



METATM

MASTERING LIGHT
DRIVING INNOVATION

CSE:MMAT

APRIL 2021

Forward Looking Statements



This Presentation includes forward-looking information within the meaning of Canadian securities laws and within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended, regarding Metamaterial and its business, which may include, but are not limited to, statements with respect to the terms and anticipated timing of the proposed transaction with Torchlight Energy Resources Inc., the potential continued listing of Torchlight on the NASDAQ exchange and the benefits thereof, the approval of the Transaction by the shareholders of Torchlight, the business strategies, product development and operational activities of Metamaterial. Often but not always, forward-looking information can be identified by the use of words such as “expect”, “intends”, “anticipated”, “believes” or variations (including negative variations) of such words and phrases, or state that certain actions, events or results “may”, “could”, “would” or “will” be taken, occur or be achieved. Such statements are based on the current expectations and views of future events of the management of Metamaterial and are based on assumptions and subject to risks and uncertainties. Although the management of Metamaterial believes that the assumptions underlying these statements are reasonable, they may prove to be incorrect. The forward-looking events and circumstances discussed in this release may not occur and could differ materially as a result of known and unknown risk factors and uncertainties affecting the companies, including risks regarding the ability of the parties to close the proposed transaction with Torchlight Energy Resources Inc.,

approval of the transaction and continued listing by the NASDAQ exchange, approval of the Canadian Securities Exchange, receipt of shareholder approval by the shareholders of Torchlight and required third party and regulatory consents, the potential benefits of the transaction to Metamaterial shareholders, risks related to the research and development projects of the Company, risks related to the market potential of the Company’s products, risks related to the investment priorities and manufacturing plans of the Company, risks related to the scalability of the Company’s production ability, risks related to the technology industry, market strategic and operational activities, and management’s ability to manage and to operate the business. Although Metamaterial has attempted to identify important factors that could cause actual actions, events or results to differ materially from those described in forward-looking statements, there may be other factors that cause actions, events or results to differ from those anticipated, estimated or intended. Accordingly, readers should not place undue reliance on any forward-looking statements or information. No forward-looking statement can be guaranteed. Except as required by applicable securities laws, forward-looking statements speak only as of the date on which they are made and Metamaterial does not undertake any obligation to publicly update or revise any forward looking statement, whether as a result of new information, future events, or otherwise.

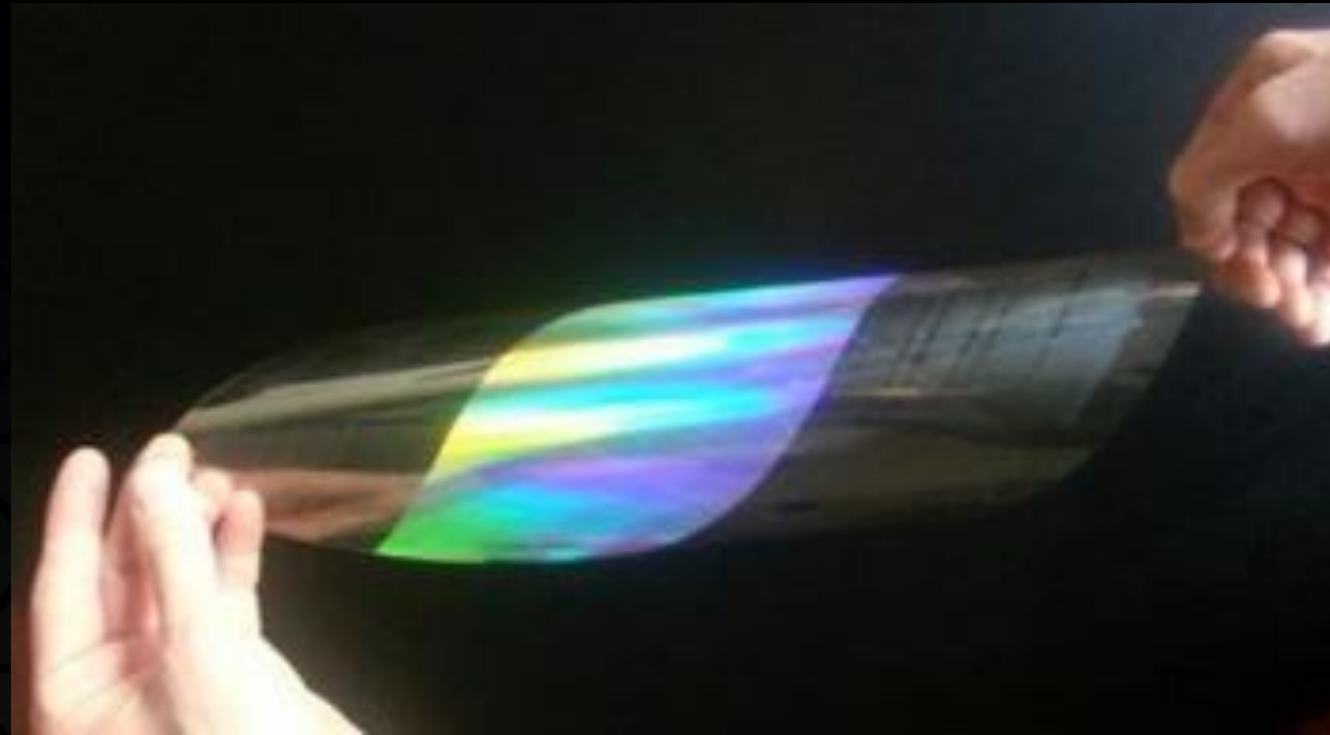
Pending Transaction with Torchlight Energy Resources



- Reverse takeover of Torchlight (NASDAQ: TRCH, a U.S.-listed public company) by META (CSE: MMAT, a Canadian-listed public company), by way of a Plan of Arrangement.
- Torchlight's pre-Arrangement stockholders will own approximately 25.0% of the new combined company post-closing, and in exchange issue shares of its common stock to holders of META common shares, representing approximately 75.0% ownership in the combined company, prior to giving effect to any equity financing pursuant to which Torchlight shares are issued to raise proceeds in excess of U.S. \$5M.
- Prior to the effective date of the closing of the Arrangement, Torchlight will declare and issue shares of Series A preferred stock to holders of Torchlight common stock representing 100% of the value of its existing oil and gas assets.
 - Shares of Series A preferred stock will be unregistered and not freely-tradable.
 - Preferred stockholders will have the right to receive a cash dividend (on a per preferred share basis) of any net proceeds received from the sale or disposition of oil and gas assets owned by Torchlight prior to the earlier of (i) December 31, 2021 or (ii) the date which is six months from the closing of the Arrangement.
 - During the sale period, the Company may spin off or sell any of the remaining oil and gas assets.
 - Further, the oil and gas assets will be held in wholly-owned subsidiaries.
- The current management team at META will operate the combined company post-closing.

