



# Rethink Energy 4 Food

Accelerating the energy transition  
in the food industry by innovation.

Lars Roba

Innovatiemanager

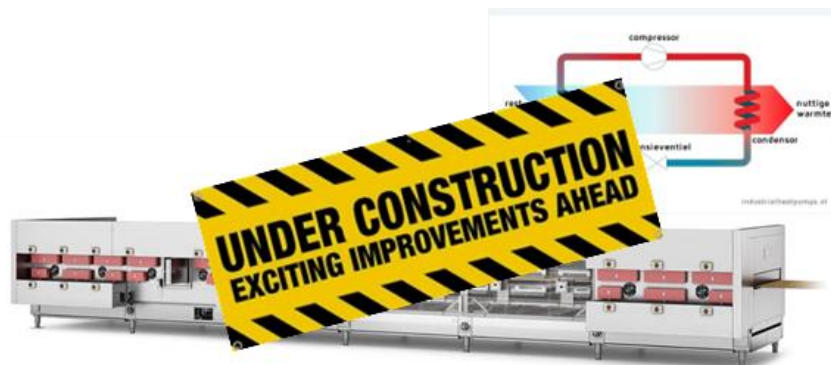
Flanders' FOOD



Project Rethink Energy 4 Food



# Complexity and barriers to the energy transition



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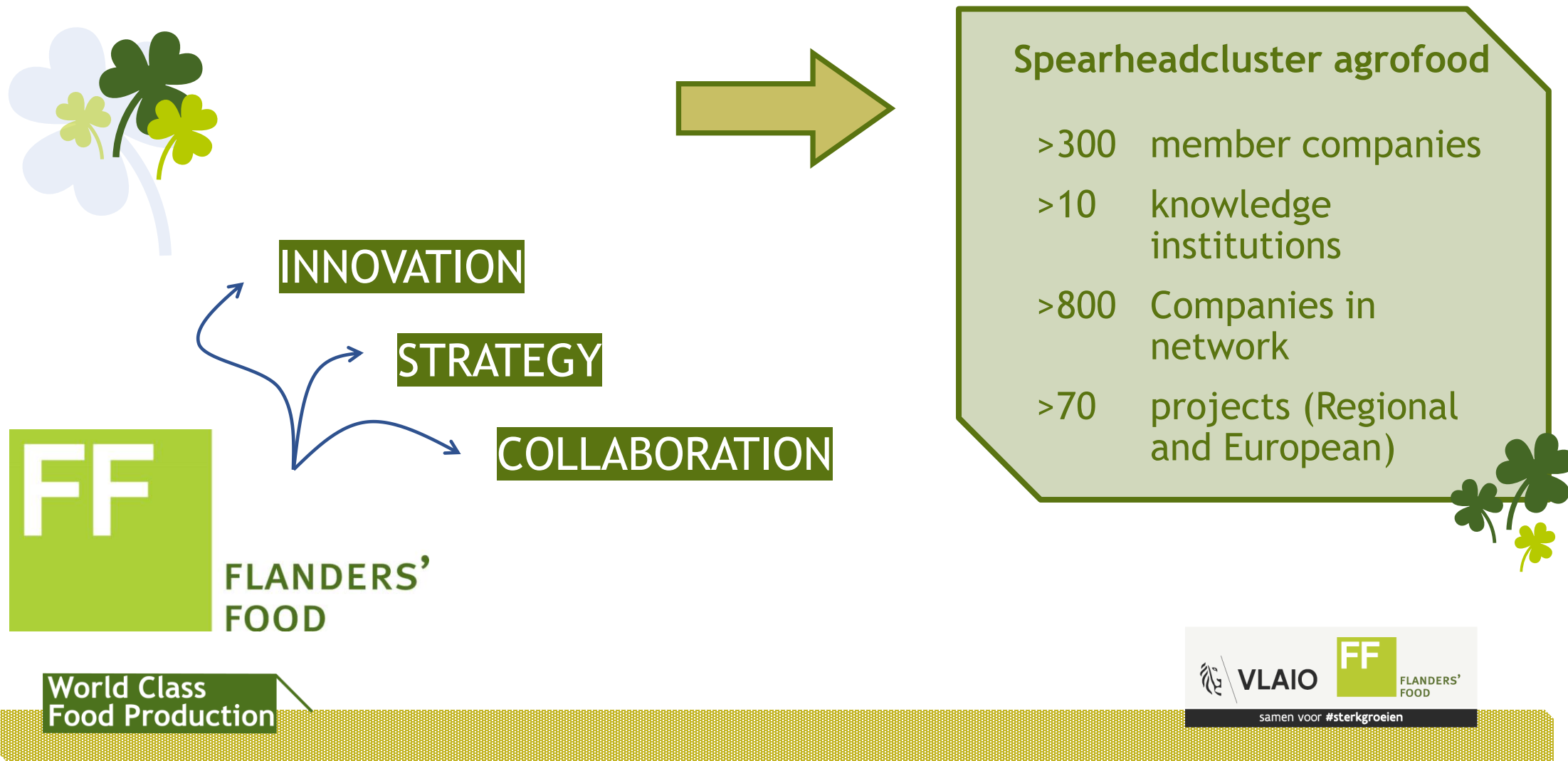
VLAIO



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# Flanders' FOOD - Spearheadcluster



