



A Global Leader in Optics & Infrared Solutions

Investor Presentation | January 2024

Safe Harbor Statement

This presentation contains “forward-looking” statements that are based on our beliefs and assumptions and on information currently available to us. Forward-looking statements include information concerning our possible or assumed future results of operations, business strategies, product development plans, competitive position, potential growth opportunities, the effects of competition and the expected effects on the Company’s business from the COVID-19 pandemic. Forward-looking statements include all statements that are not historical facts and can be identified by terms such as “anticipate,” “believe,” “could,” “seek,” “estimate,” “intend,” “may,” “plan,” “potential,” “predict,” “project,” “should,” “will,” “would” or similar expressions and the negatives of those terms.

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This presentation includes certain non-GAAP financial measures as defined by the SEC rules. We believe these non-GAAP financial measures are appropriate indicators to assist in the evaluation of our operating performance on a period-to-period basis. We have provided a reconciliation of those measures to the most directly comparable GAAP measures, which is available in this presentation.










About LightPath

LightPath is a fully integrated optical solutions provider advancing the incorporation of custom optics within tomorrow's technology

- **Multi-billion dollar market** for infrared imaging systems and technology
- **Transition from low** value components supplier to provider of high value **optical solutions** and complete **imaging systems**
- **Key technology** – Proprietary Chalcogenide Glass Solution: **ONLY GLASS** that enables the use of multi-spectral cameras reducing the size, weight and cost of visual systems
- **Market size and production** capabilities to drive revenue in excess of \$300 million in 5 years



NASDAQ: LPTH

 Share Price¹	\$1.28
 Market Cap¹	\$46.9M
 FY 2023 Revenue	\$32.9M
 Backlog²	\$21.3M
 Shares Outstanding	39.2M
 Float	34.9M
 Insider Holdings	12.8%
 Employees	~350
 Headquarters	Orlando, FL

1) As of January 12, 2024 2) At September 30, 2023

Engineering a **New LightPath**

LightPath is transitioning to a **solutions-oriented** approach for high value customers geared towards driving higher revenue & gross margins