Solutions for everyday life

META™



META delivers **breakthrough performance**, across a range of applications and industries, by designing, developing and manufacturing **sustainable, highly-functional materials**.

The Birth of the Digital Age

Almost every great advancement in technology can be attributed to a **breakthrough in material science**:
stone age => bronze age => iron age => => => silicon age

Electronics THEN...



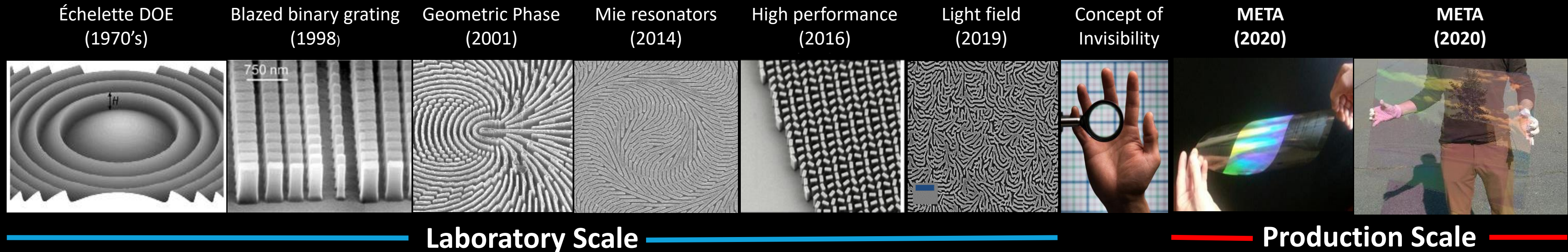
Electronics NOW...



In 1956, the **Nobel Prize in Physics** was awarded jointly to Shockley, Bardeen and Brattain for their development of the **transistor**, driven by the discovery of semiconducting materials and the means to manipulate their properties

Enabling the 21st Century “Age of Invisible Materials”

META™



What are Metamaterials?

- **Metamaterials** control on demand **unique functional properties** in absorption, emission, sensing, transmission, and guiding of light, sound, energy, and heat, as well as friction, strength, and electric energy
- Metamaterials are typically created by patterning **composite and nanomaterials** (e.g. metals, dielectrics etc.)
- Until recently, development has taken place only at the **laboratory scale** on **very small substrates**

The META Advantage

- **SPEED** - META uses **AI software** to design a library of patterns for different applications, it typically develops new custom solutions **within hours vs months**
- **SCALE** - META is one of the first companies to develop **proprietary roll-to-roll production equipment** to produce large area, high volume **nanocomposites**
- **COST** - Increasing the roll-to-roll web width and line speed should drive costs down to a **few \$/m²**

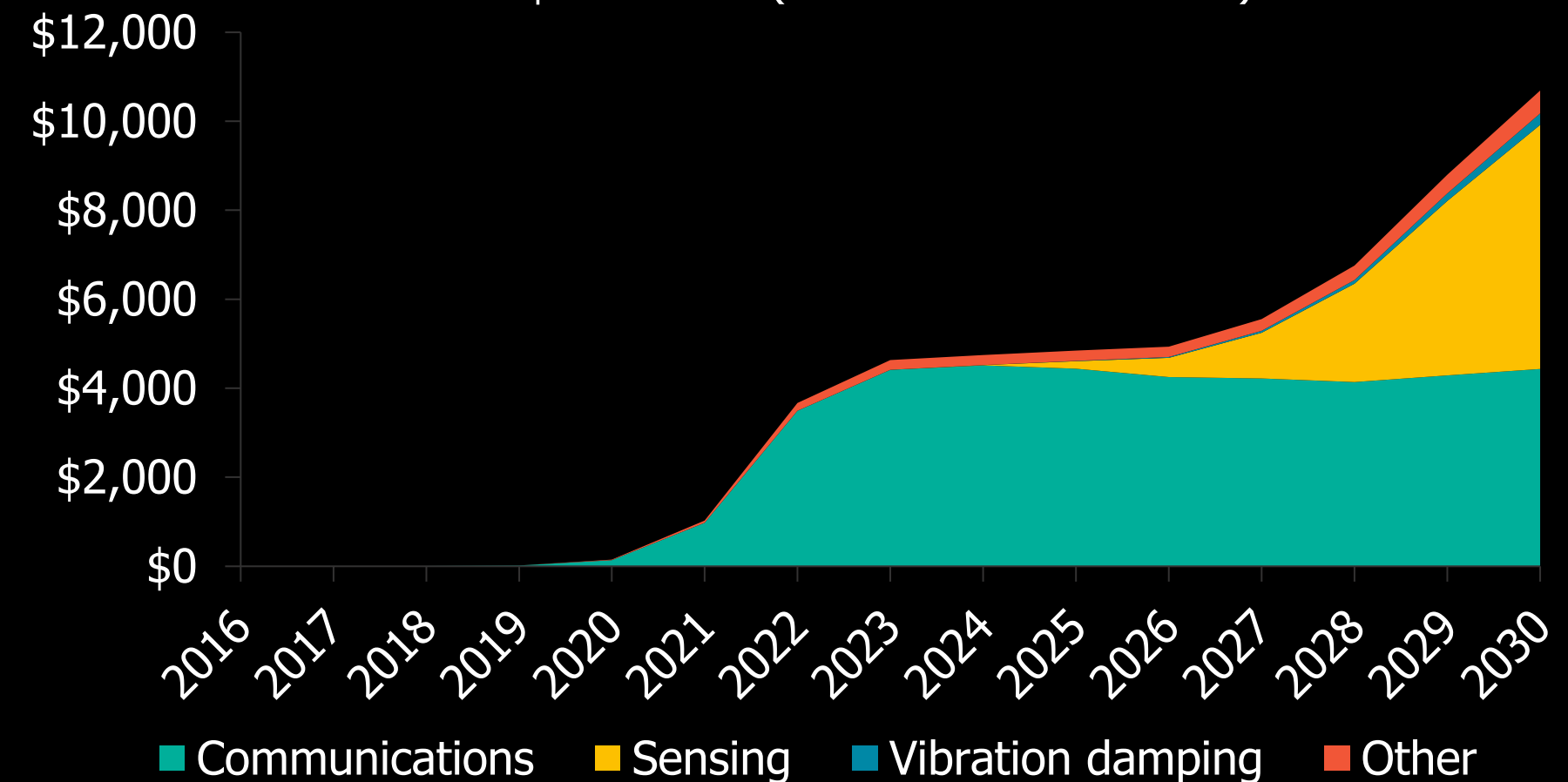
Market Opportunity Driven by Several Megatrends



