



# Digitalizing Warmth

For the age of Sustainability

Jani-Mikael Kuusisto  
Co-Founder & CEO

PALO 2023 Deal Day  
Dec.13, 2023



# We Do to Heating What LEDs Did to Lighting



## Halia®

Radiant warmth  
from interior surfaces

Fast

Energy efficiency

Design with warmth

Low cost installation

13.12.2023

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# Fast Response Large Area Radiant Heaters

**Thin**  
< 0.1 mm

**Fast**  
Seconds

**Safe**  
< 48 V DC

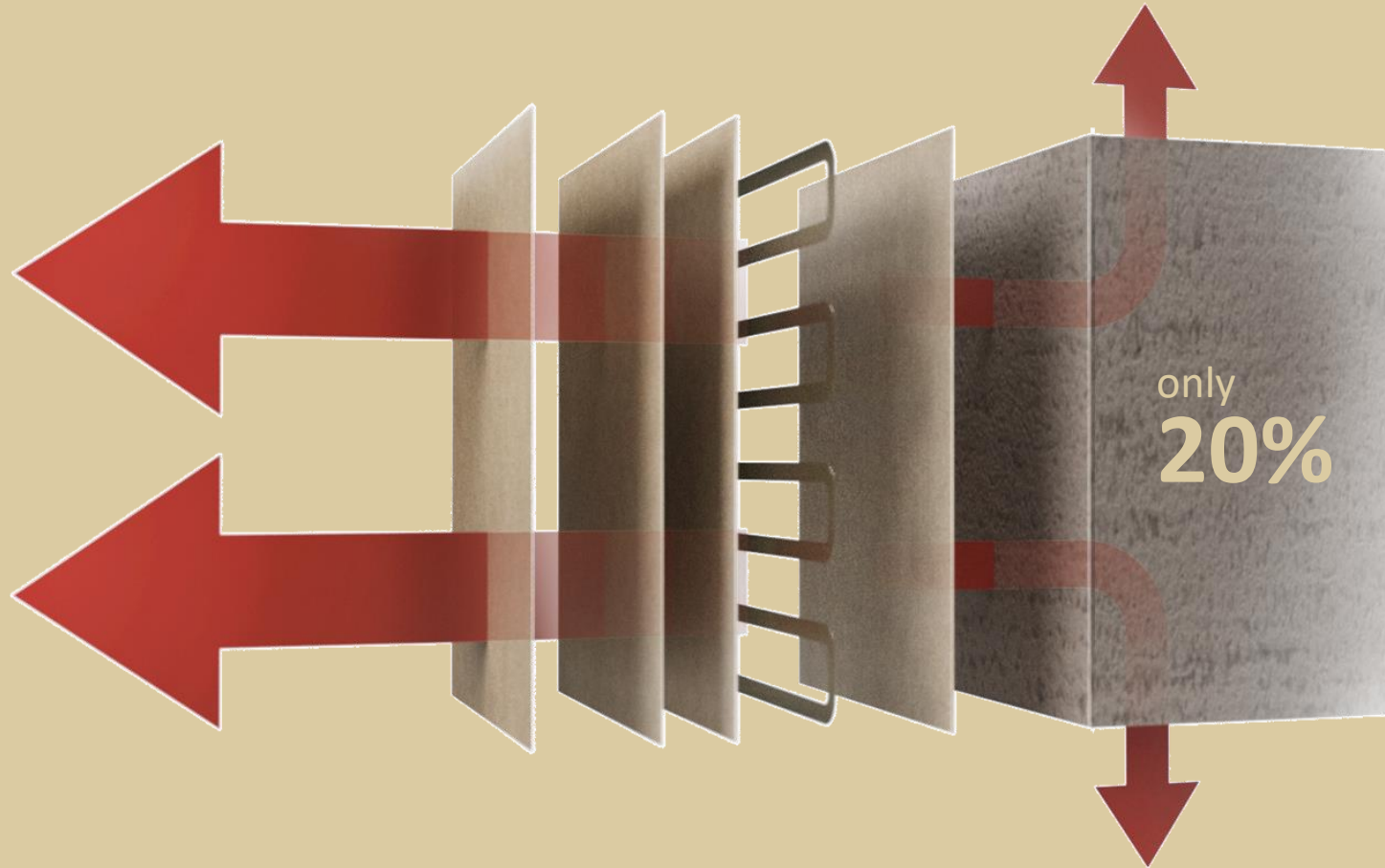
**Pixelated**  
Control by area

**halia**®

# Halia® Increases Energy Efficiency

Warmth When & Where You Need It

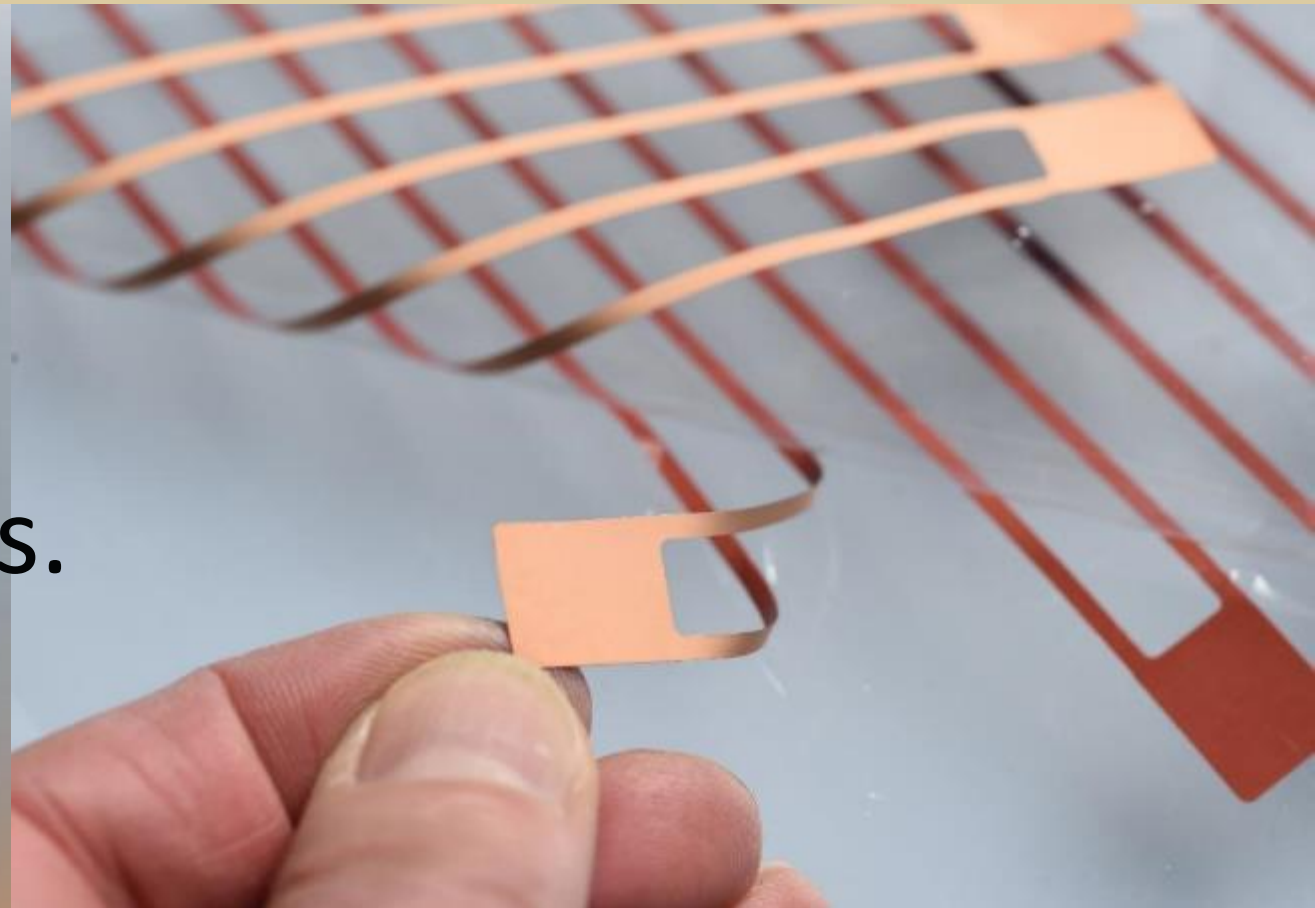
Up to  
**80%**



# 95% Less Materials, More Energy Efficiency



VS.



