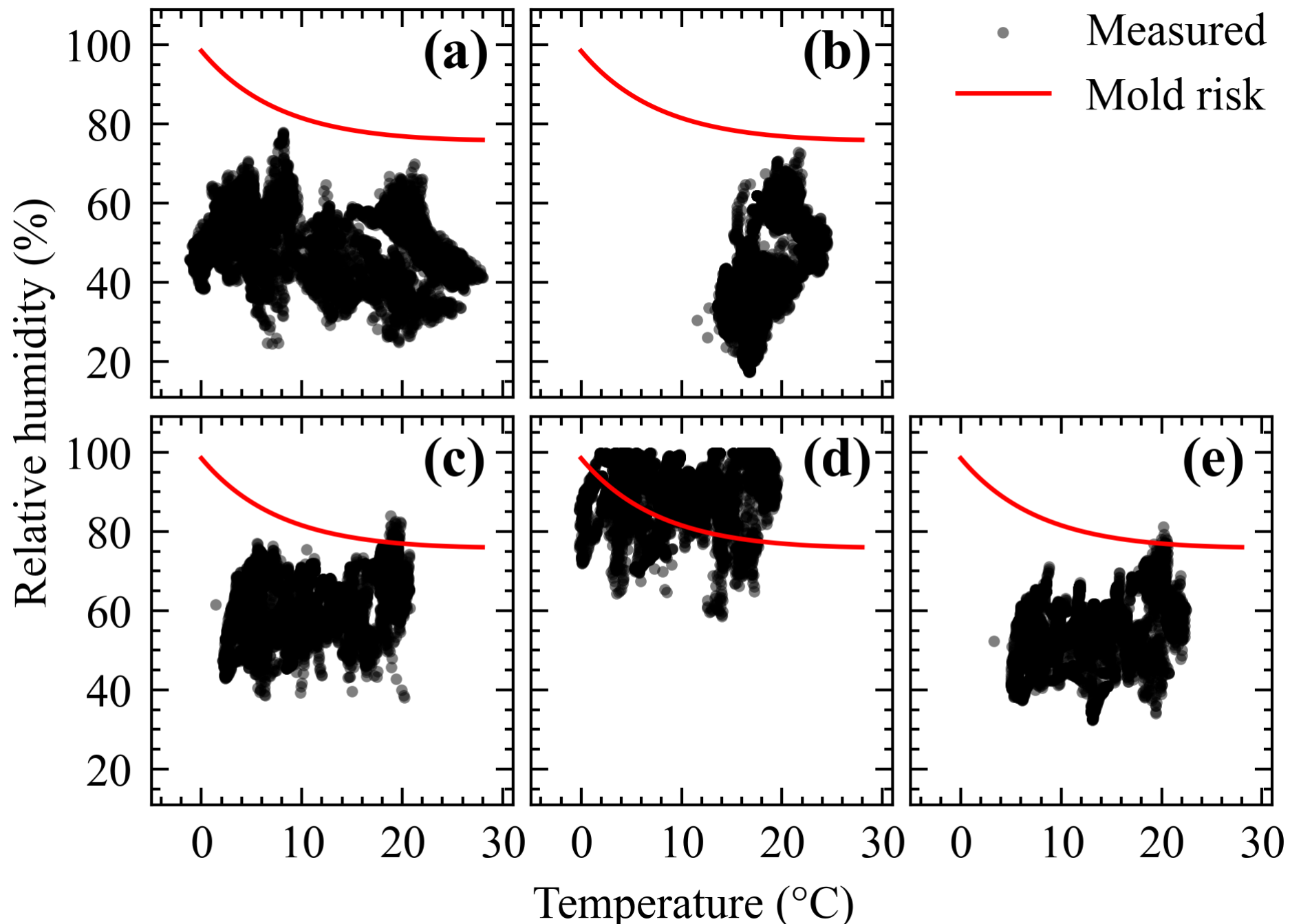
- 103 Salen
- 113 Skrivrummet
- 117 Kammarjungfru

