PLUG AND PLAY

NEW MATERIALS & PACKAGING EXPO

SV SUMMIT

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OPENING REMARKS

#PNPTCSiliconValley

Join us at **pnptc.com**

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Robert Grey

Director, Sustainable Future

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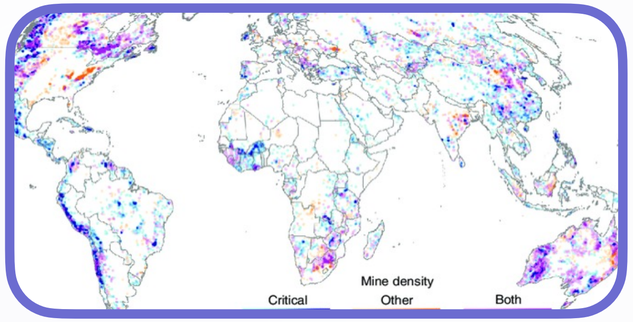
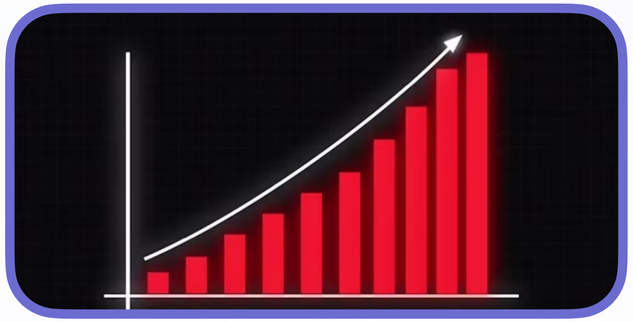
MACRO MATERIALS LANDSCAPE: FOUR SHIFTS AT ONCE



Resource Nationalism & Supply Concentration

New Demand Vectors (AI, Data Centers, Defense)

Decarbonization: Uneven but Growing Driver



Investment Gap: Trillions Needed

Source: McKinsey "Global Materials Perspective 2025"

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OUR FOCUS AREAS: SMART & CIRCULAR

Advanced Packaging Materials and Technology

- CANOVATION
- EVOXIA LABS
- N&E INNOVATIONS PTE LTD
- TerraSafe™

AI x Materials

- CeeGreen — Safer Chemistry → Smarter Compliance → Strategic Growth
- MATCHED MATERIALS
- XTRIUM™

Next-Gen Performance Materials

- 4th State Energies — PLASMA ENABLED SOLUTIONS
- HAZE CANADA
- SINOVIA TECHNOLOGIES

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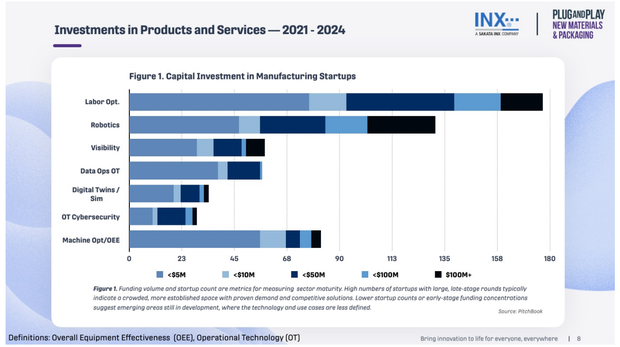
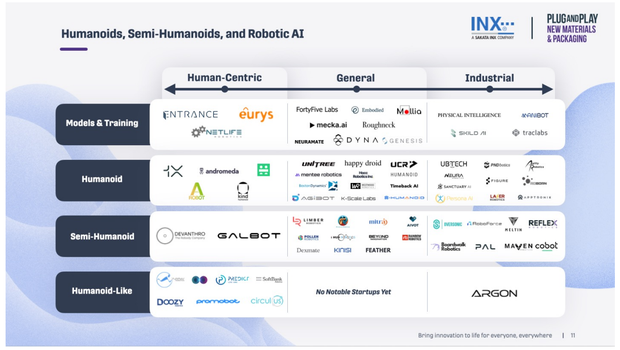
INX INNOVATION DAY: AI IN MANUFACTURING

Trend Presentation

Themes: Knowledge Management, Connected Workforce, Digital Twins





Panel: Corporate Perspective—How AI is actually being deployed

Corey Francer
Analyst
NAPCO Research

Shane Bertsch
SVP, Innovation & Strategy
INX International

Peter Kushnieruk
OEM Sales Manager
Global Graphics

Case Study: Enabling Smarter Operations

Brandon Mendoza
VP Sales & Customer Experience
Oden Technologies

Owen Dayoub
Sr. Customer Success Manager
Oden Technologies

Trend Presentation

Gabriel Mickel
Corporate Partnerships Manager, Materials
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PEPSICO ECOSYSTEM ROUNDTABLE: INNOVATIVE, NON-PLASTIC PACKAGING MATERIALS

Opening Remarks

Erin Rohler

R&D Manager, External Innovation Technology Scout

PepsiCo

Roundtable Moderation

Alex Davisson

Sr. Ventures Associate

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Pitching Startups

Kumu

Transforming food, plants, and minerals into plastic alternatives

GOEco

A Sustainable Barrier Material for Paper-Based Packaging

PACK2EARTH

Robust materials from plants, minerals & agrifood side streams to replace fossil-based plastic

cilkoa

Enable all packaging to be 100% renewable, 100% recyclable, home compostable

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TODAY'S AGENDA

Opening Remarks

Keynote: Sean Bruce

Startup Presentations

Fireside Chat: Mondi Group

Trends Presentation

Startup Presentations

Closing Remarks

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FIRESIDE CHAT

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FIRESIDE CHAT: PARTNER SPOTLIGHT

Stephan Laske

Head of R&D Consumer Flexibles
Mondi Group

Gabriel Mickel

Corporate Partnerships Manager
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STARTUP PRESENTATION

XTRIUM™
Where materials meet applications

XTRIUM

XTRIUM is an AI platform that matches underutilized materials to new high-value applications—helping companies unlock revenue, find sustainable substitutes, and derisk supply chains.

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XTRIUM: Bloomberg for Materials

Discover new applications

Materials
(Manufacturers/Suppliers)

connect

Applications
(Users/Product Devs/Buyers)

Mitigate supply risk

Open new markets +
Revenue streams

Find alternate materials

Search, match and connect in minutes instead of months

Perfect Blend of Experience

Malur Narayan

Co-Founder & CEO

25+ Yrs-Tech, AI/ML

Wireless, SEMI, IT

3X founder AI startups

Scaled B2B to $600M

Dr. Sirisha Kuchimanchi

Co-Founder & Chief Business Officer

20+ yrs Semiconductor Manufacturing

Ph.D CMU. Material Science

Managed $1B SEMI Supply Chain Automotive

Raghunandan Mathur

Co-Founder & CTO

17+ Years in AI, HPC, Quantum

Embedded Systems Engineer

Led deployments with DoD, DoE, NASA

We spoke to over 50 companies…

Key Pain Points

Application discovery is manual, expensive

>9 months, >$1M. → Missed Opportunities

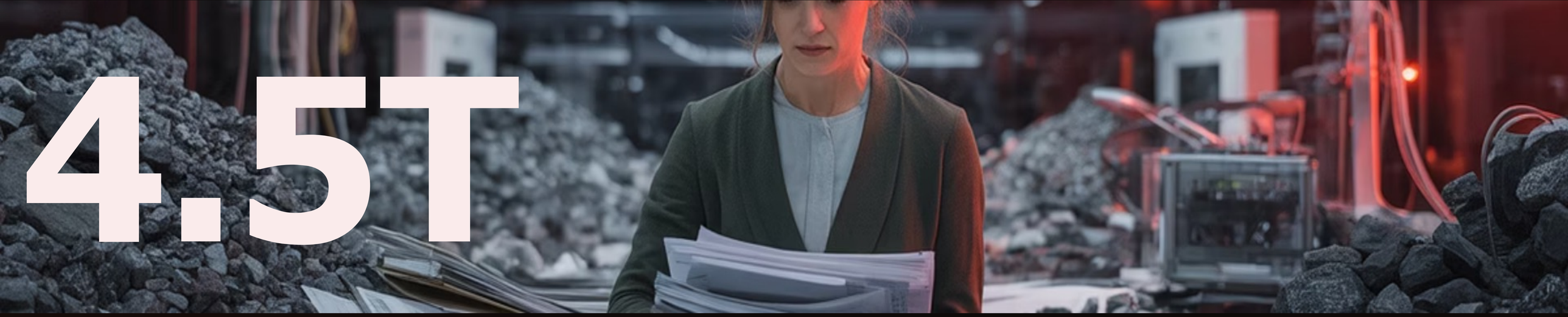
Identifying substitutes is complex

Sourcing and Supply risk → 14 month delays

Connecting with buyers & suppliers

Siloed data; Tedious & Time consuming

Lacks Market Intelligence



Underutilized Materials : **$210B** missed opportunity

5.4M

Global Manufacturers

$19B*

Target Addressable Market from 17K Companies >$100M Rev in Aerospace, Semi, Electronics

16.3%

Annual growth

Source Statista 2025
Source: Bain, McKinsey, MIT

How XTRIUM works

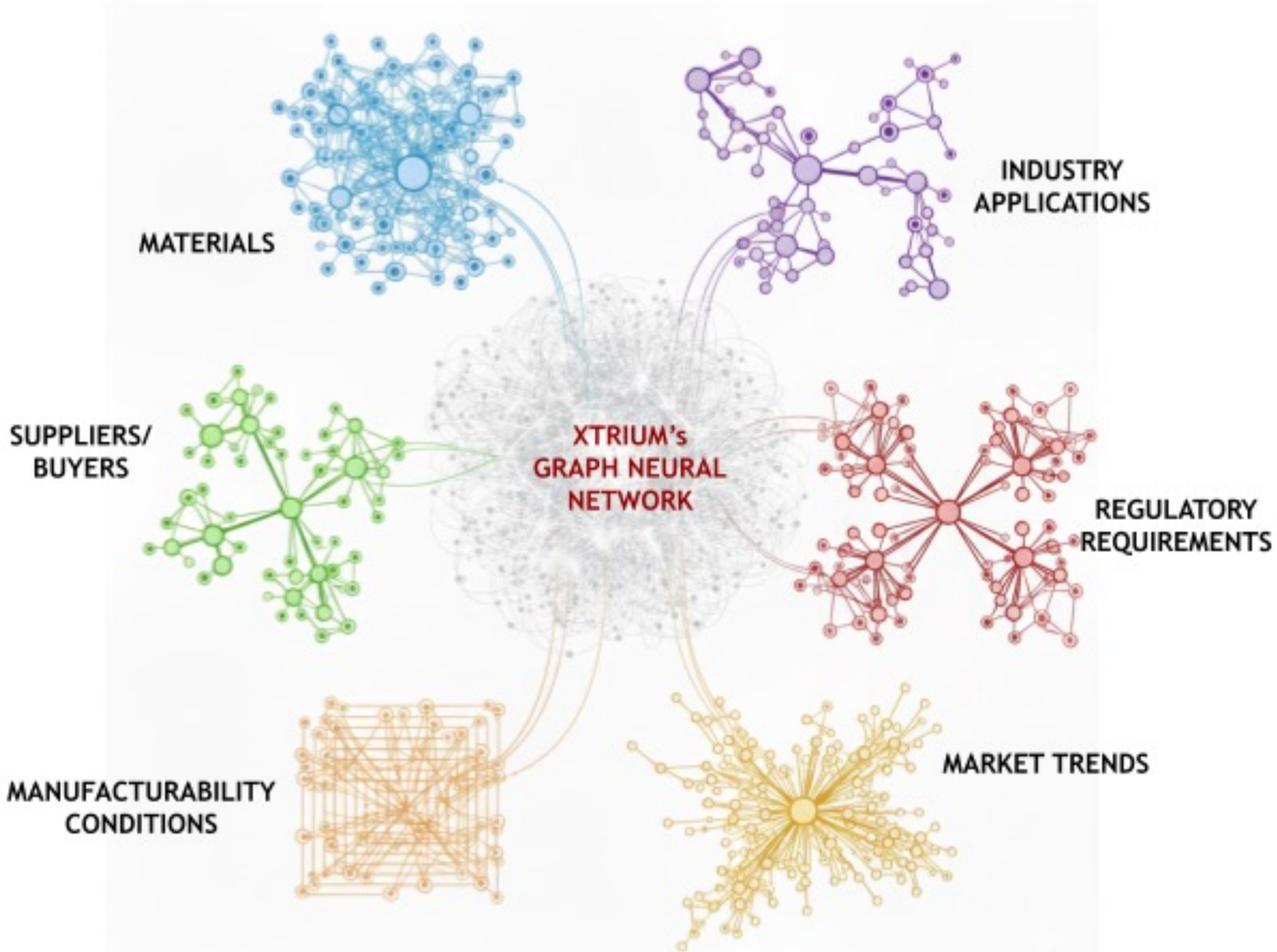
1. Combinatorial Semantic Resonance

Identifies where a material's properties align with application requirements

2. Coherence Maps

Tests matches for feasibility, constraints, and viability

Materials Intelligence



Quantitative AI Query Engine

Graph Neural Networks, Combinatorial, Coherence

Analyze millions of material-property combinations

Instant Accurate Ranked Matches

AI Agents: Supply-Demand Info

Cut R&D cycle by 40%, sourcing cycles by 1/3

Cross-Industry Matches

Aerospace to medical

ICPs: R&D Innovation, Market Dev, Sourcing

Business Model

B2B SaaS

$50K-$300K

Entry Tier

Enterprise Tier

+

Supply-Demand Intelligence

Sourcing fees

2026 Target

$50K x 20 = $1M ARR

GTM: Early adopter Pilots + Key Industry Partnerships

Strong Early Traction

1M+
Materials

2K+
Applications

2B+
Matches

Partnerships*

3
Pilots/POCs

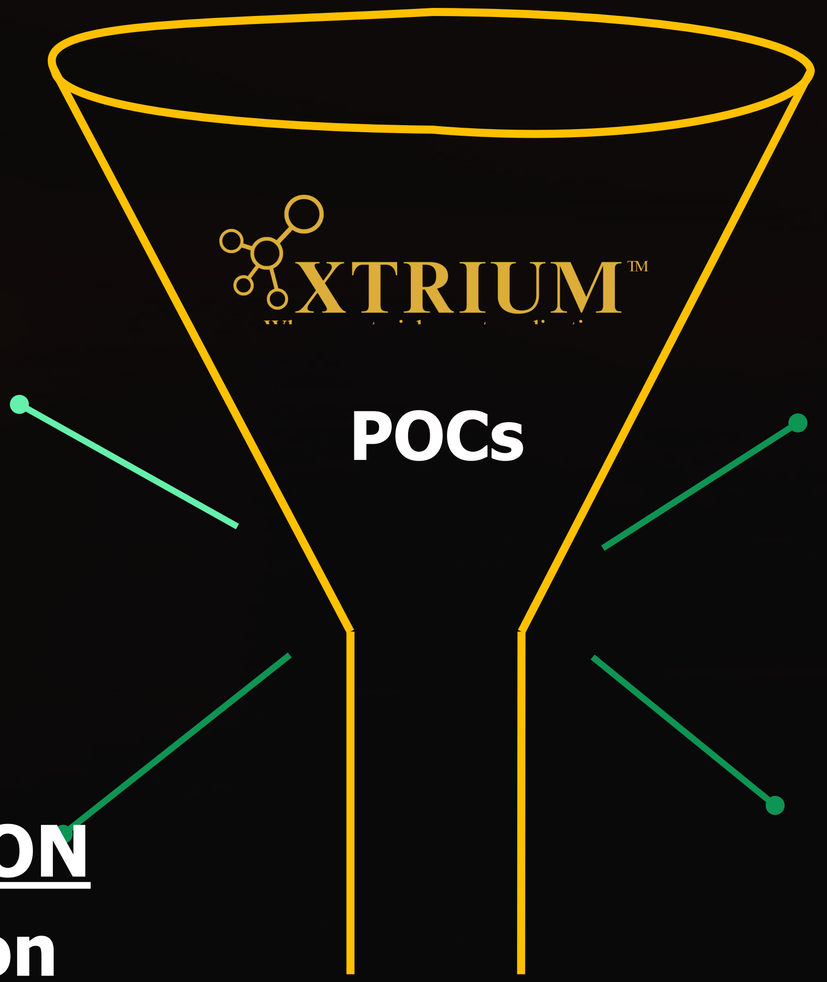
+5*
In active discussions

3
Investors

KM Energy FZCO

Use Cases

NEW APPLICATIONS
20x faster, 3x options



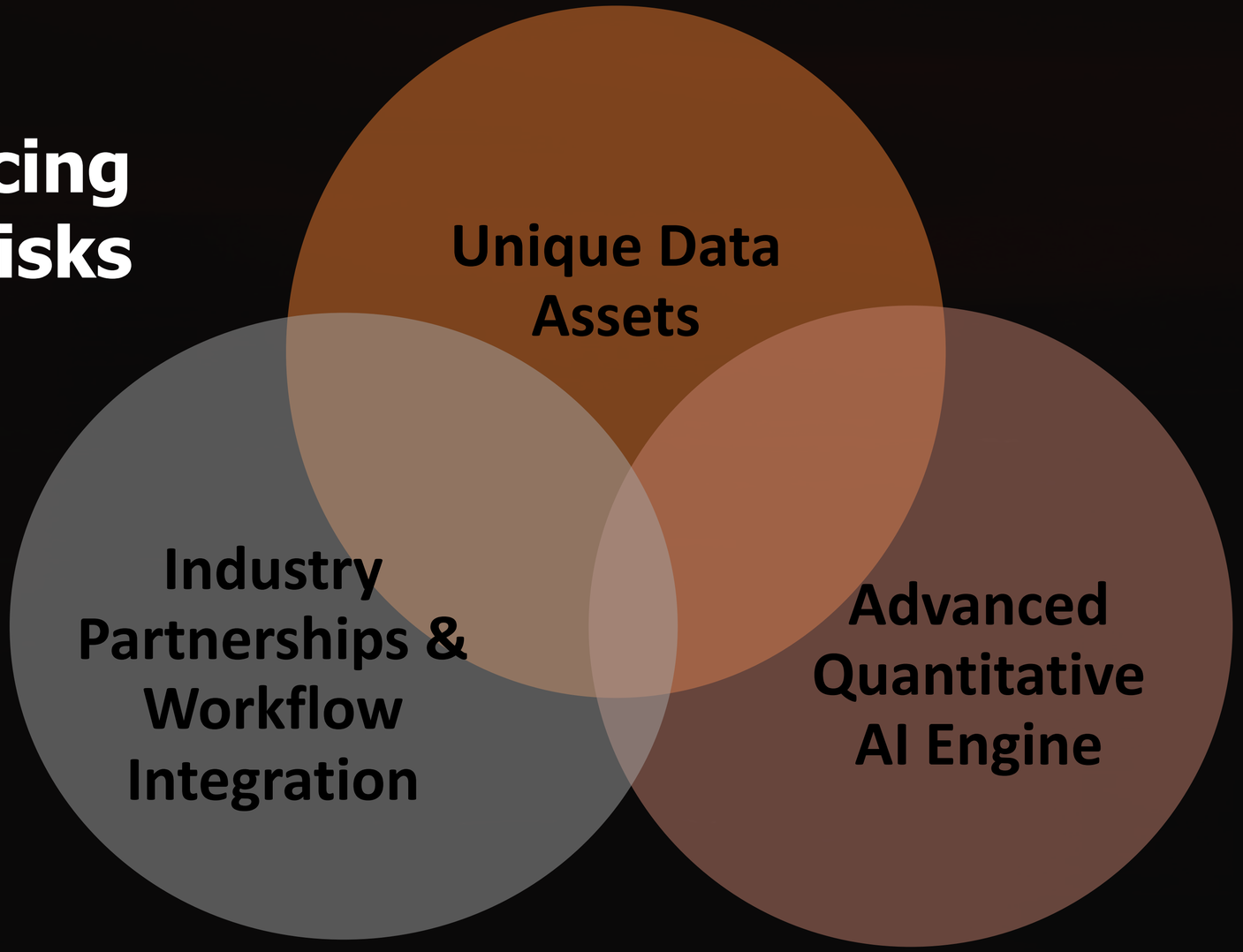
Critical MATERIAL DIVERSIFICATION
3x vetted sources

R&D ACCELERATION
70% TTM reduction

FEEDSTOCK Materials

Why Now? Why us?

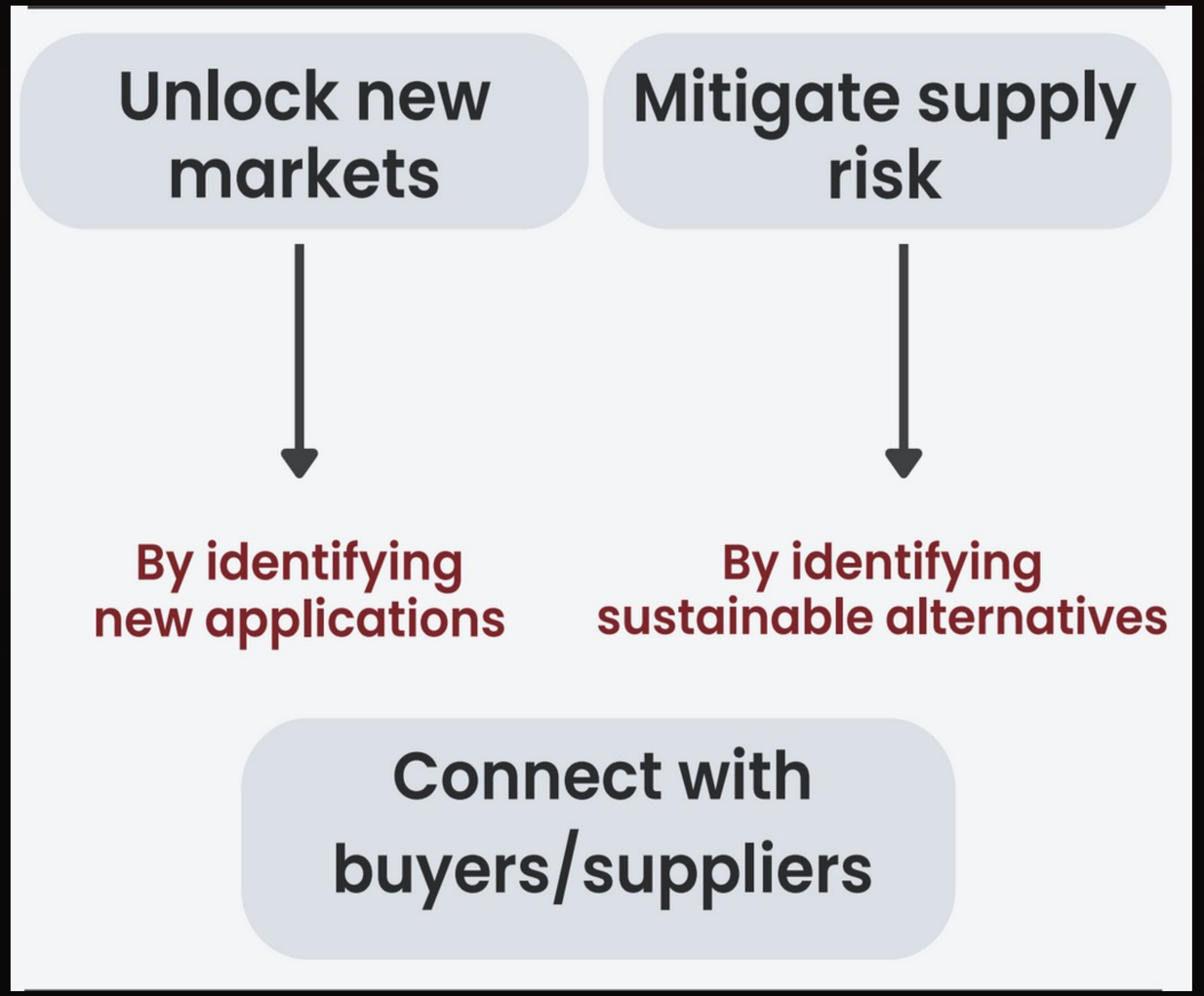
- ✓ Critical Material Sourcing
- ✓ Costs, Supply chain Risks
- ✓ Tech/AI maturity



XTRIUM™

Smarter Material Decisions. Faster.