Less weight | Recyclable | No plastics



A close-up photograph of a Halio heating mat. The mat consists of a series of parallel, rectangular, metallic-looking heating elements. These elements are laid out in a staggered pattern across two different surfaces: a dark-stained wooden surface in the foreground and a light brown cardboard surface in the background. The lighting is soft, highlighting the texture of the wood and the metallic sheen of the heating elements.

halia®

**WARMING  
DRYING  
DEBONDING OF MATERIALS**

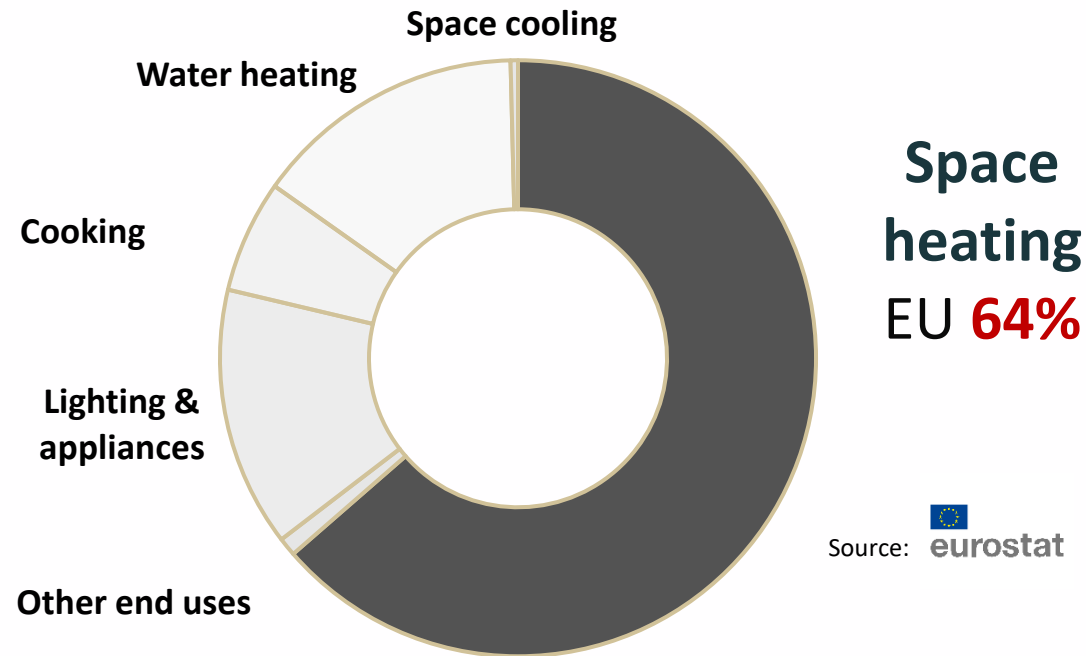


# Strongly Favorable Market Environment

# Heating of Living Spaces Needs an Urgent Fix

## RESIDENTIAL ENERGY CONSUMPTION

EU-27, 2022



## On-going renovation wave in the EU

275 billion € / year building energy efficiency renovations





# Warmth is a Matter of Health & Security

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

Source: Eurostat Sept.11, 2023

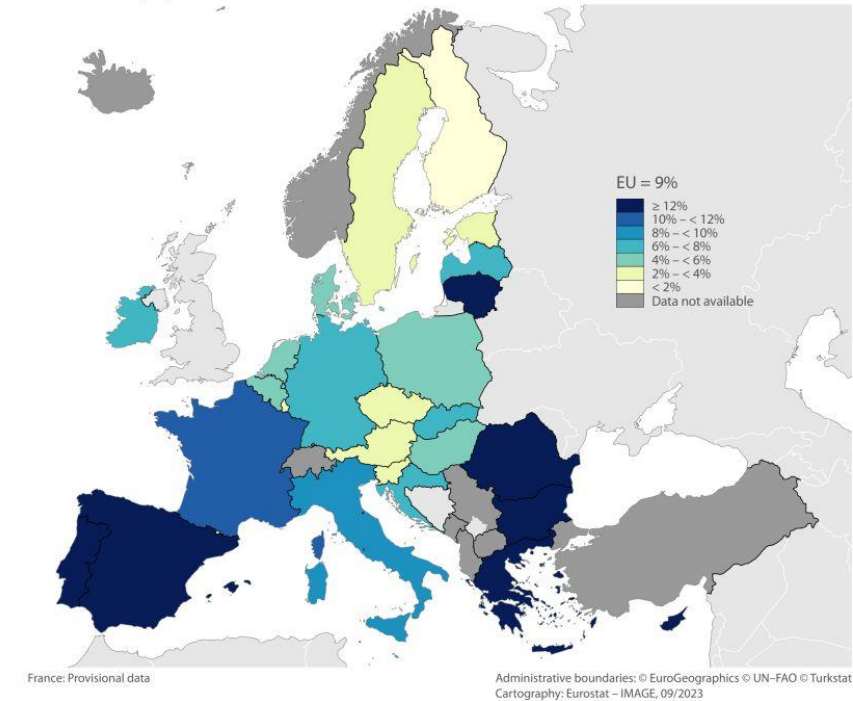
- In Europe on average 21% more people die in winter than in summer. (Portugal 36% ... Finland 13%)

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

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

Source: 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





Countdown to 1 year celebration!

