

MYCEEN

Revolutionising
construction industry
with carbon-negative
mycelium-based
insulation panels



Fossil-based building insulation contributes to emissions in the **highest-emitting** construction industry

problem

37% of all CO₂ emissions globally
40% of energy consumption
38% of all waste generated in EU

opportunity in EU

75% of buildings are inefficient
35 M buildings to renovate by 2030
250 M m³ insulation used per year in EU



Sustainable construction materials market **grows 3x faster** compared to conventional materials

Company

Founded in 2021 in Tallinn, Estonia

Patent-protected technology

€1 M+ in funding (90% grants)

Product & pricing validated on the market:

30+ LOIs and **200+ leads** across EU

Design awards and nominations

Diverse team of **10 people**

Collaborations with **universities**
and **engineering companies**



Our **innovation** is the novel mycelium-based **insulation material** and the method for its **production**

mushroom mycelium

- infinite natural glue
- exponential growth



leftovers (sawdust)

- low-cost € 3m³
- abundant resource



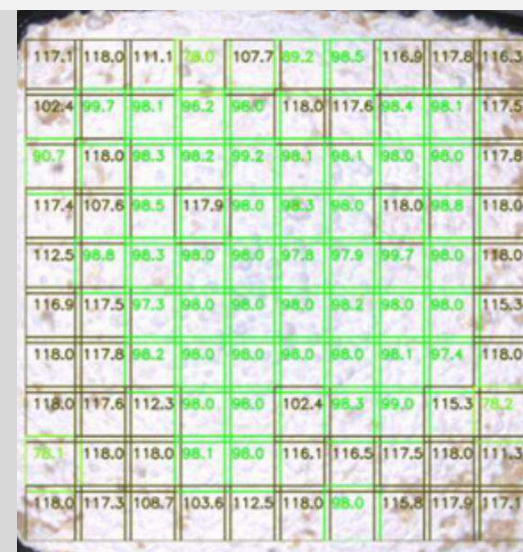
carbon-negative building materials

- 4x lower cost
- 1m³ material = -100kg/CO₂

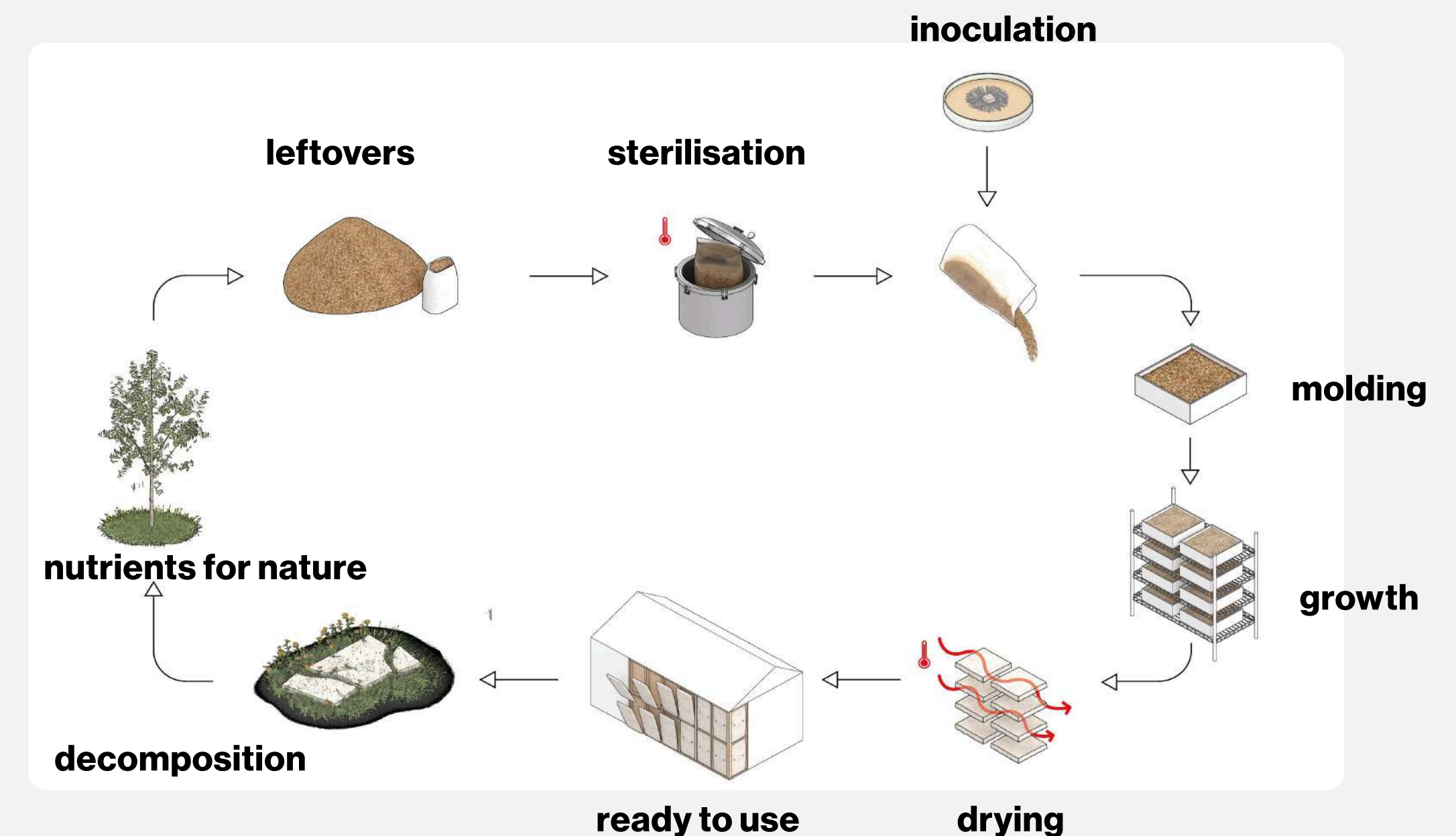


automated production tech (IP)

- energy efficient (growth at 25°C)*
- Artificial Intelligence & Machine Vision
- to reduce labor cost and increase output



We have developed a solution that **reduces the cost** of bio-based insulation by **four times**.