Get more out of your materials



XTRIUM.ai

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MATCHED MATERIALS

Matched Materials AI

Leveraging machine learning and AI to accelerate the new materials economy.

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Join us at **pnptc.com**

MATCHED MATERIALS

A formulation intelligence company leveraging machine learning & AI to unlock the new materials economy.

November 2025

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Just 9.5% of plastic made in 2022 used recycled material, study shows

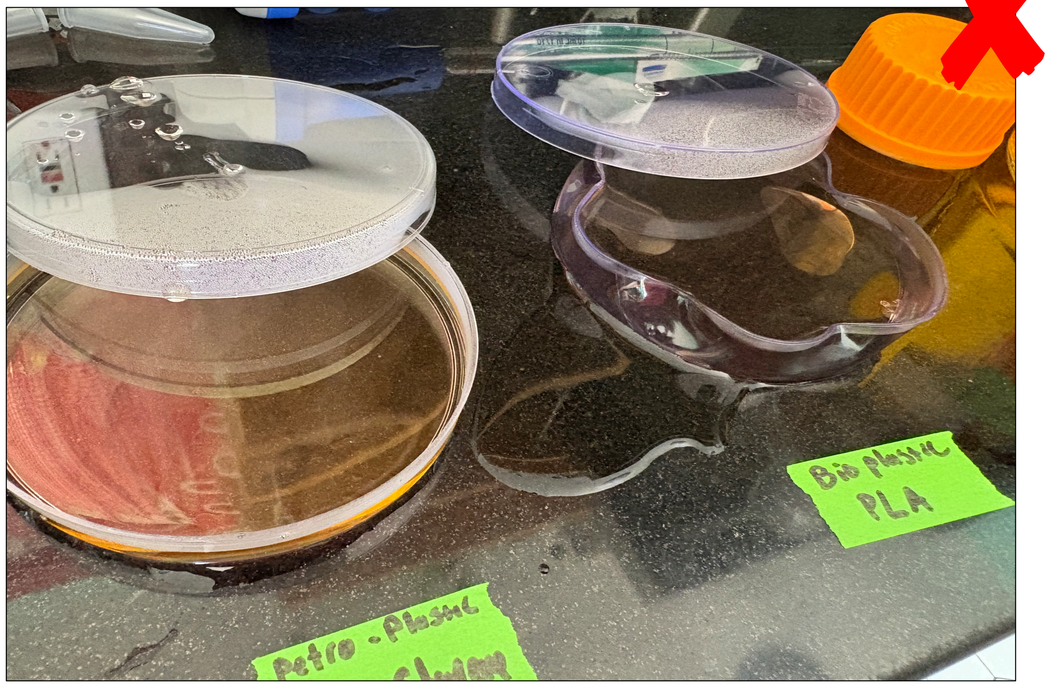
Global research reveals most of 400m tonnes produced using fossil fuels, predominantly coal or oil

... and the % rate in sustainable material use remains the same.

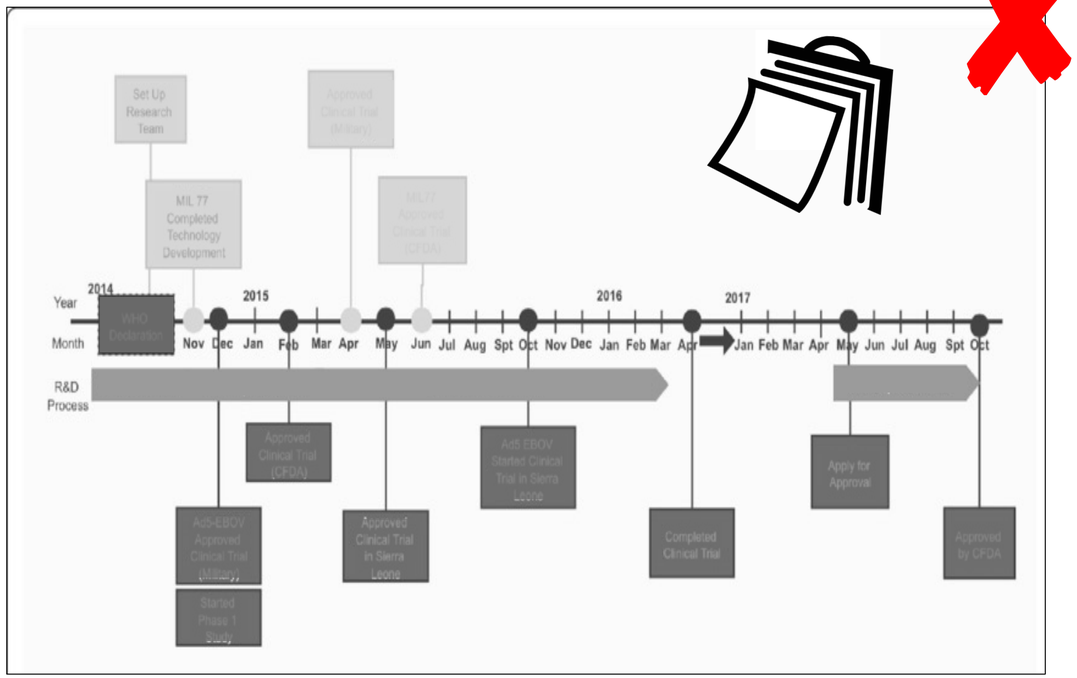
MATCHED MATERIALS

More sustainable materials formulations are possible but **R&D approaches today don't work**.

Decreasing % virgin plastic or using bioplastics is <u>costly</u> & <u>less performant</u>



Slow, high opportunity cost with 15-18mo. in upstream R&D alone creates lack of impetus



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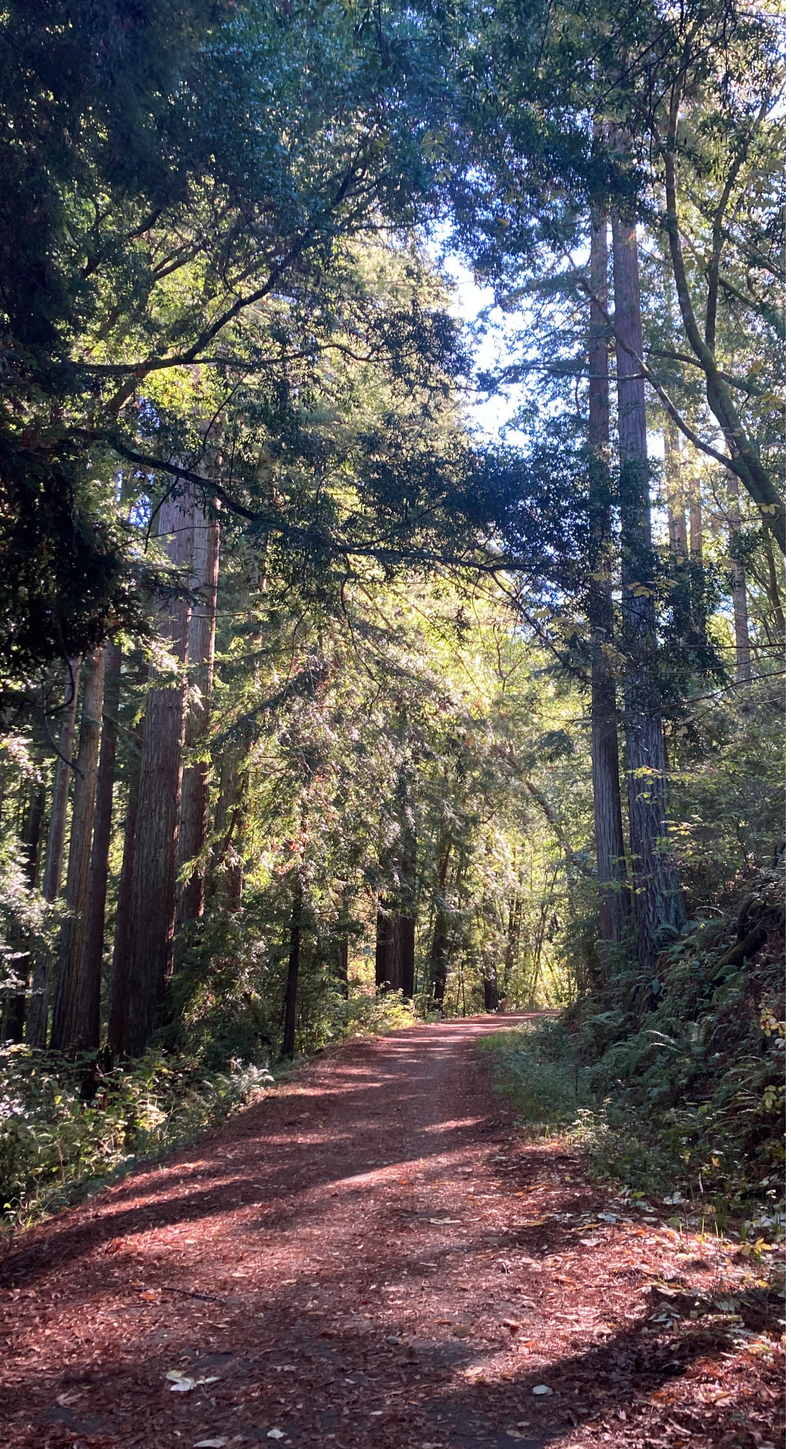

MATCHED MATERIALS

If you see an opportunity to partner, please reach out.

Daniel@matchedmaterials.com
Kati@matchedmaterials.com

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N&E Innovations

Solving the world's toughest problems in Food, Medical & Hygiene using our patented upcycled food waste technology.

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N&E INNOVATIONS PTE LTD

Winners Of:

SINGAPORE ENVIRONMENTAL ACHIEVEMENT AWARDS

SINGAPORE APEX CORPORATE SUSTAINABILITY AWARDS

Vikang is our super additive made from food waste

> make sustainable food packaging to increase shelf life 2x

> used in HoReCa, Food Services & more

Problem

2.5 Billion tonnes

of Food waste is generated
$1 trillion economic loss

9.3 Billion tonnes

of CO2e emitted

What If Food Waste Could Be Part Of The Solution?

Our all-natural additive made from Food Waste: ViKANG

Versatile and can be embedded into many applications for new materials

World's FIRST antimicrobial made from Food Waste

FOOD GRADE

REACH COMPLIANCE

SGS

NON TOXIC

PATENTED PATENTED

CAS
A division of the American Chemical Society

2703796-11-4

N&E INNOVATIONS PTE LTD

Vikang Antibacterial Food Packaging Plastics

World’s First Antibacterial Food Packaging to Extend Shelf Life

Platform technology: Vikang confers antibacterial property to any plastic packaging

99.9%

Antibacterial

100%

Food Safe

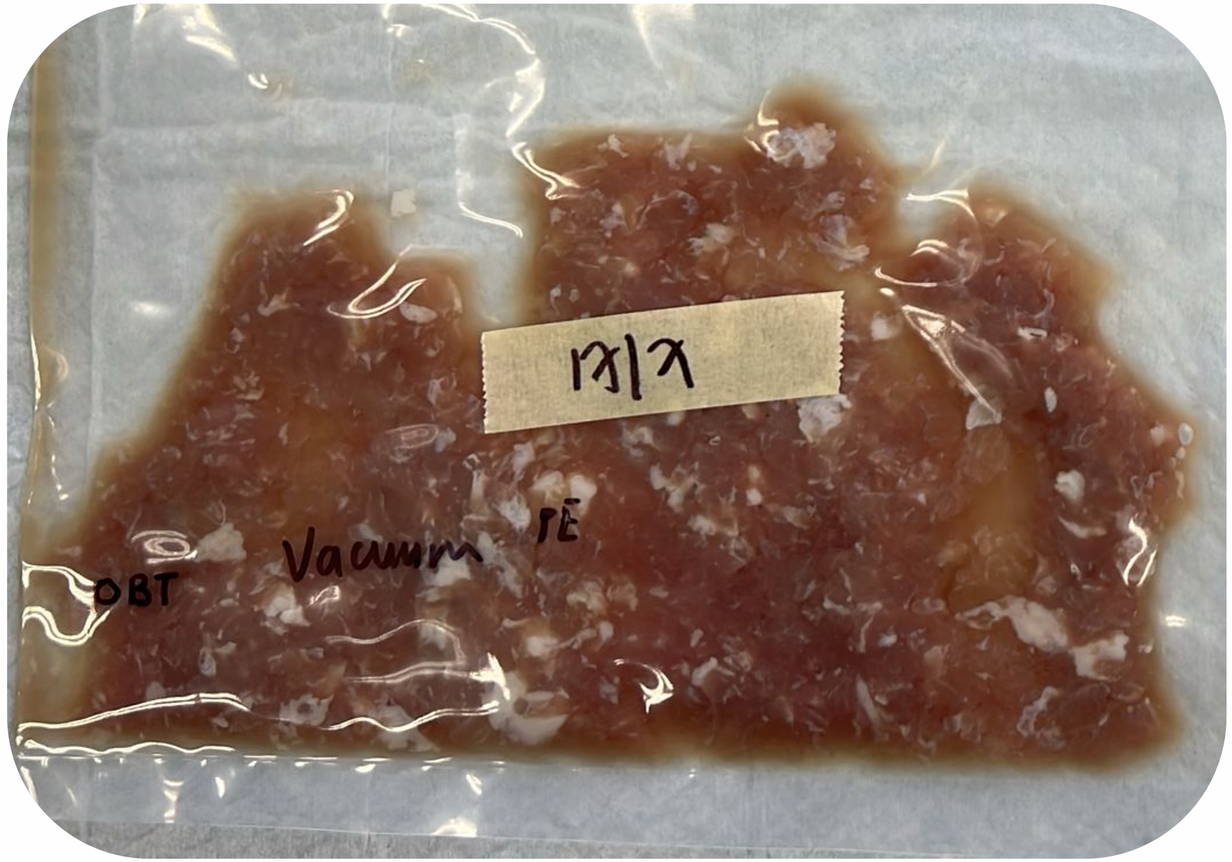
Biodegrades faster

Sold over 50K units
30% less carbon emissions
>1M Carbon savings to date

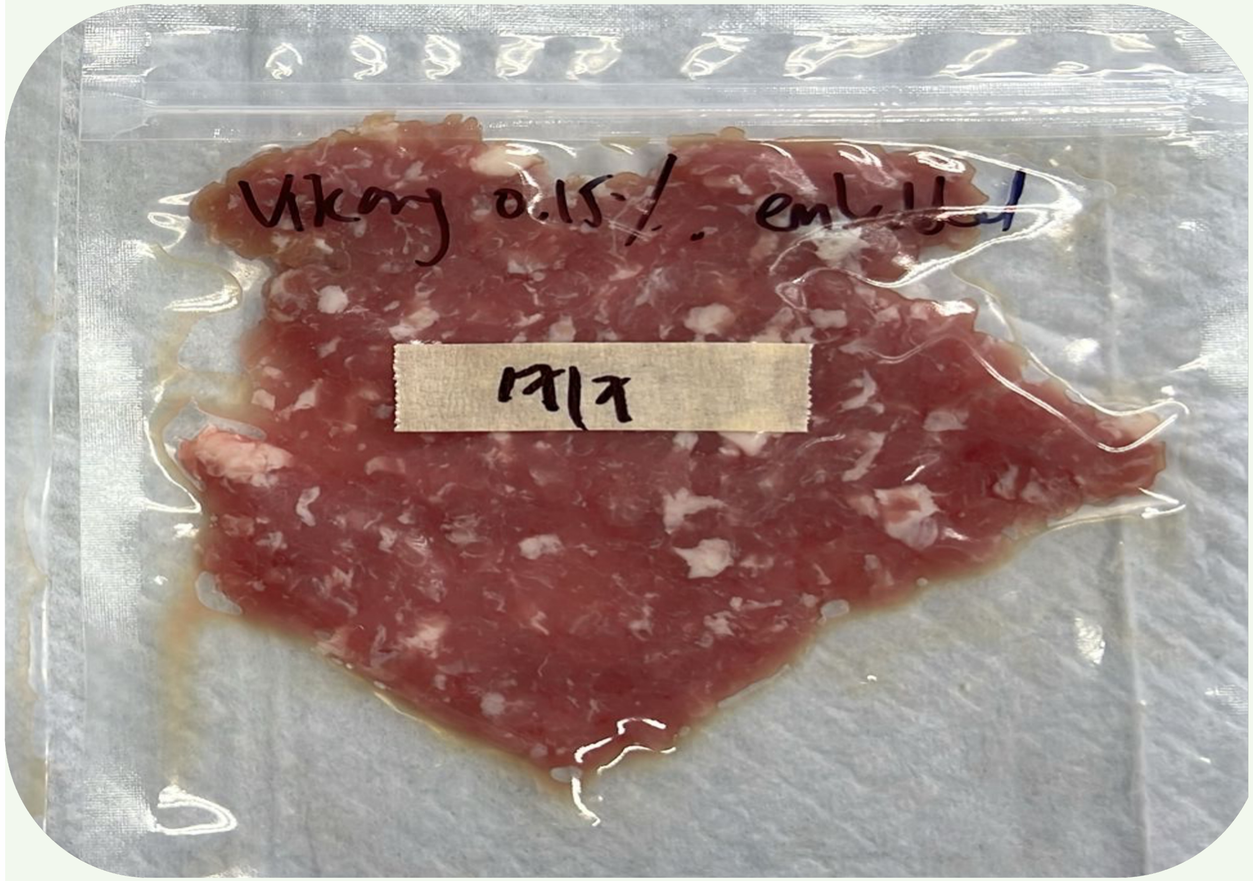
N&E INNOVATIONS

Vikang Antibacterial Vacuum bags

Day 4



Normal vacuum bag
Smells sour, off colour
2 days shelf life



Vikang vacuum bag
Smells fresh, maintains colour
4 days shelf life
Less waste = More sellable units

Vikang Antibacterial Packaging

Day 10

Normal packaging

Vikang packaging

GTM

Antibacterial

N&E INNOVATIONS PTE LTD

- 99.99% Antibacterial
- 2x stretchy
- Thermostable

Cheap

Expensive

SKP

GLAD

N&E INNOVATIONS PTE LTD

Our Vikang products have the right certificates

Sample Name : CLING FILM
The above sample(s) and information were provided by the client.

This report is to supersede test report TSNML2303166201

SGS Job No. : TJPL2311002231(SUZIN2311003432PL01) - TJ
Date of Sample Received : 17 Nov 2023
Testing Period : 17 Nov 2023 - 23 Nov 2023
Test Requested : Selected test(s) as requested by the client.
Test Method(s) : Please refer to next page(s).
Test Result(s) : Please refer to next page(s).

Result Summary :

Test Requested	Conclusion
FDA 21 CFR 175.300-Total extractives	PASS

Signed for and on behalf of
SGS-CSTC Standards Technical Services (Tianjin) Co., Ltd.

Reabeca Zhou
Approved Signatory

Scan to see the report
Verification: check.sgsonline.com.cn

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intertek
Total Quality. Assured.