Key milestones to date **3** – 2 – 1

# Proven demand for Halia™ radiant heating



**SILVER**

PROPTech STARTUP & SCALEUP  
EUROPE AWARDS  
2023



## Go-to-market partnerships

Target 1<sup>st</sup> product launches H2/2024

## Awards

## International media



# Announcing our first go-to-market partners

Warmed HPL



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

**CASAIS**

The  
Warming  
Surfaces  
Company

- **GTM partnerships**
- **1<sup>st</sup> public joint product demo**
- **1<sup>st</sup> pilots** in Portugal & Finland autumn-winter 2023
- **Target certifications & product launches H2/2024**



The  
Warming  
Surfaces  
Company



# Awards

2<sup>nd</sup> place at PropTech Startup Europe Awards in Brussels 19.-20.9.2023

236 companies competed, 50 semi-finalists, 10 finalists  
70 judges from 24 countries



# International Media Fuels Interest

sampling of media hits





Countdown to 1 year celebration!

Key milestones to date 3 - **2** - 1

## Prove manufacturing in industrial setting



## **Halia® heater element production**

1st commercial production set up

Nordic producer

Output ~300 000 m<sup>2</sup>/year/shift

## **1st gen. control electronics ready**

## **Customer production integration**

(on-going)

Countdown to 1 year celebration!

Key milestones to date 3 - 2 - **1**

**Demo 1st product  
concepts & initiate pilots  
utilizing own brand for  
warming surfaces – Halia™**

kuva: [www.businessasema.com](http://www.businessasema.com)

