BENCHMARK

Aeluma, Inc. (ALMU)

Initiating ALMU with Buy and $25 PT; Unique Tech Platform to Disrupt Sensing and Comms Markets

Initiation of Coverage
Rating: Buy

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Price Chart

Current Price	$17.48
Price Target	$25.00
52-Week Range	$2.50 - $19.80
Shares Outstanding (mm)	27
Market Cap (mm)	$276
Enterprise Value (mm)	$220
Average Volume (000s)	340
Sector Weight	Overweight

► We are initiating coverage of Aeluma (ALMU) with a Buy rating and 12-month price target of $25. We believe the company's differentiated technology platform to fundamentally disrupt the high-performance sensing and communications compound semiconductor market. The company's proprietary heterogeneous integration of III-V materials on large diameter silicon wafers enables superior performance characteristics at a significantly lower manufacturing cost compared to existing InP substrate solutions. **We believe this technology platform will unlock high-performance devices for mass markets, capture significant share in existing applications, and be a key enabler of emerging technologies.**

► **Aeluma provides the core building blocks** for the next decade's most transformative technology trends, including mobile, AI, autonomous systems, defense and aerospace, and quantum technology. This offers diversified exposure to multiple high-growth verticals.

► **Scalability and IP, a Competitive Moat:** Aeluma's demonstrated ability to manufacture high-performance compound semiconductor devices on large-diameter silicon wafers creates a tangible competitive differentiator, protected by a strong IP moat. This capability leverages the mature, global silicon manufacturing infrastructure, resulting in economies of scale and cost structures that are extremely difficult for competitors to replicate.

► **Early in the Growth Cycle:** With revenues just beginning to ramp, the company is approaching an inflection with multi-year growth story, in our view. The current valuation does not yet reflect large-scale commercial success, offering the potential for substantial value appreciation as the company executes its plan and captures market share.

► **Experienced, Founder-Led Management Team**: The company is led by its founder, Dr. Jonathan Klamkin, a leading academic and entrepreneur in photonics. The management team and board have deep technical expertise and a proven track record of success in the semiconductor industry (NVIDIA, BinOptics, Nitres).

► **Strong Government and Industry Partnerships**: The company's technology is significantly de-risked through its collaborations with premier U.S. government agencies like DARPA, NASA, and the U.S. Navy, as well as industry leaders such as Thorlabs. These partnerships provide more than just revenue; they offer crucial third-party technical validation, affirm the technology's strategic importance, and pave a smoother path toward broader commercial adoption.

► **Valuation: Our $25 PT equates to a 10.5x EV/Sales multiple on our FY28 sales estimate of $39M, which we believe will prove conservative.** While customer engagement activity is accelerating and we anticipate design wins to begin over the next few quarters, visibility into timing of production volume ramps is not yet clear. However, a single win in the high volume mobile or communications end market is likely to meaningfully accelerate the revenue trajectory.

Year to 30 Jun	1Q25A	2Q25A	3Q25A	4Q25E	2025E	2026E	2027E
EPS	$(0.05)	$0.04	$0.00	$(0.03)	$(0.20)	$(0.12)	$(0.12)
Consensus EPS	$0.00	$0.00	$0.00	$(0.03)	$(0.03)	$(0.17)	$(0.36)
Delta % (+/-) v. Cons.				-0.00%	566.67%	(29.41%)	(66.67%)
Revenue (m)	$0.5	$1.6	$1.3	$1.3	$4.6	$6.9	$15.9
EV/Rev					83,2x	55.4x	24.9x
Consensus Revenue	$0.0	$0.0	$1.3	$1.2	$4.5	$7.8	$14.6

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Company Overview

Aeluma, Inc. (ALMU) is a semiconductor company focused on high-performance, scalable technologies for applications in mobile, datacenter AI optical connectivity, defense & aerospace, automotive, Industrial, quantum computing and AR/VR. The company has developed proprietary techniques that integrate high-performance compound semiconductor materials on large-diameter substrates to produce optoelectronic devices that enhance performance while enabling cost-effective mass-market scaling. The company's core technology integrates advanced materials with state-of-the-art manufacturing processes. Their unique heterogeneous integration facilitates diverse product offerings by merging high-performance compound semiconductors with scalable production techniques. This allows them to address emerging markets requiring robust and efficient solutions as well as penetrate existing supply chains

This technology has broad-based applicability across multiple industries. In the mobile market, the firm sees three distinct insertion points to improve existing NIR technologies with its advanced SWIR solutions. For data center, the company is uniquely positioned to benefit from the transition to co-packaged optics and silicon photonics. Additionally, the company's platform enables advanced capabilities for defense and aerospace, which has led to multiple development contracts with strategic partnerships like DARPA and NASA. In automotive, chips are used in LiDAR and ADAS and more recently, emerging opportunities have developed for quantum computing applications.

Aeluma operates a 9,000 sq ft facility at its Goleta, CA, headquarters that includes office space and a state-of-the-art cleanroom for manufacturing and R&D. Their differentiating core technology involves the heterogeneous integration of high-performance compound semiconductor materials on large-diameter silicon wafers (up to 12-inch), offering 16 times the wafer area of smaller indium phosphide (InP) substrates. This approach enables mass-market scalability and a 10x manufacturing cost reduction. The company performs materials deposition at its in-house facilities but expects to transition to completely fabless model once production ramps to high volume, leveraging external foundries for mature fabrication and packaging. Aeluma continues strengthening its intellectual property portfolio and has 29 issued patents.

Revenue has primarily been driven by commercial product sales and government contracts. For the six months ending Dec 2024 (Jun YE), revenue increased from $295k to $2.1M YoY, led by $1.9M from government contracts. These government contracts provide non-dilutive funding and aid in maturing technology for commercial markets, which we view as similar to NREs. Despite this early revenue growth, Aeluma remains in the R&D phase with limited operating history and has an accumulated deficit of $17.3M as of Dec 2024. While management previously acknowledged "going concern" uncertainty due to insufficient cash for their business plan, a public offering on March 26, 2025, raised gross proceeds of $13,800,000, alleviating immediate concerns by providing near-term capital. However, the company still faces typical early-stage risks, with significant commercial volumes not anticipated until fiscal year 2027.