- **5G infrastructure:**
rollout requires new materials for transparent antennas and reflectors
- **Vehicle Electrification:**
seismic shift toward EV, ADAS (advanced driver assistance systems) and autonomous vehicles
- **Combined >\$3T in Other Verticals:**
Advanced Materials, IoT, Medical, Energy, Aerospace and Automotive markets
- **Scarcity, Control of Raw Materials:**
supply of rare earths and materials such as ITO (Indium Tin Oxide) highly concentrated in Asia
- **Metamaterial Device Market:**
expected to grow to \$10.7B SAM by 2030

Metamaterials Market Forecast

US\$ Millions (Source: LUX Research)



META Transparent Window Film Transforms Outdoor 5G Coverage

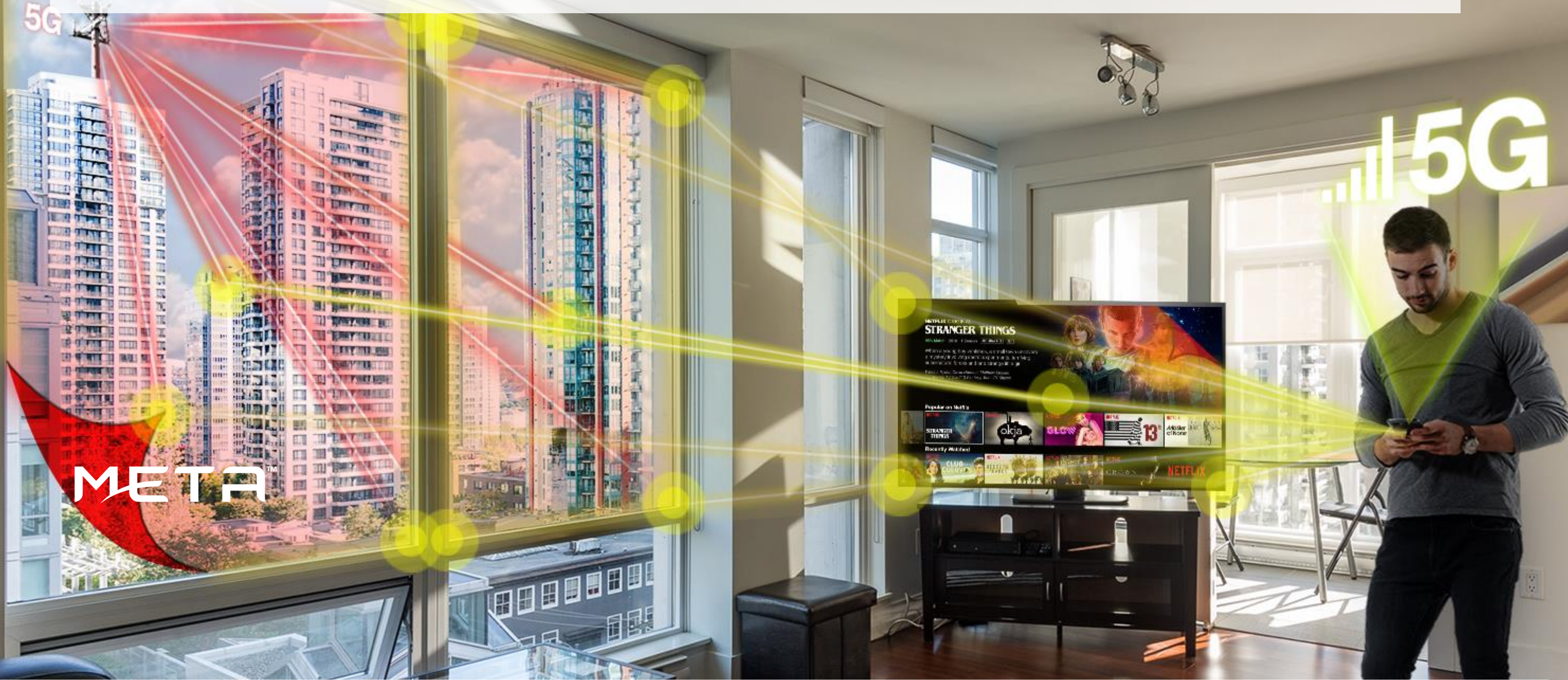


PROBLEM - Highest-speed 5G signals need line of sight, requiring placement of many small cells

SOLUTION - META's passive transparent window film reflects signal to cover dead zones

MEGA TREND - Carriers are spending \$ Billions on Infrastructure

META Invisible Antenna to Enhance Indoor 5G and Digital TV Reception



PROBLEM - 5G signals don't penetrate glass, buildings, requiring installation of internal networks

SOLUTION - META's passive transparent window film passes through 5G and Digital TV signals