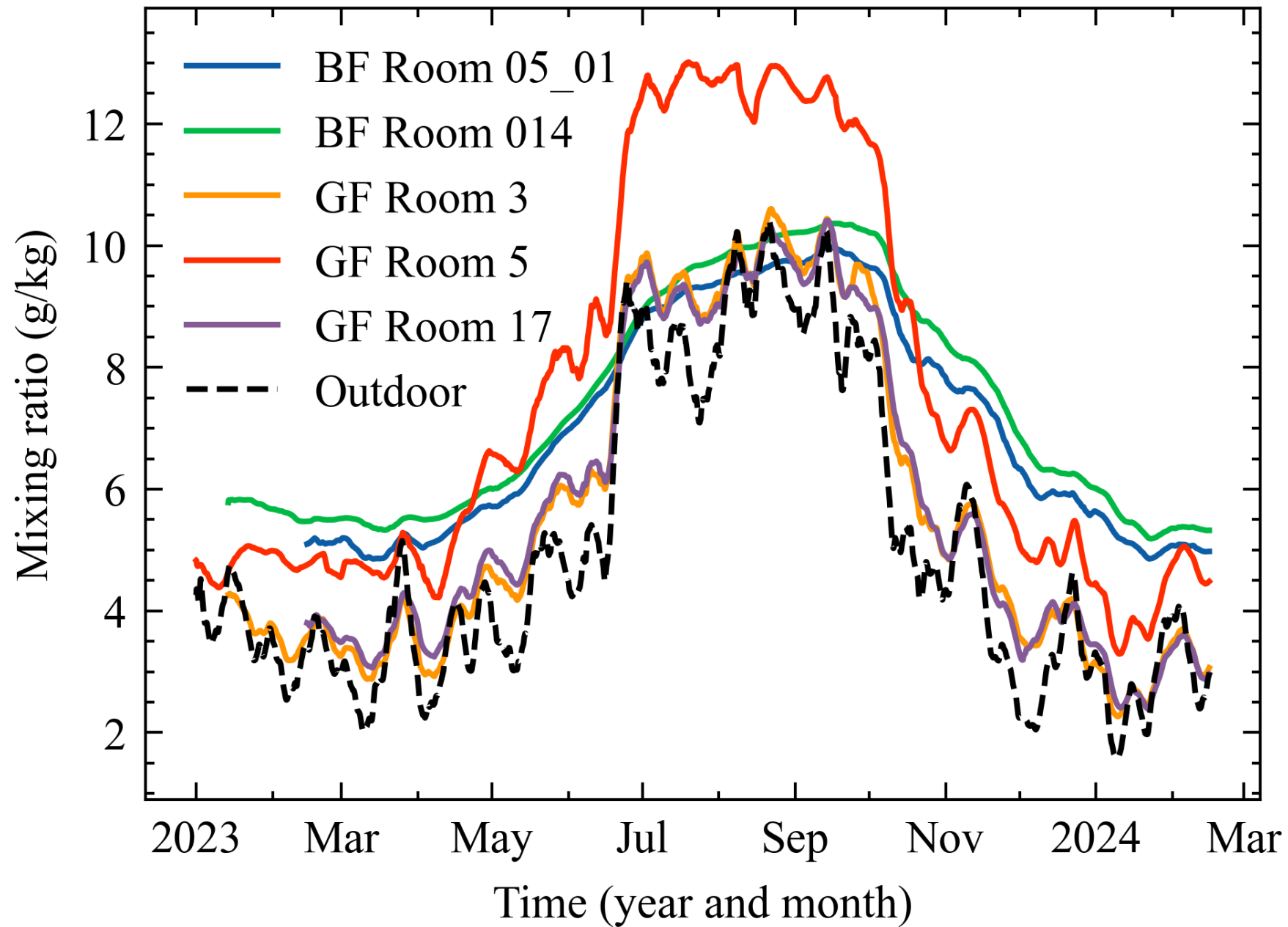
Show data for (last):

