



# Intro: Wrap up "Towards Smart Ventilation in Mid-sized Buildings"

Hilde Breesch



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## Industrial advisory board



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## Starting point

- Smart ventilation system (AIVC)
  - Able to continually adjust itself to provide IAQ while minimizing energy use, discomfort, noise
  - Responsive to e.g. occupancy, outdoor thermal and air quality
  - Can provide info about e.g. IAQ, energy use, need for maintenance



- Current practice in design of ventilation systems
  - Driven by minimum requirements of individual indicators
  - In mid-sized buildings: very conservative and inefficient
  - Existing methods dependent on brainpower of engineer

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## Research aim and goals

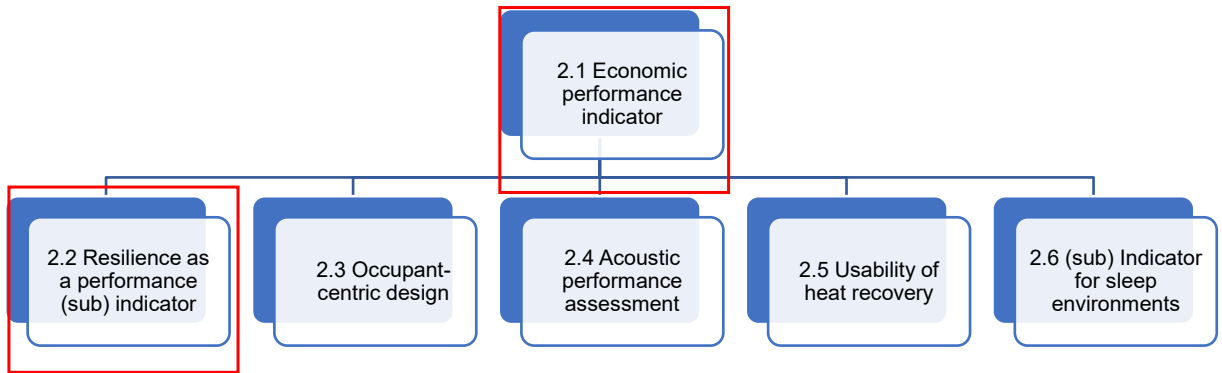
- **Aim** = determine performance-based method for smart ventilation design driven by optimization during whole life-cycle
- **Specific goals**
  - Define performance **sub-indicators** for **indirect metrics**
  - Aggregate all sub-indicators into **1 general economic performance indicator**
  - **Automate and optimize** aerologic **lay-out** ventilation design
  - **improve and optimize positioning of connections** to outdoor and indoor
- **Focus:** new + renovated mid-sized buildings ( $Q > 1000 \text{ m}^3/\text{h}$ )
  - Schools
  - Offices
  - Care facilities (elderly homes)

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## Research method

- WP2: Performance assessment

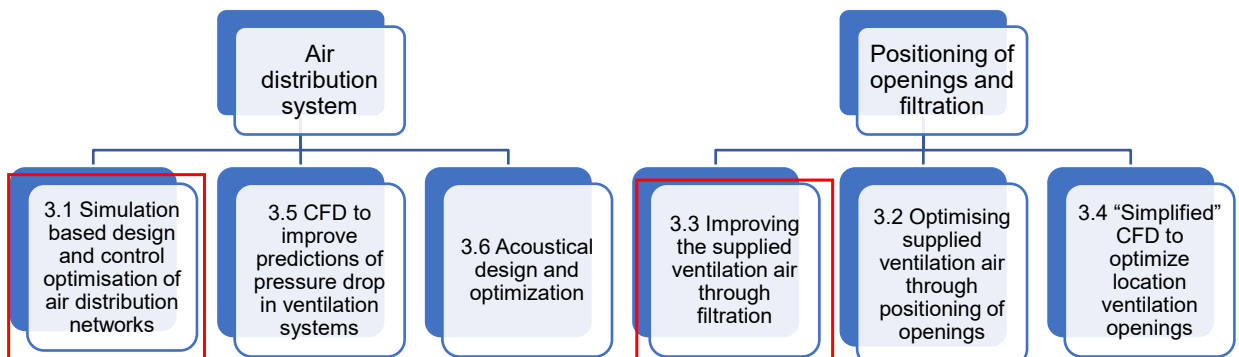


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## Research method

- WP3: Optimization of system design



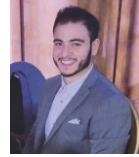
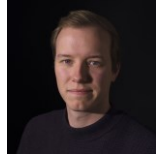
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webinar  
2023.12.12

## Smart ventilation in non-residential buildings. How to assess? How to design?



### Agenda (CET)

- 15:00 | Welcome & Intro, Hilde Breesch (KU Leuven, Belgium)
- 15:10 | [An \(Economic\) Indicator for Assessment of Smart Ventilation Systems](#), Klaas De Jonge (Ghent University, Belgium)
- 15:25 | Quantitative Assessment Framework of IAQ Resilience in Buildings, Douaa Al-Assaad (KU Leuven, Belgium)
- 15:40 | Simulation Based Design of Smart Ventilation Systems, Zakarya Kabbara (University of Antwerp, Belgium)
- 15:55 | Improving the Supplied Ventilation Air Quality through Filtration, Joris Van Herreweghe (Buildwise, Belgium)
- 16:10 | Questions and answers
- 16:30 | End of the webinar