META Nano-heater to Protect Sensors - Transparent to RADAR and LIDAR Simultaneously

META™



PROBLEM - ADAS and Autonomous vehicles depend on an array of cameras and sensors to “see” and understand their surroundings

SOLUTION - META’s NANOWEB® transparent conductive film provides deicing and defogging without blocking the camera/sensor functions

COMPETITIVE ADVANTAGES

- META's lithography capability enables fabrication of sensors & antennas completely **invisible** to the human eye
- META's touch sensors and transparent 5G antennas can be integrated into smartphone displays, on windows of vehicles or buildings and home appliances
- NANOWEB[®] is **flexible** - unlike the incumbent ITO (Indium Tin Oxide) technology – enabling sensors on **foldable phones**
- META's antennas can operate from low to high frequencies (3G, 5G/6G and beyond) and provide communication systems for conventional, EV and autonomous vehicles



META Transparent 5G Antenna

— 200 μm

Solar Energy – Example Application



Ultra-thin, Light and Flexible

- Ideal for the transportation industry
- Adds onboard power, charging



Increases Solar Cell Efficiency

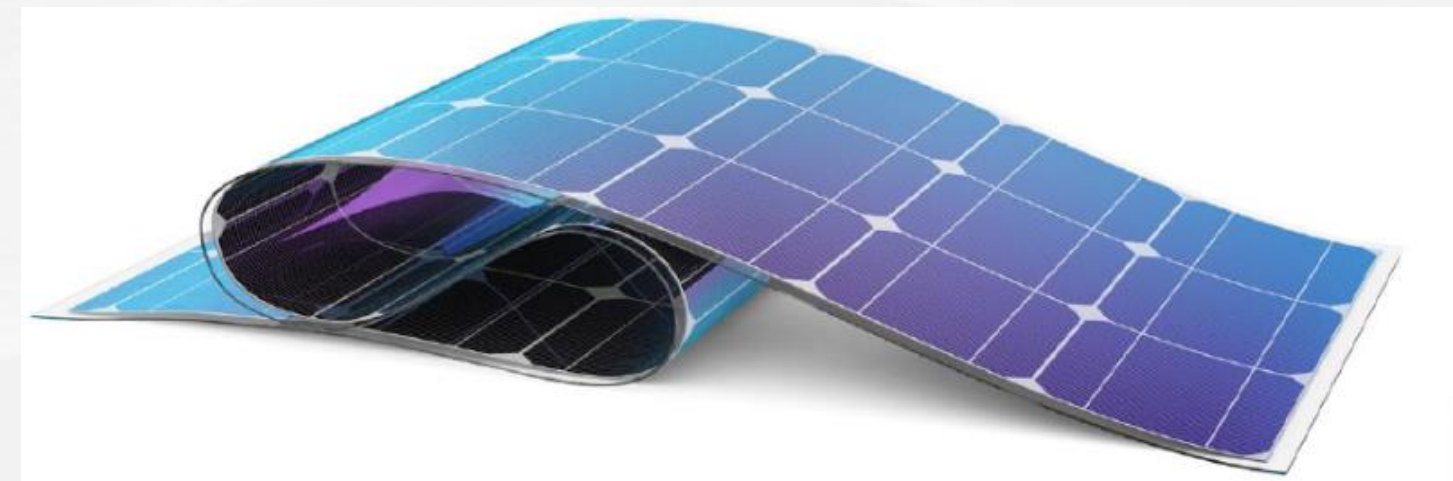
- Traps light that would otherwise be reflected, increases absorption