Legacy LightPath
Components Supplier



LightPath 2.0
Solutions Provider



LightPath 3.0
Imaging Systems Creator

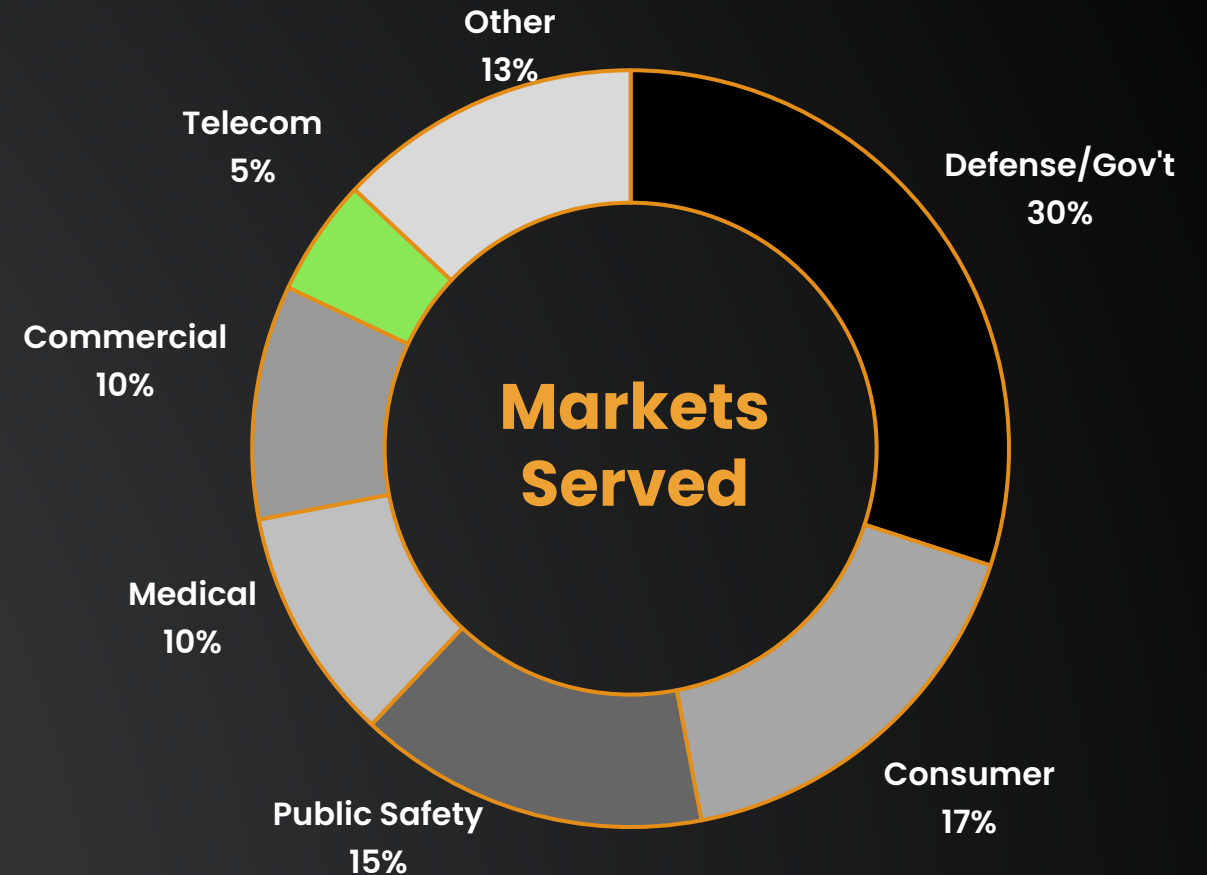


Markets Served Overview

Optics can be modified for different applications allowing LightPath to deliver solutions to a diverse market of verticals

“ **The beauty of Photonics is,** that as an enabling technology that is embedded in products across many industries, it provides us with a built-in diversification across our customer base

Sam Rubin, CEO



3 Pillars of Growth

Products and solutions applicable to growing and diverse applications

Camera Solutions



- Multispectral imaging systems
- Greater versatility, less parts
- Total Customization with acquisition of Visimid

Government/Defense Solutions Provider



- Unique materials provide an alternative to germanium
- Exclusive technology enables multispectral imaging. Cutting edge capabilities

New Applications Automotive & Other



- Thermal imaging is being added to existing automotive pedestrian detection systems
- \$20-\$50 ASP per vehicle

Market Opportunity

Multispectral Imaging

Multispectral cameras will be able to replace multiple camera modules in each application

Market data on thermal cameras estimates a

7% CAGR to ~\$9 billion

market by 2026.

Increasing adoption in:



LIDAR TECHNOLOGY
to benefit public safety



THERMAL WEAPON
sights



GOVERNMENT/DEFENSE
applications



COMMERCIAL
sporting optics

Global Thermal Camera Market (in \$ millions)



Engineering a **New LightPath**

LightPath is transitioning to a **solutions-oriented** approach for high value customers geared towards driving higher revenue & gross margins

Legacy LightPath
Components Supplier



LightPath 2.0
Solutions Provider



20%

LightPath 3.0
Imaging Systems Creator



Visimid Acquisition

Taking MANTIS to the Next Level

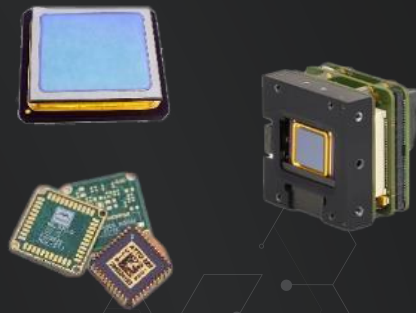
Acquisition of Visimid adds the capability to build custom sensor and software systems for LightPath Cameras. This new capability unlocks the production of highly customized variations on MANTIS for application specific use