*energy intensive mineral wool production at 1500°C

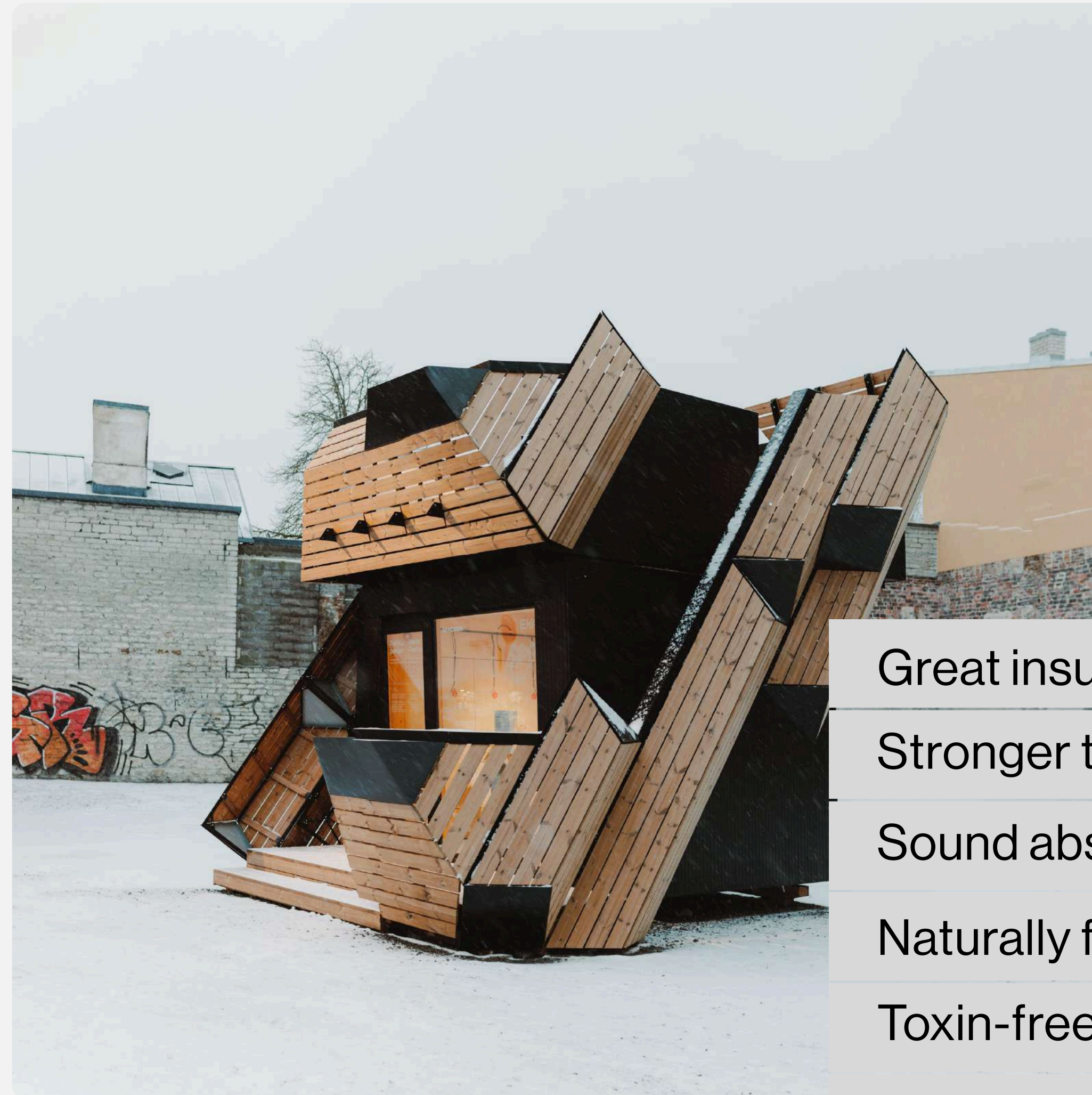
Validated in real environment, our insulation **exceeds** market **expectations**

real environment test

- **70+** sensors
- compared with:
 - mineral wool
 - wood fibre insulation
- different thicknesses
- durability
- sound insulation

results

- better stability for:
 - temperature changes
 - humidity changes
- no mold/degradation



Myceen's test house in Tallinn, Estonia



Section of test house' wall

Great insulation properties ($\lambda=0.037\text{W/m}^*\text{K}$)

Stronger than EPS (load-bearing)

Sound absorbing and blocking (high density)

Naturally fire retardant (class D)