- 1 Hour
- 6 Hours
- 12 Hours
- 1 Day
- 7 Days
- 30 Days
- Custom date range

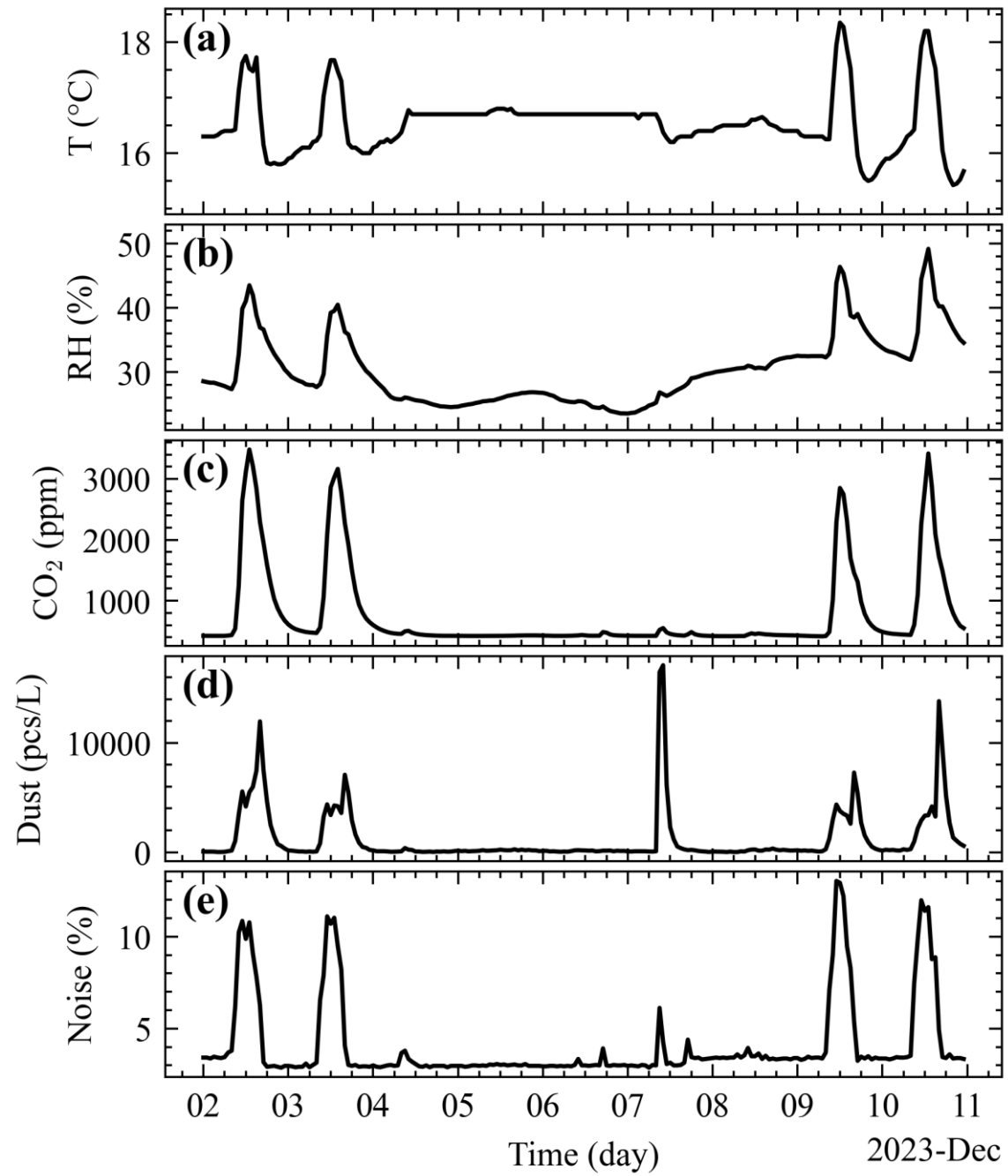
07/03/2023 → 07/10/2023











# TECHNICAL CHALLENGE 1

- How many sensors? What kind?
- Sampling rate?
- Visibility?
- Wireless connection
- Batteries/mains-powered
- Maintenance/calibration