LightPath Technologies



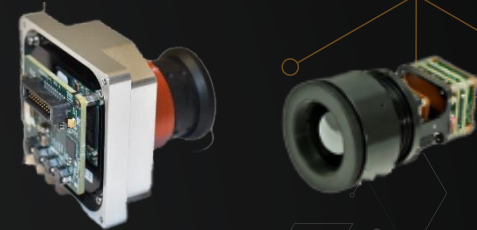
Custom Lens Assemblies
using proprietary materials
and expert optical calibration

Visimid



Custom Sensors,
electronics, and software

Application Specific Imaging System



Complete thermal camera
specifically attuned to an OEM's
intended use









Camera Solutions:

MANTIS™



Uncooled, Multispectral Infrared Camera

MANTIS Highlights:

-  **First of its kind** - Camera combines functionality of a Mid Wavelength Infrared (**MWIR**) and Long Wavelength Infrared (**LWIR**) camera in one housing.
-  **Versatile** - Camera covers 2-12um wavelengths.
-  **Uncooled** - Able to image MWIR wavelengths without an expensive cryogenic cooling mechanism.
-  **Compact** - 2.5" x 2.5" x 3.0" combines the form of a LWIR camera with the ability to image MWIR.
-  **Inexpensive** - Camera costs \$10-15k combining the functionality of a \$100k MWIR and \$3k LWIR camera.
-  **Produced outside of China** - A key benefit for securing supply chains.
-  **Applications** - Fire and Flame detection, industrial high temperature monitoring systems, handheld Mid Wave imaging for defense
-  **Leverages proprietary Black Diamond™** glass that enables the camera's performance.

Government and Defense



Qualified as Infrared Optics

Fastest growing business segment from XX% in FY20 to XX% in FY23



Direct Funding From Multiple

government agencies to accelerate and support the commercialization of the new materials



Exclusive License from DoD

for materials that are key to replacing germanium and next gen performance of systems



Designed Into Multiple New

systems such as future vertical lift, missile detection and more



Key Technology

Chalcogenide Glass

LightPath Black Diamond – Proprietary Chalcogenide Glass Solution



A made-in-the-USA cost effective alternative to Germanium



The ONLY GLASS that enables use of multi-spectral cameras reducing the size, weight and cost of visual systems.



Annual capacity of 10 Metric tons in Orlando facility



Germanium exports from China are restricted – White House identified Germanium as a key strategic mineral with a potential supply chain liability



U.S. imports approximately \$675m of Germanium for use in Optics, primarily from Russia and China



11 Alternative Minerals
2 are fully qualified and fielded in DoD systems (BD6 and BD2)

Key Technology

Multi-Spectral Imaging

Innovative Technology in next generation multispectral imaging systems



Common Aperture multiband camera reduces weight, size and cost



Key enabling technology behind MANTIS



Allows customers to use less devices in the field, without sacrificing functionality



Unique Material exclusively licensed from the US Navy



Visimid acquisition provides technological capability to produce application specific imaging solutions

Short Wave Infrared Camera (SWIR)



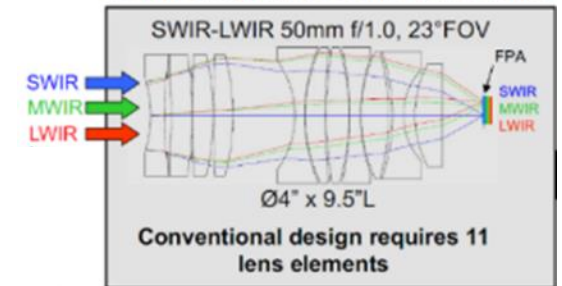
Mid Wave Infrared Camera (MWIR)



Long Wave Infrared Camera (LWIR)