Toxin-free, 100% safe material

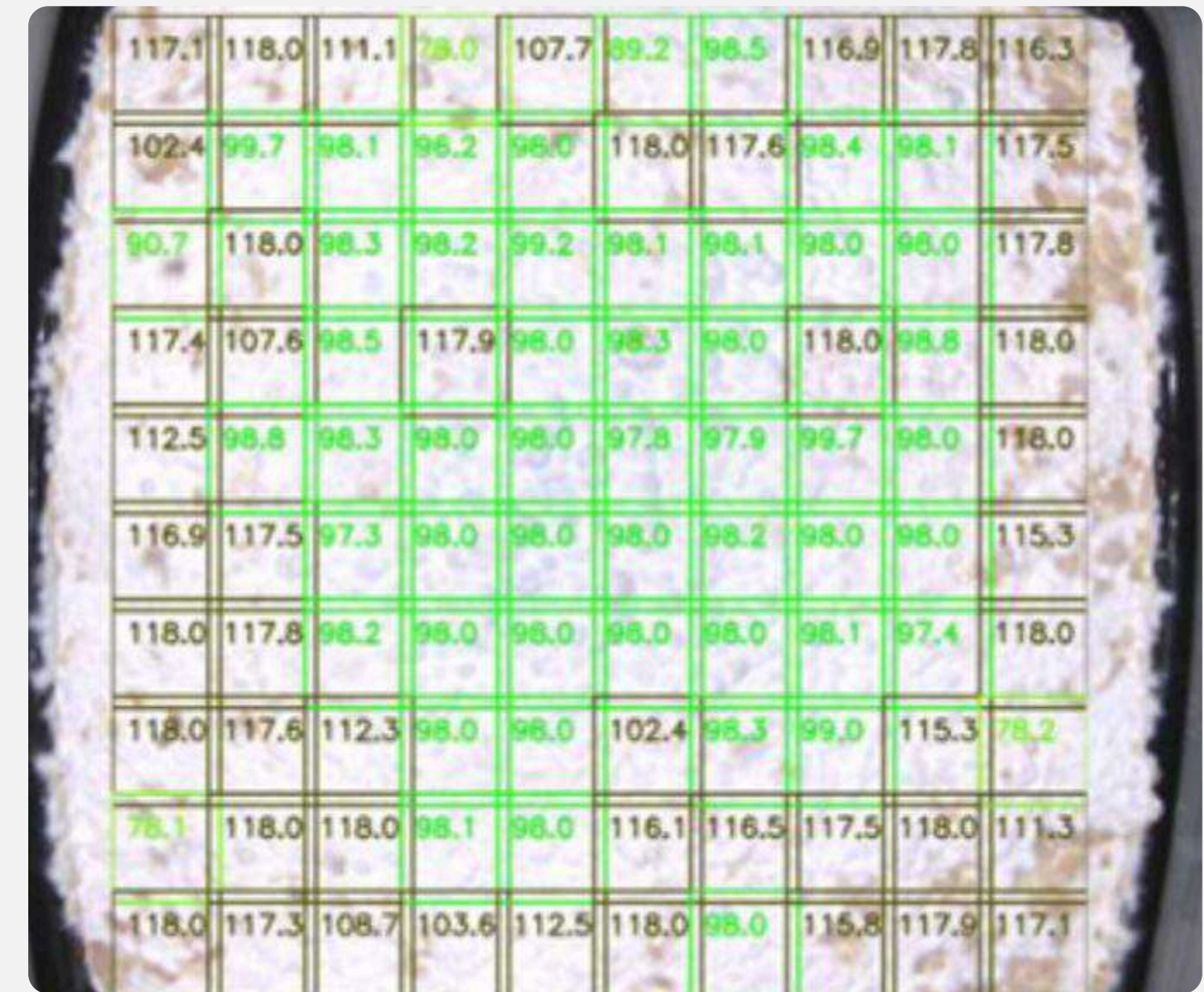
Breathable - great regulator of indoor climate

Scalable production based on own IP

production volume

3000m³
target for EIC = 40-50
houses insulated

- Unique material recipe
- 4 years of continuous material production
- Reduced defects to 1-3%
- Energy-efficient production at 25°C (instead of 1500°C)
- Automated production controls
- Patent on Artificial Intelligence & automation



Myceen's insulation outperforms market with performance and pricing due to low-cost inputs

compared to bio-based solutions:

- better fire class
- 4 x lower price
- no virgin raw materials

compared to mineral wools:

- better thermal and humidity stability and acoustics
- healthier living environment
- drastically lower CO₂