# TECHNICAL CHALLENGE 2

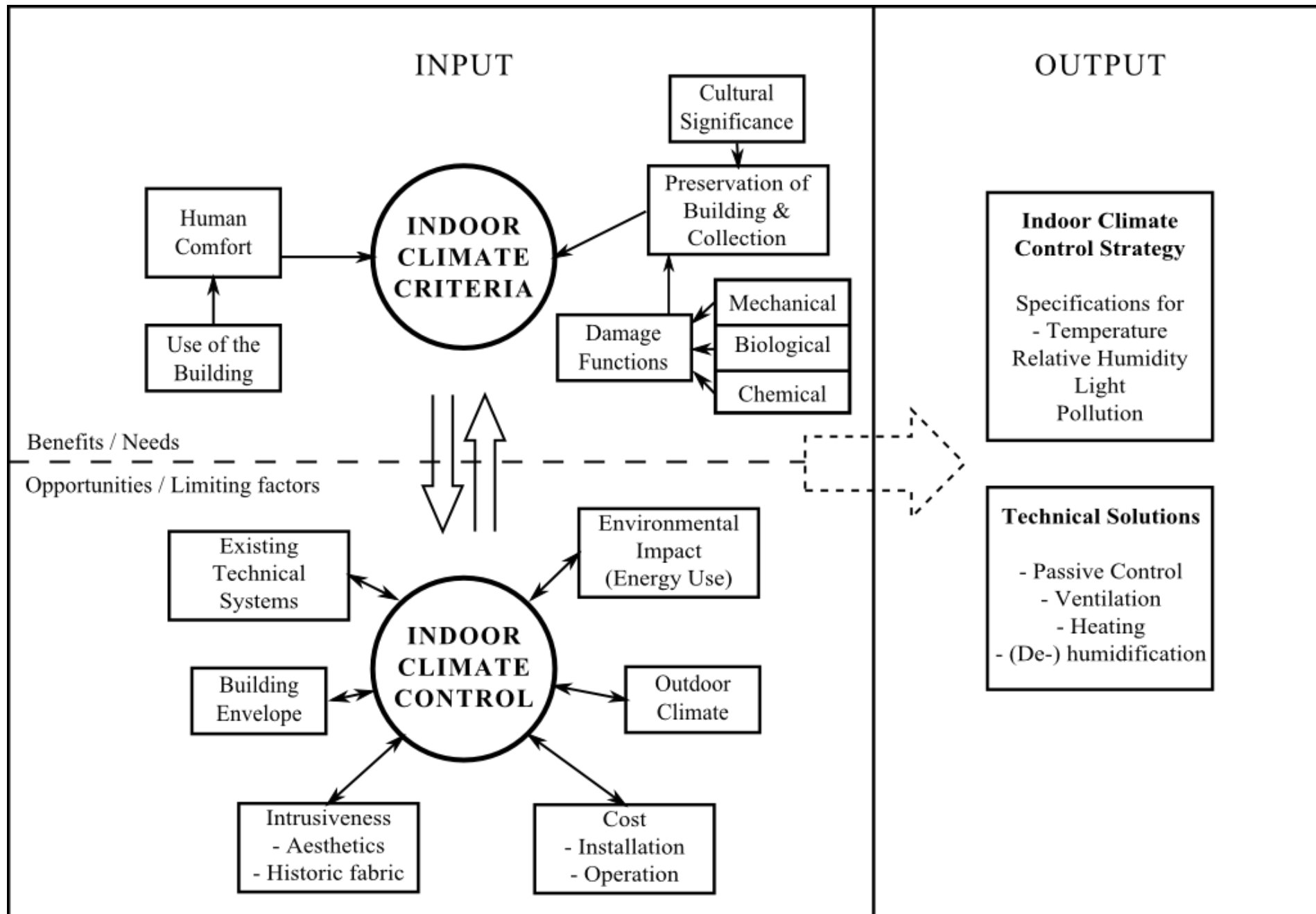
- Integration with existing building management system/processes
- Data management and storage (can we access the data in 20 years from now?)