Aeluma was founded in 2019 and moved rapidly to establish its technological and commercial foundation. Key milestones include the development and validation of its core heterogeneous integration technology, a successful Initial Public Offering (IPO) and subsequent uplisting to the NASDAQ stock exchange under the ticker "ALMU," and the securing of multiple key government and industry development contracts that underscore the potential of its platform.

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Investment Thesis

We believe Aeluma has developed a fundamental compound semiconductor technology platform to disrupt multiple high growth markets in sensing and communications applications and is positioned to capitalize on the growing demand for high-performance, cost-effective technologies across critical growth markets. The company's unique approach involves bringing high-performance semiconductors, traditionally relegated to low-volume specialty markets, into large-volume manufacturing environments, making them suitable for consumer applications. The company's core strength lies in its proprietary heterogeneous integration platform, an innovative technique that enables the manufacturing of high-performance compound semiconductor materials on large-diameter silicon wafers, up to 12". **This directly addresses a significant industry challenge of combining the performance characteristics of III-V compound semiconductors with the scalability and cost advantages of silicon manufacturing for optoelectronic and electronic devices.**

The traditional path for compound semiconductors, while offering advantages like high electron mobility and efficient light emission, has been constrained by high costs and limited wafer sizes, preventing widespread adoption in mass-market applications. Aeluma's technology provides a pathway to overcome these limitations, enabling the production of advanced devices at a lower cost, better performance, and higher volume than conventional compound semiconductor manufacturing methods. This capability is critical for unlocking new applications and expanding the addressable market for high-performance sensing solutions in sectors such as mobile and consumer, data center and AI infrastructure, Defense and Aerospace, automotive, and Industrial potentially disrupting existing supply chains and capturing substantial market share from incumbent technologies.

This manufacturing breakthrough has direct commercial and technical implications. First, it fundamentally changes the cost structure and enables high-volume scalability by leveraging the existing global infrastructure of mature silicon foundries. Second, the platform facilitates improved device performance and makes it possible to utilize advanced wafer-scale packaging techniques that are incompatible with smaller, non-standard substrates.

We believe this technology platform will unlock high-performance optoelectronic and electronic devices for mass markets, capture significant share in existing applications, and be a key enabler of emerging technologies.

To commercialize this technology, the epitaxy process (a highly controlled method of growing crystalline material layers) is conducted at its 9,000 sq. ft. R&D and manufacturing cleanroom facility at the Goleta headquarters. While critical IP has historically been protected through in-house operations, Aeluma is now transitioning core processes to an epi-partner to scale up production. For device manufacturing, the company collaborates with external fab and packaging partners, maintaining extensive patent protection and trade secrets related to its materials, manufacturing technology, and applications.

While the firm has not provided details of its epitaxy or manufacturing partners, management has noted efforts are progressing as expected with ongoing discussions with multiple leading foundries and epi vendors. Near-term, the company has sufficient deposition capacity within its facility to meet expected demand for low to mid volume orders. Once volume orders are secured, the company estimates a 6–12-month timeline to stand up its outside capacity, which is well within the typical design-in to ramp cycle of its target markets.

This versatility of this platform is reflected in the company's broad market focus, which includes mobile devices, data center for AI infrastructure, automotive sensors, aerospace & defense, Industrial, and quantum computing. We believe the company has demonstrated significant operational progress towards commercialization since its founding in 2021, generating initial revenue in 2023, achieving ISO 9001 certification, securing multiple contract awards, and successfully uplisting to the Nasdaq Capital Market in March 2025. Today, sales are primarily driven by development contracts, small-volume orders, and sample engineering sales.

This operational framework is supported by a growing team of approximately 15 professionals (as of late 2024). Aeluma has made strategic hires to de-risk its execution, bringing in key personnel with direct, relevant experience from industry leaders such as Luminar (automotive LiDAR), Skyworks (RF and mobile components), Lockheed Martin (aerospace & defense), and Vixar/Osram (high-volume VCSEL manufacturing for consumer electronics). The company is actively recruiting for senior leadership positions, including Chief Financial Officer and Chief Product Officer, to support its next phase of growth. Additional details on the executive management team and board of directors can be found on later pages of this report.

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Core Technology and Competitive Landscape

The Aeluma Innovation: InGaAs-on-Silicon. Aeluma's foundational technology addresses a fundamental materials science challenge: the heterogeneous integration of compound semiconductors like Indium Gallium Arsenide (InGaAs) with silicon. These materials are inherently incompatible, often described as being like "oil and water," which has traditionally prevented their combination. Building on a decade of university research, Aeluma has pioneered and industrialized a technique to deposit InGaAs films directly onto large-diameter silicon substrates up to 12 inches (300 mm). **This technology platform provides two major advantages:**

- **Scalability & Cost Reduction**: Traditional InGaAs sensors are fabricated on small, fragile, and expensive 3- or 4-inch specialty wafers in low-throughput facilities. By migrating to large-format silicon wafers, which offer over 16 times the surface area of a 3-inch wafer, Aeluma can dramatically increase chip output per wafer.
- **Access to CMOS Foundries:** This process allows Aeluma to tap into the mature, highly automated global network of silicon CMOS (Complementary Metal-Oxide-Semiconductor) foundries. This enables wafer-scale integration and packaging, leveraging existing infrastructure and matured processes to achieve manufacturing costs estimated to be 10x lower than the incumbent technology.

This unique in-house MVOCD (Metal Organic Chemical Vapor Deposition) process is completed in the firm's Goleta Headquarter facility and is central to its intellectual property. The company has automated this critical step, using cassette-based wafer handling systems identical to those in high-volume silicon fabs, before sending the wafers to foundry partners for device fabrication packaging and other downstream processing.