N&E INNOVATION PTE LTD

TEST REPORT

SCOPE OF WORK
Test conducted according to the request by applicant for:
1. Anti-bacterial Activity Assessment

REPORT NUMBER
SINH24800497

ISSUE DATE
22-Oct-2024

PAGES
9

DOCUMENT CONTROL NUMBER
GFT-OP-10h Non-SAC (8-July-2020)
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GreenLabel SINGAPORE

The Singapore Environment Council hereby grant

N & E Innovations Pte Ltd

9 Chin bee Drive, #03-01, Innovate 360. Singapore 619860

the right to use the Singapore Green Label for

C2+ ALL-NATURAL ALL-SURFACE DISINFECTANT
066-010-3887
Environmentally Preferred Surface Cleaners

(In accordance to SEC Green Label Category 66: Surface Cleaners)

Validity: 06 August 2023 to 05 August 2025

REACH

99.9% Anti-bacterial

Green Label

A huge opportunity for Antibacterial Plastics

US$380 B

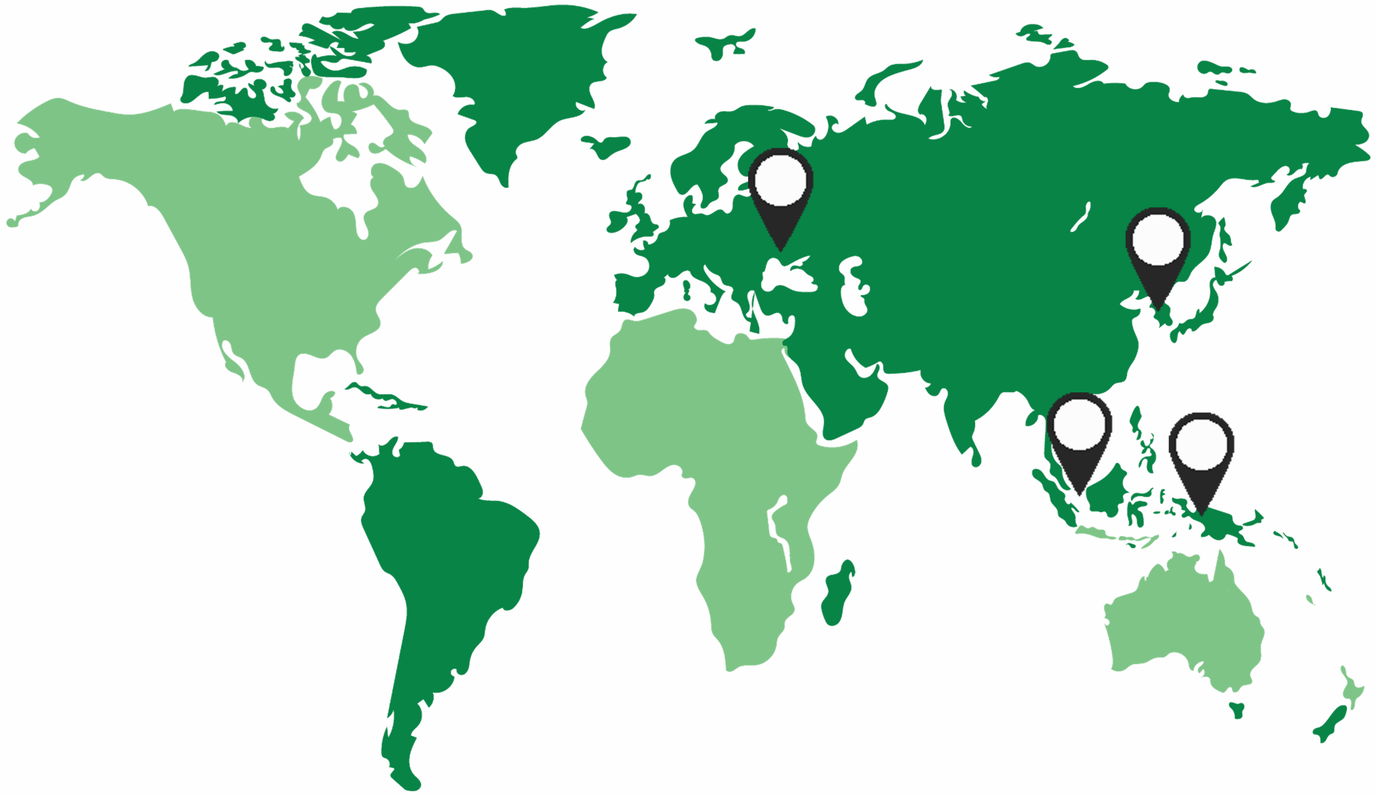
Global plastic packaging

2,000 M+

Cling wrap rolls used globally[1]

US$23 M

Serviceable Obtainable Market by 2029[2]



1: Statista & Internal model

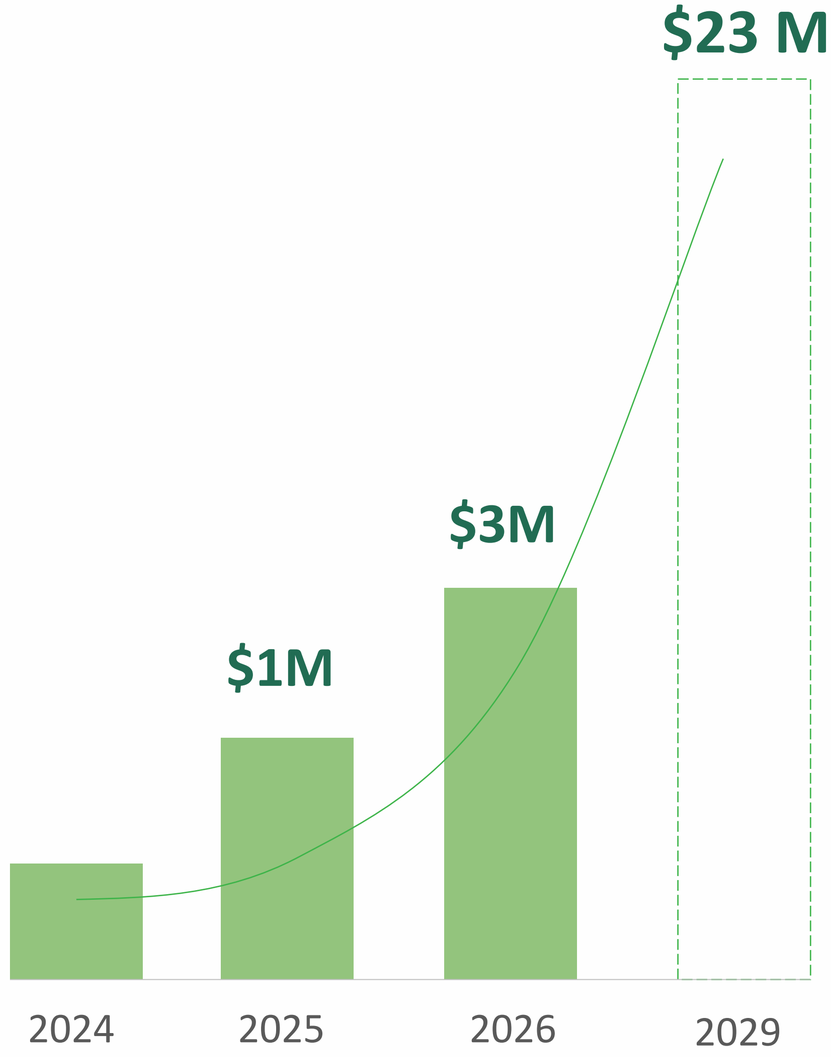
2: Saudi, Dubai, SG, Malaysia & Indonesia at 0.50% market share

Traction: 1M since August 2024

US$2.5 million

Total revenue to date

Technology licensed to:



Our Ask

Supermarkets & Packing Houses

Distributors

Asia, AU, EU, UAE

Fundraising
USD 3M Series A

Team

Dr. Jaslyn Lee
CTO
>1,600 citations

Didi Gan
CEO
S$60M sales

Seasoned global directors & advisors

Remi Choong
Elev8

Minjie Yu
Cercano

Dale Hudson
Advisor to >100 CEOs

Ariel Furst
MIT

Join us on our 2030 Mission

10,000 Tons of Food Waste
250,000 Tons of CO2e

2 Tons of Food Waste
50 Tons of CO2e

didi.gan@vi-kang.com
jaslyn.lee@vi-kang.com

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SINOVIA TECHNOLOGIES

Sinovia Technologies

Printed Light Film: high quality, custom OLEDs. Printed like newspaper.

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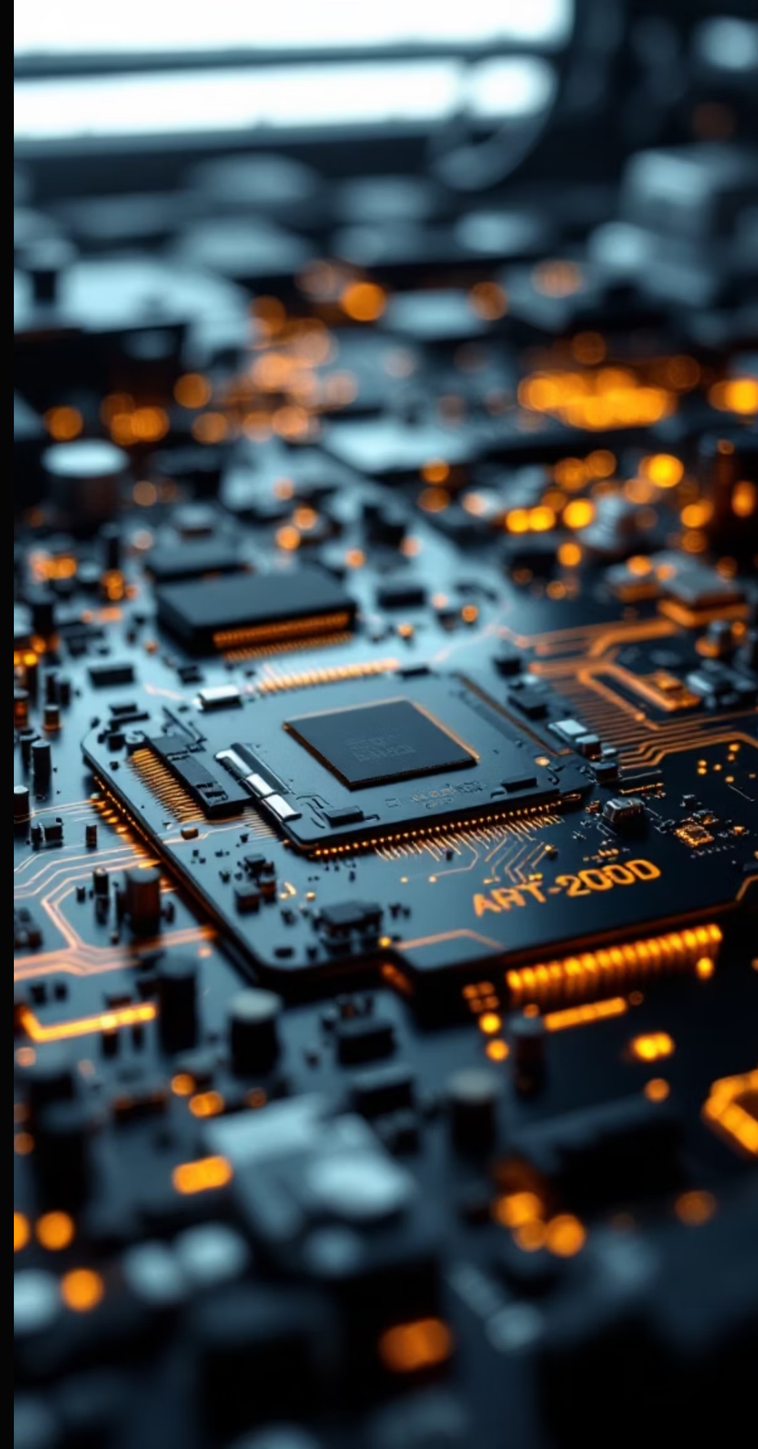
SINOVIA TECHNOLOGIES

The Foundry for Printed Electronics

Electronics Design

- >95% of the world’s circuit boards are custom
  - Lengthy design / proto / manufacturing cycles
  - Product design limited by electronics form factor
  - Function and features driven by user interfaces



Sinovia

Printing Electronics Like Newspaper

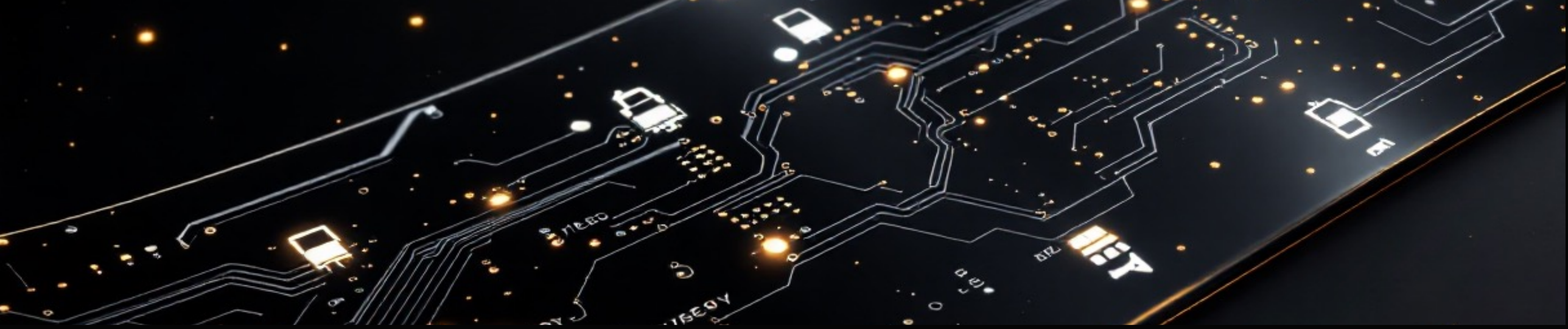
- Ultra-thin & flexible
- Sustainable
- Cost effective

- Increase functionality and design freedom
- Reduce time to market by 50 - 80%

Printed Light Film

Custom, flexible light in any shape
for any surface

- Drive engagement and interactivity
- Convey information
- Add features and functionality



Beyond Light: A Full Printed Electronics Ecosystem

Printed Light Film

Photodetectors

Sensors & Switches

Antennas

Resistors & Interconnects

Transistors

Let’s Collaborate

Packaging

Cards
Security
Access

Medical

Appliances

Mobility

whitney@sinoviatech.com

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4th State Energies
PLASMA ENABLED SOLUTIONS

4th State Energies

Energizing the Battery-Powered Future with Plasma-Enabled Breakthroughs

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4th State Energies

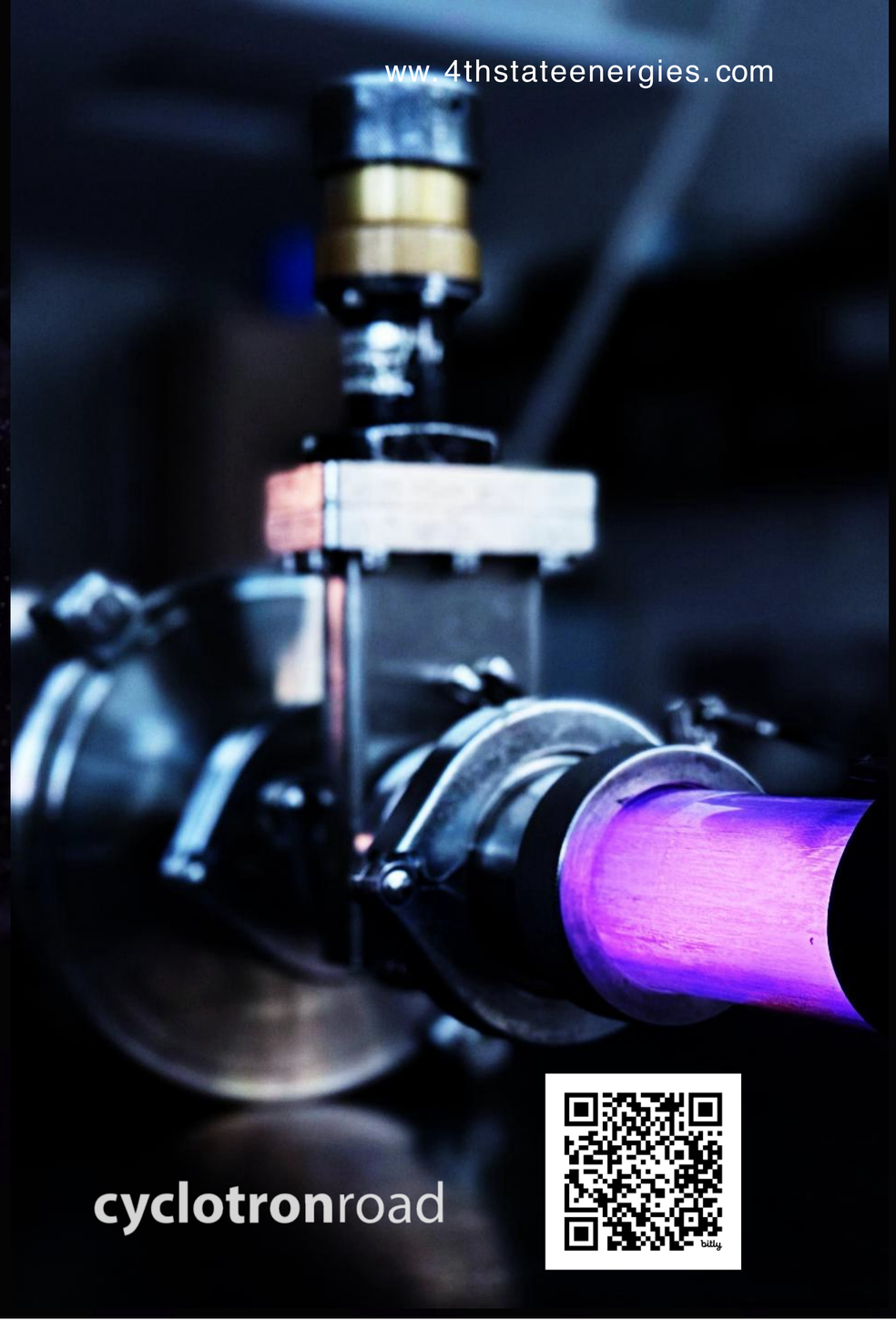
PLASMA ENABLED SOLUTIONS

ww. 4thstateenergies. com

Scalable Manufacturing of Next-Generation Battery Materials with Plasma

Supported by $2.5M DOE, CEC Grants, & Activate Berkeley Fellowship

Mark R. Hatch, DBA, MBA – CEO & Co-Founder
Pankaj Ghildiyal, Ph.D. – CTO & Co-Founder
Lorenzo Mangolini, Ph.D. – Co-Founder & Chairman



Activate

U.S. DEPARTMENT OF ENERGY

CALIFORNIA ENERGY COMMISSION

cyclotronroad

Increasing Demand for High-Energy Lithium-ion Batteries

eBikes

EVs
Robo-Taxi

Drones

DoD

Wearables / AR

eVTOLS

Robots

Medical

AI Inference

The Graphite Problem

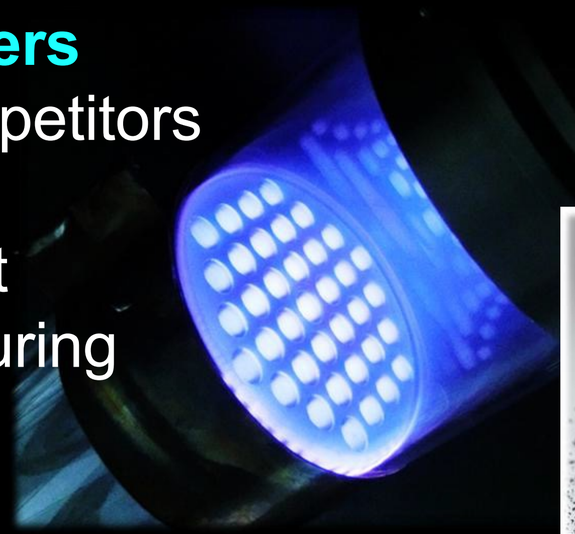
- Limited Energy Density
- Will not enable Drone, EVTOL or Robots
- Critical Mineral – Supply Constrained
- Energy Intensive Manufacturing

Solution: Plasma-Created Silicon Anode Materials

IP Protected, Validated, Low Cost, High Energy, Scalable Silicon Anode Powder

Plasma-Enabled Silicon Anode Powders

- 50% Cheaper & Higher Energy than Competitors
- 5x Energy of Graphite
- Drop-in for Any Chemistry/Format
- 84% Cleaner than Graphite Manufacturing



Leads to:

- 40%+ More Battery Energy by Volume
- 30%+ More Battery Energy by Weight

$56 Billion Market

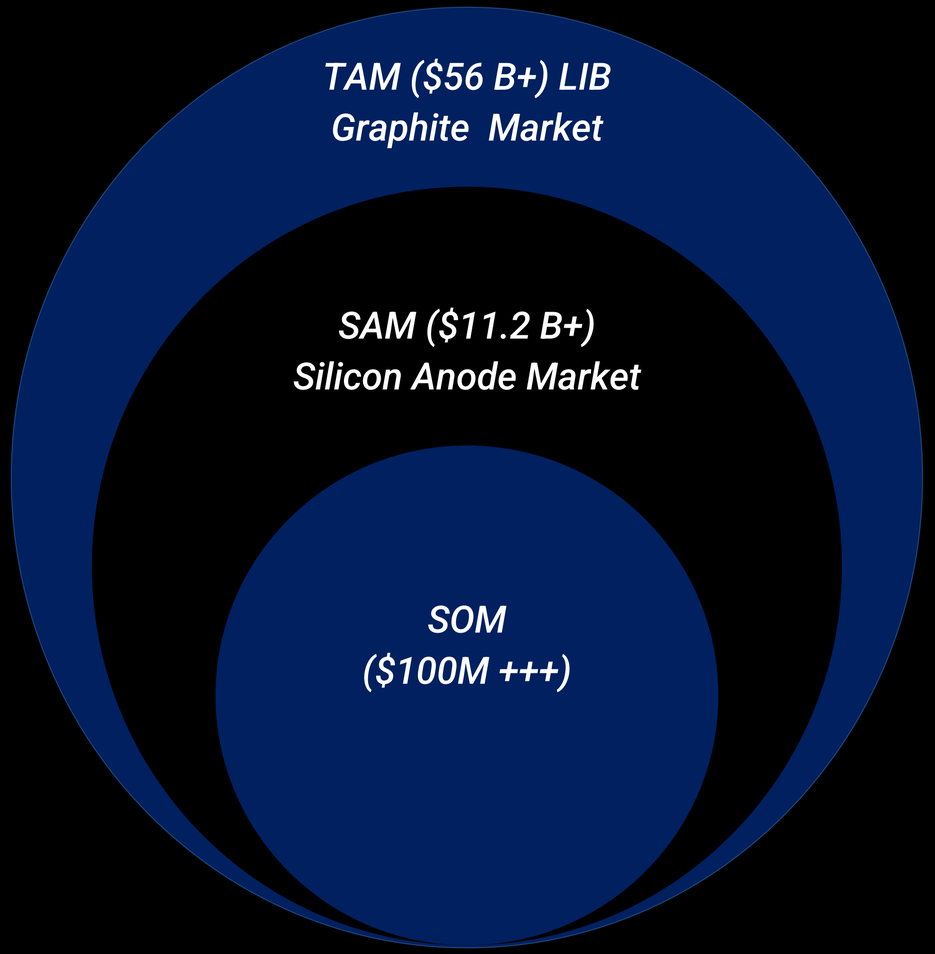
Total Addressable Market (TAM)

- *$56 B+ ($28 B synthetic, $28 B natural)[1]*

Serviceable Addressable Market (SAM)

- *20% of $56 B or $11.2 B*

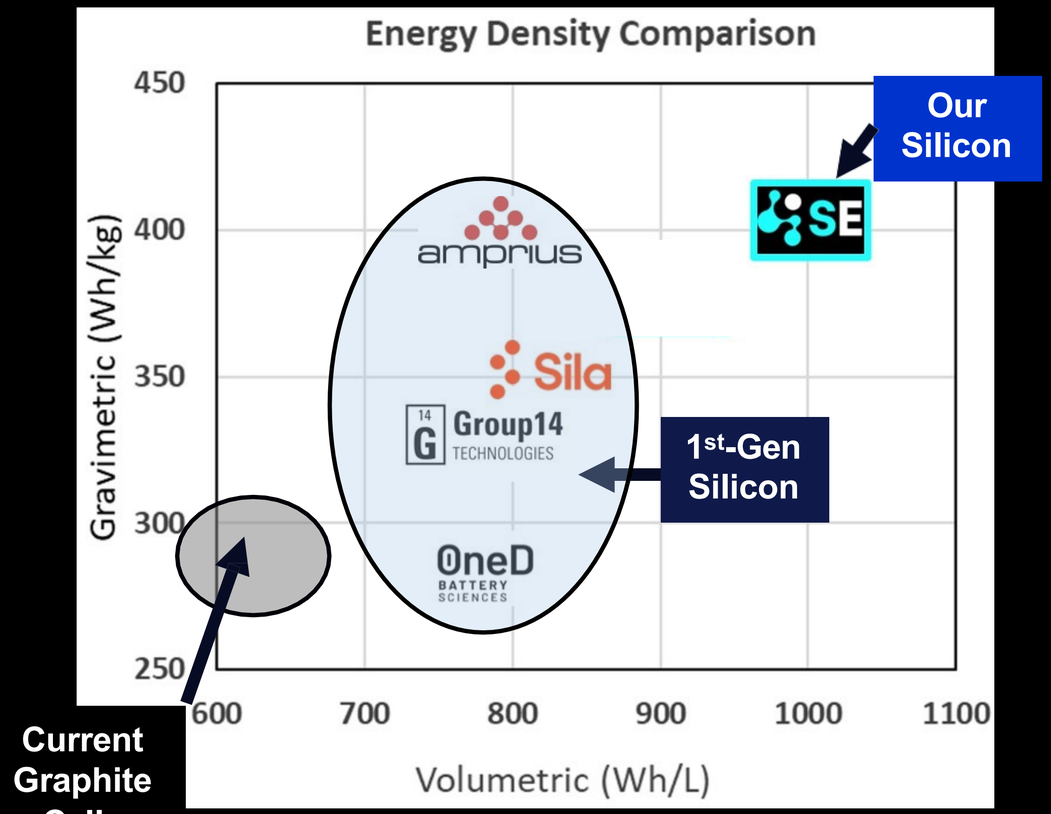
- *Service Obtainable Market (SOM)*
  $100M+++



1. *Transparency Market Research: Silicon Anode Battery Market Outlook 2031*

Competitive Advantage: A Leapfrog Silicon Generation

Highest Energy Density



*Battery Talk, 2024 (SpectraPower & Volta)

"**Low-cost, higher-energy silicon** is a game-changer for OEMs"

- Senior Director, Wildcat

"We need a **higher-energy, lower-cost option** to Sila-Nano"

- Major Automotive OEM.