# SOFT CHALLENGES

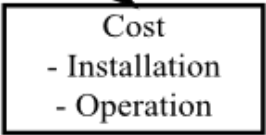
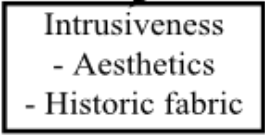
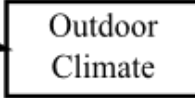
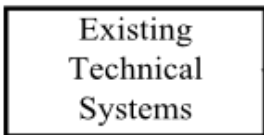
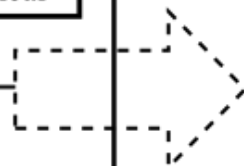
- Finding a balance between preservation, energy use, and use of the building
- As much a social challenge as a technical one ("the science is there")
- Historic buildings tend to be unique, not only as physical artefacts but also in the ways they are managed
- technology and social practices co-develop and become locally situated





Benefits / Needs

Opportunities / Limiting factors





# SOFT CHALLENGES

- As much a social challenge as a technical one ("the science is there")
- The use of the building is crucial and also connected to funding
- Different approaches to preservation also has implications

Curated decay (?) at Julita manor, a building similar to Löfstad



# SOFT CHALLENGES

- Staff working "on the ground" should be involved in decision-making
- Outdated hierarchies and notions of competence lead to certain professional groups being excluded from contexts where decisions are made

The "House Lady" at work in Stjernerund manor, a building similar to Löfstad



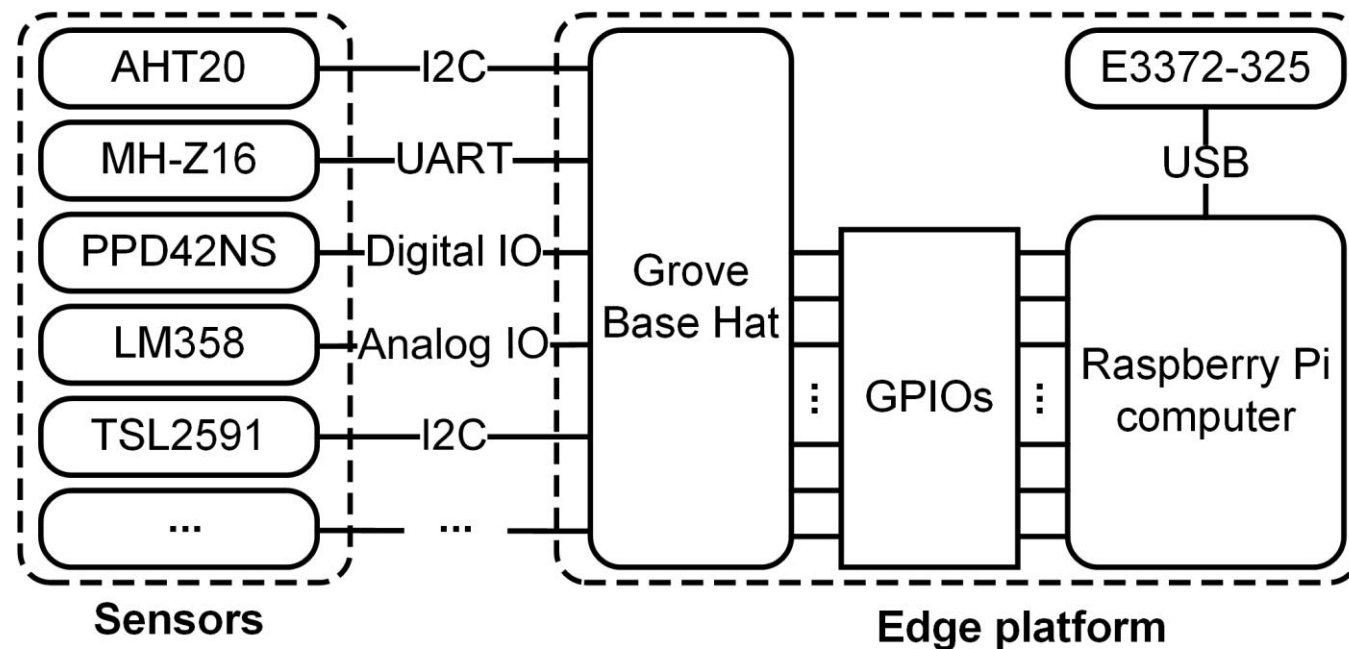
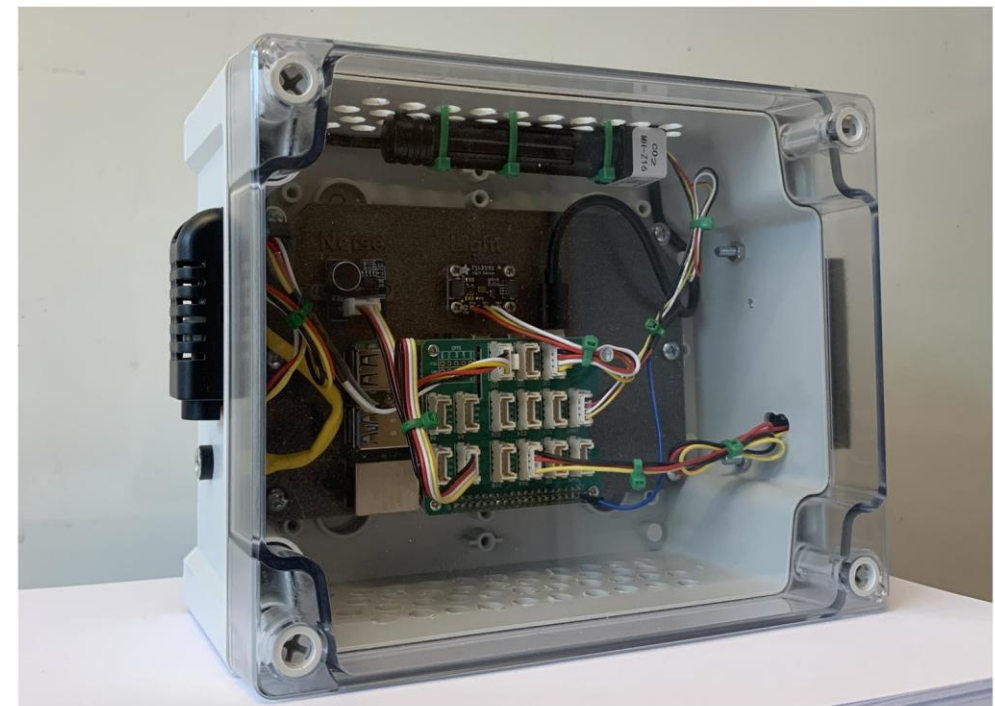
# SOFT CHALLENGE 1

