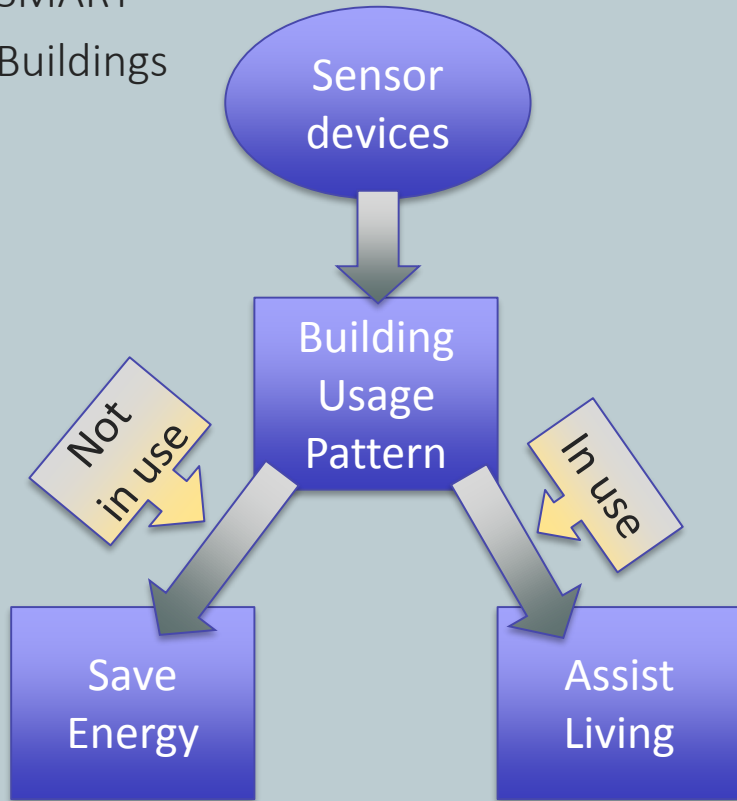


SMART Research group

Nils-Olav Skeie
Associate Professor, PhD



SMART Buildings



Introduction

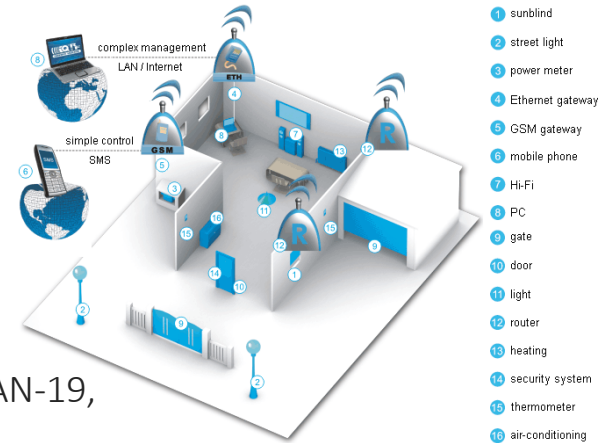
- SMART buildings
- SMART
 - Self Monitoring, Analysis and Reporting Technology.
- Using;
 - Sensor devices,
 - Data analysis,
 - Models,
 - Industrial IT.
- Do SMART House smarter – Focus on user!
- Focus;
 - Energy savings,
 - Assistant Living.

