



SUSTAINABLE PAPER AS A SUPER MATERIAL

Pitch Deck – January 2023



Microwave Food Packaging: a 'Niche' \$17B Market

Growing to \$36B by 2032

PACKAGING
\$350B

MICROWAVE FOOD
PACKAGING

\$17B

FROZEN FOOD
\$400B



PLASTIC

20TH CENTURY MIRACLE MATERIAL

TURNED

21ST CENTURY GLOBAL CRISIS

1.8 GtCO₂e = 3.4% OF GHG EMISSIONS

Replacing Plastic in Packaging

Market Pull: Consumers Are Driving Change

CONSUMERS

- ▶ Fear **micro plastics** and **toxic chemicals in plastics**
- ▶ Demanding **sustainable** packaging

LEADING TO:

- ▶ **Bans** on **single use plastics** and **non-recyclable** packaging
- ▶ Brands **reducing plastic** in packaging

ECO PACKAGING

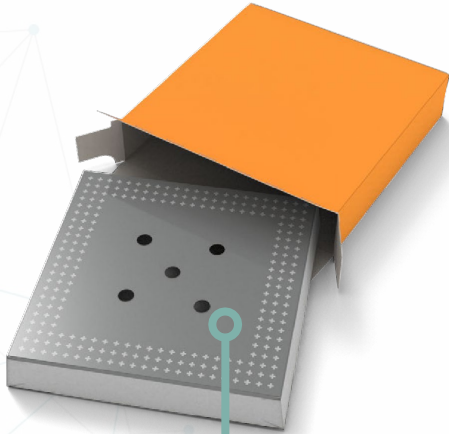
- ▶ Packaging manufacturers need new innovative technology
- ▶ **The 'Holy Grail'**: *Sustainable, Cost Parity, Improved Performance*



Folia Paper Delivers Better Microwaved Food

Microwave Crisping & Moisture Control Improves Food Texture

PLASTIC SUSCEPTOR



*Aluminum Bonded
To Plastic Film*

***Microwaved Food Yields
Poor Texture And Quality***

- ✓ HEATS FOOD
- ! CRISPS FOOD
- ! SOAKS UP OIL/GREASE
- ! STEAM CONTROL
- ! RECYCLABLE
- ! FOOD RESULT

FOLIA'S PAPER SUSCEPTOR



Inside Packaging:
Folia's Metal Coating for
Microwave Heating

*Not
an OGR
Barrier*

Bottom/Outside of Packaging:
OGR Barrier (Not Folia)

**BETTER FOOD TEXTURE MEASURED BY
TEXTURE ANALYZER**



Unit Economics

Commercial Pricing Example

PLASTIC PACKAGING

16OZ PP PLASTIC
CONTAINER

\$0.08



PAPER PACKAGING

16OZ MOLDED
FIBER CONTAINER

\$0.10

+ 20%

*PURCHASE
PRICE PREMIUM*

+ FOLIA COATING

FOLIA'S
COATING COST

+\$0.005

+ 5%

*MANUFACTURING
COST PREMIUM*

► **Source:** Alibaba wholesale 500 units

Value Chain

Microwave Food Packaging

FOLIA MATERIALS



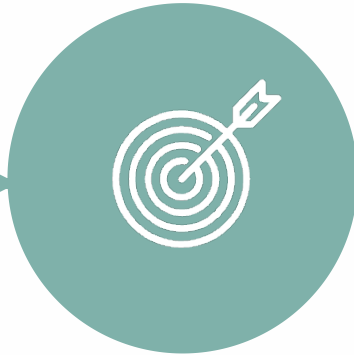
develops & supplies
patented, coated paper

FOOD PACKAGING
MANUFACTURERS



manufacture &
distribute

COMMERCIAL MARKETS



CPG brands,
foodservice

CONSUMERS



better quality food &
sustainability



Folia Is Forming a Network of Supply Chain Partners

- ▶ Folia's coating is a drop in solution for paper packaging
- ▶ Folia can license patents, sell coating solution, or sell coated paper or pulp to enterprise manufacturing partners – we never own manufacturing assets

Supply Chain

Paper Chemical OEMs

Paper, Pulp OEMs

Packaging OEMs

CPGs

Manufacturing Process:

Folia's Coating Solution

Paper Coating, Pulp Treatment

Packaging Converting

Finished Packaging

- ▶ Toll or Onsite Blending

- ▶ Online, Offline
- ▶ Toll or In-House
- ▶ Pulp, Spray, Roll-To-Roll

- ▶ Molded Fiber
- ▶ Paper

- ▶ Frozen Food CPGs
- ▶ Restaurants
- ▶ Food Service Channels

Manufacturing Channel Partner Sales Strategy

- ▶ **Consolidated industry:** 5-20 OEMs in each of paper chemicals, food paper, food packaging
- ▶ 3-5 manufacturing channel partners will gain 1-5% of the market and **\$100M per year** in revenue