Figure 1: ALMU Technology Overview

Technology/Advantage	Description	Benefit to Aeluma/Customer
Patent Portfolio	29 issued and pending patents, including recent filings in quantum computing and sensing.	Provides strong intellectual property protection and a competitive moat in advanced semiconductor technologies.
Heterogeneous Integration Platform	Pioneering technique to manufacture high-performance compound semiconductors on large-diameter silicon wafers.	Enables cost-effective, large-scale production of advanced devices; combines performance of III-V with scalability of Si.
MOCVD	Metalorganic Chemical Vapor Deposition,mature and braodbased process for growing crystalline layers for compound semiconductors.	Essential for high-quality, thin-layer deposition; critical for advanced optoelectronic and electronic devices.
SWIR (Short Wave Infrared) Detector Arrays / Large Area Detectors	Used for active and passive imaging; LiDAR, Face ID, proximity sensor etc.	Low power, low solar interference, eye-safe wavelength, low dark current, customizable pixel and array size;
Quantum Dot (QD) Technology	Direct wafer integration of quantum dot lasers for silicon photonics and quantum computing applications.	Overcomes inefficient light emission from silicon; mitigates lattice mismatch defects; enables high-temperature, low-power, high-speed operation for data centers, AI Infra.
Cost-Effectiveness & Scalability	Technology designed for mass-market microelectronics by leveraging silicon wafer manufacturing.	Allows for high-performance devices at lower costs, enabling broader market adoption and competitive pricing.
Government Funding & Partnerships	Received funding from Office of Secretary of Defense and Navy; collaboration with Thorlabs, AIM Photonics	Validates technology, provides capital for R&D, and opens doors to strategic, high-value markets (e.g., defense).

Source: The Benchmark Company, LLC

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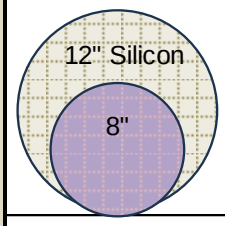
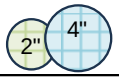
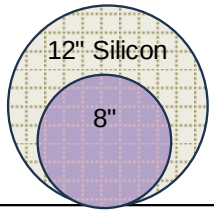
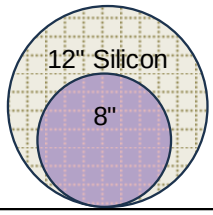
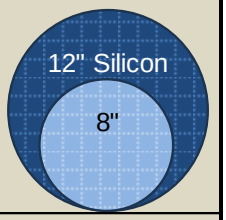
Competing Approaches

Aeluma's technology offers a unique combination of performance and scalability that distinguishes it from existing and emerging alternatives.

Figure 2: Comparison of New and Incumbent Technologies Indicates ALMU is in Pole Position

	Incumbent Technologies		Technologies for Scaling and Cost Reduction		
Technology	**Silicon SPAD**	**InGaAs-on-InP**	**Ge-on-Si**	**Colloidal QD**	**InGaAs-on-Si**
Substrate Sizes	8" to 12" 	2" to 4" 	8" to 12" 	8" to 12" 	8" to 12" 
Suppliers	Sony, ST Micro	Hamamatsu, Excelitas	Artilux, TRIEYE	onsemi, ST Micro	Aeluma
Eye Safe	No	Yes	Somewhat	Somewhat	Yes
Status	Mature Scalable (Short-range)	Mature not Scalable (long-range)	Maturing Scalable (long range)	Maturing Scalable (long range)	Maturing Scalable (long range)
Performance	Good	Best	Fair	Fair	Best
Multiplication (APD, SPAD):	Yes	Yes	Possible	No	Yes
Wafer-scale Integration	Yes	No	Yes	Yes	Yes

Source: The Benchmark Company, LLC

- **vs. Silicon CMOS Sensors**: These are the incumbent sensors in mobile phones. While mature, low-cost, and scalable, they operate in the visible and near-infrared spectrum. They suffer from poor performance in adverse weather, are susceptible to solar interference outdoors, and utilize wavelengths that require power limitations to ensure eye safety, thereby restricting their effective range and resolution.
- **vs. Incumbent InGaAs (on InP):** This is the traditional high-performance technology for SWIR sensing. It offers best-in-class performance due to the material's properties. However, its reliance on small, expensive Indium Phosphide (InP) substrates makes it fundamentally unscalable and too costly for mass-market consumer applications.
- **vs. Germanium-on-Silicon (Ge-on-Si):** An alternative approach to creating SWIR sensors on silicon. While scalable, germanium-based sensors exhibit significantly higher noise levels. Aeluma's InGaAs-on-silicon technology has a dark current approximately 1,000 times lower, resulting in a much cleaner signal and higher sensitivity.
- **vs. Colloidal Quantum Dots (CQD):** This technology is scalable but sacrifices performance. The detection efficiency and sensitivity of CQD-based sensors are nearly 100 times worse than Aeluma's platform.

We believe Aeluma is positioned to capture the market by providing the best-in-class performance of InGaAs on a platform that is scalable and cost-effective for consumer applications. For advanced packaging solutions, such as silicon photonics and in Defense and Aerospace, we think the wafer level packaging capability will be an equally important driver of ALMU's technology platform, which is simply not available on smaller diameter wafers.

Importantly, this manufacturing approach allows for many more sensor chips per wafer and larger array sizes compared to competitors using smaller Indium Phosphide (InP) substrates (2 to 4 inches vs. Aeluma's 12-inch silicon). Beyond photodetectors, Aeluma's versatile technology may also be used to manufacture other electronic and optoelectronic devices, including lasers, transistors, and solar cells

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Figure 3: Large Wafer Advantage

	Substrate size	Wafers for 20m sensor chips	Chips/ Wafer	Typical fab capacity (monthly)	Wafer volume reduction	
Incumbent Technology (InP substrates)	3"	425,000	47	1,000-10,000	3"	4"
	4"	213,000	94	1,000-10,000		
Aeluma's Large diameter platform (silicon substrates)	8"	43,000	465	10,000-100,000	(89.9%)	(79.8%)
	12"	18,000	1,111	10,000-100,000	(95.8%)	(91.5%)

Source: The Benchmark Company, LLC

Two Primary Products Areas, Many Applications

The company's technology is segmented into two primary product lines. The first is shortwave infrared (SWIR) sensors, utilizing Indium Gallium Arsenide (InGaAs) on silicon, which are intended for applications in mobile handsets, communications, automotive, and high-performance defense and aerospace systems. The second is quantum dot lasers, which are critical next generation interconnect solutions for data center and AI markets.