Over \$5Bn of Total Addressable Market



Angular Absorption

- Captures sunlight from all angles
- Eliminates costly tracking systems



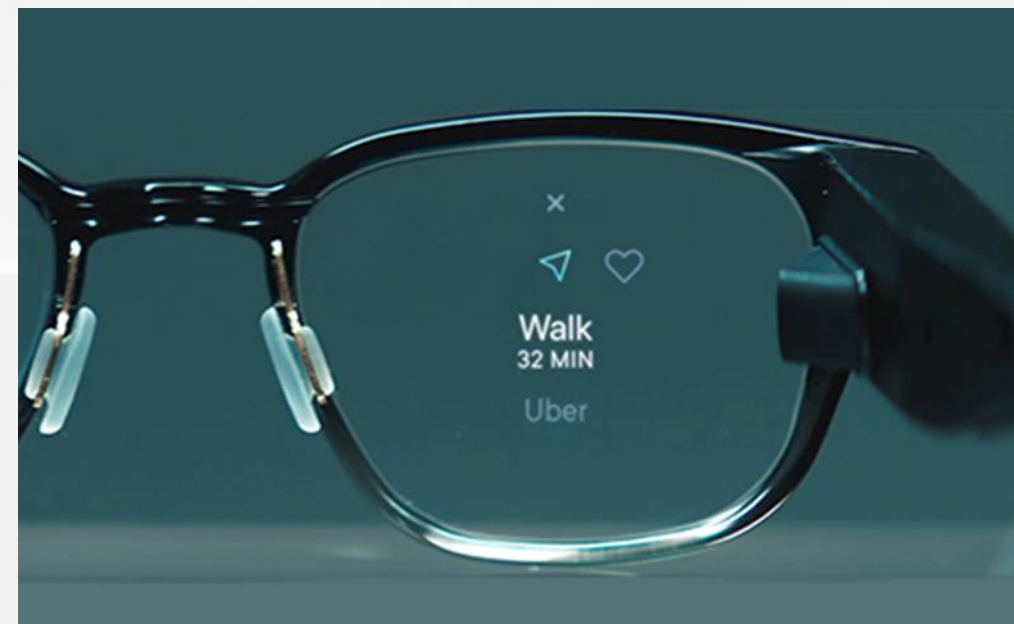
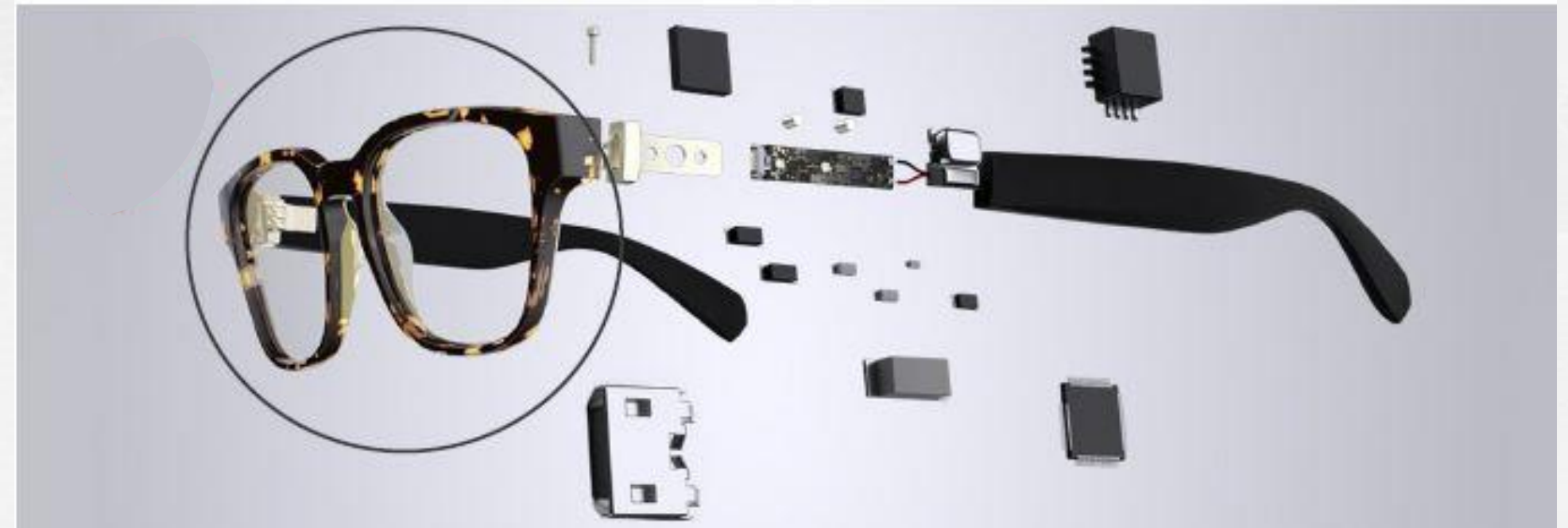
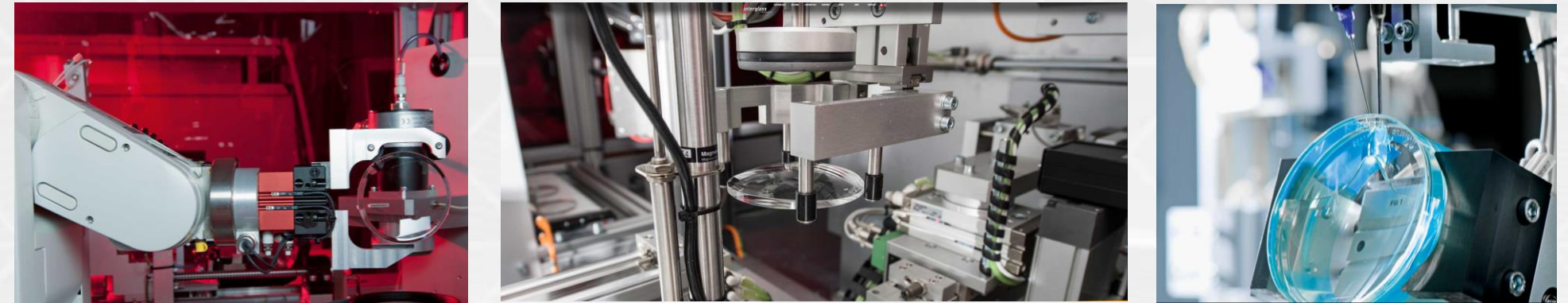
Scalable

- Can be sized for small or large areas
- Applied to flat or curved surfaces

metaFUSION™ Integrates AR with Prescription Lenses



- **metaFUSION™** integrates optical elements for AR (augmented reality) combined with lens casting technology developed by Interglass Technology AG
- META acquired assets & IP of Swiss lens manufacturer Interglass, 35 patents, trademarks and trade secrets, proprietary software and designs
- High volume fully automated lens casting, workstations, tools, test equipment, and technical data
- Proprietary specialty materials/foils supply in cooperation with **Covestro AG**
- Just-in-time production of prescription lenses and embedded elements such as optical combiners, waveguides, and eye tracking sensors
- **Highly Sustainable Process:**
 - ⚡ Less energy (10 sec vs 50 hours curing time)
 - 💧 Zero water usage
 - ⚙️ Less material usage



\$1.5B
Augmented
Reality Eyewear
Market

Source: BCC Research

Medical Applications: Mid- to Long-Term (2-7yrs) Potential

Functional metamaterials for Health and Wellness market – Licensing/Project Financing opportunities

Image Enhancement

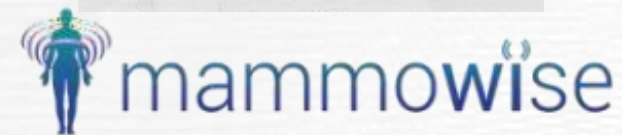


MRI Medical Imaging

MRI Imaging with metamaterial film

MARKET POTENTIAL*

\$2.0+B



Early-Stage Breast Cancer Screening

Radio-wave Imaging for breast screening with metamaterial film

MARKET POTENTIAL*

\$4.0+B

Sensor enhancement



Non-invasive Glucometer

Dual Sensor mm-wave technology with metamaterial film (www.gluco-wise.com)

MARKET POTENTIAL*

\$15.0+B



Molecular Biosensor

Daily use Bio-photonic sensor with sensitivity and performance enhanced using nanomaterial to meet rising demand for point of care testing.