PAPER CHEMICALS OEMs

Archroma – ***\$XB/yr***

Solenis – ***\$4B/yr***

Michelman – ***\$200M/yr***

PAPER OEMs

Ahlstrom – ***\$3B/yr***

Mativ – ***\$1B/yr***

Pixelle – ***\$900M/yr***

Twin Rivers – ***\$50M/yr***

PACKAGING OEMs

Amcor – ***\$15B/yr***

Georgia Pacific – ***\$10B+/yr***

Novolex – ***\$6B/yr***

ProAmpac – ***\$15B/yr***

SC Tray – ***\$300M/yr***

Molded Fiber Packaging

Footprint – ***\$135M/yr***

Rev1 – ***\$5M/yr*** WorldCentric –

\$15M/yr Zume – ***\$20M/yr***

CPG BRANDS

Tyson – ***\$50B/yr***

Amy's – ***\$500M/yr*** Con Agra

– ***\$11B/yr*** Kraft Heinz –

\$26B/yr Nestle – ***\$90B/yr***

Schwan's – ***\$3B/yr***

FOLIA MATERIALS

*Is a Sustainable Paper Platform Company
Using **PLANT-BASED CHEMISTRY**
And **NANO SCIENCE**
To Address Global Problems*

Patented Metal Coating



Outperform Plastic

Outsource Manufacturing

Drop-In Solution

Folia

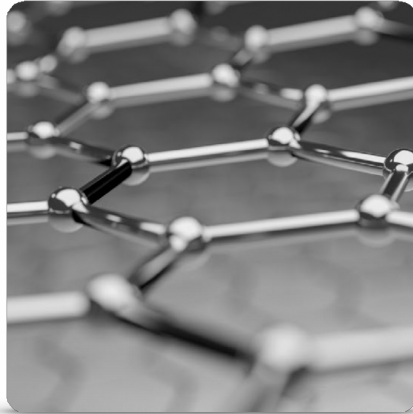
Industrial Volumes, CPG Pricing

Folia's Patented Coating Process

Advanced Materials Using Plant-Based Chemistry and Nano Science



+



+



→



Plant-Based Chemistry

Nano Science

Standard Paper &
Commodity Metal

Metallized Paper

- ▶ Invention by **CTO Dr. Theresa Dankovich** for her **McGill Chemistry PhD**
- ▶ **Metal particles** formed and bonded to paper fiber surface at **penny costs**

Folia's Patented Coating Process

Advanced Materials Using Plant-Based Chemistry and Nano Science



Standard Paper &
Commodity Inputs

Industrial
Toll Coaters

Metallized
Paper Rolls

Consumer Goods
OEMs & Brands

- ▶ **Scaled manufacturing** at existing industrial facilities without capital modifications
- ▶ Folia never owns equipment