Figure 4: Target Product Areas

Material Platform	Core Functionality	Key Enabling Process	Target Applications
InGaAs on Silicon	Shortwave Infrared (SWIR) Photodetection	Large-diameter (up to 300mm) MOCVD deposition on silicon substrates	LiDAR, 3D Imaging, Machine Vision, ADAS, Mobile Sensing, AR/VR
Quantum Dots on Silicon	Monolithic Light Source (Laser) Integration	300mm MOCVD deposition onto silicon photonics wafers (with AIM Photonics)	AI/HPC Optical Interconnects, Data Centers, Telecommunications
AlGaAs on Silicon	Nonlinear Optics (entangled photon generation)	Large-area epitaxial growth and direct wafer bonding (with Thorlabs) on 200mm silicon	Quantum Computing, Quantum Communication, Advanced Photonic Circuits

Source: The Benchmark Company, LLC

Short-Wave Infrared (SWIR) Sensing

SWIR technology, particularly Indium Gallium Arsenide (InGaAs) sensors, offers distinct advantages over traditional silicon CMOS image sensors. While silicon sensors in mobile phones primarily detect visible light and near-infrared (up to ~940nm), InGaAs extends into the SWIR spectrum (1000-2500nm), enabling superior performance. Key benefits of SWIR include significantly lower solar interference, allowing for much better outdoor performance, and eye-safety, which permits higher illumination power without retina damage. This increased power translates to higher resolution images and the ability to see hundreds of meters away, unlike near-infrared systems that are limited to a few meters. For applications like iPhone's Face ID, the current near-infrared silicon technology is not eye-safe, limits resolution, and requires the phone to be very close to the face. In contrast, SWIR can enhance Face ID capabilities and enable LiDAR scanners in mobile phones to work effectively outdoors. Furthermore, for proximity sensors, SWIR technology can operate through the screen without distorting the image or requiring cutout space, a significant improvement over existing near-infrared solutions that often cause screen distortion.

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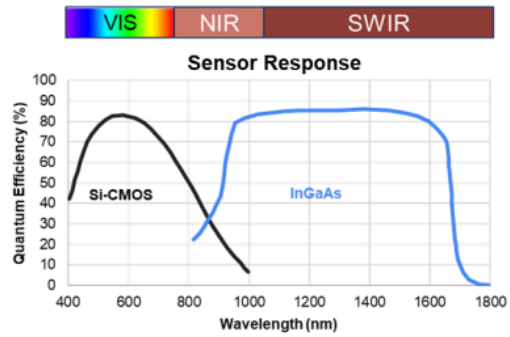
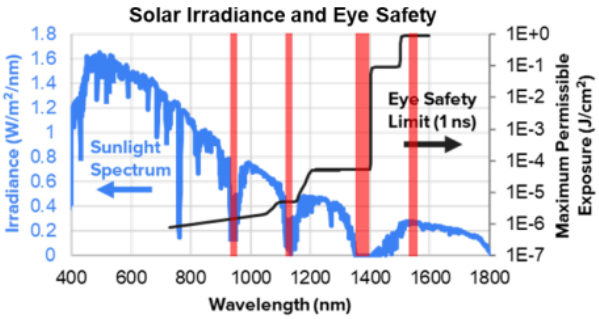
SWIR imaging offers unique capabilities vs NIR or other technologies. Because it is reflective light, like the visible spectrum, it produces high-resolution, detailed images with contrast, allowing for clearer object identification than NIR solutions. Its key advantages include the ability to see through fog, haze, and smoke, capturing images in very low-light conditions, and the unique ability to see through glass, which is opaque to longer-wave infrared cameras. The high cost of traditional InGaAs-on-InP-based SWIR sensors has been the main barrier to their mainstream adoption, but Aeluma's InGaAs-on-silicon solution is a promising, low-cost, high performance, scalable and CMOS compatible alternative to traditional shortwave infrared (SWIR) sensors.

- **Mobile and Consumer:** The eye-safe nature of SWIR light makes it highly suitable for integration into consumer devices for applications like enhanced facial recognition or 3D mapping.
- **Automotive:** To supplement ADAS sensor suites, providing robust vision in all weather and lighting conditions where visible cameras struggle.
- **Defense and Aerospace**: Large format infrared cameras with wafer-level packaging a compelling advantage.
- **Industrial:** For applications in robotics, quality inspection, agricultural sorting, remote sensing, and advanced machine vision.





The market for SWIR sensors is expanding rapidly beyond its traditional military and industrial niches. Market research suggests the Total Addressable Market (TAM) could reach $4 billion by 2030 and $6 billion by 2033. Aeluma has identified a Serviceable Addressable Market (SAM) of approximately $3.6B billion in 2030, growing at a 46% CAGR from $550M in 2025. We believe this market could be meaningfully larger with ALMU's scalability and cost advantages helping to accelerate adoption and enable new technologies. Further, we think the pricing structure will unlock opportunities for mass market devices which have not been economically viable with incumbent technologies.