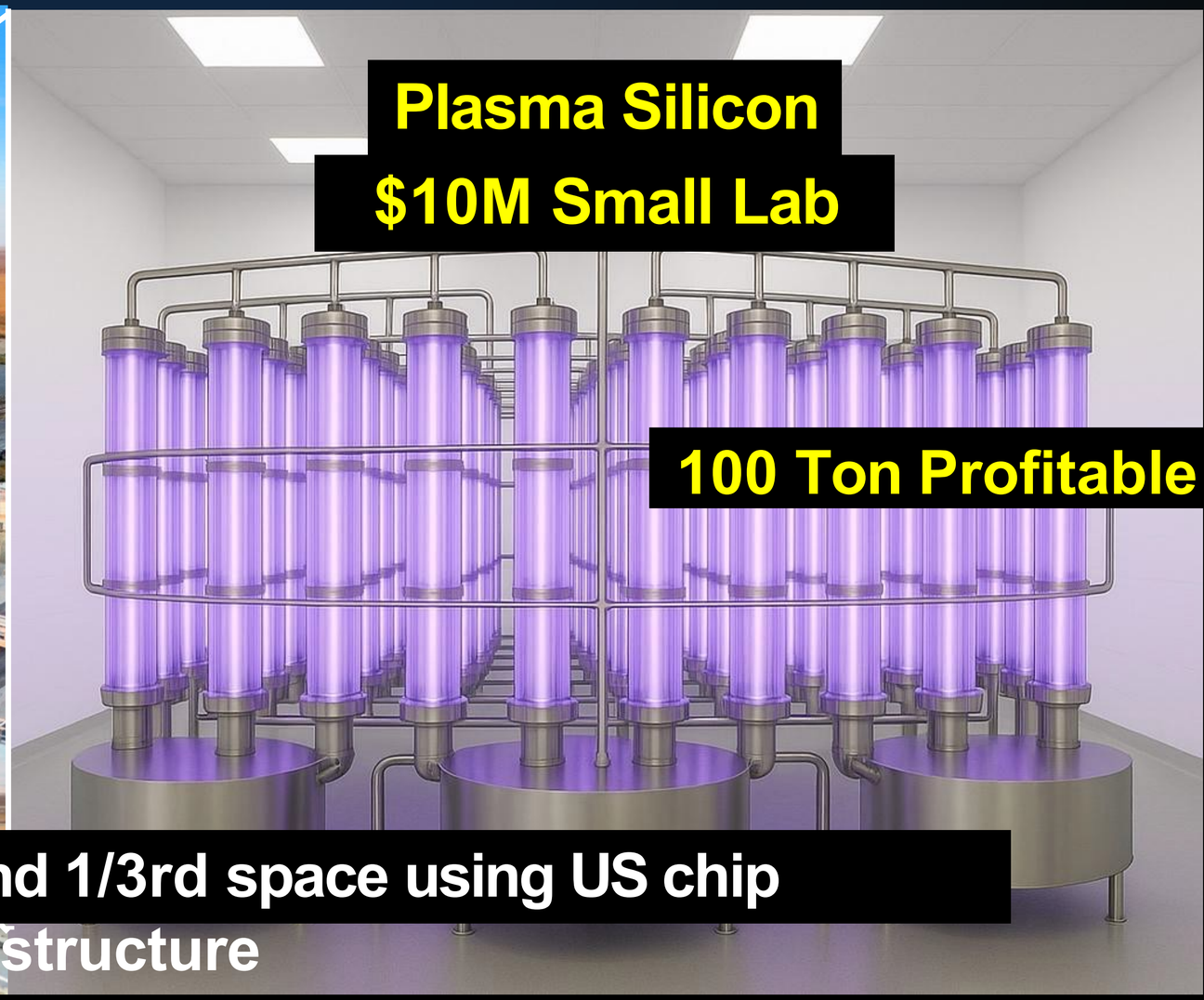
Amprius enabled LIBs are selling for 10X to 30X

1/20th Capital to Profitable Scale

1st-Gen Silicon

$200M+ Plant

Image credit: Sila Nanotechnologies



Plasma Silicon

$10M Small Lab

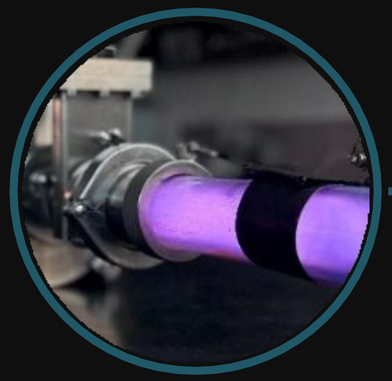
100 Ton Profitable

Scales at 1/20th cost and 1/3rd space using US chip infrastructure

Major Milestones, Traction, & Roadmap

Lab Scale
IP secured
Third-party validation
Customer interest

$1.1M grants



Grams

Pre-pilot
Beta testing in customer cells

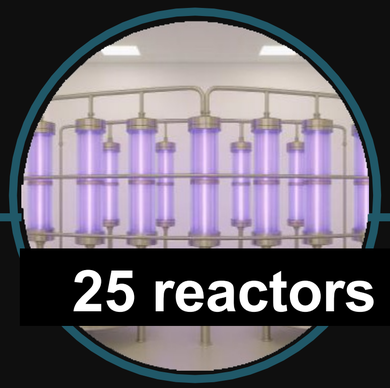
$1.1M DOE SBIR II + Activate Awarded

Kilograms

2025

Pilot Scale
Sales to drone market

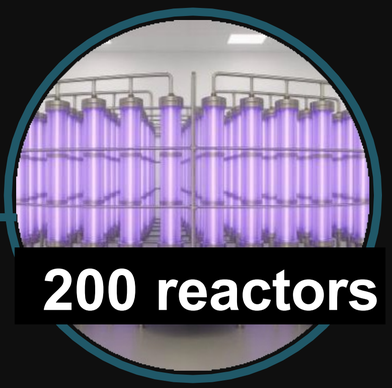
$10M Small Lab



100 Tons
Profitable
3 years

Production Scale

$50M Lab



1000 Tons
Profitable
5 years

Executive Team

Management

Dr. Mark R. Hatch
CEO & Co-Founder

Lorenzo Mangolini, Ph.D.
Founder & Chairman
Inventor of Plasma Process

Pankaj Ghildiyal, Ph.D.
CTO & Co-Founder
Lead Inventor

Battery Company Advisor

Art Salyer, MBA
3X Lithium-ion Battery CXO

Business Advisor

Rochelle (Williams) Nadhiri
Communications

Gene Shook CFO
Escalon Services

Battery Tech Advisors

Juchen Guo, Ph.D.
Battery Technology

Uwe Kortshagen, Ph.D.
Plasma Science

Matthew McDowell, Ph.D.
Testing

Seeking Customers, Strategics, & Investors

Funding

- $2.4M Grants & Awards
- $40K Friends & Family
- $100K Founders

Seeking

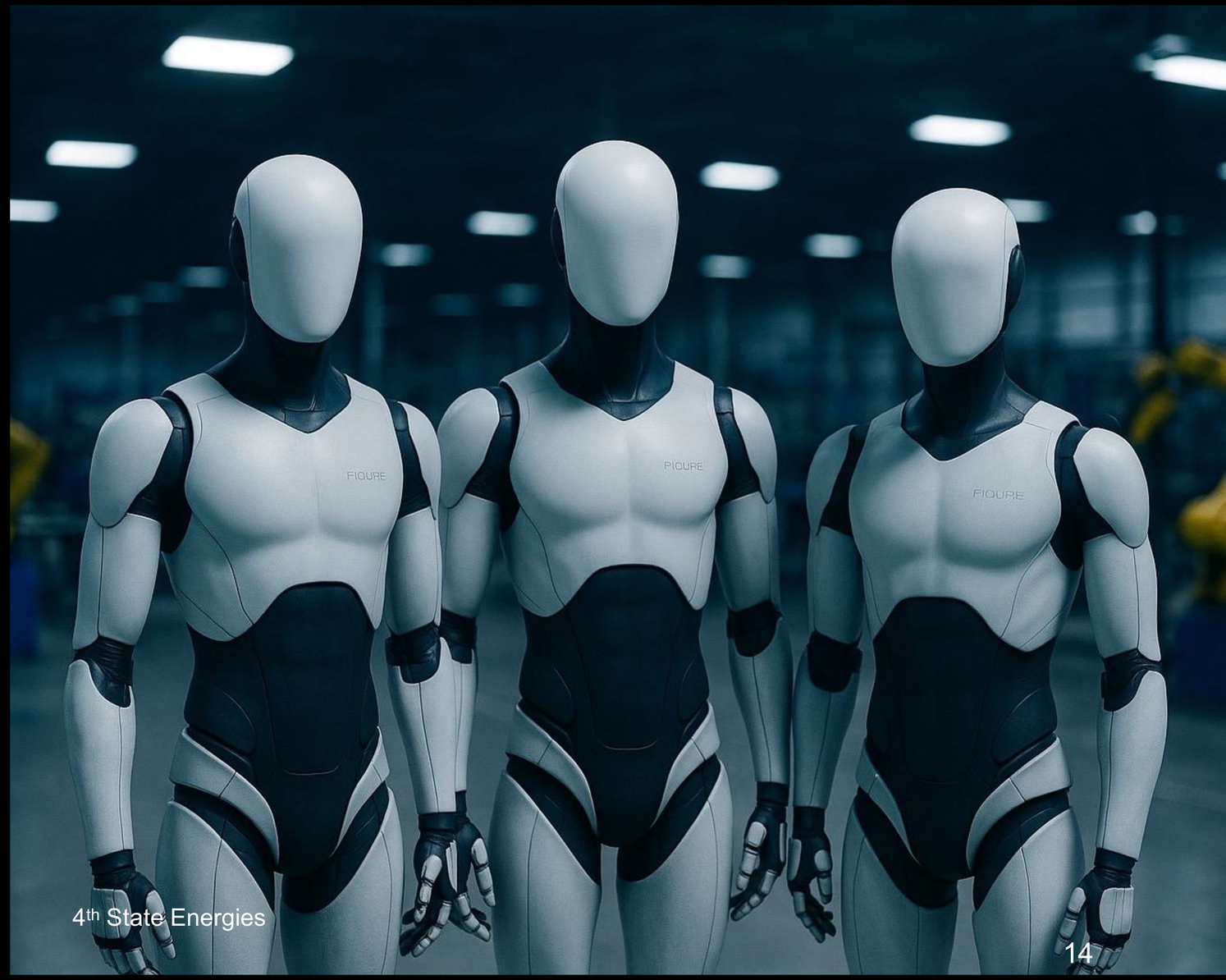
- Customers
- Strategic Partners
- Funding

Terms

- $1M @10M Valuation
- Post-money SAFE or Convertible

Use of Funds

- More Material and More Sales



Join Us In Powering the Silicon Battery Revolution

Dr. Mark R. Hatch

4th State Energies

Mark R. Hatch, DBA, MBA - CEO
Pankaj Ghildiyal Ph.D – CTO
Lorenzo Mangolini - Founder & Chairman

mark.hatch@siliion.com

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AI-Enabled Digital Twins for Materials

Alejandro Nieto

Senior Ventures Analyst
Plug and Play

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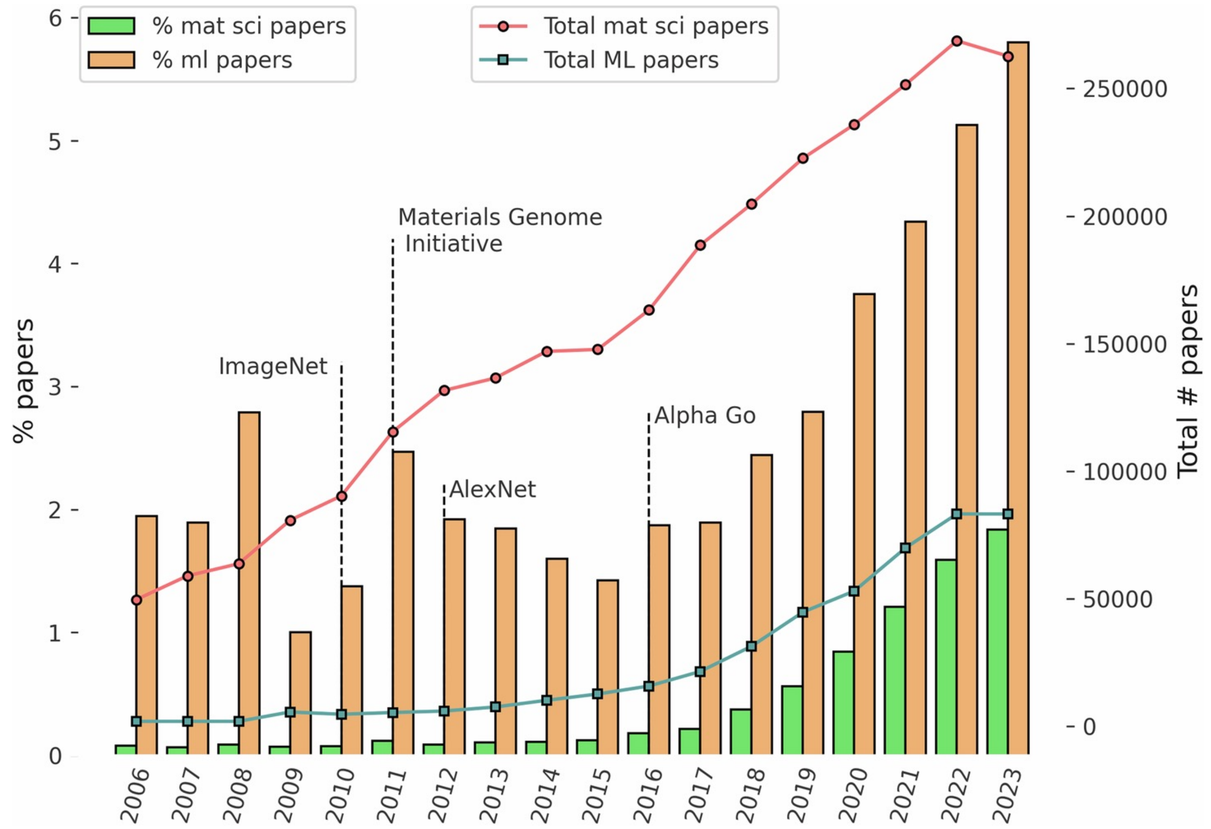
The Challenge of Materials Development and Scale-up

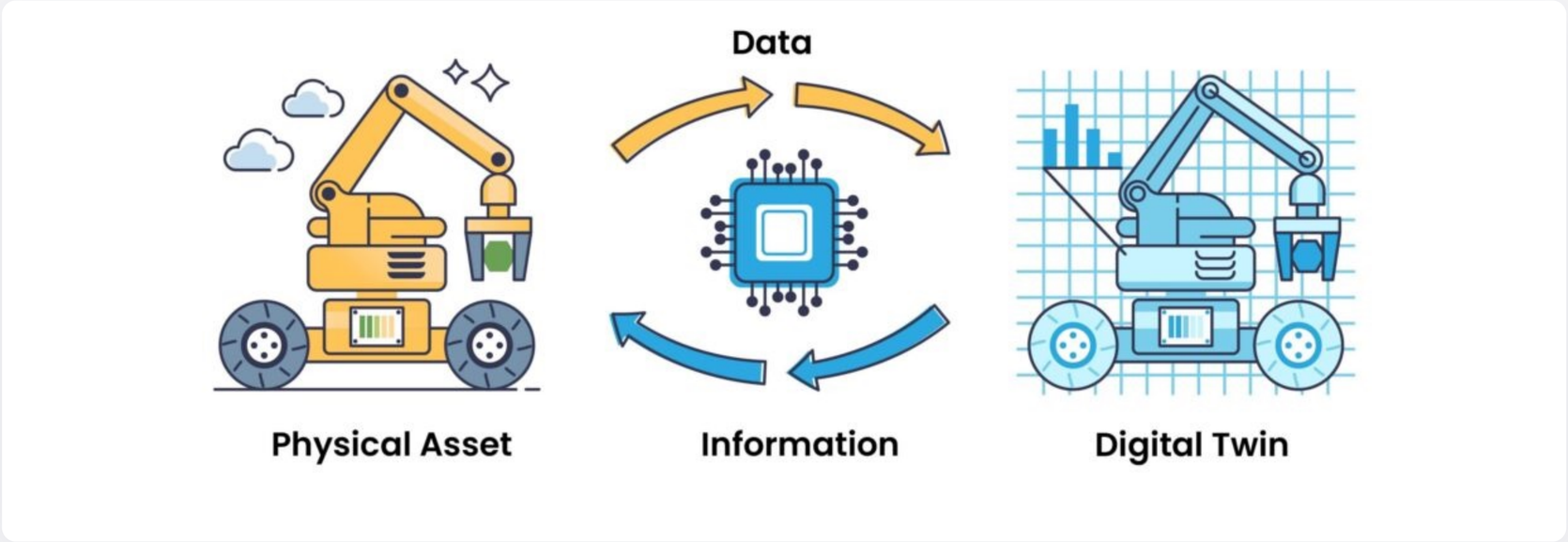
- Scale up can take many years and high CapEx
- Failures primarily due to:
  - manufacturability,
  - process variability,
  - sufficient validation.
- AI/ML enables robust in silico modeling to optimize before and during pilot



Butler, Keith & Choudhary, Kamal & Csanyi, Gabor & Ganose, Alex & Kalinin, Sergei & Morgan, Dane. (2024). Setting standards for data driven materials science. npj Computational Materials. 10. 10.1038/s41524-024-01411-6.

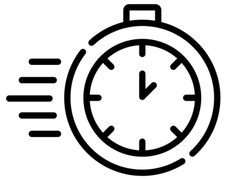
What is a Digital Twin?

- Virtual, data-driven model that mirrors a real material, process, or system.
- Integrates physics models, sensors and production data.
- Learns continuously to predict and optimize performance.



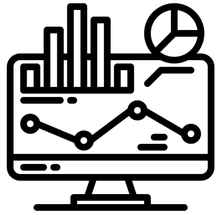
A digital twin is not just simulation — it's a living model synchronized with the physical asset.

AI is upgrading how Digital Twins work



Faster Models

Replaces expensive physics simulations with AI approximations.



Real Time Self-Calibration

Integrates lab, sensor, and process data for real-time twin calibration.

Failure Prediction + Avoidance

Optimizes process variables automatically.

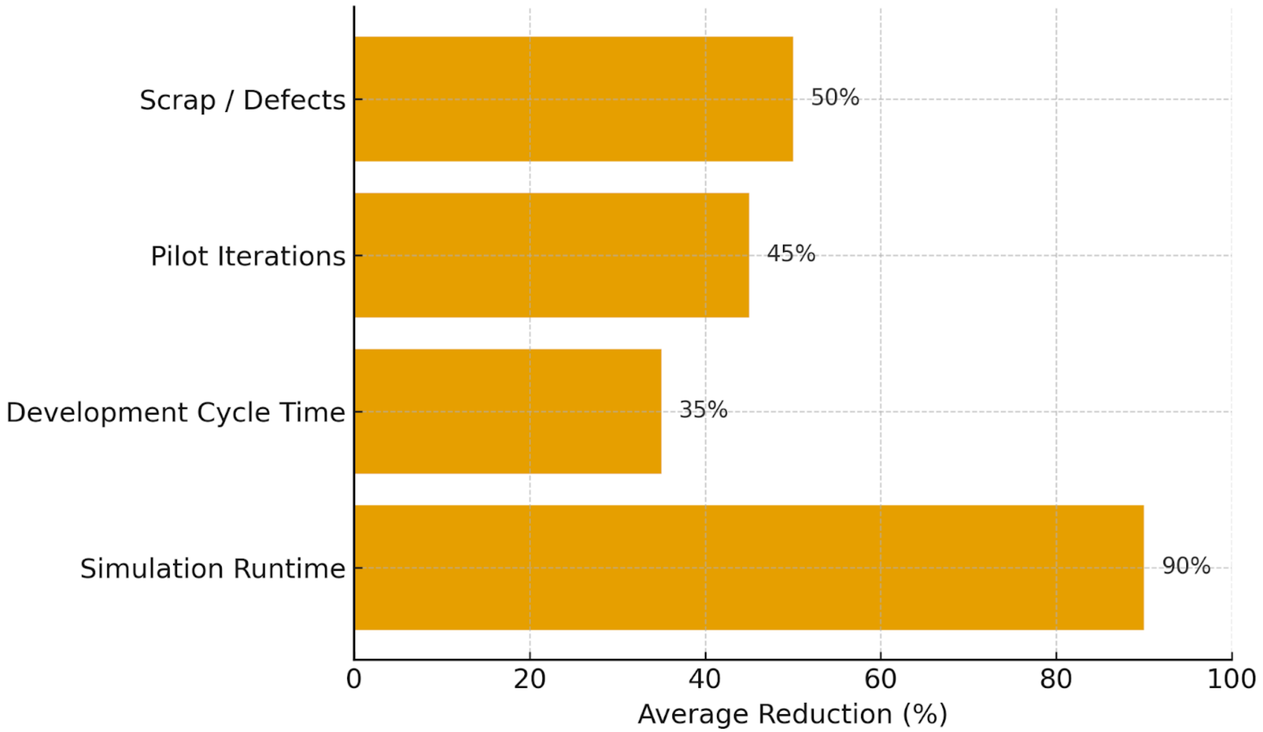
Intelligent Design

AI proposes new material formulations directly.

AI transforms digital twins from static models into adaptive, self-learning systems.