Competitive Advantage

10% the Cost of Other Specialized Metal Coatings – Pennies vs. Dollars

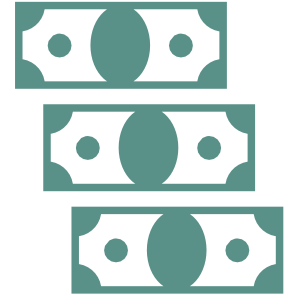


COMMODITY
INPUTS
+
STANDARD
EQUIPMENT



OTHER METAL COATINGS

SPECIALTY
CHEMICALS
+
SPECIALIZED
EQUIPMENT

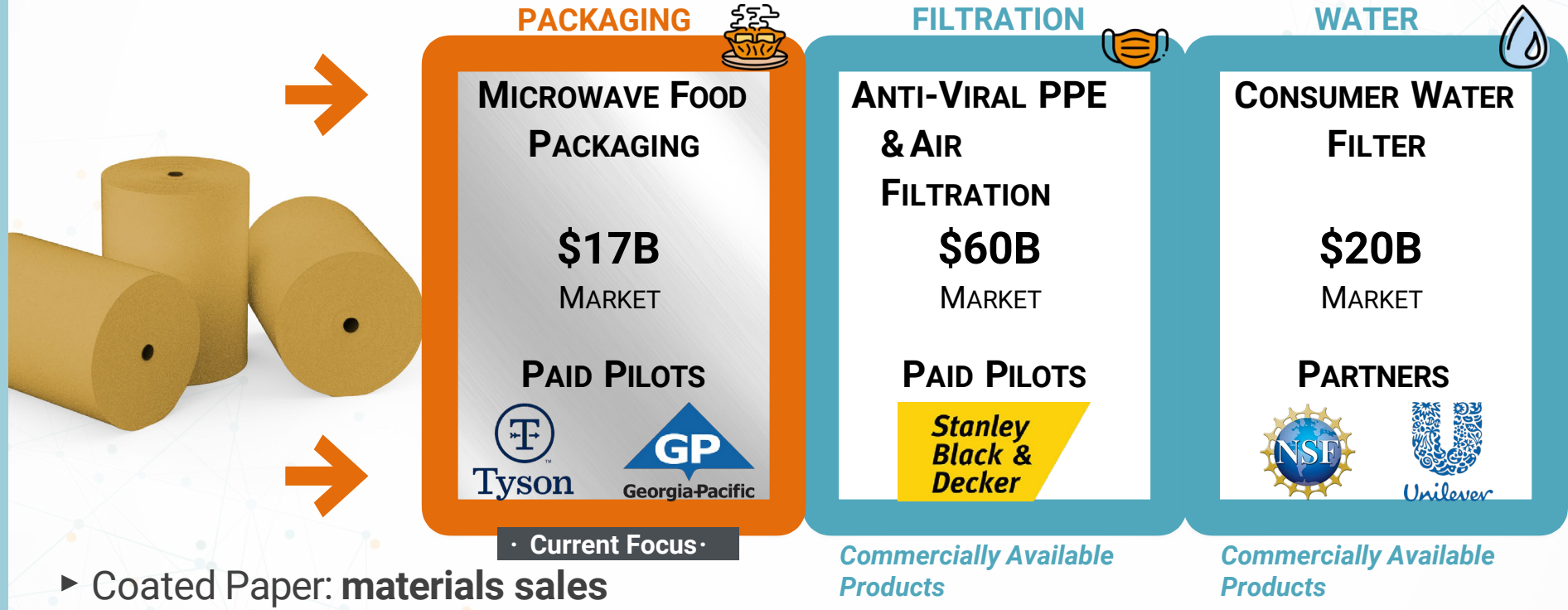


► Folia's innovations achieve the **low pricing** required for **high-volume consumable products**



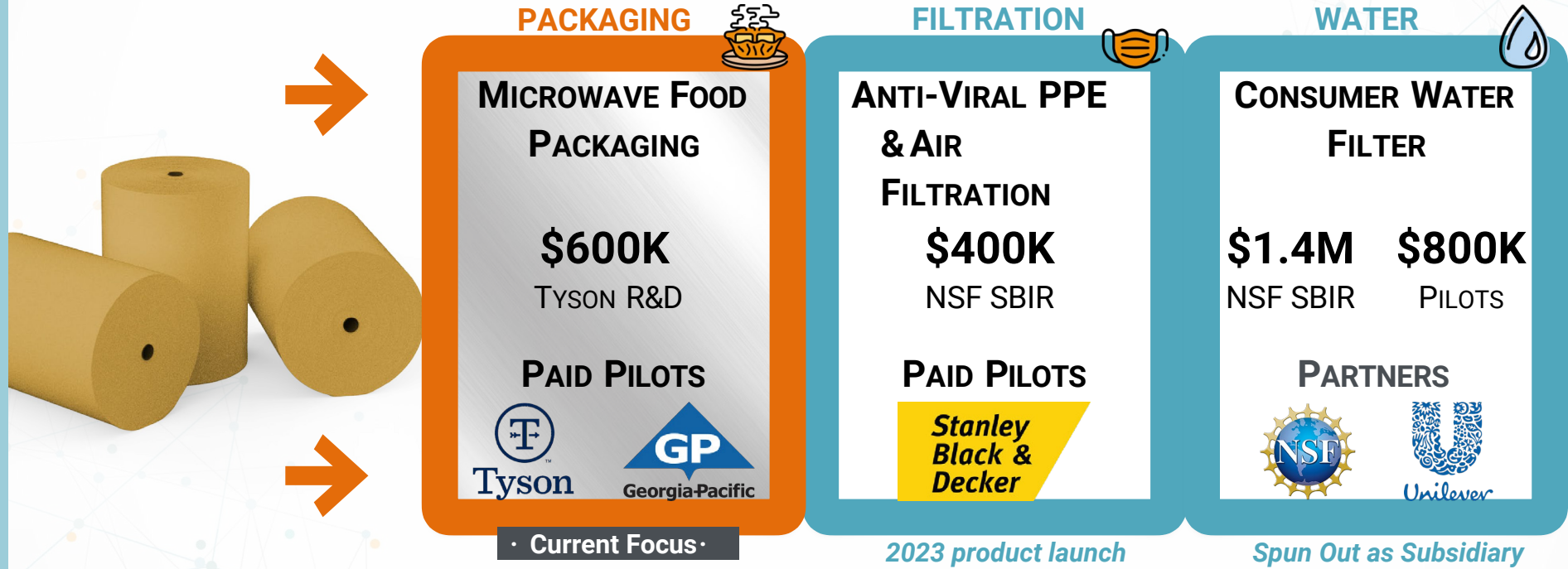
One Coating, Unlimited Massive Market Use Cases