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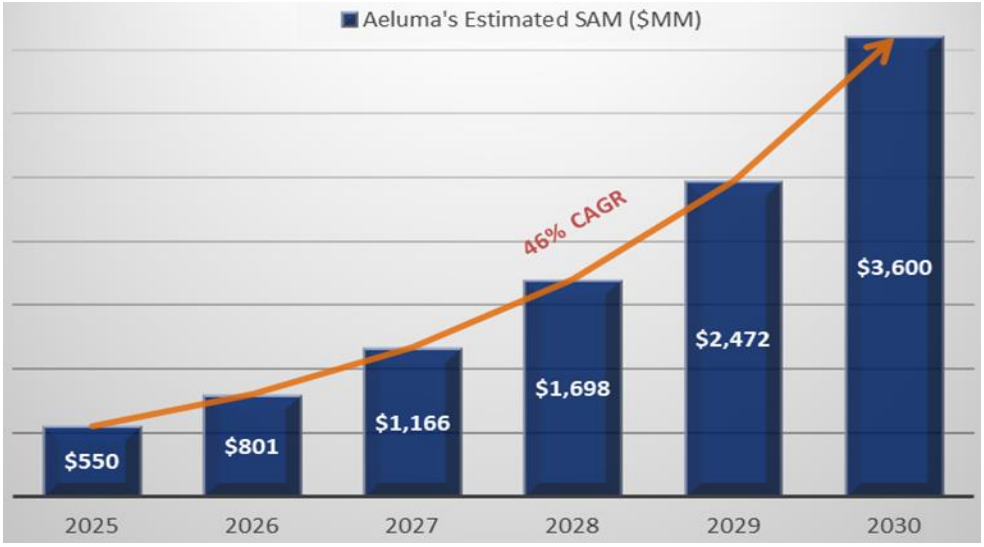
Figure 5: Significant SAM Opportunity….and We Think Estimate Will Prove Conservative



Source: The Benchmark Company, LLC

Quantum Dot Lasers

QDL for Optical Interconnects: Quantum dot lasers offer superior performance characteristics, including lower threshold current and better temperature stability, and are highly tolerant to crystal defects, which are common when integrating dissimilar materials. This is accomplished by implementing a specialized Metal Organic Chemical Vapor Deposition (MOCVD) process that enables selective deposition directly on silicon. This integration directly addresses the need for high-performance integrated lasers, which are a long sought-after goal for efficient optical interconnects in data centers.

Seamless CMOS Compatibility and System Advantages: By combining III-V materials with silicon, Aeluma enables monolithic integration with CMOS processes, which is the standard for mass-market microelectronics. This allows for the fusion of advanced optical functionality with the sophisticated electronic processing capabilities of silicon on a single chip, significantly reducing system complexity, size, and cost, while improving power efficiency and performance. This capability is critical for emerging applications in AI, where both high-speed processing and efficient data movement are critical.

Aeluma's silicon substrate platform is the fundamental enabler for deploying advanced silicon photonics by effectively bridging the performance gap of silicon with the light-emitting capabilities of compound semiconductors, all while maintaining the cost and scalability advantages of mainstream silicon fabrication. This unique capability supports our upbeat view of Aeluma's opportunity to meaningfully participate in the next generation of data center interconnect architectures.

The core technological breakthrough lies in its heterogeneous integration platform, which marries high-performance compound semiconductor materials with scalable silicon manufacturing processes. This approach directly addresses the primary limitation of silicon photonics (SiP) and unlocks new functionalities:

Overcoming Silicon's Indirect Bandgap: Silicon is the backbone of the microelectronics industry and offers significant advantages for integrated photonics, including high refractive index contrast, low-loss waveguides, efficient grating couplers, and compatibility with CMOS processes, enabling high manufacturing volumes and low costs on 300mm wafers. However, silicon’s indirect bandgap is an inherent weakness for photonic applications, which has made it inefficient as a light source. Aeluma's innovative technology overcomes this, allowing direct deposition of high-performance compound materials like Indium Gallium Arsenide (InGaAs) and other III-V materials (e.g., GaAs, InP, GaSb), which has a direct bandgap, onto silicon wafers, making them ideal for lasers and detection.

Pilot production is ongoing at AIM Photonics in New York to integrate its quantum-dot lasers into the silicon photonics process. The company expects to announce its epi and foundry partners for high-volume manufacturing once volume orders are secured.

Foundries suporting electronic-photonic heterogeneous integration and establish a full-stack ecosystem for mass production will likley dominate the AI and HPC optical communications market. Key foundries with these capabiltieis include:

- **TSMC**: Full-service platform (PIC, EIC, and 3D integrated packaging)
- **GlobalFoundries**: GF Fotonix™ platform, for high-performance SiPho manufacturing.

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- **Tower Semiconductor**: High-capacity SiPho manufacturing platform.
- **AIM Photonics:** Comprehensive service suite including design, simulation, manufacturing, and packaging. (source: SemiVision.com)

Target Verticals

The company's primary focus is currently on the **mobile and consumer** sectors, which it views as the largest near-term opportunity due to immense volumes, despite lower per-chip prices, followed by the **data center and AI infrastructure** market, driven by the demand for high-speed optical interconnects. Other key verticals include **defense and aerospace**, which is transitioning from government contracts to larger program-based revenue, and a potential to be a significant opportunity over time. I**ndustrial and robotics** are also promising, but with lower near-term volume opportunities. Strength is beginning to return in the **automotive** sector but is not expected to be a meaningful revenue driver until later in 2027-2028. Longer-term, emerging markets like AR/VR and quantum computing represent future growth areas where the company is engaged in development work with very optimistic expectations as the technology matures.

Figure 6: Broad Technology Applications Across High Growth Sectors

Mobile Tablet and AR/VR	AI, Comms & Quantum Computing	Aerospace and Defense	Automotive	Industrial and Logistics
Mobile phone and tablet	Data centers and AI	Imaging and LiDAR	Consumer vehicles	Robotics
Face ID	High Performance Computing	Security	Robotaxis	Delivery robots
LiDAR scanner	Telecommunications	Autonomous systems	Trucking	Factory automation
Proximity sensors	Quantum Computing	Atmospheric sensing	ADAS	Logistics
AR/VR glasses	5G/6G wireless	Topography		Security

Source: The Benchmark Company, LLC

Mobile & Consumer Electronics

We view the consumer and mobile electronics segment as Aeluma's largest and most immediate growth opportunity, potentially displacing the legacy silicon-based Near-Infrared (NIR) sensors in certain flagship smartphone models with its superior Short-Wave Infrared (SWIR) technology. With annual global smartphone shipments volumes well north of 1 billion units and with three distinct insertion points, securing even a small fraction of this market for key sensor applications would represent a significant revenue opportunity.