# Project Rethink Energy 4 Food

- **Main Objective:** Accelerating the energy transition in the food industry
- **Project Type:** Collective R&D and Collective Knowledge Dissemination (COOCK+)
- **Project Budget:** €2,946,240
  - *With the support of VLAIO and the Flemish Climate Fund*
- **Duration:** 4 years (3 years of research + 1 additional year of knowledge dissemination)
- **In collaboration with:**



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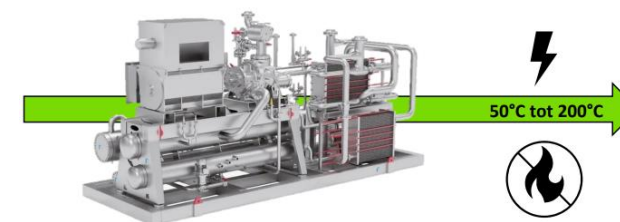
# Rethink Energy 4 Food

Building knowledge together around 4 focus tracks

## Focustrack 1: Elektrification of industrial ovens



## Focustrack 2: Sustainable heat supply



## Focustrack 3: Energy Resilience



## Focustrack 4: Innovative cooling



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# Focustrack 1: Elektrification of industrial ovens



Does microwave technology have potential in the bakery sector?

## Objectives

- Understanding the potential of microwave technology for specific model bakery products
- Gaining knowledge about process parameters when using microwave technology, whether or not in combination with traditional or infrared (IR) devices
- Energetic comparison between traditional and microwave-based baking processes



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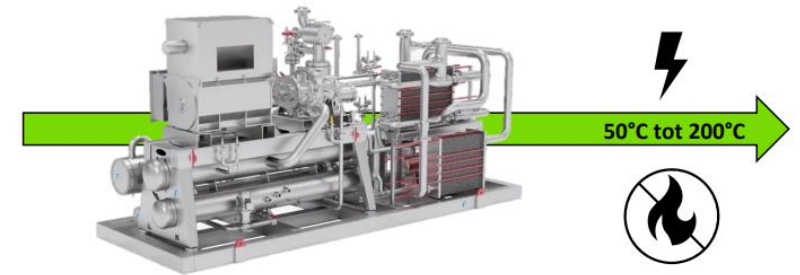


# Focustrack 2: Sustainable heat supply

How can a food company supply its heat?

## Objectives

- Identify and generalize heat processes across various sectors.
- Review and evaluate cutting-edge heat-producing technologies such as induction, heat pumps, and electric boilers.
- Develop a techno-economic method to select the most suitable technology.
- Validate this method using two existing installations.
- Monitor the performance of these technologies in practice.
- Analyze their impact on process efficiency and product quality.



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# Focustrack 3: Energy Resilience

Flexible use of different energy sources



## Objectives

- Inventory and generalize consumption profiles.
- Map existing energy management systems (EMS) and minimum sensor requirements.
- Identify state-of-the-art energy storage technologies.
- Develop a techno-economic methodology for technology selection.
- Validate the methodology on 3 use cases at VEG-i-TEC.
- Monitor EMS performance.
- Analyze the impact on process and product quality.
- Identify macro trends in the food industry.



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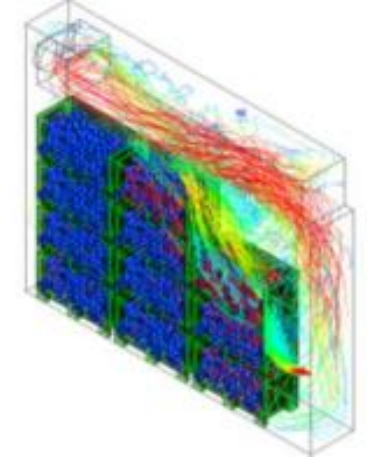


# Focustrack 4: Innovative cooling

What energy savings can we achieve?

## Objectives

- Inventory and generalize the cooling demand in the food industry.
- Comparative study between vacuum cooling and conventional cooling.
  - Focus sectors: bakery and meal production.
- Research into more efficient ventilation cooling.
- Map airflow using CFD (Computational Fluid Dynamics) modeling.
- Desktop study on innovative cooling technologies.



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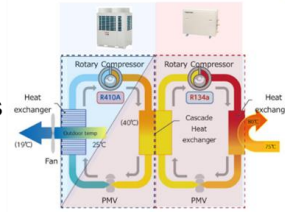
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# Focustrack 4: Innovative cooling - Desktop study cool technologies

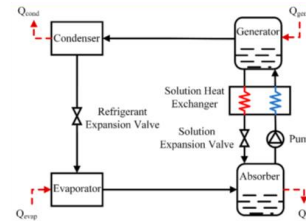


## Synergetische koeltechnieken

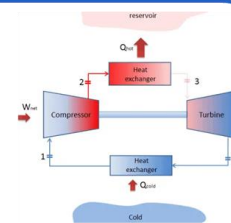
Cascade dampcompressiecyclus



Absorptiekoelmachine



Omgekeerde Braytoncyclus



## SWOT ANALYSIS

	Helpful to achieving the objective	Harmful to achieving the objective
Internal origin (attributes of the organization)	Strengths	Weaknesses
External origin (attributes of the environment)	Opportunities	Threats

# Collaboration generates energy

## Spearheadclusters and sectorfederations



**Fevia**  
Vlaanderen



## Knowledge institutions

**howest**  
hogeschool

**KU LEUVEN**

  
**UNIVERSITEIT  
GENT**

 hogeschool  
**VIVES**

 **vito**

## Food- and energy companies



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# Questions?



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