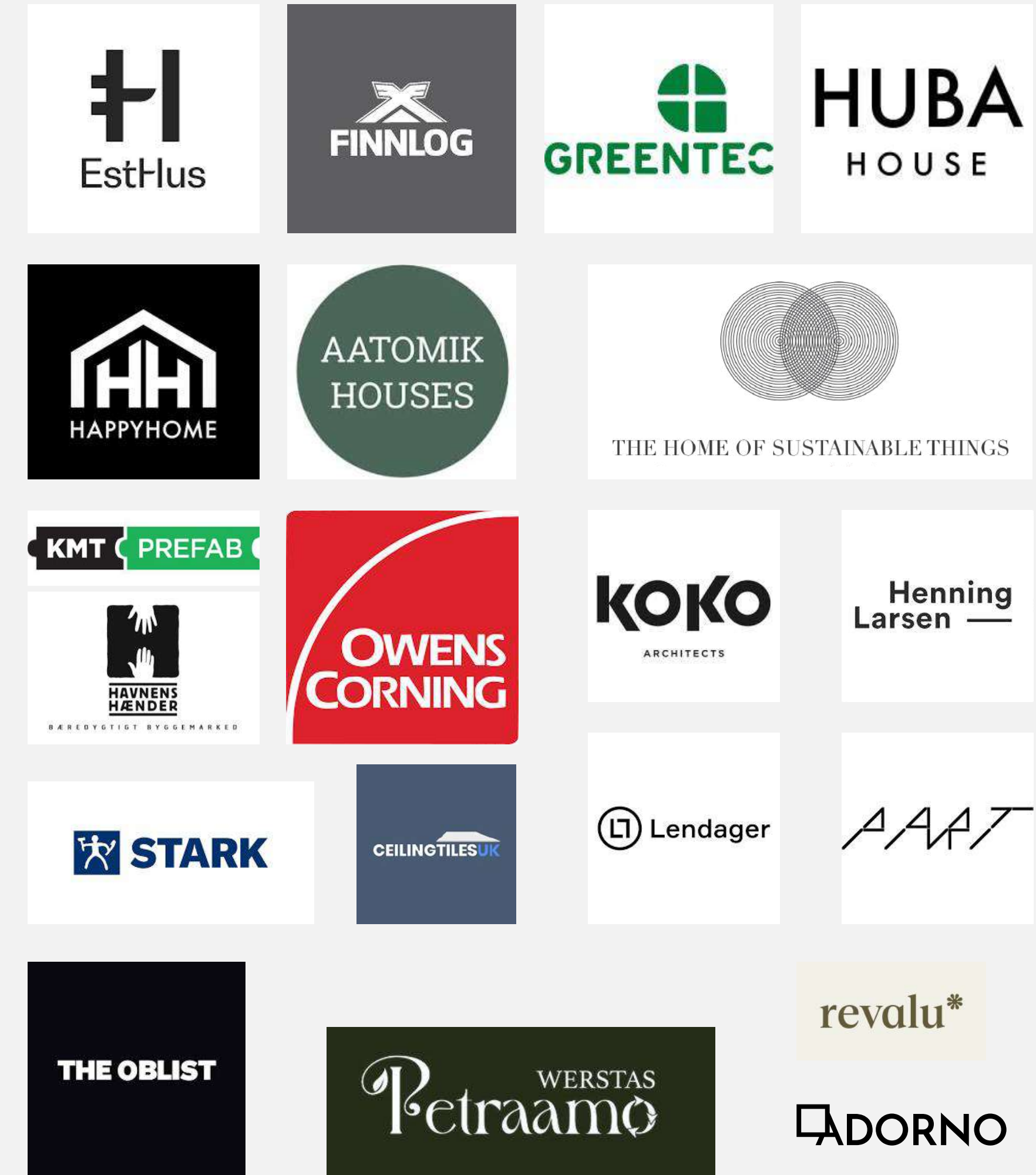
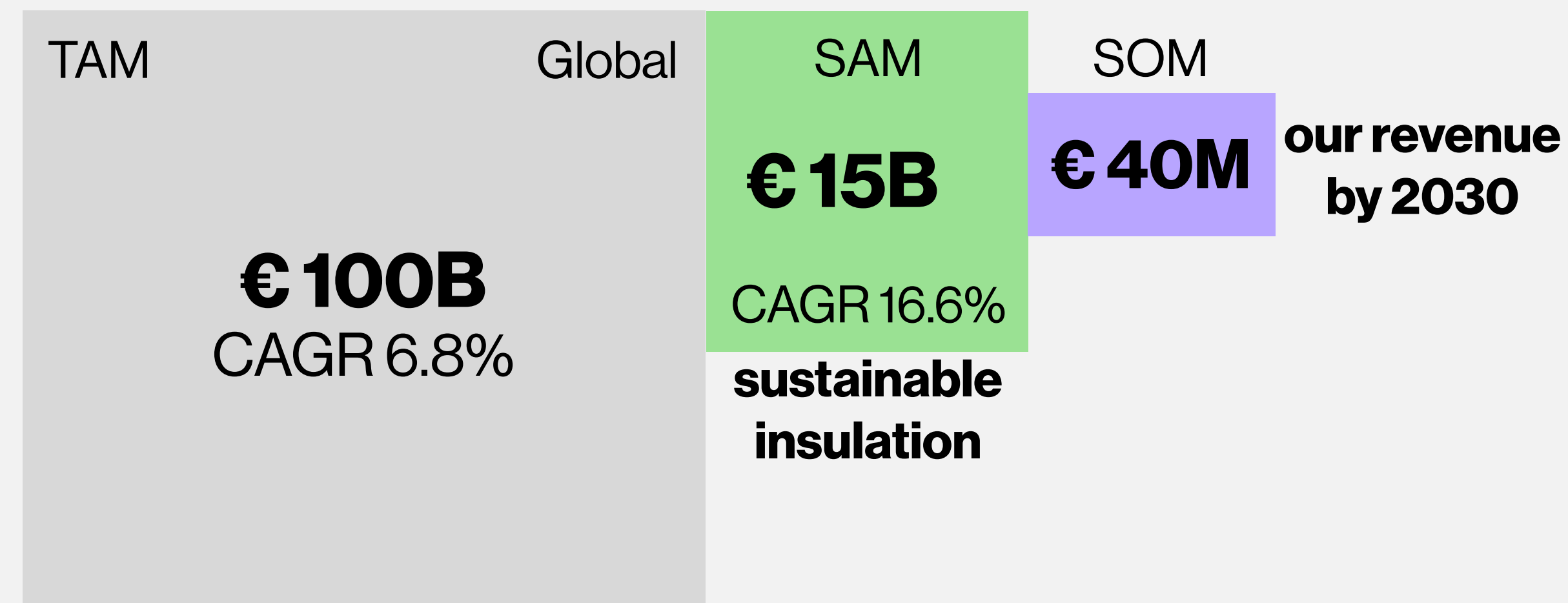
Type	Material	Density kg/m ³	Thermal conductivity λ (lambda)	Fire Class	Sustainability kg CO ₂ /m ³	Price €/m ³
Mycelium	Mycelium composite (sawdust)	100	0.037	D/B	-100	50
Bio Fibre-Based	Wood fibre (STEICO), virgin wood	140	0.040	E	-85	220
	Hemp-Jute fibre	37	0.037	E	-N/A	200
Straw	Straw elements	115	0.060	E	-100 – 50	100 - 200
Mineral Wool	Glass wool	53	0.033	A	92	40
	Rock wool	72	0.036	A	108	30
Rigid Foams	Expanded polystyrene (EPS)	17	0.030	E	71	100
	Extruded polystyrene (XPS)	30	0.029	E	225	213