MARKET POTENTIAL*

\$10.0+B

*Source: Internal META estimates

Solving Global Challenges Together With OEM Partners And Customers

META™

Selected Target Co-Development Partners and Customers in Automotive, Medical, Aerospace & Defense, Consumer Electronics and Energy



Advanced Materials Competitive Landscape

1 METAMATERIALS COMPANIES

Emerging, Disruptive performance, Low cost, High margins

4 SEMICONDUCTOR MATERIALS

Incumbent, Process slow and expensive to scale, Rare earth price exposure

2 CHEMICAL & SPECIALTY MATERIALS

Incumbent, Bulk materials, Incremental performance, Commoditized

5 ITO AND SPECIALTY COATINGS

Precious metal price exposure, Average performance

3 CARBON NANOMATERIALS

Early stage, Difficult to scale, Low performance, Very expensive

Existing META relationships

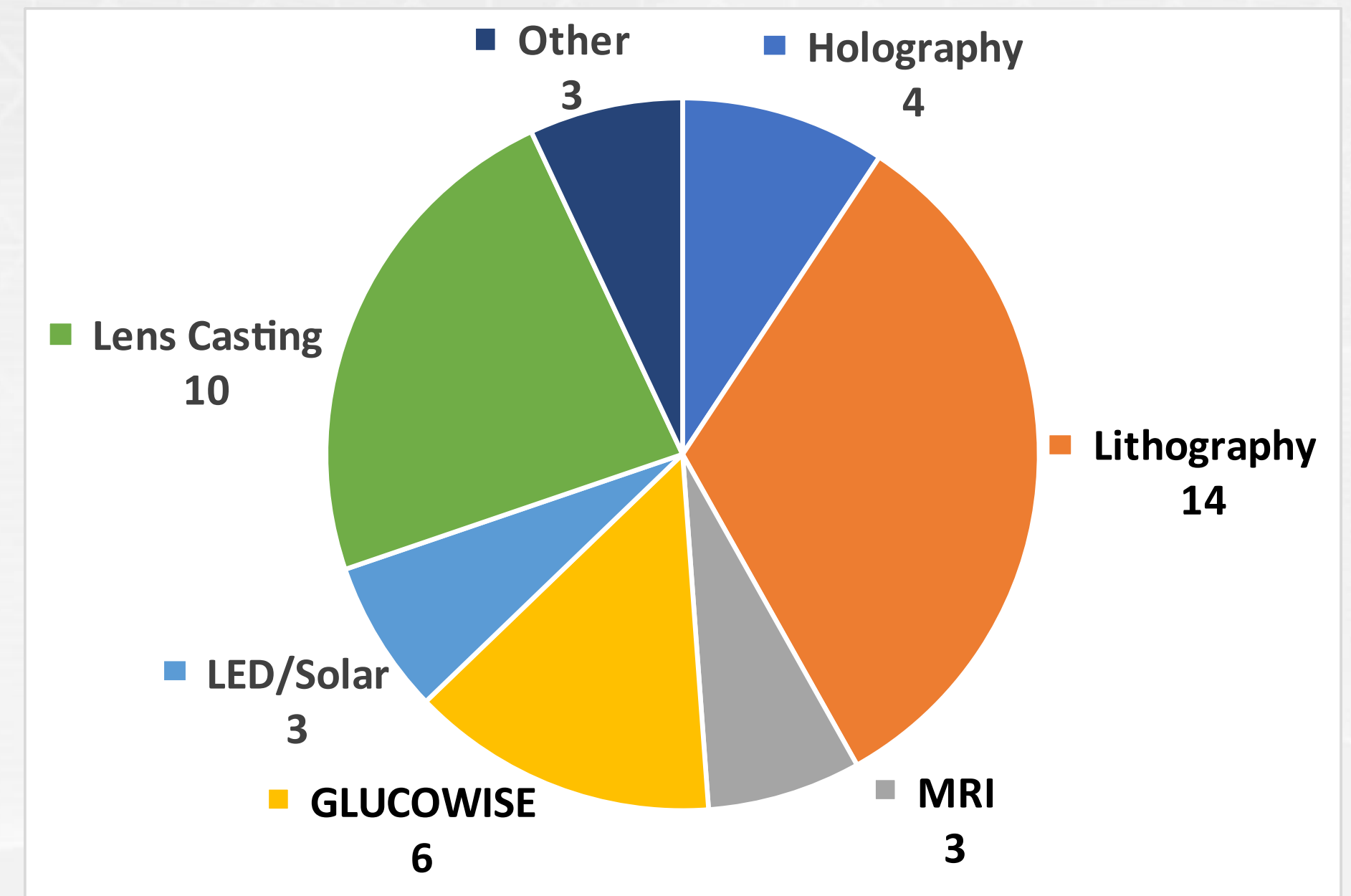
Source: LUX Research and Internal META estimates

Intellectual Property & Know-How



- META has 138 filed patents (73 granted) across 43 patent families (27 granted)
- 5 registered trademarks
- Proprietary, custom manufacturing processes and trade secrets, developed over 10 years with multi-million \$ investment
- Processes and methods were patented early, providing multi-year competitive advantage

Patent Families Breakdown



Executive Team



George Palikaris, Ph. D.

President and CEO, Founder
12 years in leadership positions of high-tech startups. Goldman Sachs (10KSB), MIT Enterprise and EY awards for entrepreneurship, Stanford, Harvard, INSEAD Exec Ed. 50+ patents, 3 industry awards.



Kenneth Rice, MBA, JD, LLM

Chief Financial Officer & EVP
30+ years experience, public and private company CFO, in-house counsel, operations, and corporate development executive in technology and life sciences



Jonathan Waldern, Ph. D.

Chief Technology Officer
25 years experience in commercialization of holographic and lithographic/nanomaterials for photonic applications, inventor and visionary with 140+ patents



Gardner Wade

Chief Product Officer
20+ years in managing development engineering of high-definition optical eyewear for global brands in military, flight and performance sports applications



Themos Kallos, Ph. D.

Chief Science Officer, Co-Founder
10 years experience in applied physics, intellectual property development in metamaterial applications, 40+ filed patents and 50+ publications



Scott Richards

Chief Marketing Officer
20+ years in management consulting and marketing services, CEO, CMO, COO, strategic planning, and M&A, in Canada, the Caribbean, the UAE, and the U.S.