How AI Digital Twins are Delivering Value

Cost Reduction with Digital Twin Use in Design



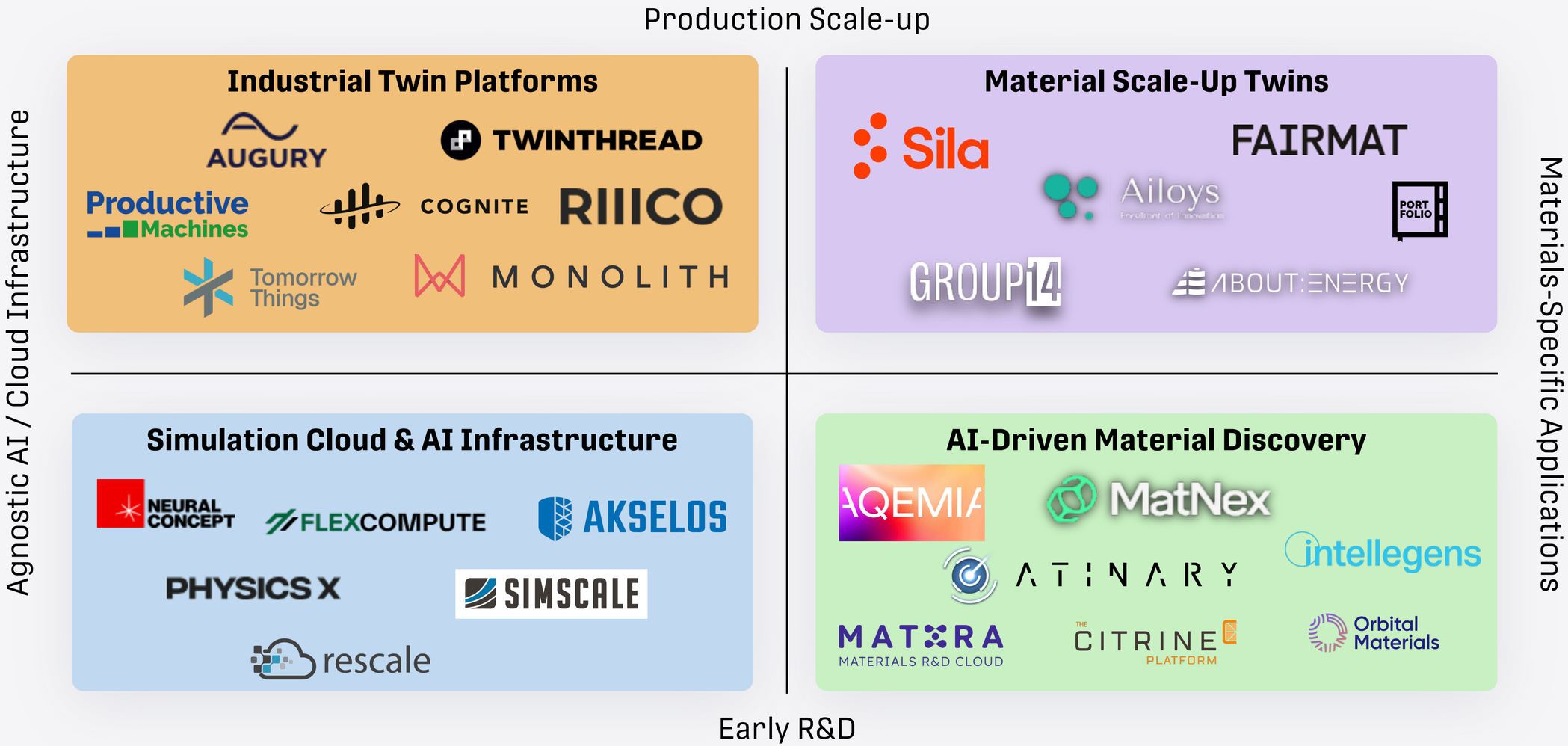
"Digital twins cut development time by up to 50% and boost product revenue potential."
— McKinsey, 2023

Additional Benefits

- Reduced # of physical prototypes needed (e.g. 3→1)
- 25% fewer issues entering production
- Higher product performance
  - 3-5% higher sales
  - 5-10% higher revenue

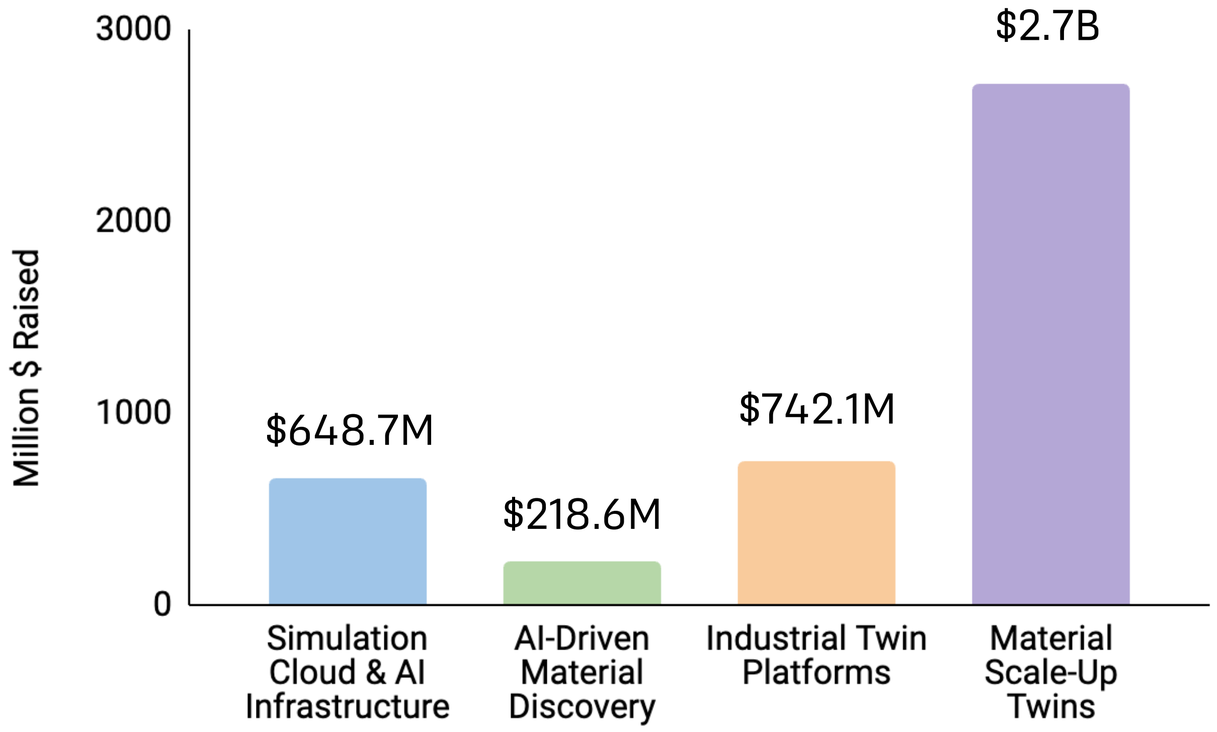
Source: McKinsey, Digital twins: The key to smart product development, 2023

Startup Landscape: AI + Digital Twins in Materials



Startup Landscape: Fundraising

- Materials for Automotive (batteries) driving most investment
- Whitespace in materials for construction, polymers, and composites
- Twins are less applicable to early stage Material Discovery - Less funding
- Opportunity: optimization stage remains underfunded



Source: Playbook - Plug and Play

Case Study: INX + Oden Technologies - AI Twins for Industrial Performance

- INX uses Oden's Process AI + Factory Analytics for digitising ink-production lines.
- Results: +25% OEE, +20.4% performance, +11% availability.
- Production throughput up 20–24%, increasing to a total of +4.7 M lbs.
- Increased production while switching from 24/7 → 24/5 schedule.
- Changeover time down 71%; operator interface and retention markedly improved.

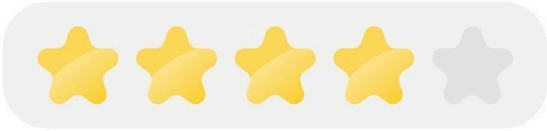
- In 90 days, the system was live in their factory.
- Accessible user-friendly dashboards and predictive analytics.
- In 6 months, 5x ROI

Future / Early-Stage Use Cases with Strong Potential

Maturity

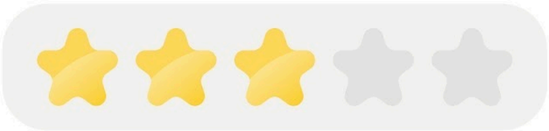
Battery Chemistry + Manufacturing Twins

- Combines models for aging and manufacturing processes.
- Predicts battery life before building pilot lines.



Catalyst & Reactor Digital Twins

- Virtually models catalyst deactivation and reactor performance.
- Accelerates process certification.



Multiscale Material Twins

- Links atomic scale to final part properties.
- Significantly reduces physical testing for new materials.

Autonomous Lab + Twin Integration

- Connects synthesis robots with virtual feasibility models.
- Filters out likely failed experiments, saving resources.

Key Takeaways

AI: Static Model → Self-Learning Systems

- It transforms them into adaptive, data-driven copilots.
- Cuts development time by 50 % and improves predictive accuracy.

Digital twins bridge R&D steps

- Connecting material simulation and process twins.
- Faster validation and smoother scale-up.

New ventures needed in the migration zone

- Funding and innovation remain polarized.
- AI-enabled twins will be the engines driving materials innovation and implementation.

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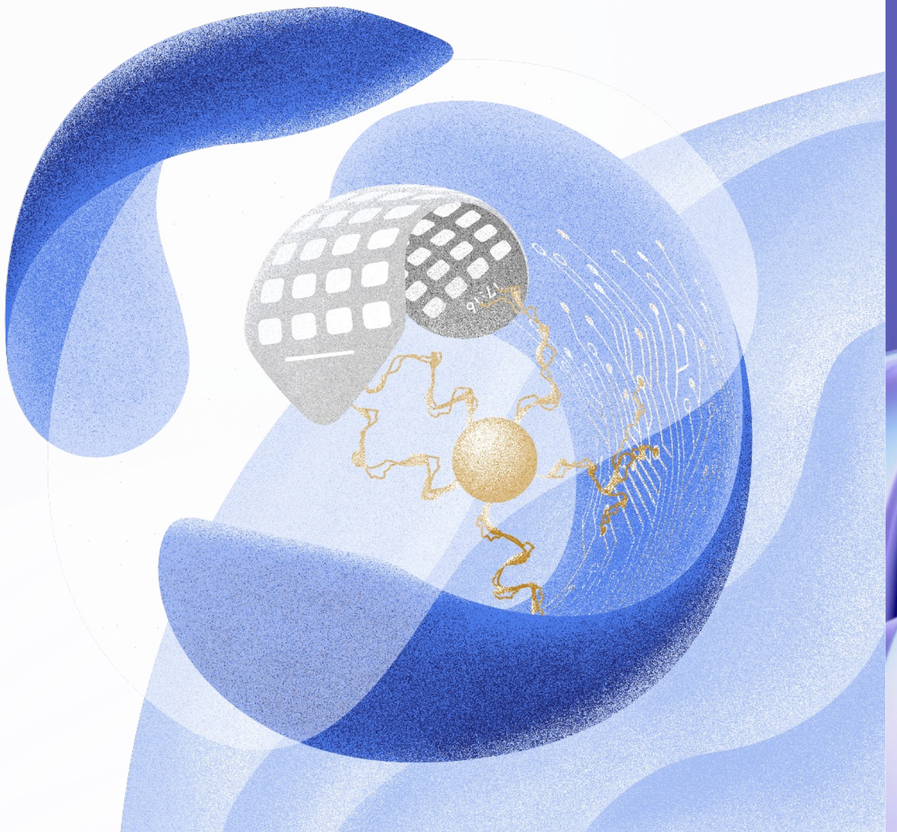
Thank you.



For more information:
a.nieto@pnptc.com

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STARTUP PRESENTATIONS

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HTMS
HIGH TEMPERATURE MATERIAL SYSTEMS

HTMS

Novel high temperature composite material systems for use in advanced engineering applications.

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HTMS

HIGH TEMPERATURE
MATERIAL SYSTEMS

Revolutionising high temperature composite materials

Dr. Danilo Di Salvo
Co-Founder & CEO

danilo.disalvo@htms.tech

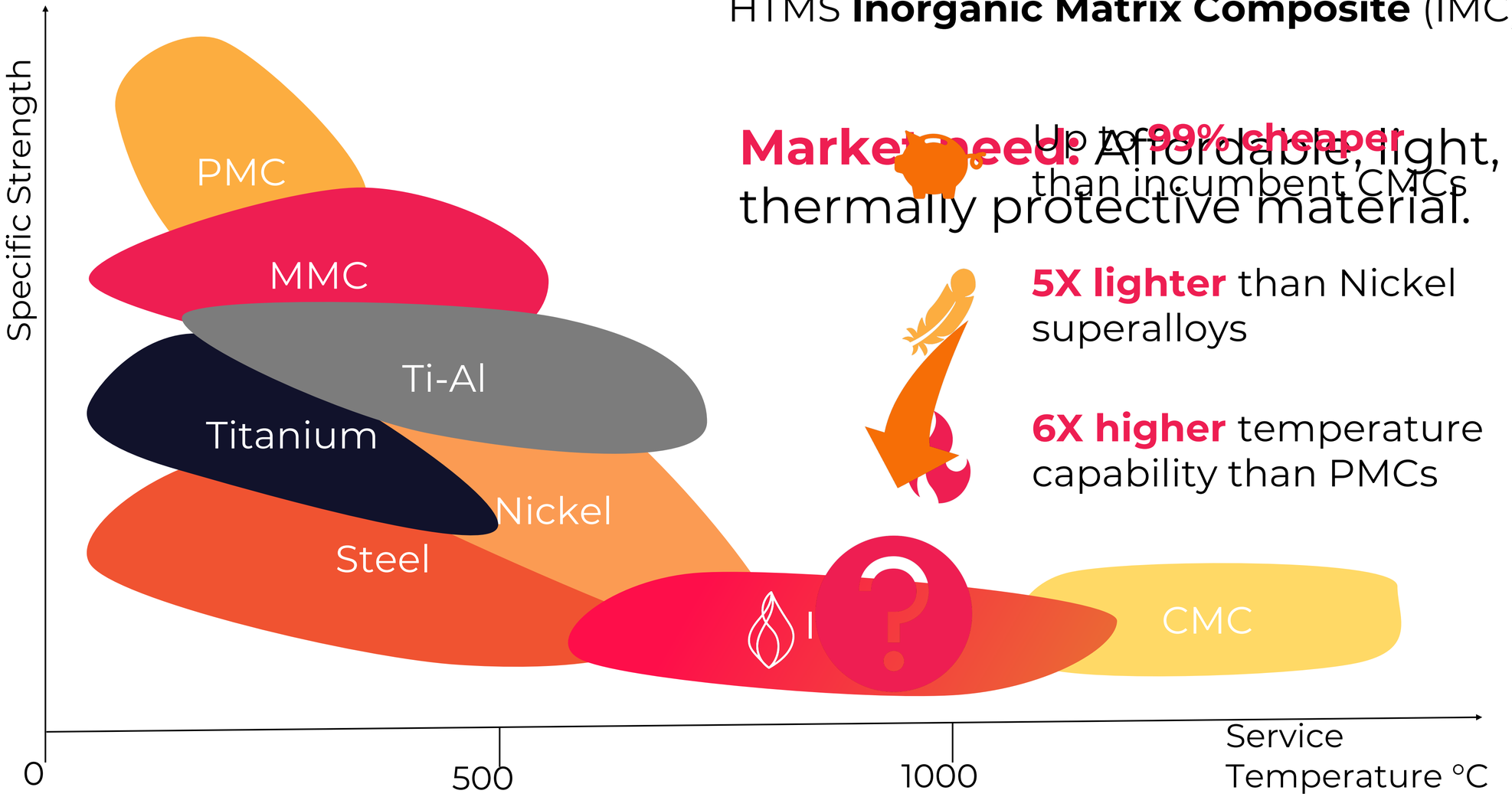
MAVEN Deeptech Labs PLUG AND PLAY

SFC mercia Ventures

htms.tech

Problem

Limited material options for intermediate temperatures



HTMS **Inorganic Matrix Composite** (IMC)

Market need: Affordable, light, thermally protective material.

Up to **99% cheaper** than incumbent CMCs

5X lighter than Nickel superalloys

6X higher temperature capability than PMCs

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Scale

HTMS has integrated within the existing supply chain

Raw material

HTMS makes ceramic resin

HTMS makes pre-preg

Parts manufactured

Final Assembly

Finished product

Quickest route to mass market

Low Cap Ex

Plays to HTMS strengths and IP

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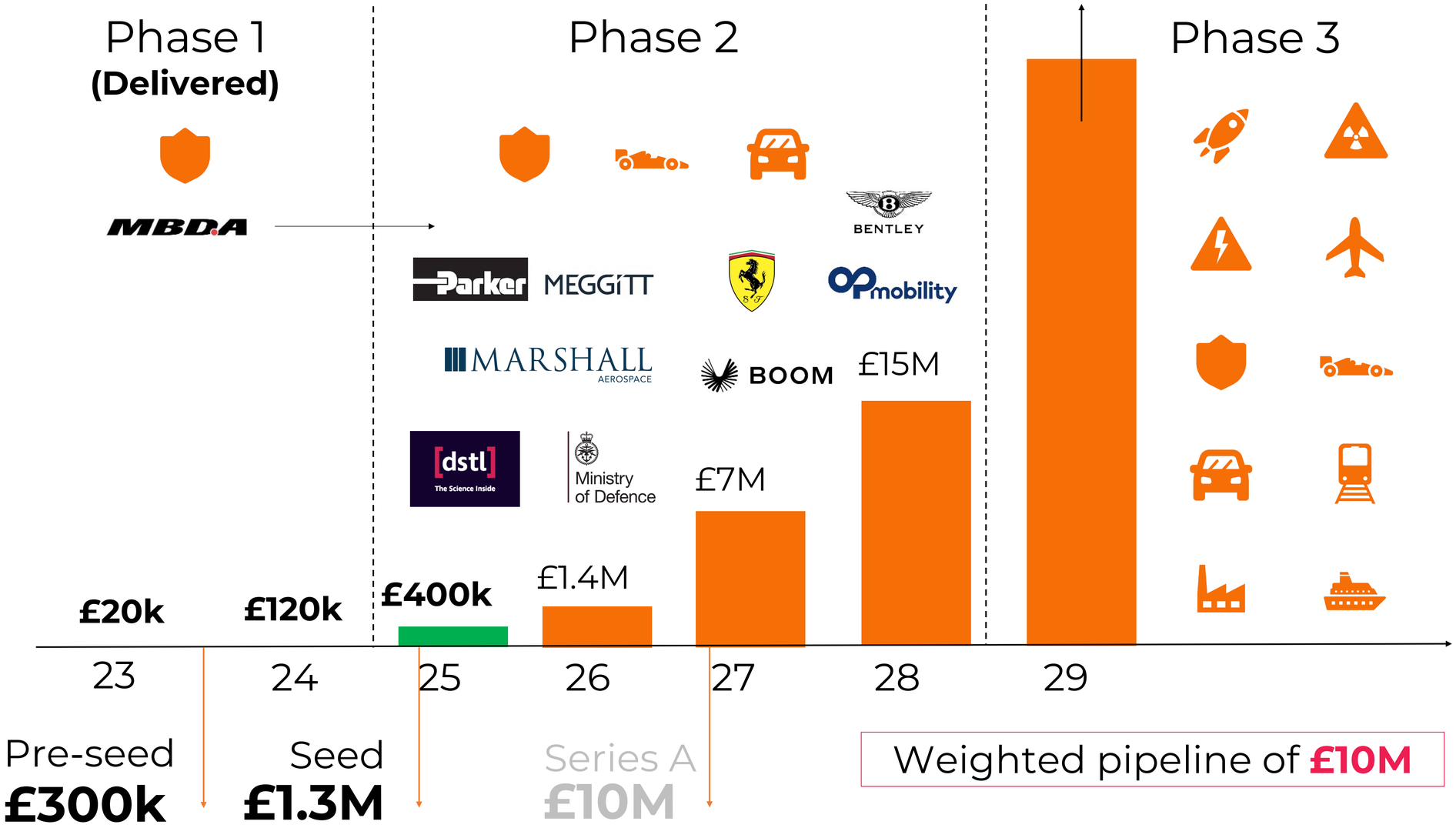
Traction

HTMS will build up market penetration in three controlled phases



SOM

$4B+

CAGR: 10%

Weighted pipeline of **£10M**

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Team

Highly talented and experienced team of HTMS superheroes

HTMS Board

Annalisa Gigante

Chair

Shubham Jaipuria

Mercia Ventures

Theodora Preda

Plug and Play

Rafi Kahn

Maven Capital

HTMS CXO

Dr. Danilo Di Salvo

Co-Founder & CEO

Dr. Richard Grainger

Co-Founder & CTO

Will Larkin

COO

Sev Gunes-Lasnet

CFO

HTMS Advisors

Prof. Luke Logan

Jez Holmes OBE

Ofir Eyal

Nick Collett

Prof. Paul Hogg

Prof. Faye Smith OBE

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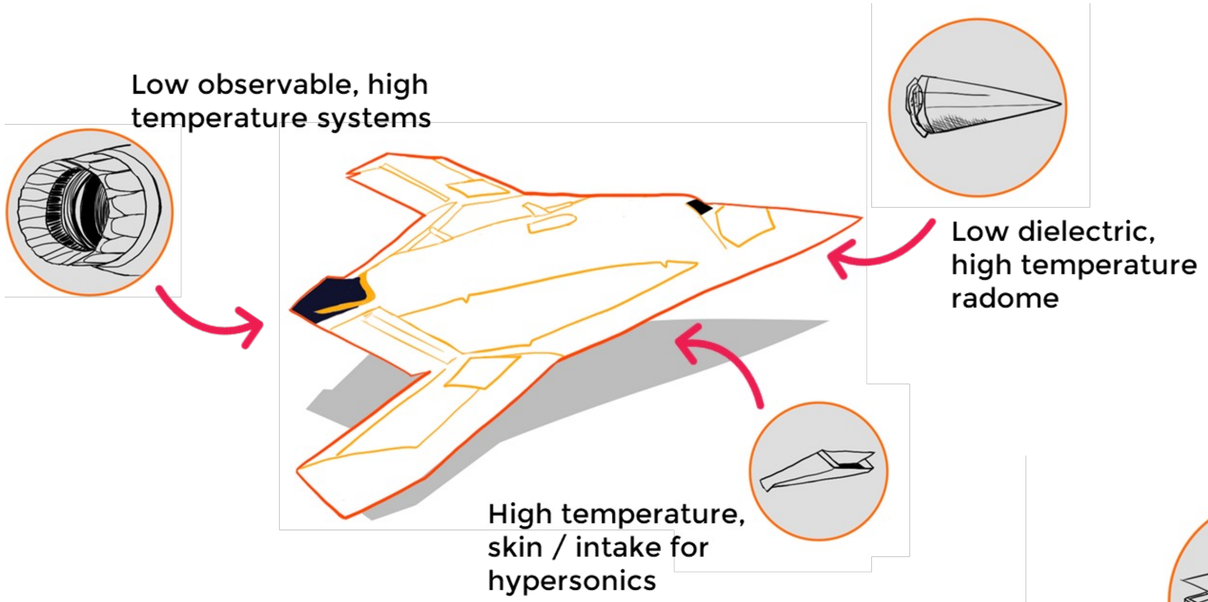
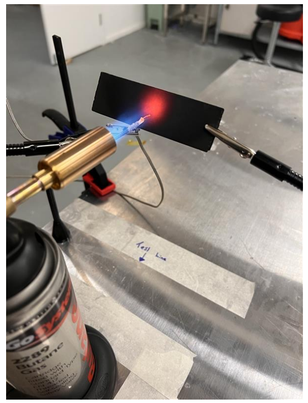
Ask

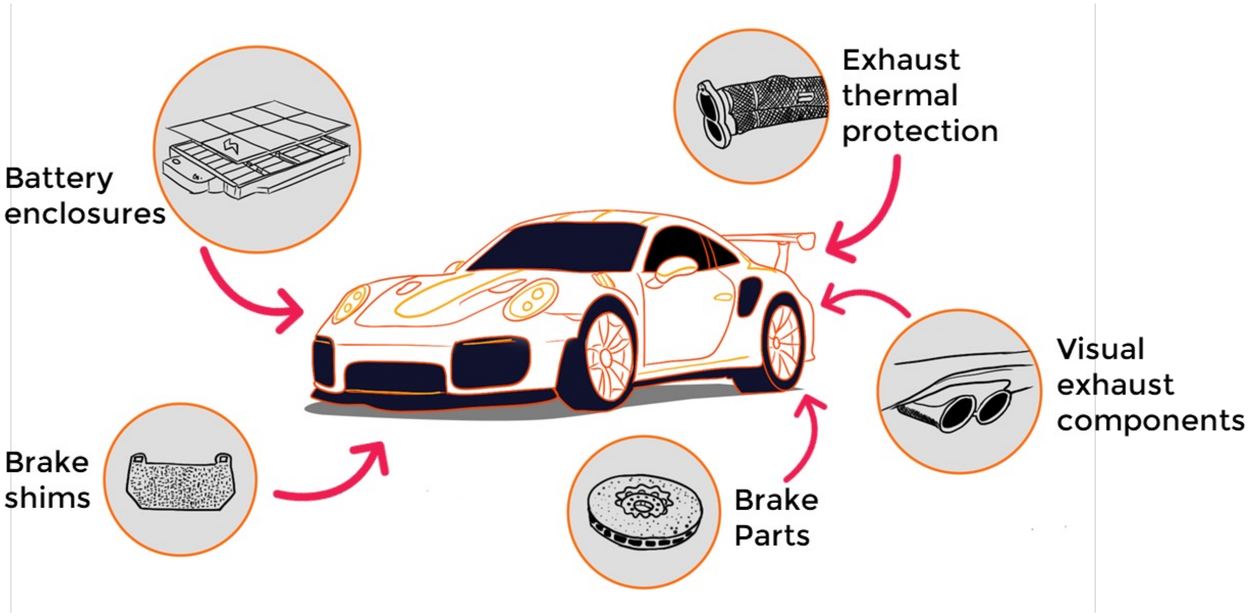
Join us as we revolutionise the high temperature composite market



Proof of Concept projects

Safer, more efficient and higher performance parts





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HTMS

HIGH TEMPERATURE MATERIAL SYSTEMS

Revolutionising high temperature composite materials

Danilo Di Salvo
CEO

danilo.disalvo@htms.tech

Richard Grainger
CTO

richard.grainger@htms.tech

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STARTUP PRESENTATION

Canovation

It's Just a Can With a Twist of Genius!