Replace Billions of Plastic Products With Paper



Folia Partnerships and Traction to Date

Through Anchor Clients, We Develop Products – \$1.3M Revenue, \$2.8M Grants



- ▶ Filtration & Water products are **revenue generating** – overviews in product line slides
- ▶ Non-dilutive funding for earlier use cases enabled manufacturing scale up

IP Portfolio

METALLIZED PAPER



FILTRATION



PACKAGING



WATER



Patent type

Process

Article

Article

6 Provisionals:
product improvements

WIPO PCT

[WO2017124057](#)

[WO2021207663](#)

[WO2020047432](#)

Country phase

Under review

2022 Filing

Filed

Countries filed

US

China, EU, Japan, US

China, EU, Japan,
US

Issued/Issuing

India, China,
Japan, EU

► **Core Process IP.** [WO2017124057A1](#)

► *“Substrates with metal nanoparticles and a continuous process for making same”*

Impact and GHG Reduction

Sustainable Paper Reducing Plastic and Carbon Pollution

PACKAGING

**PLASTIC PACKAGING
REDUCTION**

3.5B UNITS
5 YEAR TOTAL

227K TONNES
CO₂ REDUCTION

FILTRATION

**ANTI-VIRAL
FILTERS &
PPE**

355M UNITS
5 YEAR TOTAL

8.1M TONNES
CO₂ REDUCTION

WATER

**POPULATION WITH
CLEAN WATER**

190M PEOPLE
5 YEAR TOTAL

5.6M TONNES
CO₂ REDUCTION

► 5 year CO₂ reduction: **13.7M tonnes**

Advisors, Investors, & Networks

BOARD OF DIRECTORS



Mitra Ardron



Adam Simons



Tejavan Gandhok



Gangadhar
Jogikalmath PhD



SOANE LABS

COMMERCIAL

PACKAGING

PAPER & MANUFACTURING



Satinder Bharaj
PhD



Stacey
Weissmiller



Peter Russo



Rob MacCupsie
PhD



Dale Schott



NETWORKS



Greentown
Labs



Columbia Business School
AT THE VERY CENTER OF BUSINESS™
| The Tamer Center for Social Enterprise



MASSCHALLENGE



Miller Center
for Social Entrepreneurship

m+corps



Tim Olson



Justin Newton



Vinit Nijhawan



Josh Tosteson



500
startups

STARTUP MANAGEMENT

ADDITIONAL CEO ADVISORY GROUP OF 10+ MENTORS

The Team *Successful Entrepreneurs, Scientists, Engineers, and Industry Leaders*

FOUNDERS

CEO



Jonathan Levine PhD

CTO



Teri Dankovich PhD



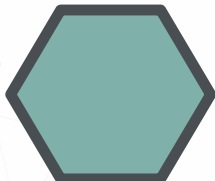
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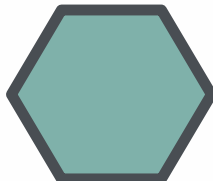
Anthony Occidentale
MIT, CTO/Founder
(Exit)

DIRECTOR, PRODUCT DEVELOPMENT



NCSU, Former CTO
Co-Founder

MATERIALS ENGINEER



Cornell and
UMich

PRODUC

DIRECTOR OF ENGINEERING



Daniel Canestaro Garcia

*University of Houston,
Allstate, Slice Wireless,
EXOvault Design*

COMMERCIAL



Linh Le



Rick Daniels



Jerry Fan

SUBSIDIARY

CEO
FOLIA WATER



**Md. Rashed
MBA**

*IBA University of Dhaka,
BRAC, British American
Tobacco, CPF*

Capital Raise – \$1.5M for Seed Round

Asks, Actions, and Terms

PREVIOUS

PRE-SEED: \$2.3M RAISED FOR R&D

- ▶ 2 products on sale; \$2.8M grants; \$1.3M project revenue – **2x investment**

2023

\$1.5M SEED

- ▶ **18 month runway:** start of CPG product sales
- ▶ **3x team:** enables servicing larger set of enterprise manufacturing and CPG pilots that embed our technology in their products
- ▶ **\$3M revenue target:** manufacturing pilots
 - ▶ \$1M Tyson pilot revenue closing Q1 2023

MID 2024

\$3-5M SERIES A

- ▶ Staff to service national scale manufacturing for CPG product launches



Jonathan Levine, Ph.D.

Co-founder and CEO

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Folia

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AS A SUPER MATERIAL