Who decides on the indoor climate when there are multiple organizations & stakeholders & professionals and involves actors with unclear or overlapping responsibilities ?

- It is often considered a technical questions but is essentially a matter of how the building is used and the long-term objectives of management.

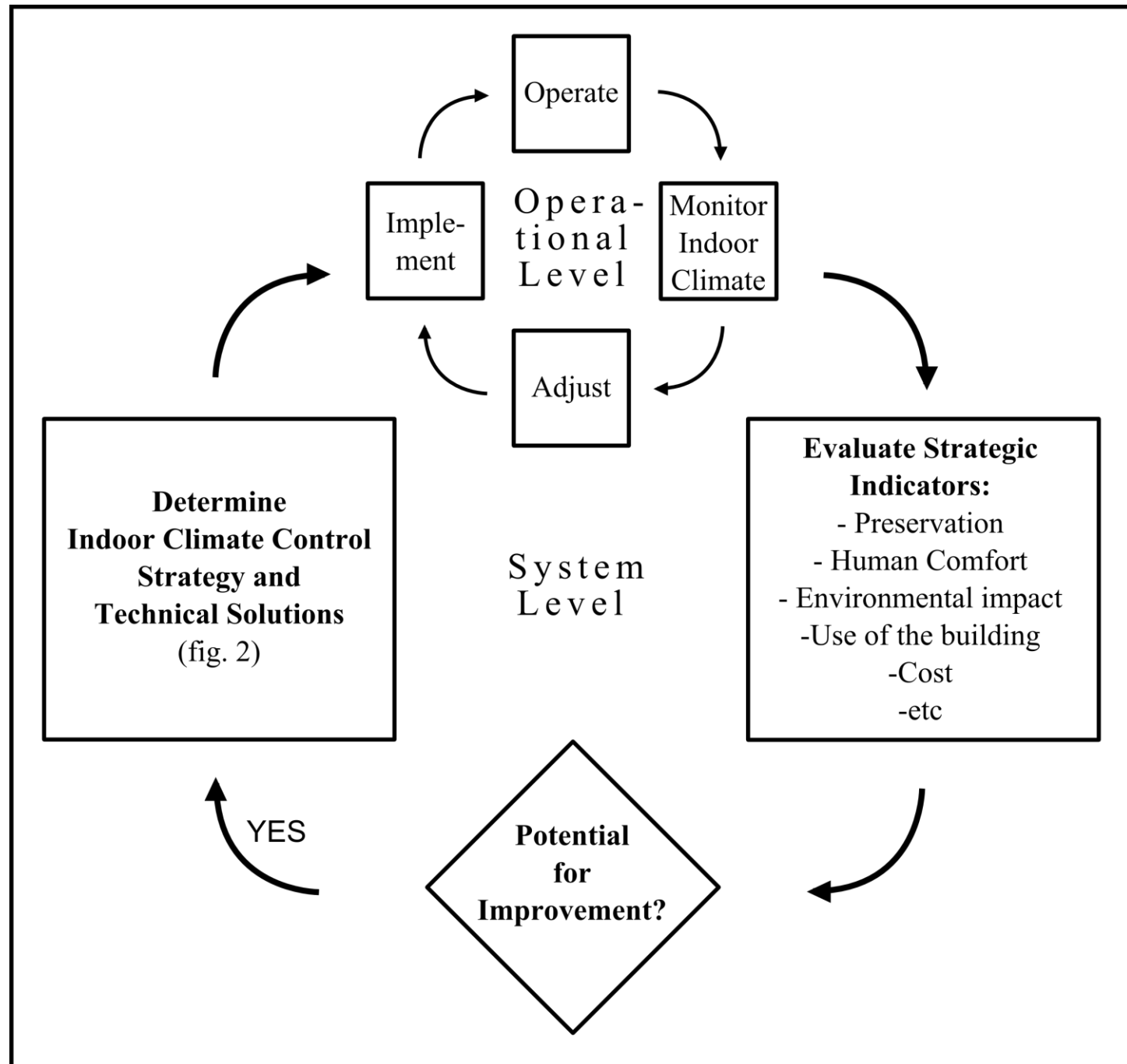
# SOFT CHALLENGES

- Monitoring and analysis needs to be integrated in a systematic way in management
- Advanced technical systems and analytical tools offer little benefit if they are not used



# SOFT CHALLENGES

- Lack of system level feedback
- "If it works - don't fix it" is not enough!





## SOFT CHALLENGE 2



How can monitoring be made useful  
for both day-to-day operation and  
long-term management?



**Group  
Activity**

# CHALLENGE CANVAS

## HOW DOES IT WORK

➤ Based upon the presentation the Löfstad Maor project detail on the

### Challenge Canvas:

- Step 1 – your understanding of the core operational challenge and how it relates to your own experiences
- Step 2 – how you would address the core operational challenge
- Step 3 – how you would transfer the solution to your own contexts



**Feedback**

# CHALLENGE CANVAS

- Each Group to feedback on their Challenge Canvas



**Let's hear  
from Gustaf  
Leijonhufvud**



Thank you!

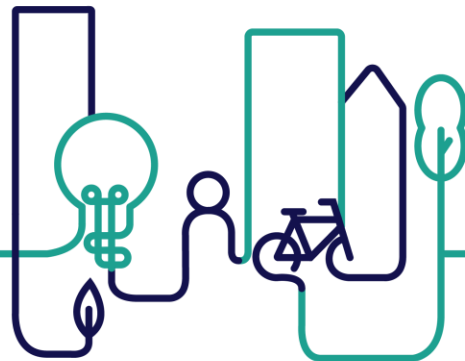
**Gustaf Leijonhufvud**

Uppsala university, department of Archaeology, Ancient history and  
Conservation.

[gustaf.erik.leijonhufvud@uu.se](mailto:gustaf.erik.leijonhufvud@uu.se)



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**Wrap Up  
from  
Derville**

**Thank you**