Smart House - Energy

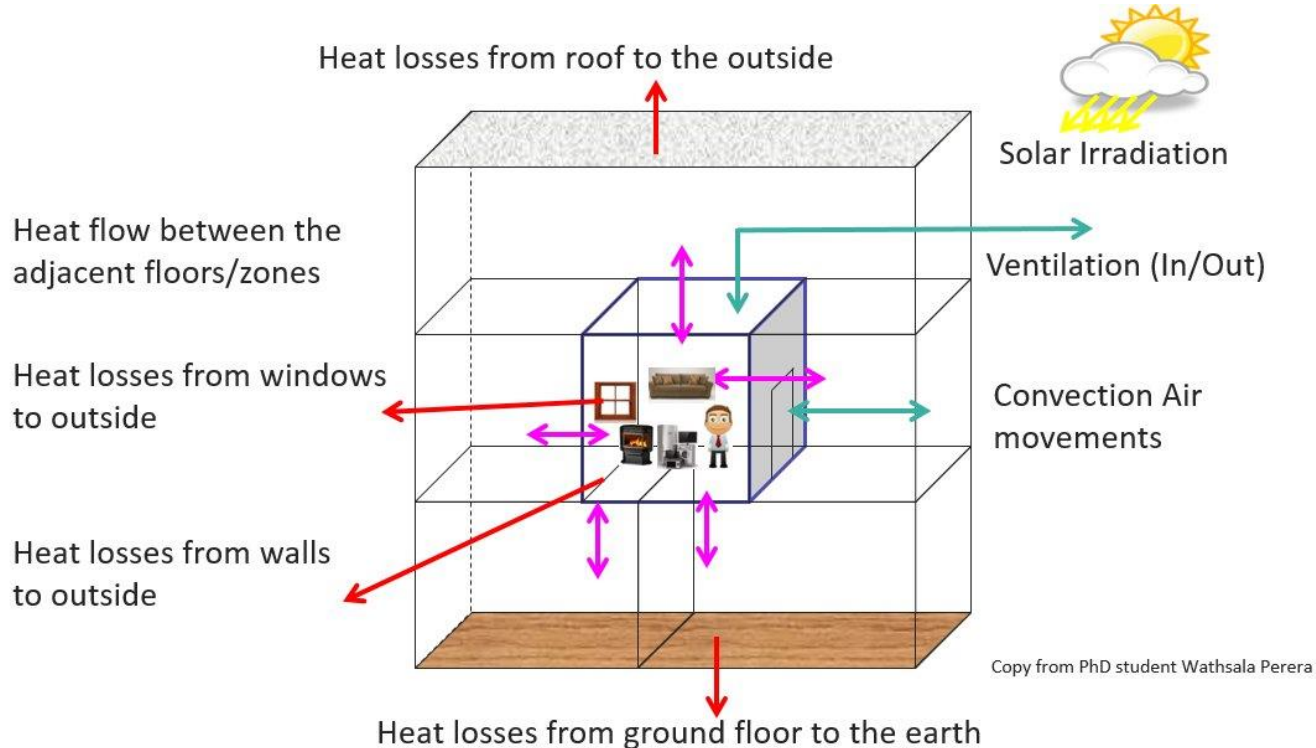
- Energy in Buildings,
 - Large energy consumers, about 40% of the energy in EU area,
 - Space heating as the largest part, 48% in Norway,

- Smart Building + Smart Grid,
 - “Passive House”, “Zero House”, “Plus House”,
 - TEK requirements in Norway, reduce energy consumption,
 - “Smart Current”; AMS – Automatic Power Measurement – 1-JAN-19,

- Goal:
 - How to save energy in existing buildings?
 - Save energy when building is not in use,
 - Comfort temperature only when the building is in use,
 - Focus on residential buildings.

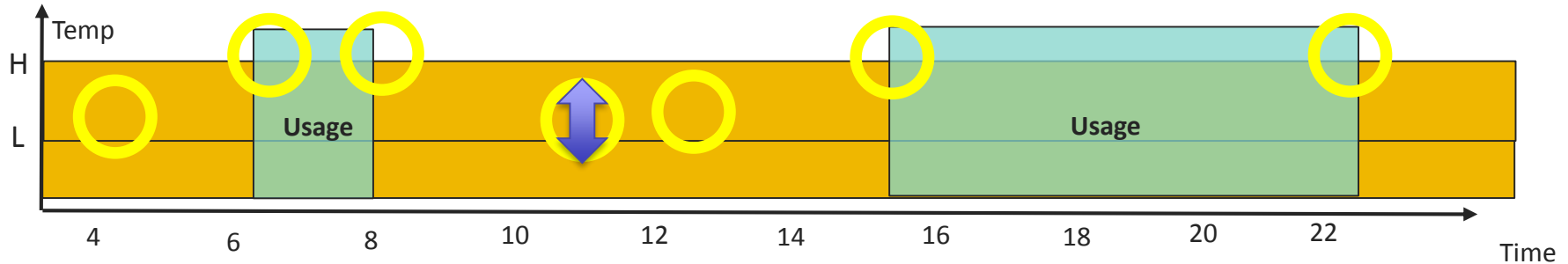


Modelling Approach



Save energy

- Solution today (adapt to a system):



- Improvements:

- Turn heater ON?
- Low temperature?
- Usage pattern?
- Heating of water?
- Lights?

} Need model to estimate time,
 } Need model to estimate usage,
Save energy when unused!

Status

- PhD Thesis: “Mathematical models for real-time estimation of space heating in buildings”,
- Ongoing PhD “Adaptive calibration of mathematical models for energy usage in buildings.”,
- Test Buildings