Myceen's insulation brings down an average house's carbon footprint by 20% without a “green premium” price

We've **validated** our products and pricing on international **market**

- **30 LOIs** with 10 house producers and 20 architects/resellers already surpass our production capacity for the next two years.
- **200+** ongoing **leads** with resellers, house producers and construction companies further fuel the Equity scale-up.

Insulation material market by 2030



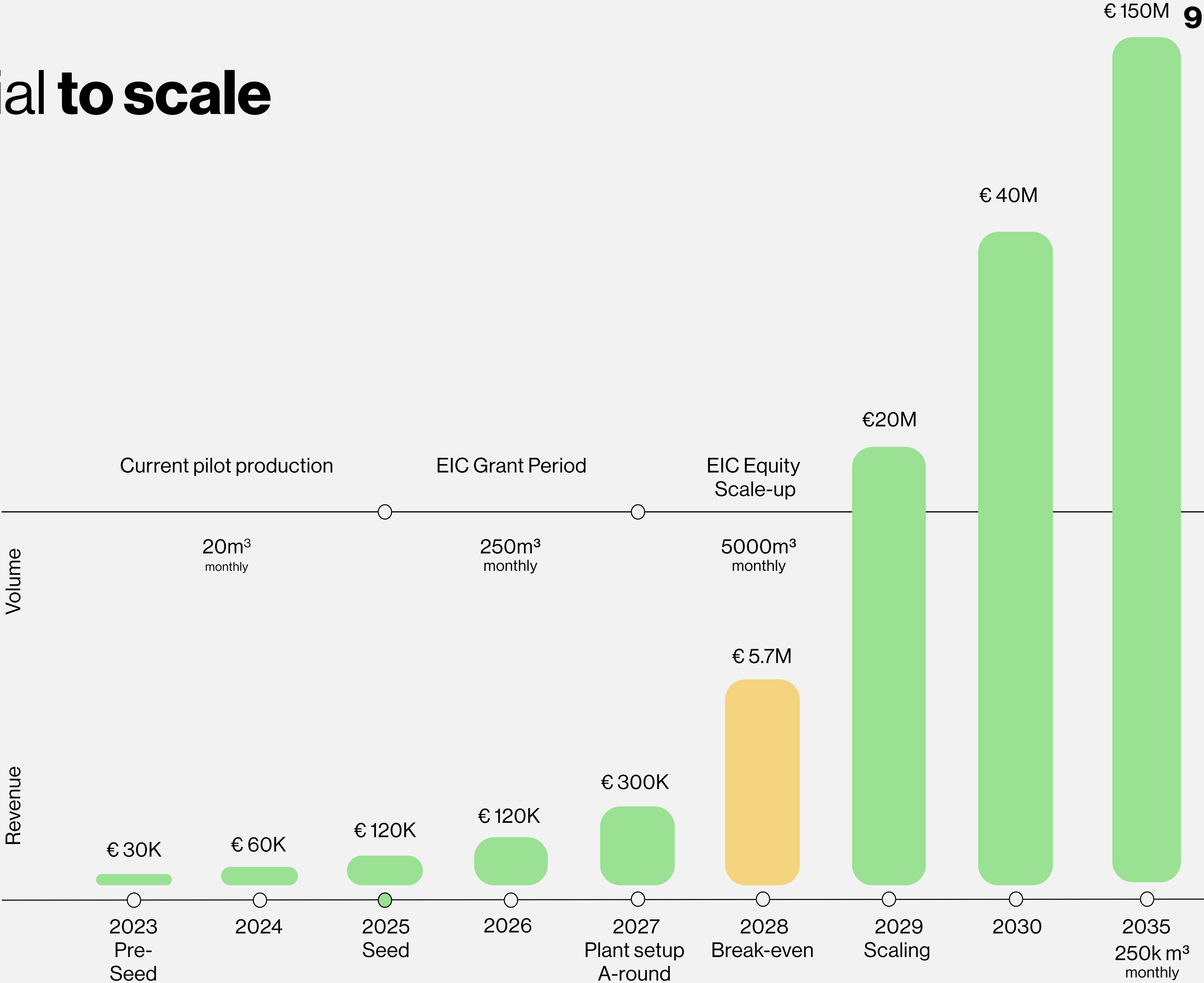
Innovation with the potential to scale

Commercialisation strategy:

B2B Customer segments:
house producers, construction companies, architects & resellers

Price: €50 per 1 m³;
average small house requires 150m³ of insulation material

First target segment:
house producers & contractors who need our material on a continuous basis
(€100-500k per client per year)



We have a **diverse team** covering key competences to commercialise mycelium-based insulation materials

SIIM KARRO

Co-Founder, CEO, Strategy,
Product R&D & Marketing



KILLU LEET

Co-Founder
Chief Scientific Officer



KARL PÄRTEL

Co-Founder - Business,
Finances & LCA



ERKIN SAHIN

CTO
Production Technology



SURYA SUDHEER

Mycelium Research (PhD)



JOONAS JÄME

Lead Automation
Engineer



PIIA JÕUL

Material Science (PhD)
Chemistry focus



SABINA TATARYTSKAYA

Material Science



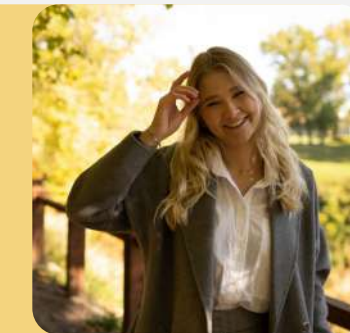
GUNNEL KALVIK

Sales & Client Manager



MARLEEN MÄEKALA

Civil Engineering



TARMO HERRANEN

Automation Engineer



10+ new FTEs:

- 3 industrial engineers;
- 1 production manager;
- 2 production employees;
- 2 logistics & operations;
- 2 marketing and sales people

supported by experienced **advisors**:

MAREK MARDISOO

EstHus
Product Development
Prefab House Producer



GARY URB

UP Catalyst CEO PhD
Factory setup, material
science, scaling



ILMAR NORVIK

Owens Corning
Corporate & Market
Strategy, Distribution



MARTIN REBANE

Science Park AI Lead, PhD
AI & Machine Vision,
Engineering



Our development is supported by a wide **network** from **academia to industry**:



REPUBLIC OF ESTONIA
MINISTRY OF CLIMATE



EIC funding enables us to set up a **fully automated** production line, paving the way for the launch of our **commercial** activities

Where we are **today**?

- First funding raised
- Materials successfully lab tested with ISO standards and in real environment
- 1st test house built in Estonia, 2nd will be set up in Italy
- Semi-automated production capacity 20 m³ per month
- Continuous engagement with prefab house manufacturers, architects, resellers
- First patent filed

R&D: EIC grant €2,5M + €1M own financing

- Establishing fully automated production line; target 2500-3000 m³ per year,
- Deliver commercial capacity of insulation material for 10 house producers, 40-50 housing projects
- Reduce manual work in production process by 90%
- Further IP protection
- TRL6 to TRL8
- De-risk our technology

Scale-up: EIC equity €3,25M + €3,25M from VC

- Reach break-even at €5.7M in 2028
- Increase production capacity 20x
- Follow-up R&D for new mycelium-based products
- 60 000 m³ of leftovers valorised per year and 10 000 tons of CO₂ saved

With our **healthy** and **affordable insulation materials**, we will **transform** the construction industry toward **net zero**.

With EIC we can achieve this change by 2030

Insulate 7500 houses sustainably per year

Store and avoid 12 mln kg of CO2

Valorise 740 000 m3 of leftovers and save virgin raw materials

Create over 150 multidisciplinary jobs in Europe in a novel field

Expand to 3 EU countries with our manufacturing for pan-European distribution

Help EU meet its Green Deal, Renovation Wave, Circular Economy, and many other targets

