

# Digitalizing Warmth

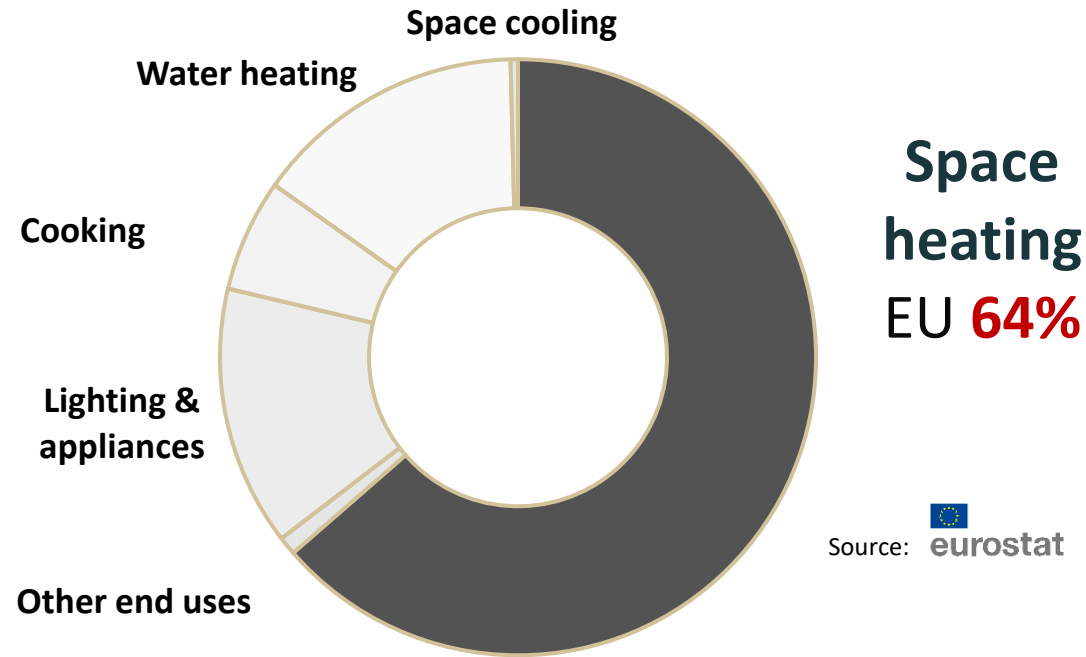
Comfort & Health, Sustainably



# Today's Heating of Living Spaces is Wasteful

## RESIDENTIAL ENERGY CONSUMPTION

EU-27, 2022



Space heating  
EU **64%**

~20%  
of all CO2  
emissions in  
Europe

Source:  eurostat

### On-going renovation wave in the EU

275 billion € / year building energy efficiency renovations

# Warmth is Also a Matter of Health & Security

9.3% of EU population unable to keep their home adequately warm in 2021.

In Europe on average 21% more people die in winter than in summer.

Energy crisis lead to an extra 68,000 deaths in Europe winter 2022-2023.

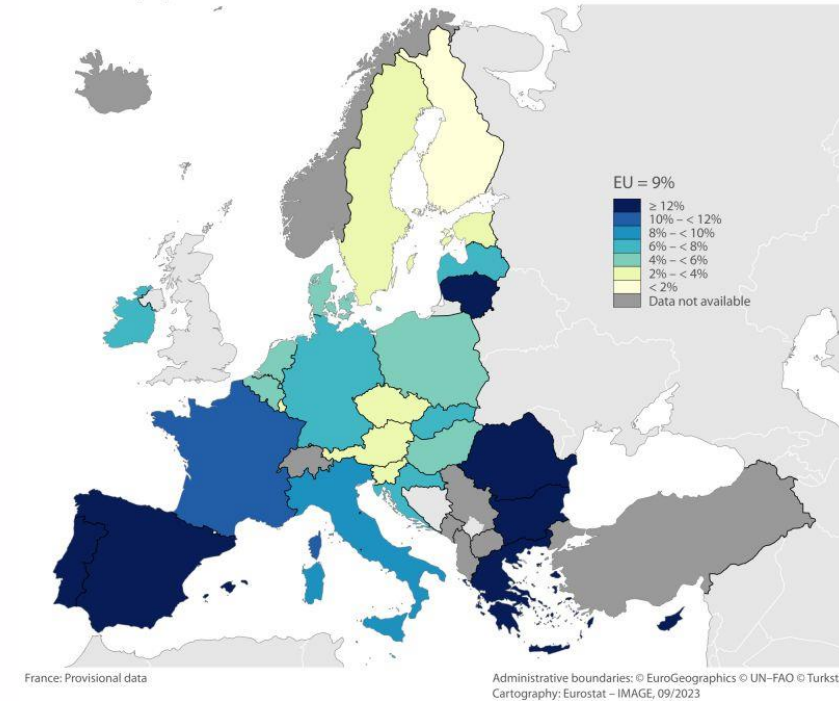
Sources:

Eurostat Sept.11, 2023

Economist Nov.26, 2022, "Russia is using energy as a weapon - How deadly will it be?"