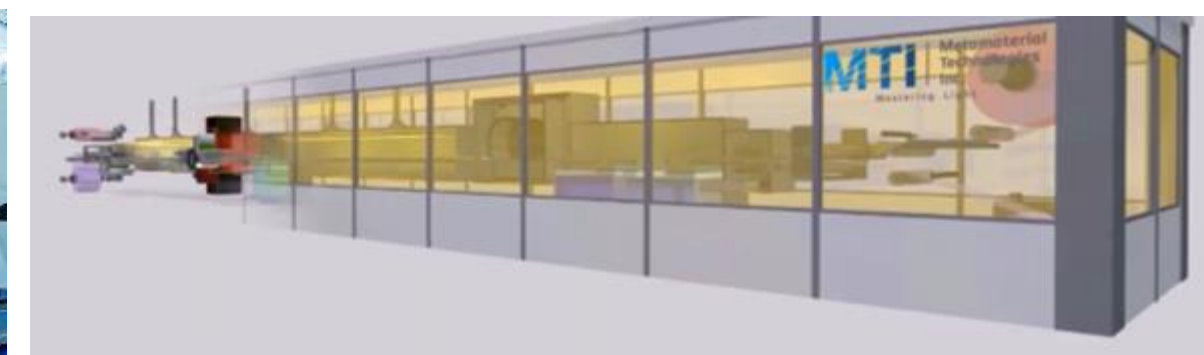
Investment Priorities 2021-2022



Initial roll-to-roll production equipment: operational year-end 2021 to mid-2022



Expansion equipment and clean room labs: operational 4Q21 to 2Q22



1. Acquire and launch Pilot Scale roll-to-roll functional film production capability, estimated \$10M CAPEX
2. Customer Center including META's pilot line, to license, train and sell duplicates internationally
3. Healthcare and Wellness applications led by current customer engagements, estimated spending \$3M
4. Applied R&D, increased headcount, estimated spending \$3M

Scalable Revenue and Business Model

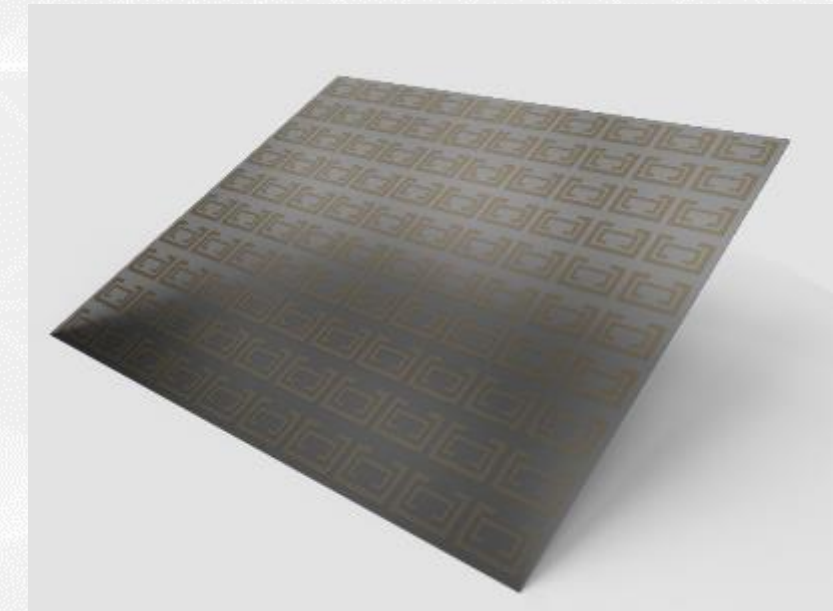
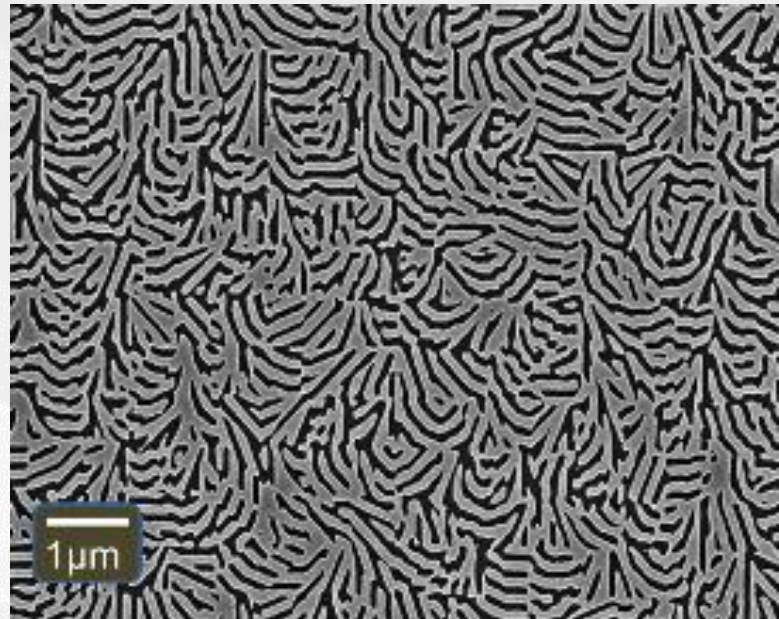


Design, Test Samples

Wafer Scale Validation

R2R Licensed Pilot Line

Multiple Revenue Streams



Design Verification

- Produce samples to customer spec
- Test samples
- Scope proposal for Phase 2 NRE (Funded R&D)

Performance Validation

- Complete Phase 2 NRE
- Produce Beta lot for customer use
- Pilot scale production contract and scope

Production at Scale

- Cost model validation with customer
- Produce pilot scale lot for customer use
- Commercial scale license and material supply agreement

Revenue Streams

1. License Fee
2. Master-Supply
3. Royalties
4. Equipment Supply
5. Raw Material Supply Agreement
6. Service NRE contract (META owns IP)

Selected Financial Highlights – Q4:20 (CAD)