The New Technology,
Common Aperture Multiband Camera



Defense – Examples



System – New missile system, LPTH camera system

Prime – Lockheed Martin

Status – LightPath awarded 2 year, \$7.5m development contract

Scope – 10s of thousands of systems, ASP \$5K-\$10K



System – F-35 Infrared Optics, mostly LPTH materials

Prime – Multiple

Status – LPTH in production

Scope – \$3.5m annual, with growth prospects



System – Armored Vehicle FLIR B-Kit Upgrade, mostly LPTH materials

Prime – RTX Raytheon

Status – Awarded to Prime, qualification runs

Scope – 17,000 systems, ASP \$5-10K, partial LPTH materials

Automotive Applications

Government proposal would require automatic emergency braking (AEB) in all cars and light trucks



Recent National Highway Traffic

Safety Administration proposed rule would go into effect in ~2026



Using Thermal Imaging to Classify objects in the field of view is easier and lower risk



LightPath thermal imaging

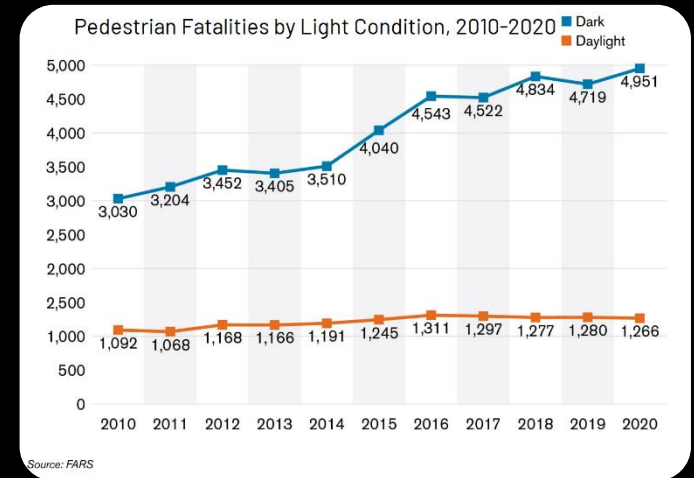
assembly has been qualified into one of the largest car manufacturers



LPTH ASP \$20-50 per vehicle

"Night Vision"

in existing Cadillac CT6



Investment Opportunities

Industry Opportunity

- **Core markets are diversified** and experiencing solid secular growth
- Multi-billion market for infrared imaging boosted by growing use of LiDAR
- LightPath's BD - Black Diamond Glass is a US-produced alternative to Germanium

LightPath's Strategic Direction

- LightPath is transitioning to an optical systems and solutions provider for high value customers
 - **MANTIS** is the first new product toward this
- Drive greater efficiency with our deep design and manufacturing expertise and **vertically integrated global manufacturing**

“This strategy is based on our strengths and our core capabilities to address the largest and fastest growing trends in our industry for visible and infrared optical solutions.”