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The Future Of Sustainable Packaging™

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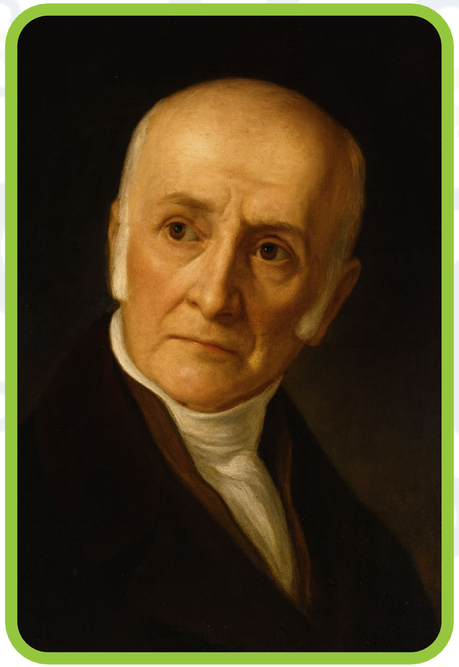
Nicolas Appert
"The Father of Canning"

Origins of Canning
(1809)

Tinplate Cans Invented
(1810)



Peter Durand
Inventor of Metal Cans

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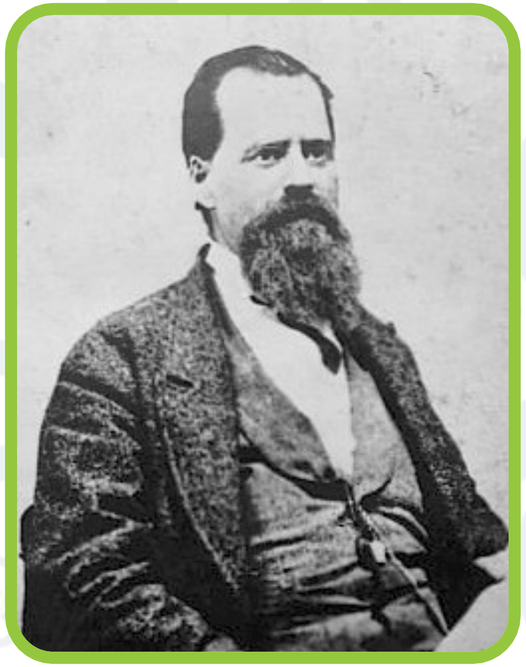
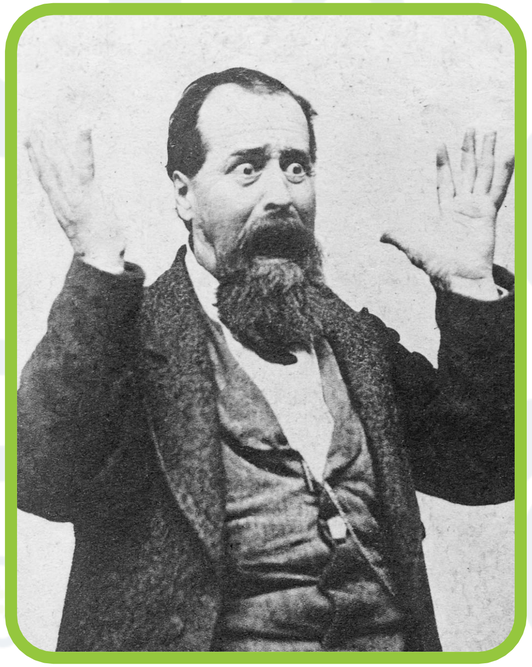


John L. Mason
Inventor of Mason Jars

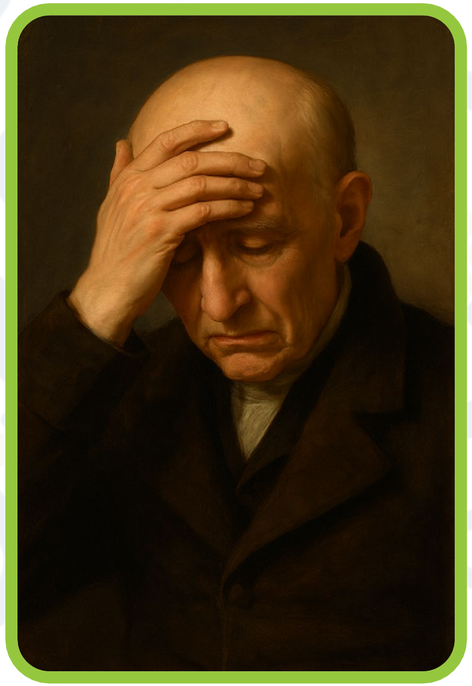
Mason Jar Invented (1858)

To Be Continued...



John L. Mason
”Woah!”

Mason Jar Broken
(Same Year)



Peter Durand
”You should have used metal”

CANOVATION

Adding plastic doesn’t count!

The same miracle material...

CANOVATION®

...now our greatest waste challenge!

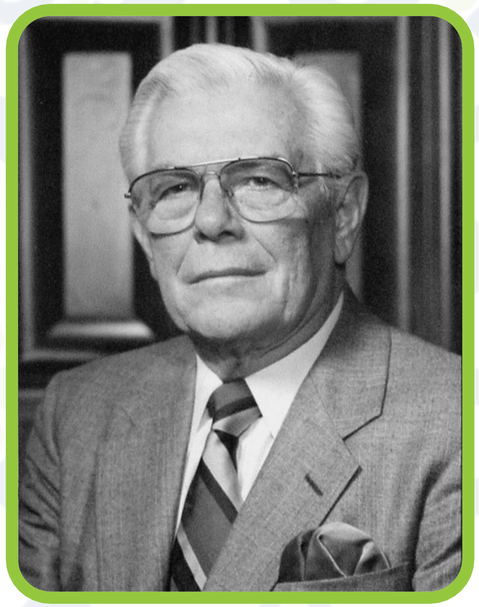
Globally - 70% average recycled content

CANOVATION®

45% - 85% recycling rate*

* Depending on region, metal type, and context (e.g. beverage cans vs. food cans)

...Continued from 1858



Ermal C. Fraze
Inventor of Pull Tab

Pop-Top Beverage Cans
(Early 1960's)

Easy-Open Food Cans
(Late 1980's)

CanReseal® for Food Goods!

CANOVATION®

Snap-on Caps

Screw-in Caps

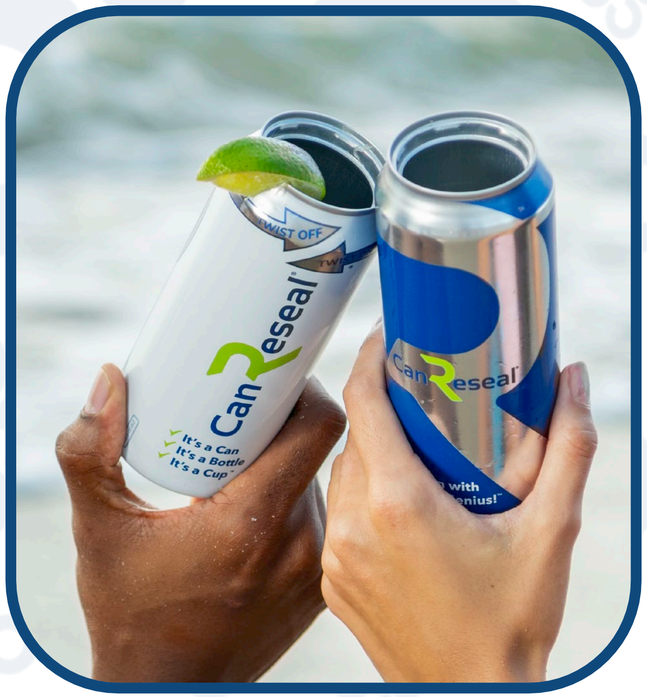
Screw Threads

CanReseal® Created! (2025)

CanReseal® for Beverages!

This part
replaces
this part

- ✓ It’s a Can
- ✓ It’s a Bottle
- ✓ It’s a Cup™


TWIST OFF
CanReseal
It's a Can
It's a Bottle
It's a Cup

CanReseal

CanReseal
Just a Can with a Twist of Genius!

CanReseal®

CanReseal

TWIST OFF
CanReseal
It's a Can
It's a Bottle
It's a Cup

TWIST OFF
CanReseal
It's a Can
It's a Bottle
It's a Cup

AB InBev and Coca-Cola Filling Trials

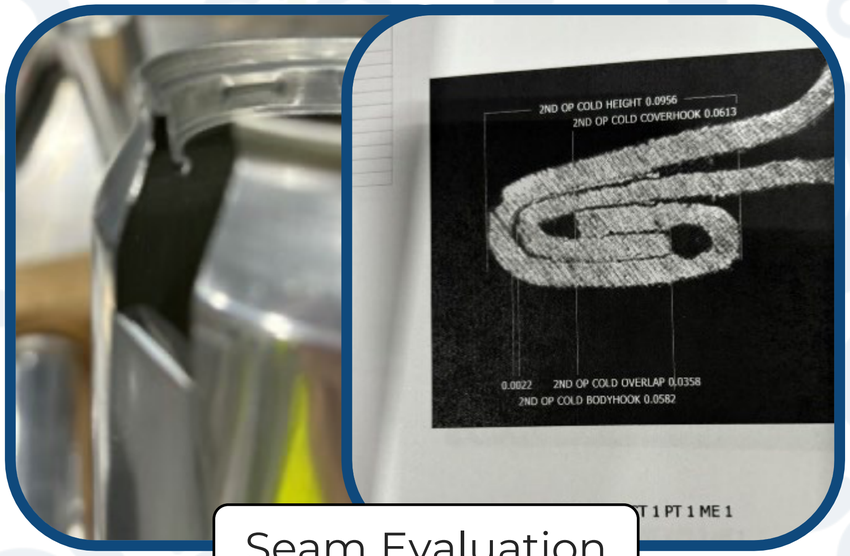
accelerator 100+

AB InBev St. Louis Facility

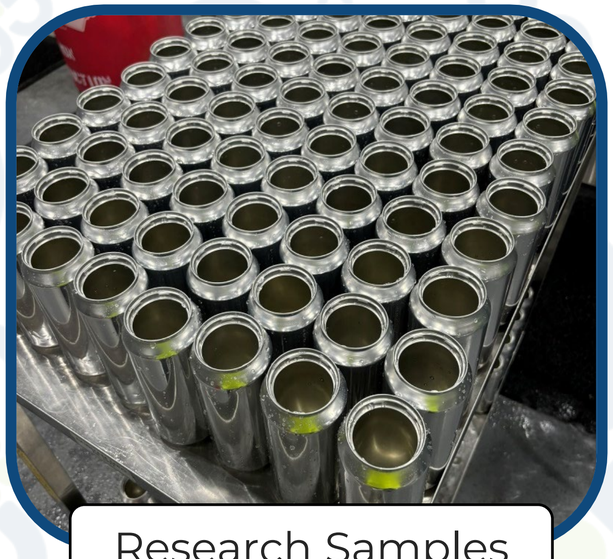
Seamer Close-up

Filled Product

Hand-capped Samples



Seam Evaluation

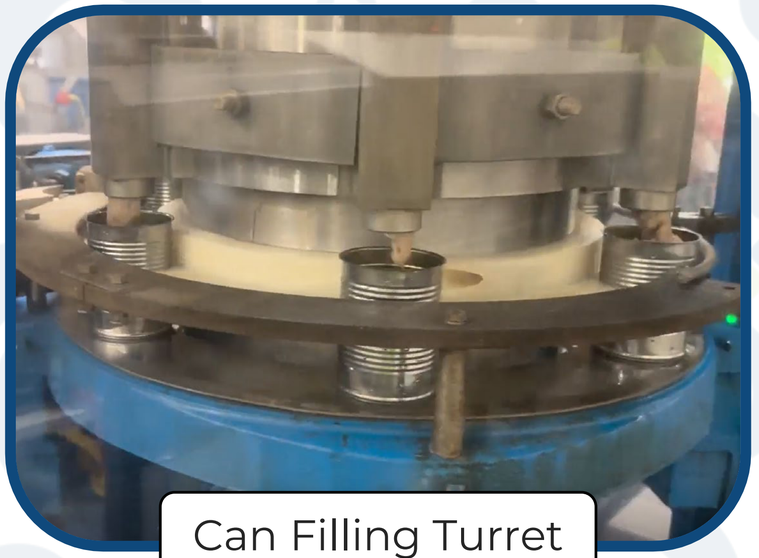


Research Samples

Hill’s Pet Nutrition Filling Trials

accelerator 100+

Hill’s Topeka Facility



Can Filling Turret

Filled Product

Seamer Close up

Retort Cooker

Research Samples

Canovation Core Team

Gary Brown
Chairman / CEO
&
Principal Investor

Daniel Zabaleta
Chief Technology Officer

Jeff Grajewski
Chief Operations Officer

Shannon Muñoz
Office
Manager

Caleb Hayes
Business Dev.
Manager

Lukas Pandos
Accounting
Manager

Carlos Naveda
Brand
Manager

CANOVATION®

Partners and Advisors

STOLLE MACHINERY

SACMI

ACTEGA

CODI

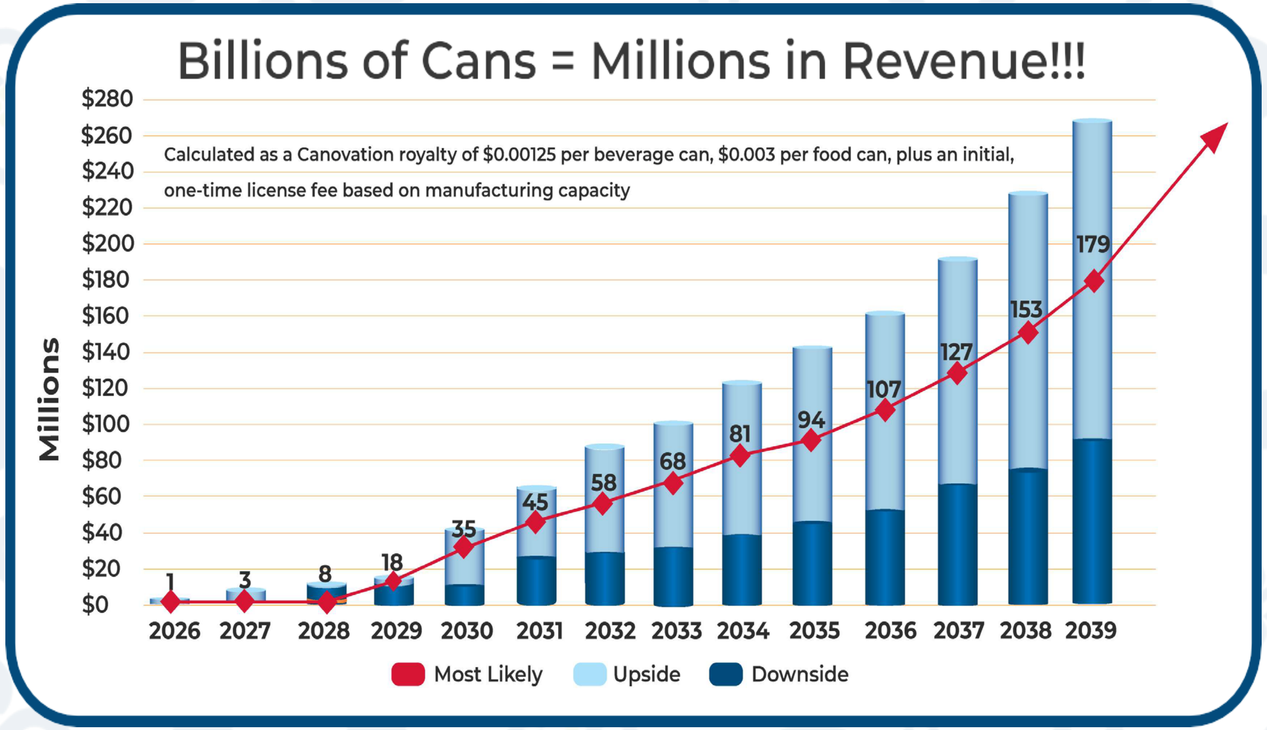
ANGELUS
by bw packaging

AROL
closure systems

IBC INTERCONTINENTAL BEVERAGE CAPITAL

The Ask

- ✓ **Raising capital to install pilot lines for beverage and food**
- ✓ **Post-commercialization, no follow-on capital required**
- ✓ **Lucrative Returns (60-80% EBITDA)**



Join Canovation to leave a legacy of innovation and sustainability for generations to come!

CANOVATION®

Thank you!

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CeeGreen

Safer Chemistry → *Smarter* Compliance → *Strategic* Growth

CeeGreen

AI-driven automation of chemical regulatory compliance and product safety workflows

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AI-Driven Chemical Regulatory Compliance

CeeGreen

Plug and Play - New Materials & Packaging

November 2025

CeeGreen

The $200B Problem

+$10M fine!

Manual, error-prone, reactive *compliance systems*

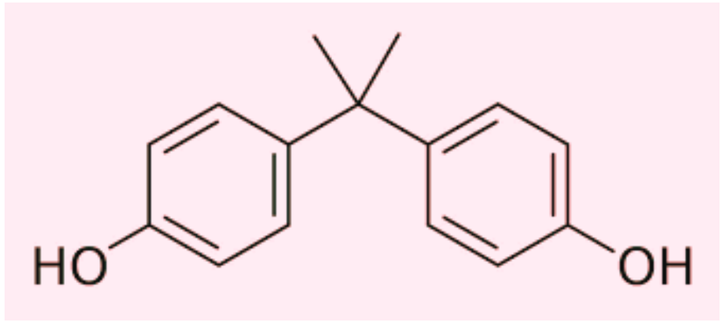
Chemical compliance failures from ***increasing regulatory fragmentation*** cost the chemical industry +$200B/yr due to **labor costs, toxicity testing, and fines**

- **DELAYED** Product Launches
- **DISRUPTED** Supply Chains
- **COSTLY** Penalties

CeeGreen

The Regrettable Substitution Trap

BPA (Bisphenol A)

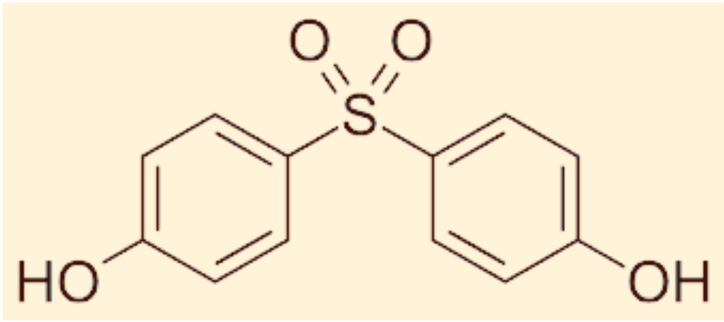


Restricted AND Hazardous

Formulator Swap

Similarity Principle

BPS (Bisphenol S)



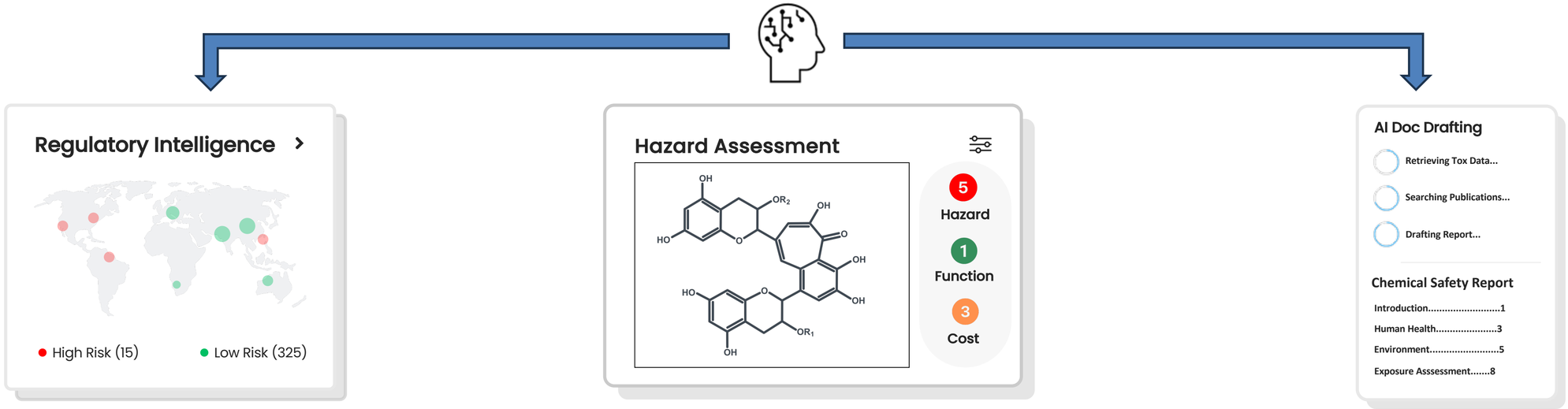
Not Restricted (yet) AND Hazardous

Costly cycle of reformulation and relabeling due to unforeseen restrictions

New Paradigm: Proactively address ***emerging regulatory*** and ***safety risks***

From Reactive to Proactive Compliance

CeeGreen Regulatory Digital Copilots enable ***intelligent automation*** for scientific regulatory workflows across global jurisdictions



Regulatory Foresight

Track and predict emerging restrictions across 100+ global jurisdictions

Safety Assessments

Comprehensive hazard and sustainability assessments across 30+ categories

Compliance Documentation

Auto-generate compliance documentation according to local jurisdictions

CeeGreen

- Reg Intel
- Data Manager
- Hazard Endpoints 12
- Swap Chem
- Report

Welcome to CeeGreen Regulatory Intelligence Platform

Global Alert Map

High Priority · Medium Priority · Low Priority

North America	Asia Pacific	Middle East	Europe
34	18	3	13

Africa	South America
2	5

Impact Summary

High Risk	20
Medium Risk	5
No Issue	340
Overall	365

Revenue Risk

High Risk Products	$24.5M
Medium Risk Products	$12.8M
Potential Fines	$8.3M
Total Net Revenue at Risk	$45.6M

Due Dates

EU REACH Registration Deadline for Low-Volume Chemicals
10/02/2025

Safety Data Sheet Updates for New CLP Classifications
01/03/2025

China MEE New Substance Notification Deadline
28/03/2025

Chemical Product Portfolio Summary

Last updated: 14/01/2025 at 13:54

The European Chemicals Agency (ECHA) has announced new REACH restrictions on microplastics in consumer products, effective March 2025. Additionally, updates to the Classification, Labeling and Packaging (CLP) regulation introduce new hazard classes for endocrine disruptors and PBT substances. China MEE releases draft guidance on new chemical substance notifications, with significant changes to polymer registration requirements.