	2020	2019		12/31/ 2020
Product Sales	\$ 2,615	\$ 31,426	Cash and cash equivalents	\$ 1,776,983
Development Revenue	\$ 1,505,075	\$ 1,163,632	Inventory	\$ 589,977
Total Revenue	\$ 1,507,690	\$ 1,195,058	Total current assets	\$ 3,468,167
Gross Profit	\$ 1,503,281	\$ 1,182,920	Intangible assets, net	\$ 5,699,626
Operating Expenses	\$ 13,130,118	\$ 11,191,715	Property and equipment, net	\$ 3,515,523
Government assistance	\$ (182,685)	\$ (178,834)	Total assets	\$ 13,020,757
Other expense (income)	\$ 8,617,926	\$ 1,372,661	Deferred revenue, current	\$ 1,578,676
Net Loss	\$ (19,806,340)	\$ (11,083,258)	Payables, debt, debentures, other	\$ 14,389,782
			Total current Liabilities	\$ 15,968,458
Note: 2020 includes \$8.948MM of non-cash finance, listing, unrealized loss on FVTPL liabilities, and share-based compensation expenses, vs. \$3.347MM in 2019			Deferred revenue	\$ 1,023,835
			Long-term debt, other	\$ 7,363,695
			Total non-current liabilities	\$ 8,387,530
			Shareholders' Deficiency	\$ (11,335,231)

This information should be read in conjunction with the complete financial statements and the associated management discussion and analysis, available on the Investors section of our website at www.metamaterial.com, as well as under the Company's profile on SEDAR at www.sedar.com

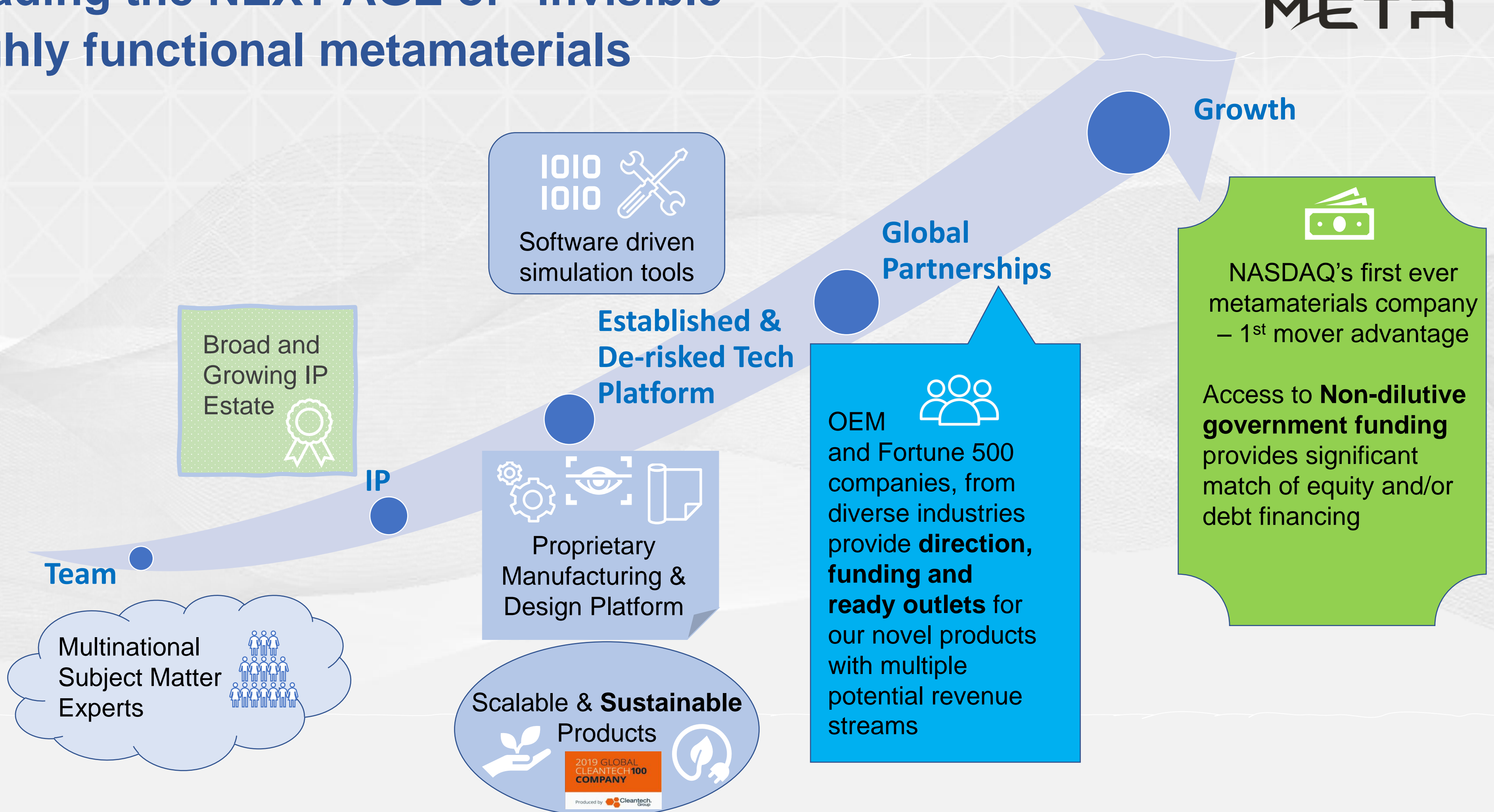
Capitalization



DESCRIPTION	CAPITALIZATION (As of 04/19/21)
Common Shares Issued & Outstanding	105,528,460
Stock Options	13,170,069
Deferred Share Units	1,872,750
Warrants	1,606,855
Broker Warrants	19,619
Unsecured Convertible Promissory Notes	2,486,279
Total Shares Issued & Outstanding (Fully Diluted)	129,656,590

Leading the NEXT AGE of “invisible” highly functional metamaterials

META™



THANK YOU

Mark Komonoski
Investor Relations

T: 877-255-8483

E: mark@metamaterial.com