The  
Warming  
Surfaces  
Company

**Brand name Halia** – now ® in EU

**Concept demos with clients**

**Pilots started** (Portugal, Finland, Norway)

# Internationally Experienced Multidisciplinary Team

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



**Liisa Eränen**

*UI/UX Designer*



**MK (starts 1.1.2024), 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**

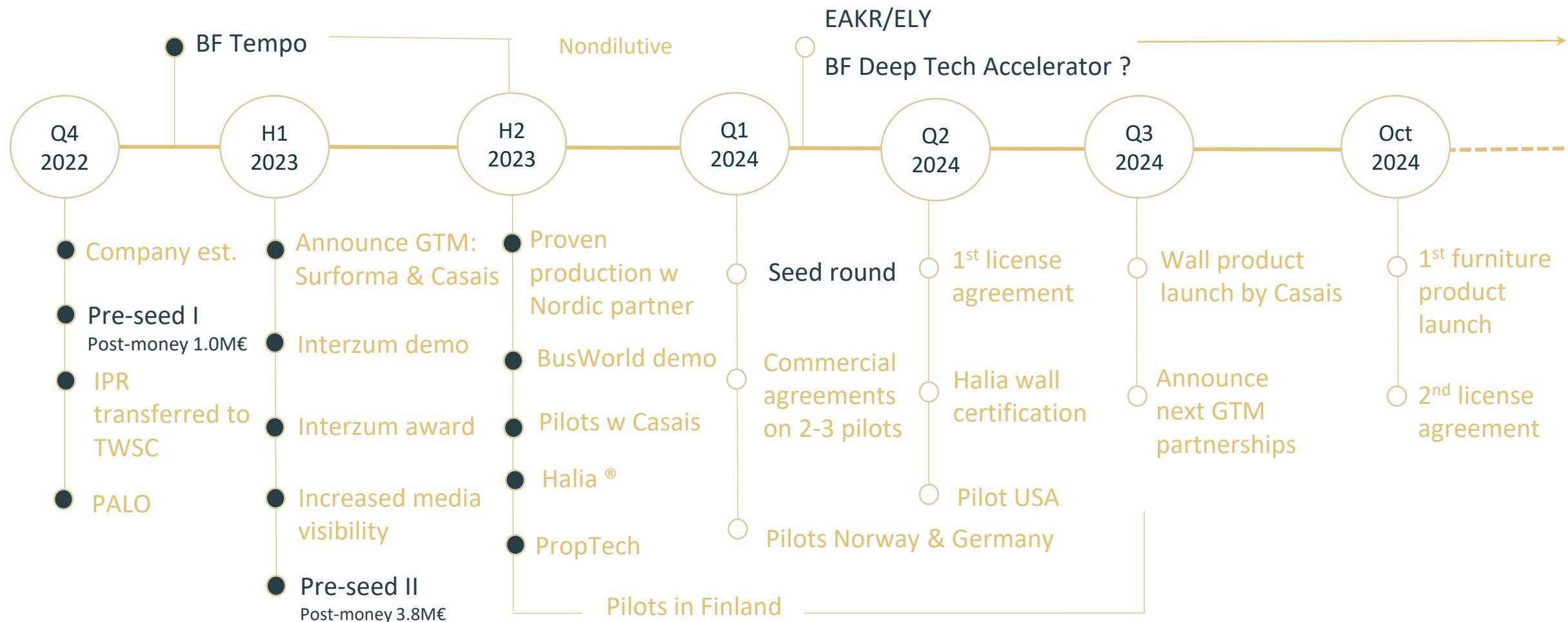
*(Boardman, form. Nokia, KONE, Ensto)*

**Terho Kololuoma**





# Highlights to Date & Targets

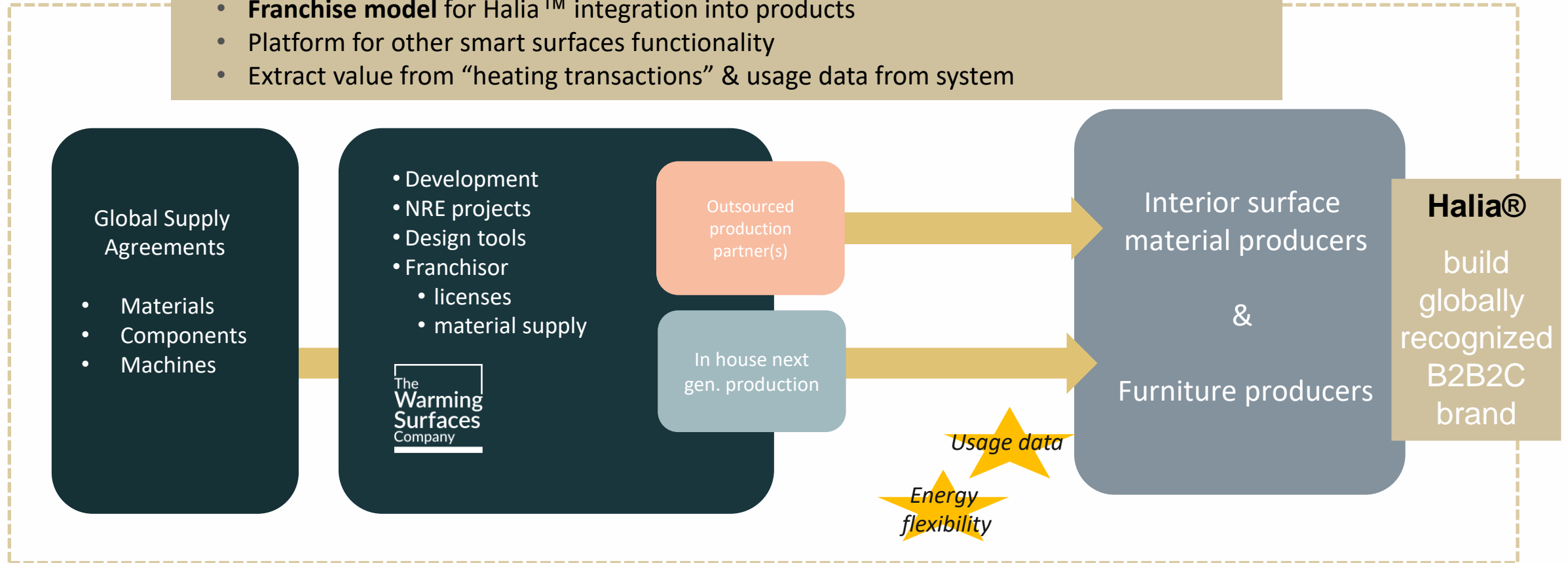


## Our Ultimate Goal

# 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





# The Warming Surfaces Company Oy

Currently raising seed round:

- target 2M€
- 800k€ allocation available

Targets 2024:

- Pilots & first customer product launches
- Halia brand
- Production up-scaling

Investors:



CM-EQUITY  
GLOBAL INVESTMENT SOLUTIONS

≥ INNOVESTOR

& 4 bus.angels (Finland, Germany, Switzerland)

# Digitalizing Warmth

## for the Age of Sustainability

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[warmingsurfaces.com](https://warmingsurfaces.com)

7 AFFORDABLE AND  
CLEAN ENERGY



11 SUSTAINABLE CITIES  
AND COMMUNITIES



12 RESPONSIBLE  
CONSUMPTION  
AND PRODUCTION



13 CLIMATE  
ACTION



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