- **3D Sensing (Face ID):** Upgrading from near-infrared to SWIR would improve security, enable outdoor functionality, and allow for higher-resolution facial mapping from a greater distance.
- **Improved LiDAR Scanners:** Current mobile LiDAR is limited to a few meters and indoor use. SWIR-based LiDAR could enable long-range (hundreds of meters) environmental mapping, revolutionizing augmented reality and utility applications.
- **Under-Display Proximity Sensors**: Previous attempts to use SWIR sensors in phones were hindered by high costs. Aeluma's low-cost platform could enable the integration of these sensors under the OLED display without causing visual distortion.

Figure 7: Under-Screen vs Under-Display Proximity Sensors

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Behind the screen sensors minimize cutout but may distort screen

Under Display Proximity Sensor in iPhone 14 Pro:
Enabled by SWIR Laser/Detector Pair

Source: Company Reports, Tech Insights, The Benchmark Company, LLC

The current generation of smartphones relies heavily on NIR sensors for critical functions like facial recognition (e.g., Apple's Face ID), world-facing LiDAR scanners, and proximity sensing. However, this technology has fundamental limitations that SWIR can easily overcome while manufacturers would also benefit from its lower cost and improved supply chain resilience.

- **Inherently Eye Safe**: Operating at a longer wavelength (~1550nm) that is absorbed by the cornea and lens rather than being focused on the retina, SWIR is significantly safer. This allows for higher power output, which translates directly to longer-range, higher-resolution 3D sensing for applications like LiDAR and facial recognition.
- **Solar Immunity**: The sun emits far less light in the SWIR spectrum, enabling Aeluma's sensors to operate with high fidelity in bright, direct sunlight where NIR sensors fail.
- **Under-Display Integration:** SWIR light passes cleanly through a smartphone's OLED display. This provides a clear pathway for OEMs to create a true "all-screen" device by embedding facial recognition and other sensors directly underneath the display without cutouts or image distortion.

Customer feedback on samples of Aeluma's SWIR technology has been positive and has demonstrated a dark current level a thousand times lower than current germanium detectors, coupled with over 90% efficiency. This performance represents considerable improvement over existing solutions in the market, which should help Aeluma's SWIR sensor technology penetrate the consumer market.

Although the company has not provided specific ASP expectations, management noted a sub $10 type of price for the Face ID module at full volume production, with a "couple of dollars" each for the proximity and world facing sensors. We think the Tablet and AR/VR markets would like to support an average ASP across the various applications of ~ $20-$25, although we think adoption will be behind the handset market. We estimate the mobile and consumer market could easily translate to $1.5 to $2.3B on a very conservative basis, assuming ALMU captures 7.5% share and a blended ASP of $14-$20 across the mobile and consumer electronics market.

Datacenter and AI infrastructure

We think Aeluma is strategically positioned to capitalize on the rapidly expanding data center and AI infrastructure market, which represents a significant and near-term growth opportunity. This sector is characterized by an escalating demand for advanced optical interconnect solutions to facilitate high-speed data transfer within, and between data centers, particularly as AI workloads become increasingly complex and distributed. The global AI data center market alone is projected to expand dramatically, estimated to grow from $12 billion in 2023 to over $90 billion by 2032 (EE Times).

A**eluma's technology addresses this need with its specialized lasers and detectors for optical interconnect applications**. These components are fundamental for supporting the vast computing power and ultra-low-latency data transfer required by modern AI architectures. The industry is developing new solutions to eventually transition away from traditional pluggable optical modules with major players in the AI data center domain, including Nvidia, Marvell, and Broadcom, recognizing the necessity for advanced architectures like Co-Packaged Optics

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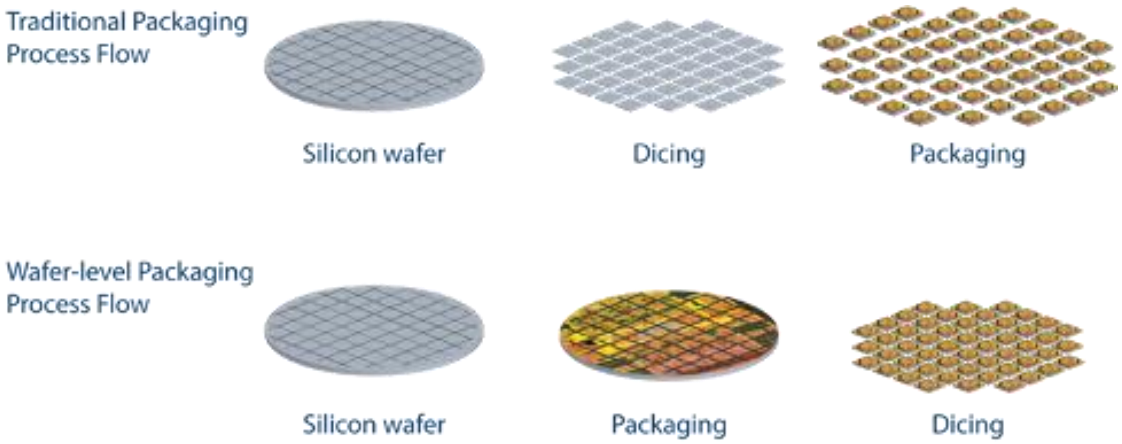
(CPO). This approach places optical I/O components (lasers and detectors) directly alongside high-performance ASICs on a common substrate, drastically reducing data travel distance, lowering latency, and improving power efficiency.