Economist May 12, 2023, "Expensive energy may have killed more Europeans than covid-19 last winter"

Inability to keep home adequately warm, 2022  
(% of total population)



eurostat

# We Do to Heating What LEDs Did to Lighting



## halia<sup>®</sup>

Radiant warmth integrated  
into furniture & interior surfaces

Fastest warmth response

>20% energy savings

95% less materials

Healthier living environment

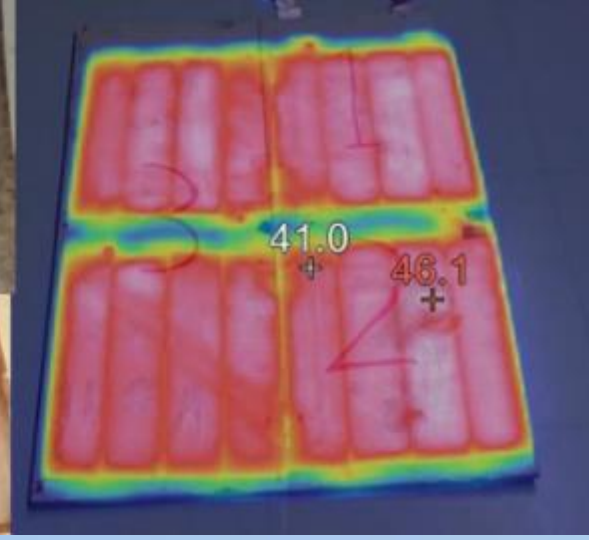
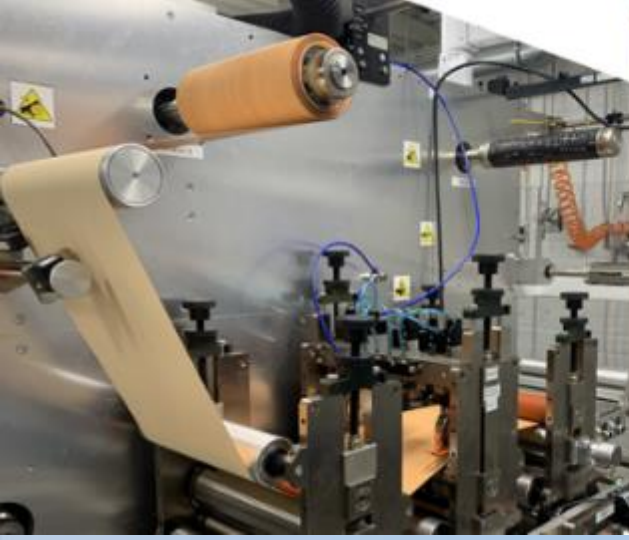
Increased comfort & work efficiency

Design with warmth

Low-cost installation

30.1.2024

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Now in industrial scale production

Low CAPEX

Halia® warming surfaces tech platform

Patents & patents pending

Our Ultimate Goal

# Halia® the “Gore-Tex” of Smart Warming Surfaces

Key business plan elements

- Franchise model for Halia® integration into products
- Platform for other smart surfaces functionality
- Extract value from “heating transactions” & usage data from system

Architects / Interior Designers

Global Supply Agreements

- Materials
- Components
- Machines

The Warming Surfaces Company

- Development
- NRE projects
- Design tools
- Franchisor
  - licenses
  - material supply

halia®  
Outsourced production partner(s)

In house next gen. production

Interior surface material producers & Furniture producers

Key influencers

halia®  
build globally recognized B2B2C brand

Usage data  
Energy flexibility

Multiple market applications: e.g. SAM in floor heating 1.25BUSD/year

# Internationally Experienced Multidisciplinary Team

+ Board of Directors with Experience in Sustainable Building & Smart Building Systems



**Liisa Eränen**

*UI/UX Designer*



**Mikko Keränen, MSc. Chem.**

*Head of Production & Sourcing,*



**Terho Kololuoma**

*CTO , PhD Chemistry*



**Jani-Mikael Kuusisto**

*CEO , MSc. Economics & Bus.*



**Sanna Rousu, PhD Tech.**

*Head of Sustainability & Projects*



**Jarno Vehmas**

*CPO , MA. Industrial & Product Design,  
Electromechanical Engineer*

## Board of Directors

**Petri Kalliokoski**

*(HighMetal, form. SVP at VTT)*

**Miimu Airaksinen**

*(SVP at SRV, UNICEF FIN, Green Building Council FIN, form. Prof. at VTT)*

**Ari Virtanen**

*(Boardman, form. Nokia, KONE, Ensto)*

**Terho Kololuoma**

# Announcing our first go-to-market partners

Warmed HPL



**SURFORMA**<sup>®</sup>  
Shaping Spaces

**CASAIS**

The  
Warming  
Surfaces  
Company

## KEY MILESTONES TO DATE

- Established 1<sup>st</sup> GTM partnerships
  - 1<sup>st</sup> public joint product demo, awarded
  - 1<sup>st</sup> pilots in Portugal & Finland
  - 1<sup>st</sup> tech transfer to Nordic production location
- 1<sup>st</sup> end client product integrating Halia<sup>®</sup> warming surfaces now in development, aimed launch H2/2024

The  
Warming  
Surfaces  
Company



# Awards & International Media Recognition





halia®



# The Warming Surfaces Company Oy

Est. 11/2022 deep tech spin-out from VTT Technical Research Centre of Finland

**Vision**            **Sustainable warmth**

**Mission**        To help improve the lives and health of people and our planet through more efficient warming solutions

**Values**          Warmth | Sustainable growth | Responsible teamwork

Based in Oulu, Finland. 6 person team + 8 students/trainees.

Raising seed round of financing Q1/2024.

Patented **Halia®** radiant warming technology

## 2024 targets:

- 1<sup>st</sup> customer product launch using Halia® warming in H2
- Further customer pilots & demos to build evidence on efficacy & TCO of Halia warmth in real world applications
- Production up-scaling
- Continue building Halia brand & other IPR portfolio

7 AFFORDABLE AND CLEAN ENERGY



11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



For more info: [www.warmingsurfaces.com](http://www.warmingsurfaces.com)  
Contact: [jani-mikael@warmingsurfaces.com](mailto:jani-mikael@warmingsurfaces.com)

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