Key Actions Required

Review microplastic content in products and submit compliance plan by 15 February 2025

Update Safety Data Sheets with new CLP hazard classifications by 1 March 2025

Submit comments on China MEE draft guidance by 28 January 2025

Scaling CeeGreen Regulatory AI Systems across the Chemical Industry

- **200+** Customer Discovery Calls
- Strategic **partnership** with a multinational safety lab
- Multiple CDAs in place for pilot collaborations (**$1B enterprises**)

Phased Rollout

Industry adopters with customized AI regulatory solutions

Focus Subsectors

Most regulated sub-sectors (e.g. **food-grade chemicals, agrochemicals, consumer**)

Business Model

SaaS platform with APIs and optional custom integrations for enterprise

Our Team

The **CeeGreen** founding team combine **chemistry + AI expertise** within Fortune 500 companies commercializing material products and deploying software solutions

Dr. Dami Phillips

CEO / Co-Founder

Dual expertise in materials science and AI to accelerate chemistry development while ensuring regulatory compliance - proven track record of bringing products to market

Dr. Wenjiao Huang

CTO / Co-Founder

Combines expertise in long-life battery chemistry and AI to develop safer energy technologies that meet emerging regulatory standards

Georgia Institute of Technology · Berkeley University of California · UF University of Florida

Lam Research · BASF We create chemistry · intel · GM · Hyundai

CeeGreen

Reimagining chemical regulatory compliance with digital automation

- Food and Bev
- Coatings
- Specialty
- Personal Care
- Agrochemicals
- Cosmetics

Partner with us!

408-550-6313

info@ceegreen.ai

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STARTUP PRESENTATION

HAZE CANADA

Haze Automotive

Manufacturing aerospace-quality carbon fiber parts at automotive pricing.

#PNPTCSiliconValley

Join us at **pnptc.com**

HAZE

The Operating System for Printing Large Structural Parts with Robotics

Sean M. Hazaray
Co-Founder & CEO

Sean@HazeAutomotive.com

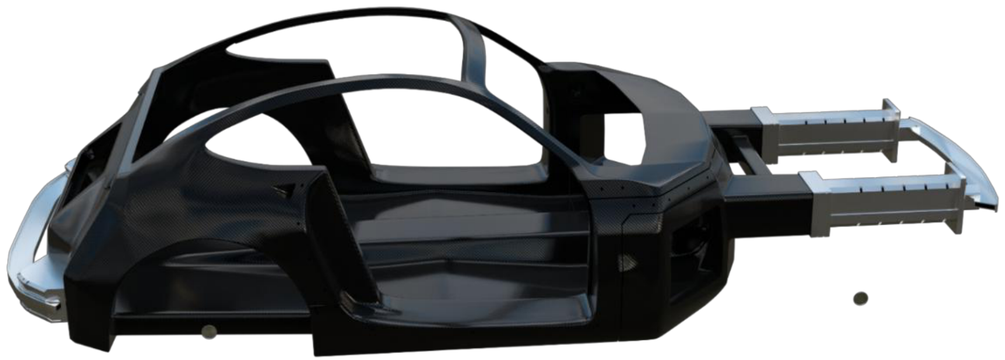
Backed by:

ALCHEMIST ACCELERATOR

BUSINESS MODEL

What does HAZE do?

We Build…



Large Scale Structural Parts

We Sell To…

Automaker, Defense Companies,
Drones, etc.

PRODUCT

We have already made large scale parts, ready to sell

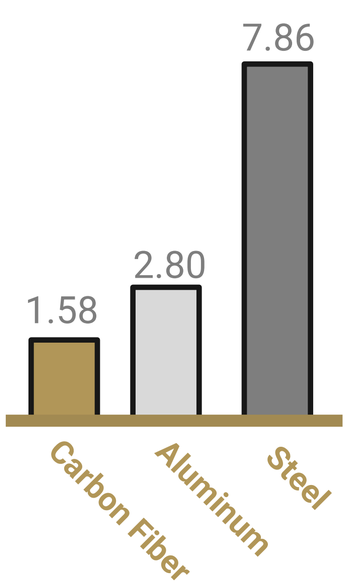
HAZE CANADA

Why are so passionate
about Carbon Fiber?

BACKGROUND

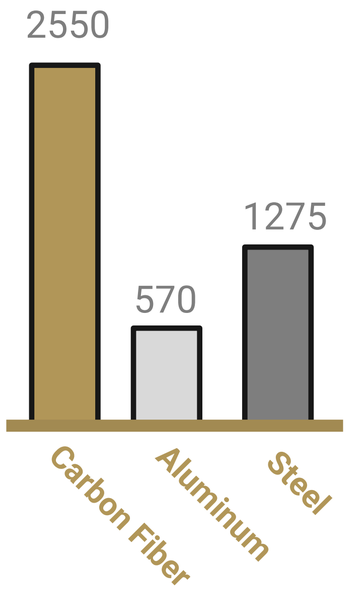
Carbon Fiber is Better than Aluminum and Steel

LIGHTER



Density (Weight)
(units: g / cm^3)

STRONGER



Tensile Strength
(units: Mpa)

SAFER

With Carbon Fiber:

40% Less Weight → 35% Increased Range

HAZE CANADA

BENEFIT

Replacing metal with carbon fiber increases battery range by 35%

TESLA WITH ALUMINUM

4,561 lbs

372 mi

TESLA WITH CARBON FIBER

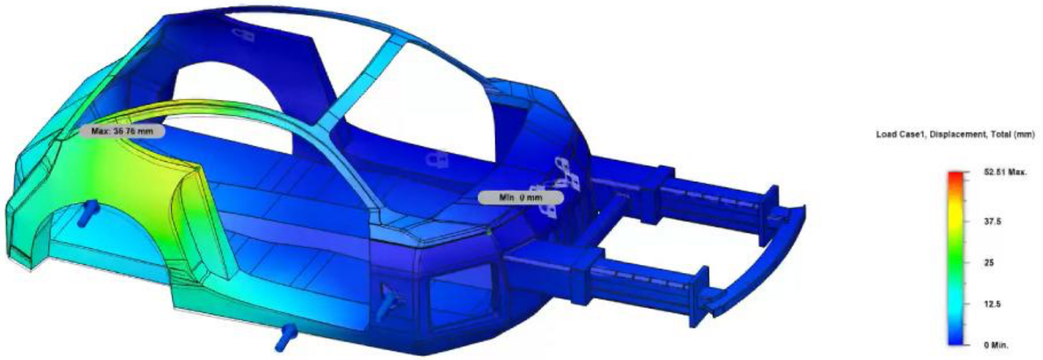
3,192 lbs

502 mi

HAZE CANADA

BENEFIT

Carbon Fiber dissipates high-impact energy better than other materials

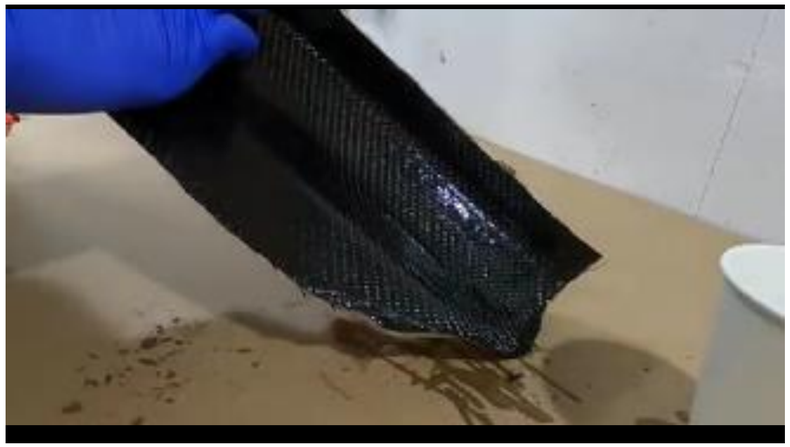


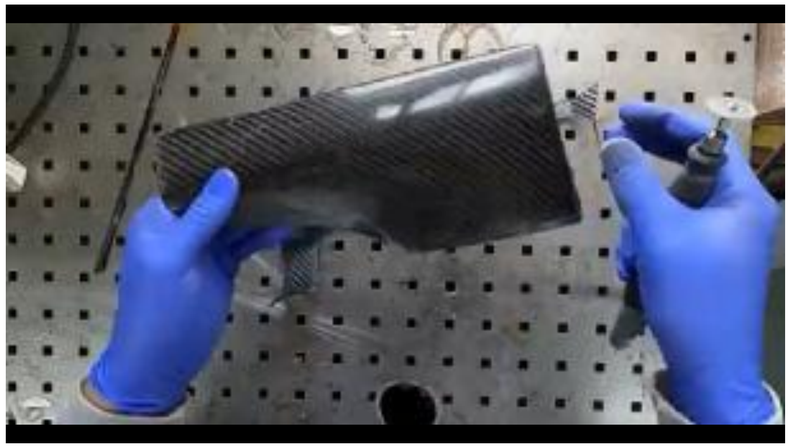
HAZE CANADA

Why isn’t everything
made of carbon fiber?

PROBLEM

Traditional Carbon Fiber Production → Expensive Labor Cost





HAZE CANADA

PROBLEM

Large structural components are hard to print. Current systems fail to deliver consistent results.

Too Heavy Prints

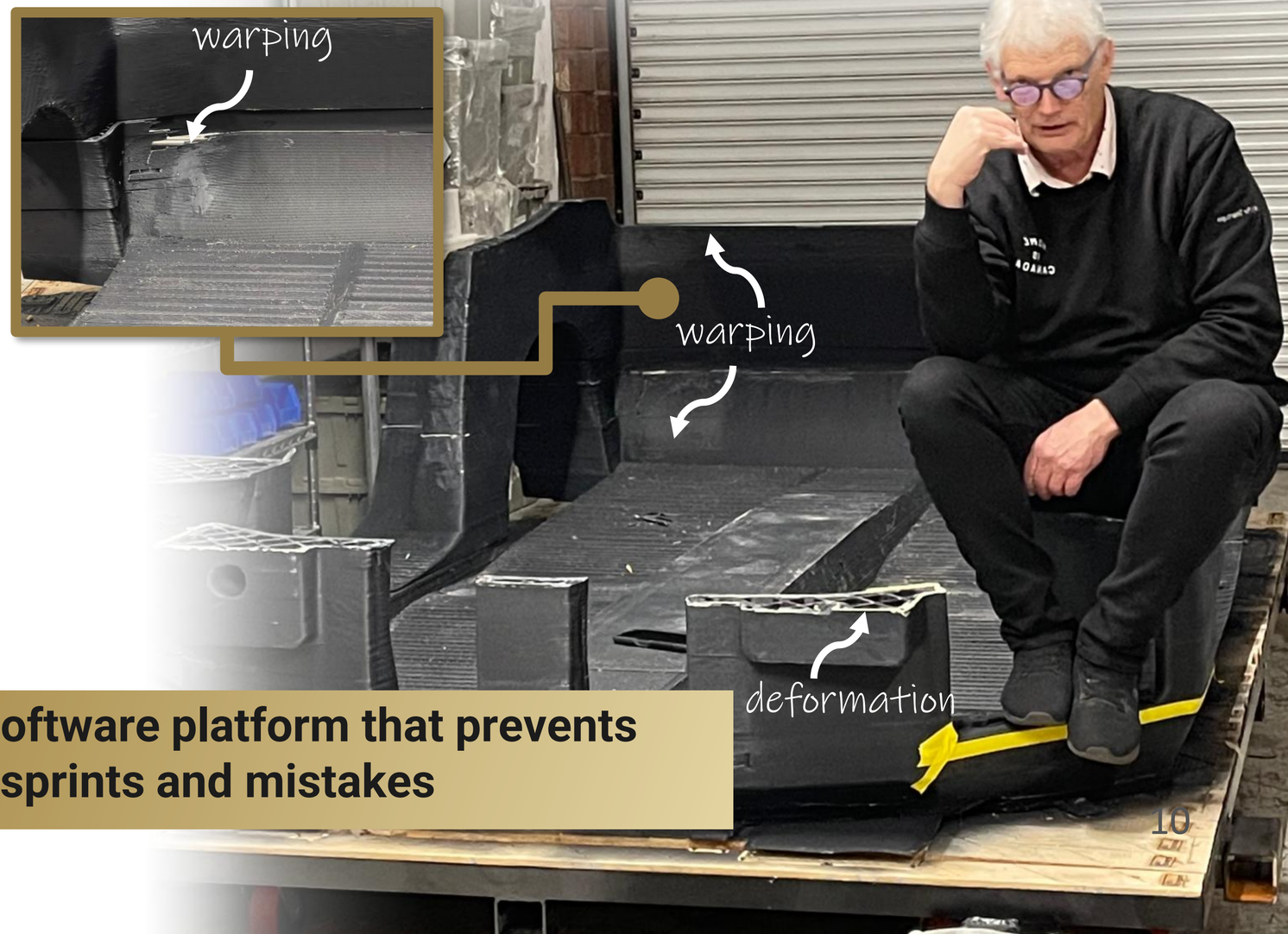
No smart control leads to material overuse

Warped & Deformed

Due to Poor heat regulation

Weak Structures

Inconsistent bonding undermines strength



There’s no software platform that prevents misprints and mistakes

HAZE CANADA

TEAM

Deep domain experience in automotive, robotics, and software.

Sean Mario Hazaray
CEO & Co-Founder

Henry Lo
CTO & Co-Founder

Loren Hillier
Chief Scientist & Co-Founder

SUBARU
UNIVERSITY OF OXFORD
McLaren
ASTON MARTIN
ASTON MARTIN
NASA
LOCKHEED MARTIN

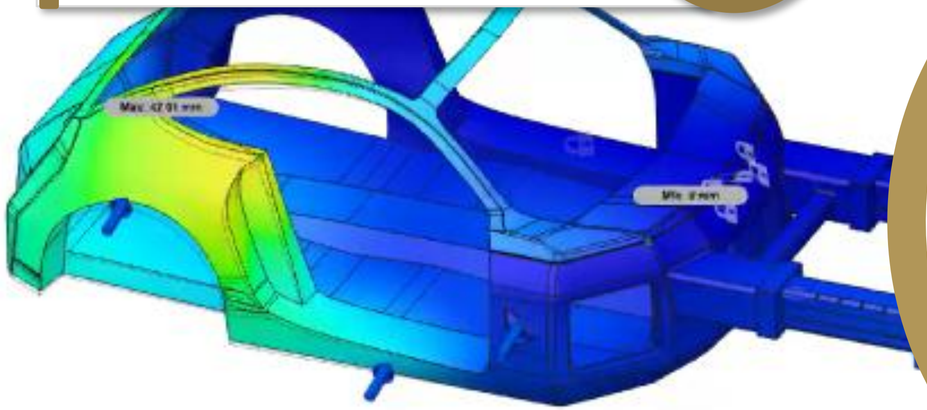
HAZE CANADA

SOLUTION

A full-stack software suite for robotic 3D Printing: Conjure OS

Pre-Print Intelligence

- Automated FEA and slicing
- Reduce setup time



A Comprehensive Software Solution

CONJURE OS

In-Process Control

Sensor-driven feedback ensures accurate printing

Post-Print Validation

Embedded diagnostics verify structural integrity

HAZE CANADA

PRODUCT

Model 1 Printer: A flagship reference printer that proves the value of Conjure OS

Showcases Conjure OS

Built to fully demonstrate the capabilities of our intelligent software stack.

Off-the-shelf robotics

Uses proven components to cut development time and reduce costs.

Ready to scale

Compatible with any robot and material setup, opening up broad market potential.

HAZE CANADA

PRODUCT – Proprietary Material

We developed a new carbon fiber material that delivers cost and sustainability gains

50% lower cost than traditional CF

Built to fully demonstrate the capabilities of our intelligent software stack.

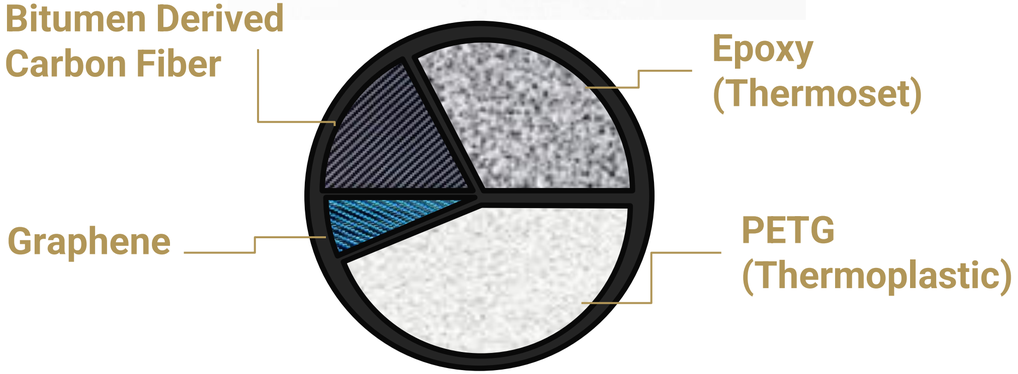
Better Sustainability

Uses proven components to cut development time and reduce costs.

Abundant and scalable

Feedstock is derived from widely available raw materials, positioning us for future low-cost, high-volume production

Haze's Proprietary Material: CarbonHD

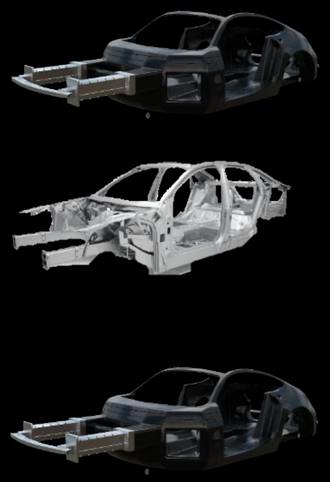


HAZE CANADA

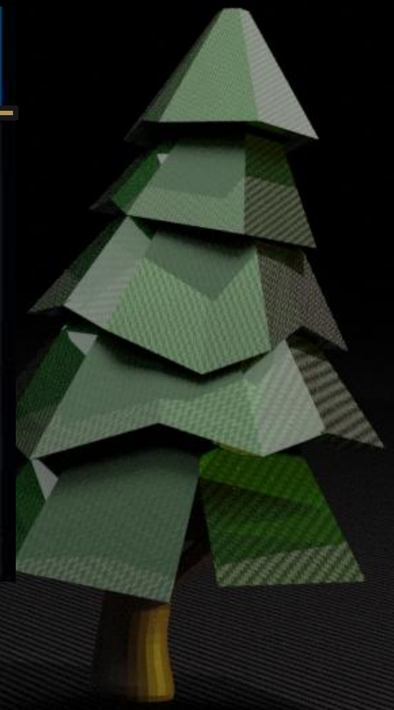
IMPACT & SUSTAINABILITY

Our novel CF material has 56% less CO2 than traditional CF

Car Weight of a 125 KG Frame Weight



	Energy Used	CO2e Emissions	Total Trash Output	Fresh Water Used
Carbon Fiber	14,500 MJ	1,088 KG of CO2e	65 KG of Trash	0 Gallon of Water
Aluminum	6,250 MJ	1,063 KG of CO2e	44 KG of Trash	188 Gallons of Water
HAZE Carbon Fiber	6,000* MJ	544* KG of CO2e	15* KG of Trash	0 Gallon of Water



HAZE CANADA

Source: UC Irvine Research

*Estimates Based on Initial Study

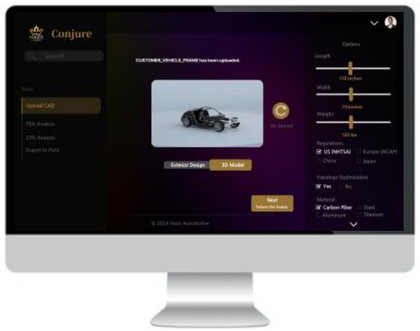
PRODUCT – Manufacturing Process

Proprietary manufacturing reduces cost and complexity for customers

Haze Manufacturing Process

Proprietary New Material

Proprietary Software



Proprietary Printer

90% reduction in time.
80% reduction in manufacturing cost.

TRACTION

MVP prototype built. Core tech validated.

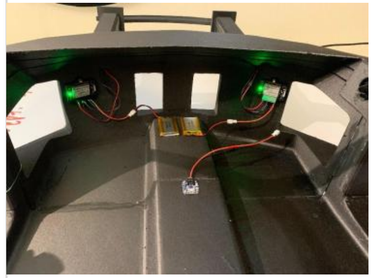
Full-size vehicle frame printed

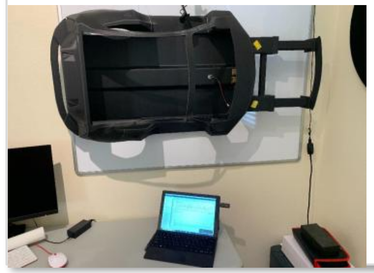
Demonstrated we can print large structural parts end-use parts with minimal warping

Sensor fusion for durability

With support from Google for Startups, we integrated sensing into our prototype to predict long-term performance

Google for Startups





CarbonHD material deployed

Successfully printed with our low-cost material, showing real potential for production-level cost savings

HAZE CANADA

TRACTION

Mobility customers want this. Now.