Figure 8: Traditional vs Wafer Level Packaging Process Flow



Source: BrewerScience.com, The Benchmark Company, LLC

A key differentiator for Aeluma in addressing these advanced packaging requirements is its unique manufacturing approach. This large-diameter wafer platform is highly compatible with advanced packaging techniques, including wafer-scale integration with complementary metal-oxide-semiconductor (CMOS) electronics. This compatibility allows Aeluma to seamlessly integrate its high-performance optoelectronic components with mainstream silicon manufacturing processes, a capability aggressively pursued by major computer, data center, and networking companies. Aeluma's proprietary quantum dot lasers, capable of producing multi-wavelength sources, on a single chip, a critical feature for increasing bandwidth density to meet the demands of AI workloads are directly synergistic with these advanced packaging and co-packaged optics requirements, enabling the scalable integration of numerous optical components directly onto CMOS platforms. We think this capability positions Aeluma to be a key enabler for the next generation of high-performance and energy-efficient AI infrastructure.

Defense and Aerospace

Aeluma's technology offers a significant advantage in the defense and aerospace market for Shortwave Infrared (SWIR) sensors. This sector, while not high-volume, demands large-format infrared cameras with increasingly smaller pixels, a scaling challenge that traditional small-wafer approaches cannot meet. Aeluma's ability to fabricate these sensors on large-diameter wafers (8-inch or 12-inch) is a critical advantage. This not only facilitates the creation of larger cameras but also enables advanced, wafer-scale packaging, which is not on smaller substrates where tooling simply does not exist. This large-wafer capability is highly appealing to government agencies and prime defense contractors due to the superior performance it delivers, allowing for the development of significantly larger infrared cameras suitable for integration into diverse platforms such as gimbals on jets, helicopters, and submarines. While individual cameras may command prices in the thousands of dollars, sales in this market thus far have been program-based, involving bids for hundreds or thousands of high-performance cameras, but interest continues to gain momentum and development costs could potentially reach tens of millions ahead of large volume commercial sales.

Automotive

The automotive industry is rapidly adding sensors for Advanced Driver-Assistance Systems (ADAS) and autonomous driving. LiDAR is a key component, and many systems are migrating to the SWIR spectrum for superior range and performance. With an estimated 100 million cars produced annually and future systems requiring multiple LiDAR units per vehicle, the chip volume demand could be significant as adoption accelerates. Incumbent manufacturing cannot support this scale, requiring nearly half a million wafers to produce 20M chips, well beyond the capability of the most advanced InP manufacturing capabilities. However, large diameter silicon-based wafers could potentially produce the same volume with just 20,000 to 40,000 wafers, an easily manageable run for a standard silicon foundry.

Although ALMU's target market focus has remained on the mobile market, the company received very strong interest from the automotive market for its LiDAR solution, which demonstrated significant performance advantages vs competing solutions while also offering substantial cost savings and scalable volume capabilities. However, the market failed to develop as quickly as the industry anticipated, delaying ongoing programs. However, demand has begun to resume with programs expected to gain traction over the next several quarters with potential revenue ramping in CY27 and 28.

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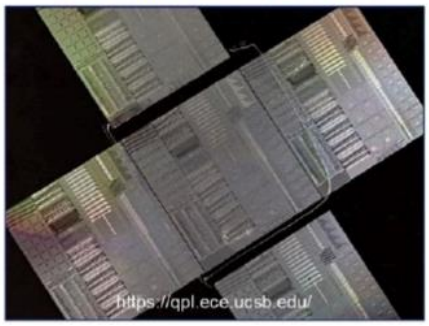
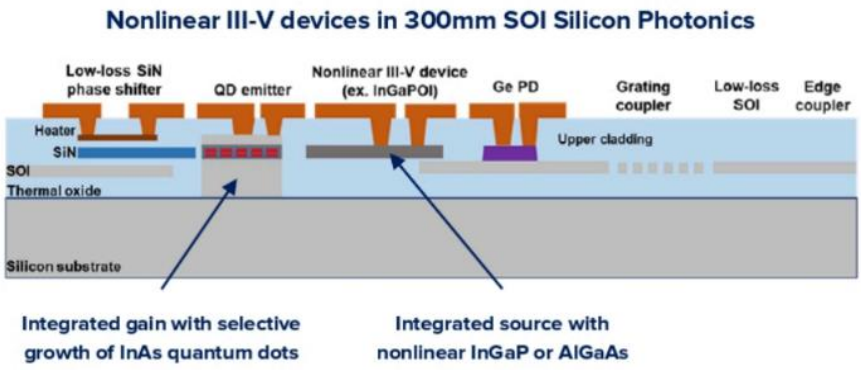
The competitive landscape is intense, **particularly in the automotive LiDAR space**, with established players like Luminar, Ouster, and Innoviz. However, Aeluma's strategy is differentiated. Rather than competing solely as an end-to-end system provider, it is positioning itself as a foundational technology enabler—a supplier of the critical, high-performance components that could power a new generation of cost-effective advanced sensors.

Quantum computing presents an attractive longer-term opportunity. The company is actively exploring its advanced quantum dot laser platform as a precision light source for this field. These lasers are crucial for developing silicon quantum-dot qubits, superconducting nanowire single photon detectors, and deployable quantum optical systems, due to their exceptional stability and coherence in photon emission. Aeluma's strategic advantage lies in its development of foundry-compatible quantum materials and its capability to integrate nonlinear optical materials on CMOS-standard 200mm silicon. This approach is crucial for meeting stringent Size, Weight, and Power (SWaP) requirements in diverse applications, including those for NASA. The company's efforts in this area are supported by recent funding and new contracts received in July 2025 from NASA and the U.S. Navy, specifically aimed at accelerating the commercialization of next-generation quantum and sensing systems, including entangled photon sources vital for quantum computing and communication.





Additionally, the company's collaboration with Thorlabs has led to a breakthrough in establishing a large-diameter wafer manufacturing platform specifically tailored for quantum computing and communication. The precise and tunable properties of the firm's quantum dot lasers are enabling transformative advancements in scalable quantum computing and secure quantum communication networks. A graphic of the firms 300mm SOI silicon photonics structure with InAs quantum dots and nonlinear InGaP or AiGaAs source.