Sam Rubin, CEO



3-5 Year Growth Framework

Substantially scaling revenue, EBITDA and profitability



Engineered solutions growth rate of **40 – 60%**



Components business growth rate of **10%**



Defense sales achieve **\$100 million**



Automotive customers in production and shipping **>100,000 units**

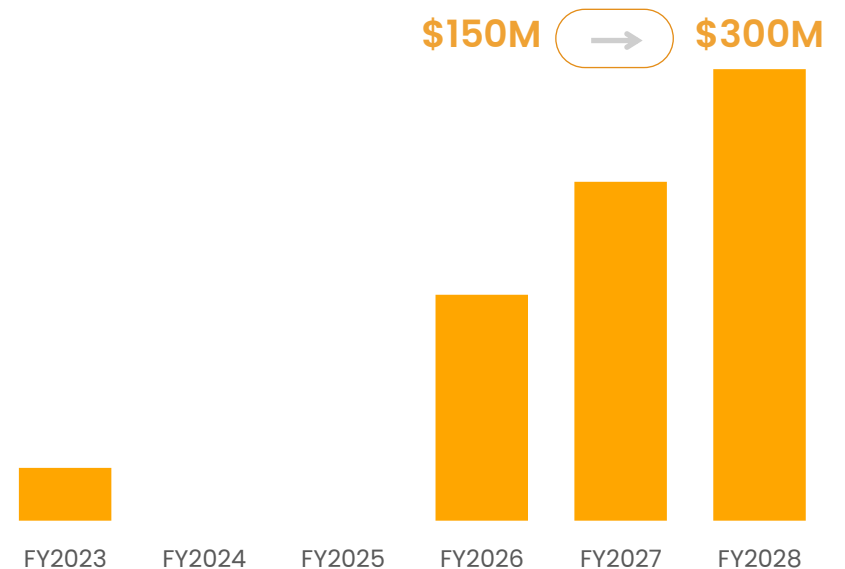


Successfully integrated **acquisition technologies**



EBITDA margins **exceeding 15%**

LightPath Revenue Scale



Management Team

Sam Rubin

President & Chief Executive Officer

25 Years in Optics
Owner / Exec / Sales / R&D / M&A

Joined Company in 2020

Revenue Growth of Prior Firm
\$30M to \$500M



Albert Miranda

Chief Financial Officer

22 Years in Optics
Finance / GM / Exec / M&A

Joined Company in 2021

Revenue Growth of Prior Firm
\$30M to \$220M



Mark Palvino

VP, Global Sales & Marketing

22 Years in Optics
Finance / GM / Exec

Joined Company in 2020



Peter Greif

VP, Operations

22 Years in Manufacturing
Exec / GM / Ops / Engineering / M&A

Joined Company in 2021

Revenue Growth of Prior Firm
\$6B to \$27B





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Technologies

Appendix

Balance Sheet

LIGHTPATH TECHNOLOGIES, INC.
Consolidated Balance Sheets

Assets	June 30, 2023	June 30, 2022
Current assets:		
Cash and cash equivalents	\$ 4,687,004	\$ 5,507,891
Restricted cash	2,457,486	—
Trade accounts receivable, net of allowance of \$18,502 and \$36,313	6,634,574	5,211,292
Inventories, net	7,410,734	6,985,427
Prepaid expenses and other assets	570,293	464,804
Total current assets	<u>21,760,091</u>	<u>18,169,414</u>
Property and equipment, net	12,810,930	11,640,463
Operating lease right-of-use assets	9,571,604	10,420,604
Intangible assets, net	3,332,715	4,457,798
Goodwill	5,854,905	5,854,905
Deferred tax assets, net	140,000	143,000
Other assets	65,939	27,737
Total assets	<u>\$ 53,536,184</u>	<u>\$ 50,713,921</u>
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	\$ 2,574,135	\$ 3,073,933
Accrued liabilities	662,242	558,750
Accrued payroll and benefits	1,499,896	2,081,212
Operating lease liabilities, current	969,890	965,622
Loans payable, current portion	1,023,814	998,692
Finance lease obligation, current portion	103,646	55,348
Total current liabilities	<u>6,833,623</u>	<u>7,733,557</u>
Deferred tax liabilities, net	465,000	541,015
Finance lease obligation, less current portion	341,201	11,454
Operating lease liabilities, noncurrent	8,393,248	9,478,077
Loans payable, less current portion	1,550,587	3,218,580
Total liabilities	<u>17,583,659</u>	<u>20,982,683</u>
Commitments and Contingencies		
Stockholders' equity:		
Preferred stock: Series D, \$0.1 par value, voting; 500,000 shares authorized; none issued and outstanding	—	—
Common stock: Class A, \$0.1 par value, voting; 44,500,000 shares authorized; 37,344,739 and 27,046,790 shares issued and outstanding	373,447	270,468
Additional paid-in capital	242,808,771	232,315,003
Accumulated other comprehensive income	606,536	935,125
Accumulated deficit	(207,836,229)	(203,789,358)
Total stockholders' equity	<u>35,952,525</u>	<u>29,731,238</u>
Total liabilities and stockholders' equity	<u>\$ 53,536,184</u>	<u>\$ 50,713,921</u>

Income Statement

LIGHTPATH TECHNOLOGIES, INC.
Consolidated Statements of Comprehensive Income (Loss)