Sports Cars and Passenger Vehicles	Autonomous & Mobility Vehicles	eVTOLs

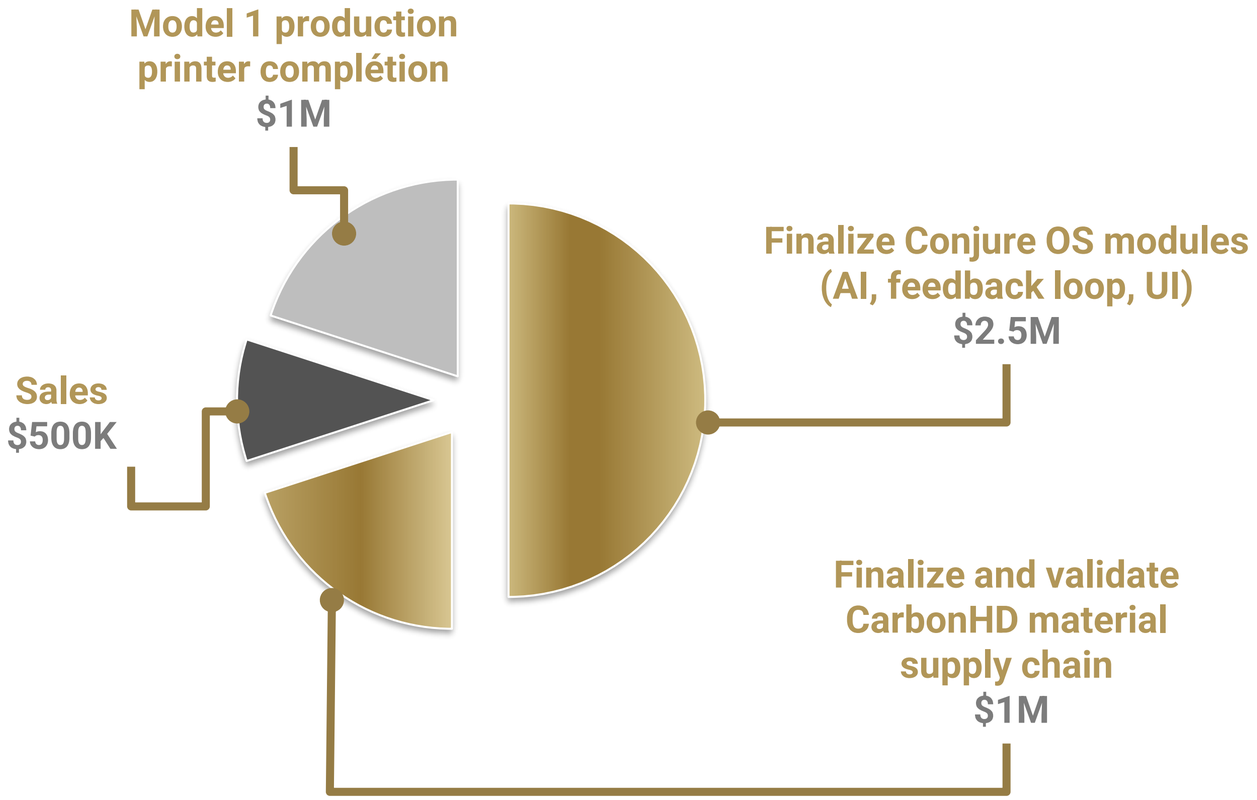
10 LOIs signed.*
We've earned early trust. Execution is the next milestone.

HAZE CANADA

*LOIs signed were originally for contracted parts

ASK

Raising $5M seed to take LOIs to production



CONTACT US

Thank You!

Sean Mario Hazaray
Co-Founder – CEO
Sean@HazeAutomotive.com

Haze Automotive
Tel: +1 (317) 361-6717

HAZE
CANADA

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STARTUP PRESENTATION

TerraSafe Materials

TerraSafe Materials

Accelerating the the profitable, sustainable transition to a bio-economy by curating plastic-free solutions

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TerraSafe™

Transforming food packaging *from a polluter to a protector.*

Dr. Julie Willoughby, CEO

$6M Series A Raise

Julie@TerraSafeMaterials.com

We Don’t Want to Eat Plastic

Plastic packaging is failing to protect what it promises — our food and our health.

Food Safety is at Risk

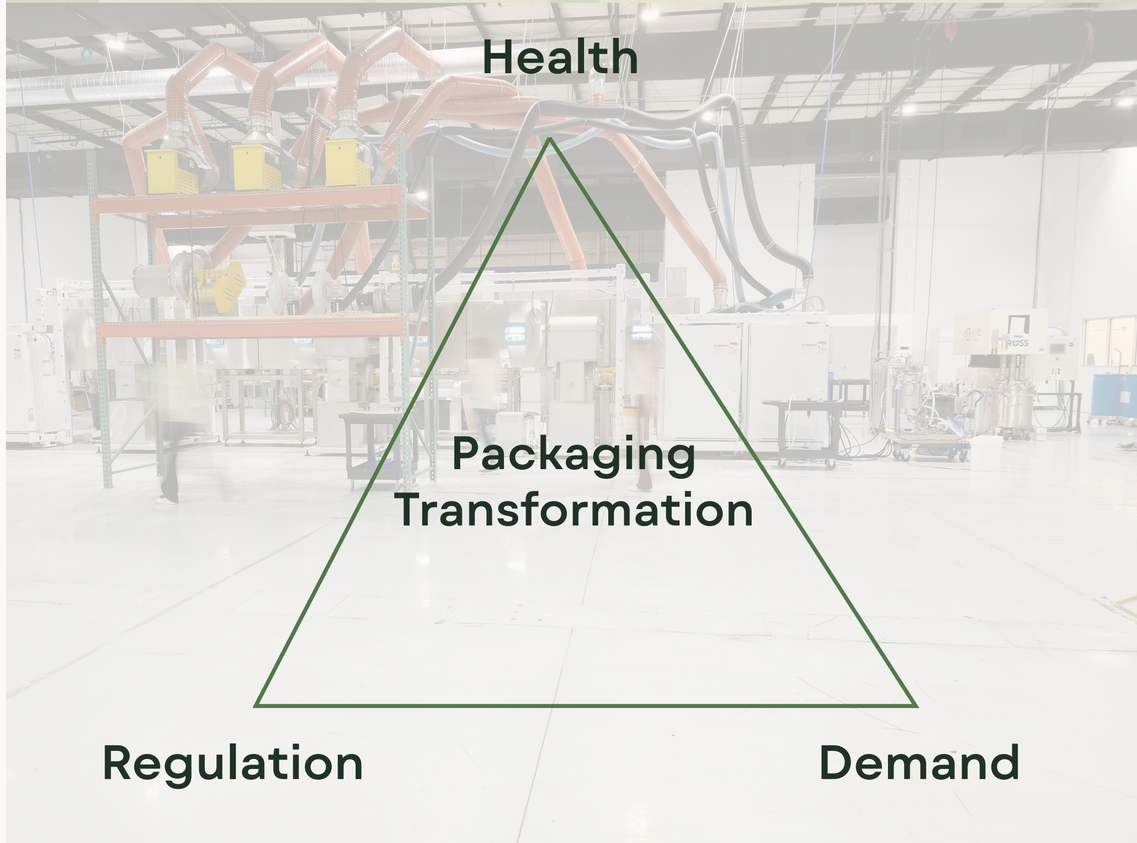
Scientific evidence shows plastic packaging leaches chemicals and sheds directly into the food we eat, accumulating in our bodies.

Convenience Plastic has become Inconvenient

Post-COVID consumers are aware of the strain plastic waste places on our health, homes, and infrastructure.

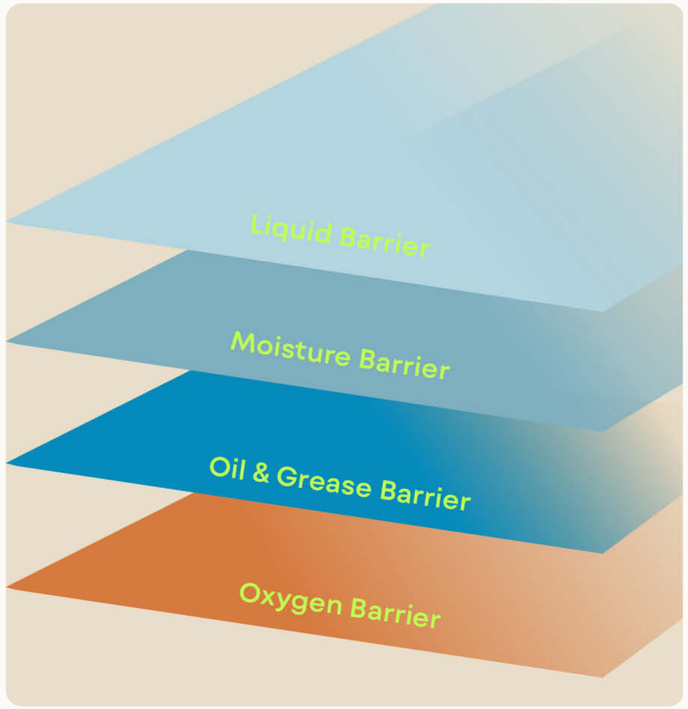
This is More than an Environmental Motivation

The next generation of consumer goods packaging must deliver protection and convenience — without the plastic.

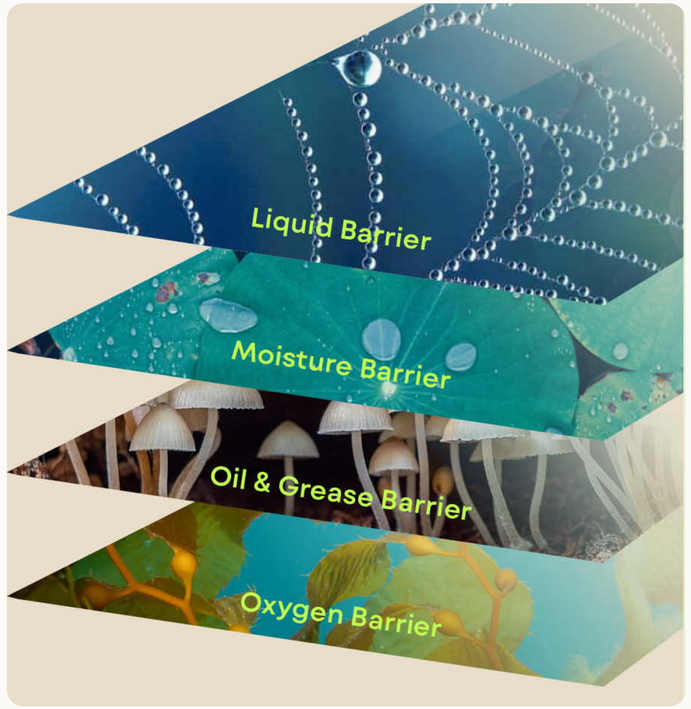


We Harness Nature’s Building Blocks to Scale Materials

Like the plastics industry, we layer multiple natural technologies to achieve performance packaging.



Performance plastics rely on layering barrier technology.



Barriers from nature can be layered the same way.

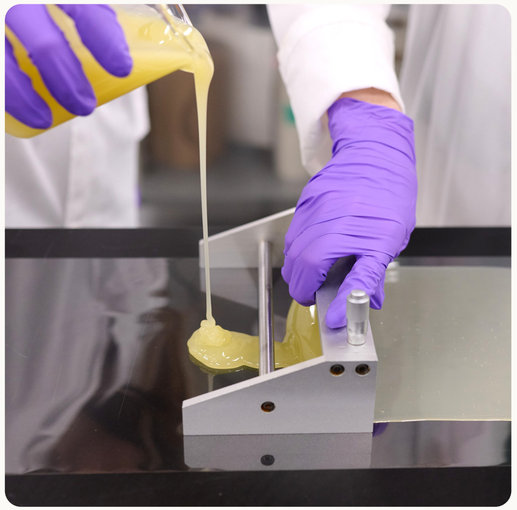
At TerraSafe, we’re scaling nature.

TerraSafe’s Integrated Tech Portfolio

Our integrated IP approach, spanning 10+ patent families, combines multi-layer barrier technology with commercial scale up integration to bring plastic-free materials to market at speed and cost.

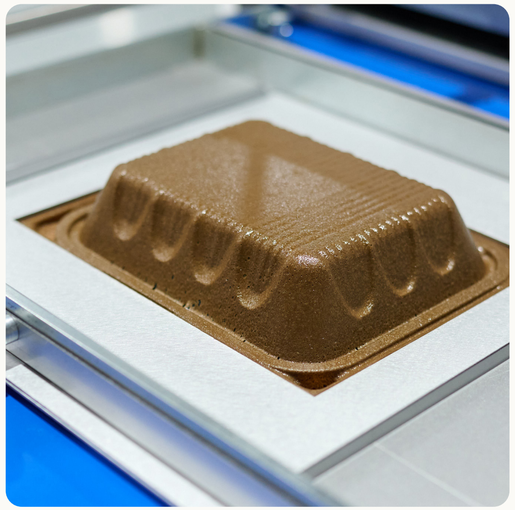
Dissolving Dosing & Convenience

Polysaccharides



Films & Coatings

Polysaccharides & Bio-Based Polyesters



Trays & Containers

Nanofibrillated Cellulose, Lignocellulose, Composites

Surface Modifications

Biomimicry for Form Factors i.e. Adhesion, Superhydrophobicity

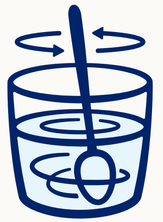
Droply™

powered by **TerraSafe**

Flagship Product

Droply™: Proven, *cost-competitive dissolving packaging*

Step 1
Drop in Water

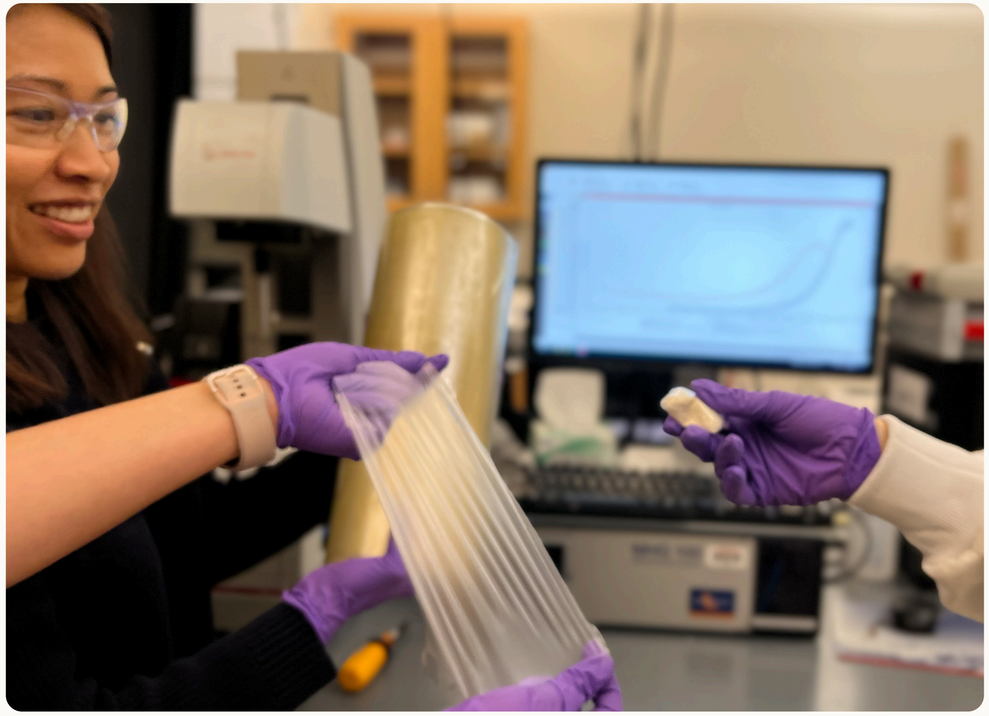


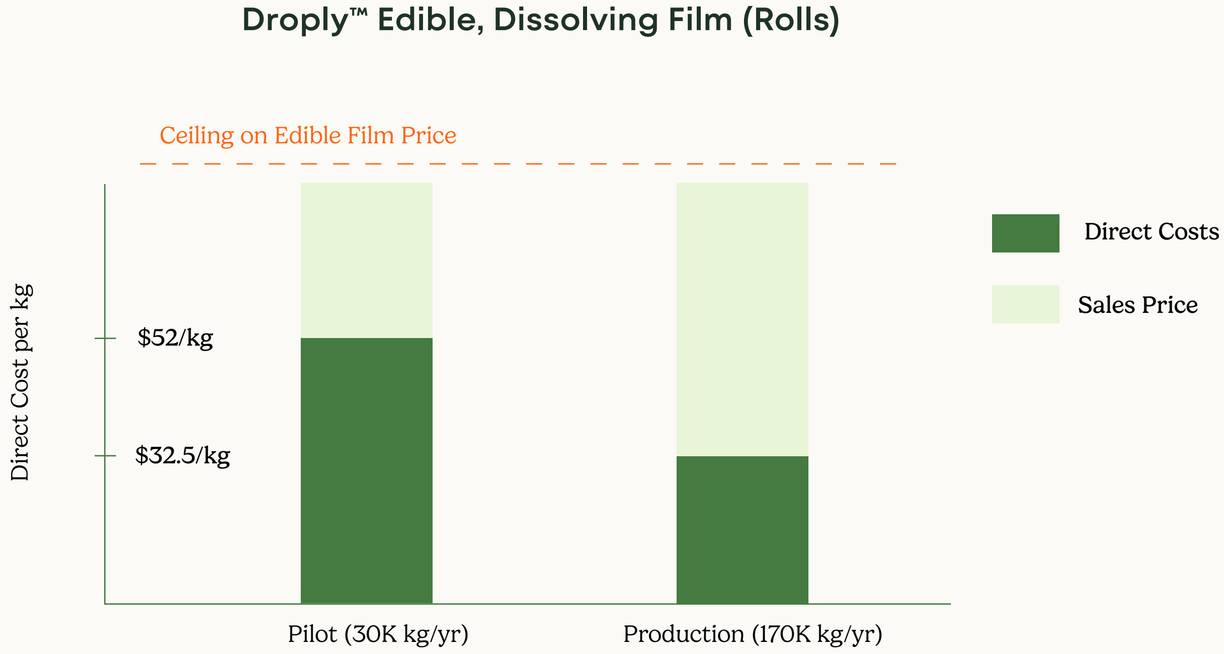
Step 2
Stir to Dissolve

Step 3
Enjoy!

TerraSafe Advantage: Turning Science into Products at Cost

Case Study: Droply was developed to be **a heat sealable, manufacturable film** fine-tuned to react with moisture in the right conditions: delivering performance and convenience without a green premium.





**Scaling from 30K → 170K kg/yr drives a 58% reduction in unit costs.*

Growing Customer Pipeline Across $13.6B Market Opportunity

Product Roadmap

$1.6B TAM*

2025

$12B TAM**

2026

*Source: *Edible Packaging Market Analysis: Current & Future Trends, Acumen Research & Consulting*
*** Euromonitor and Industry Expert Research*

>$5.5M in LOIs and Active Pilots Across B2B and B2C Channels

Early Adopters & Brand Ambassadors (B2C)

nature clean — IN LOVE WITH OUR PLANET — SINCE 1963
tailwind
THE VITAMIN SHOPPE
YAKIMA CHIEF HOPS
Hot Chocolate T-Bag Company
VIBRANT HEALTH
THORNE
DROP PROTEIN
The REPUBLIC of TEA

Strategic Scale Partners (B2B)

MATTPAK — CONTRACT PACKAGING & HIGH-SPEED EQUIPMENT

CDMO serving the health-care industry with >$7B annual revenue

CPG multinational with >$17B in annual revenue

Plant-based ingredients CPG supplier

The Right Team to Lead the Multi-Material Revolution

Dr. Julie Willoughby
Chief Executive Officer

30 Years of Experience turning Innovation to Commercialization

Former Chief Scientific and Commercialization Officer, Circ
led technical diligence and raised $65M+ in venture and strategic capital; scaled from lab bench to 3,500 kg/day

Ex-Director, Nike Manufacturing Innovation
with $250M in platform impact

PhD in Chemical & Biomolecular Engineering, NCSU
former faculty and research leader in regenerative materials, Bill and Melinda Gates Foundation Fellow

Jeff Veltkamp
COO
MBA, University of Arkansas

Jared Raszewski
Co-Founder
BS Chemical Engineering,
University of Pittsburgh

Caleb Meredith
Technology
PhD, Materials Science
Penn State University

Mary Lempres
Product
MS Industrial Design
Pratt Institute

Series A: Raising $6M in Equity

Lead Investor - $2M

Generation Food Rural Partners Fund

A BIG IDEA VENTURES FUND

Series A Milestones

Q4 2026-Q2 2027

Corporate Development

$5M recurring revenue for Droply edible film and pods

Offtake commitments for 65% of capacity with strategic partners

Q2-Q4 2026

Engineering & Manufacturing

Fully operational in-house manufacturing in our FDA-registered facility

Secure 175-350 tons/ year of film & podding capacity

Q4 2025-Q2 2026

Innovation

Engineering packages for Droply mnfg

Extended validation of full scale podding manufacturer

MVP biocomposite retail food tray

MVP liquid barrier coating

MVP Flexible O2/moisture/PFAS-free flexible film

TerraSafe™

Julie Willoughby, PhD

Chief Executive Officer

Julie@TerraSafeMaterials.com

Learn more at:
www.TerraSafeMaterials.com
TerraSafe Holdings, Inc.

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CLOSING REMARKS

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CLOSING REMARKS

Tabitha Mills

Senior Program Manager

Plug and Play

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THE TEAM

Robert Grey
Director, Sustainable Future

Gabe Mickel
Corporate Partnerships Manager

Sakura Grant
Partner Success Manager

Stefan Wan
Ventures Associate

Alex Davisson
Senior Ventures Associate

Alejandro Nieto
Senior Ventures Analyst

Tabitha Mills
Senior Program Manager

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Corporate Reverse Pitch

Silicon Valley Room
4:00pm

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SAVE THE DATE!

FEBRUARY 11, 2026

NEW MATERIALS & PACKAGING BATCH KICKOFF

MAY 19-21, 2026

MAY SILICON VALLEY SUMMIT

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BATCH 19 STARTUPS

Advanced Packaging Materials and Technology

- CANOVATION
- EVOXIA LABS
- N&E INNOVATIONS PTE LTD
- TerraSafe™

AI x Materials

- CeeGreen — Safer Chemistry → Smarter Compliance → Strategic Growth
- MATCHED MATERIALS
- XTRIUM™

Next-Gen Performance Materials

- 4th State Energies — PLASMA ENABLED SOLUTIONS
- HAZE CANADA
- SINOVIA TECHNOLOGIES

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BATCH STARTUP AWARD

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Startup

AWARD

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THANK YOU, MENTORS!

Angela Tseng *Change Climate Project*
CJ Terral *TerraLoop*
Darryl Kirsh *Fiddlehead Ventures*
Desta Raines *Advisor*
Diana Tsao Block *Fractional COO & Advisor*
Florian Turk *Microwave Solutions*
Hart Haugen *Sherwin-Williams*
Jay Amarasekera *Consultant, ex-SABIC*
Julie Corbett *Ecologic Brands*
Khaled Boqaileh *LabsCubed*
Laurie McGinley *Via Lucent*
Mark Pastore *Malava Partners*
Maureen Rinkunas *Redesign Health*
Michael Medoro *Rivian*
Nico Grosso *Lilac Solutions*
Nifemi Aluko *NapoRepublic*
Paul A. Kline *IT & Sustainability Executive*
Ron Erd *Unlocking Growth*
Ryan Pearson *Henkel*
Tami Hutchinson *Intel Capital*
Yuki Sekiguchi *Startup Navigators*
Yzhar Perry *Enlipsium*

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THANK YOU, PARTNERS!

pepsico
Food. Drinks. Smiles.

INX
A SAKATA INX COMPANY

SHERWIN-WILLIAMS

VALQUA

TANAKA
TANAKA PRECIOUS METALS

TOSOH

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CORPORATE PARTNER AWARD

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Corporate Partner

AWARD

SHERWIN-WILLIAMS

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THANK YOU FOR ATTENDING

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