	Year Ended	
	June 30,	
	2023	2022
Revenue, net	\$ 32,933,949	\$ 35,559,160
Cost of sales	21,859,126	23,744,524
Gross margin	11,074,823	11,814,636
Operating expenses:		
Selling, general and administrative	11,437,241	11,221,866
New product development	2,145,413	2,085,686
Amortization of intangibles	1,125,083	1,125,083
(Gain) loss on disposal of property and equipment	(78,373)	9,235
Total operating expenses	14,629,364	14,441,870
Operating loss	(3,554,541)	(2,627,234)
Other income (expense):		
Interest expense, net	(283,266)	(229,475)
Other income (expense), net	24,970	177,435
Total other income (expense), net	(258,296)	(52,040)
Loss before income taxes	(3,812,837)	(2,679,274)
Income tax provision	234,034	862,907
Net loss	\$ (4,046,871)	\$ (3,542,181)
Foreign currency translation adjustment	(328,589)	(1,181,027)
Comprehensive loss	\$ (4,375,460)	\$ (4,723,208)
Loss per common share (basic)	\$ (0.13)	\$ (0.13)
Number of shares used in per share calculation (basic)	31,637,445	27,019,534
Loss per common share (diluted)	\$ (0.13)	\$ (0.13)
Number of shares used in per share calculation (diluted)	31,637,445	27,019,534

Examples of Customized Imaging Modules

Complete LWIR Imaging Module with Micro-display

- QVGA LWIR complete with Kopin micro-display
- Smallest cross section
- Shutterless, ready for customer housing



100 fps XGA LWIR Camera

- XVGA LWIR 1024 x 768
- NETD <50 mK; Short thermal time constant, <12 msec
- USB3.0 Vision output



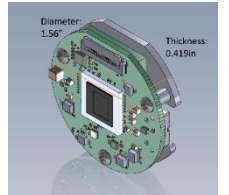
VGA LWIR Imaging Cores and Modules

- Built in shutter or external shutter
- Video engine output CameraLink, Analog or GigE
- Includes processing and corrections



Shutterless Imaging Models

- VGA or QVGA
- Calibrated across wide range of temperatures
- Very low power consumption, size and weight



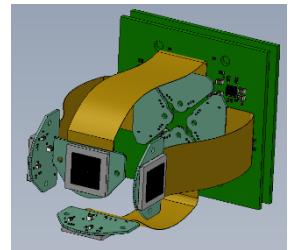
Broadband Uncooled Microbolometer Modules

- Modified Microbolometer for Broadband operation in 2-12 μ m
- Customized for high temperature process measurements
- Photometric and gas visualization



Multi Sensor Imaging Models

- Combines and synchronizes live streams from multiple sensors
- One video engine processes and manages all sensors
- Significant savings vs. multiple camera



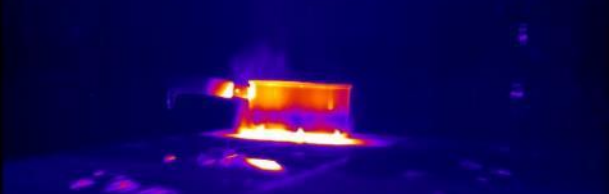
True Flame Detection

Each pair of images – Left side, camera with 4.3µm filter “flame detection mode” – right image with LWIR filter

Pot on a Lit Gas Stove

Image from Our Flame Detection Camera

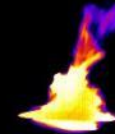
Image from a Standard LWIR Camera



Gas Firepit

Image from Our Flame Detection Camera

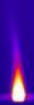
Image from a Standard LWIR Camera



Lit Candle in a Glass Jar

Image from Our Flame Detection Camera

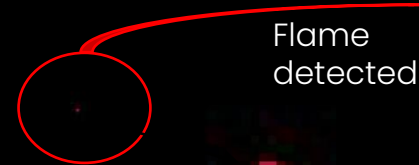
Image from a Standard LWIR Camera



A Candle at 190' Distance

Image from Our Flame Detection Camera

Image from a Standard LWIR Camera



Example: 1" Flame from 250'

Flame Detection Mode.
12 pixels of flame detected at 250 feet away

1" flame
from tiki
torch