Financials

The company has recently taken significant steps to position itself for its next phase of growth. A successful capital raise has strengthened its balance sheet, providing ample funding for research, development, and commercialization efforts. Furthermore, Aeluma has strategically expanded its board of directors, adding industry veterans with deep experience in scaling semiconductor businesses. These actions have substantially increased the company's visibility and credibility within the technology and investment communities.

Despite its relatively short history, the company's unique capabilities and capital light model have already begun delivering revenue with FY25 (June YE) guided to be $4.5M at the midpoint. To date, sales have predominantly been driven by U.S. federal agency contract awards, including an $11.7M DARPA contract to develop nano-scale semiconductors using the firm's heterogeneous integration technology. The company also generates revenue through various other avenues, including small-volume orders, engineering sample evaluations, non-recurring engineering (NRE) development, and R&D projects.

In FY24 (June '24 YE), the company secured six new government contracts totaling $1.3M and recognized revenue of $919k, 93% of which was related to government contracts and the remaining from commercial product sample sales. The outstanding performance obligations related to these government contracts were ~$691k, which were expected to be recognized over following 12-month period upon completion.

We are modeling revenue to remain predominantly driven by NRE type awards/contracts for at least the next several quarters with revenue beginning to inflect in late 2027 or early 2028. While small volume product sales and development contracts are likely to continue to layer on through this period, our near-term revenue forecasts are largely driven by the revenue recognition on the remaining performance obligations already booked, which we estimate to be ~ $7M-$8M ending the year (June YE, unreported). Although this is admittedly conservative given the strength of interest and multiple ongoing customer discussions, the timing of production volume orders and design in cycles are variable across the firm's end markets and we believe it is prudent to de-risk our estimates until visibility improves.

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Our FY27 revenue forecast of $16M assumes a modest acceleration in orders across a growing number of end applications combined with a step up in development revenue. We think revenue will likely begin to inflect in the 2H of CY 27 (1Q28) as early design wins begin initial ramps. However, we think there is a strong potential that a single mobile customer or a small win in the data center space could be a significant revenue driver well ahead of our expectations.

From a gross margin perspective, we look for a normalized margin profile to be in the mid to upper 50% range over time, as the mix shifts from the higher margin development contracts towards increasing product sales but think a floor of 50% on a blended basis is reasonable with some quarter-to-quarter variability depending on the end market mix.

The company has maintained a disciplined cost structure particularly for an early-stage development company, with operating expenses below $5M last year ($4.1M adjusted basis) and only $3.2M through the first nine months of this year. Salary for employees is the largest expense, but the firm is beginning to scale up the organization and expects expenses to steadily increase with the headcount targeted to roughly double over the next 12 months, from 15 to 33, which should take quarterly expense to $2M a month or $8M annually on an adjusted basis, over time. Despite this, our model suggests losses per share of $0.19 this year (FY25) and $0.10 next year on a GAAP basis, or roughly neutral on an adjusted basis.

Given the firm's modest operating cost structure, healthy gross margin, and fewer than 16M shares outstanding, the company is generating sufficient revenue to be self-sustaining, with strong operating leverage as revenue begins to scale. Based on our current assumptions, we think the firm will remain near breakeven on an adjusted basis annually through FY27, with sustainable quarterly earnings beginning during 2H27.

With a minimal burn rate and ~$16M on the balance sheet, we are comfortable with the firm's available liquidity, which appears sufficient to bridge to profitability, but would not be surprised to see the firm further strengthen its capital resources to eliminate constraints scaling up the business and provide flexibility in standing up its outside manufacturing capabilities. Additionally, given the sizeable market opportunities and potential Tier 1 customer base, we think adding additional cash to the balance sheet would only strengthen customer confidence in the firm's long-term longevity and ability to deliver.

Of note, the company has identified a material weakness in internal financial reporting controls as of March 31, 2025, primarily due to insufficient staffing. We believe management is working to address this weakness with additional hires, including a new permanent CFO, with the interim CFO and the Audit Committee filling the roll until an appointment has been made.

Additionally, management previously acknowledged "going concern" uncertainty due to insufficient cash for their business plan, a public offering on March 26, 2025, raised gross proceeds of $13.8M, which should alleviate immediate concerns. However, the company may still face typical early-stage risks, with significant commercial volumes not anticipated until fiscal year 2027 or 2028.

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Valuation

Our $25 PT equates to a 10.5x EV/Sales multiple on our FY28 sales estimate of $39M, which we believe will likely prove conservative. While customer engagement activity is accelerating, and we anticipate design wins to begin over the next few quarters, visibility into timing of production volume ramps is not yet clear. However, a single win in the high volume mobile or communications end market is likely to meaningfully accelerate the revenue trajectory. Additionally, with an existing revenue base, healthy balance sheet, minimal cash burn, and broad-based customer interest, we are confident the company's ability to continue executing against its strategic commercialization roadmap.

Figure 9: Valuation Framework

	TBC Model			+20% Scenario		
	FY27	FY28	FY29	FY27	FY28	FY29
	Jun-27	Jun-28	Jun-29	Jun-27	Jun-28	Jun-29
Sales	**$15.9**	**$38.8**	**$94.7**	**$19.1**	**$46.6**	**$113.6**
EPS	($0.01)	$0.18	$0.71	($0.01)	$0.22	$0.85
EBITDA	$0.3	$3.4	$16.8	$0.4	$4.1	$20.2
Shares (Diluted)	16.2	16.5	16.8	16.2	16.5	16.8
Market Cap	$403.9	$412.0	$420.3	$403.9	$412.0	$420.3
EV	**$394.9**	**$408.0**	**$406.3**	**$394.9**	**$408.0**	**$406.3**
EV /Sales	24.9x	**10.5x**	**4.3x**	20.7x	**8.8x**	**3.6x**
EV/EBITDA		119.9x	**24.2x**		**99.9x**	**20.1x**
P/S	25.4x	**10.6x**	**4.4x**	21.2x	**8.9x**	**3.7x**
P/E		137.6x	**35.4x**		**114.7x**	**29.5x**
P/T	**$25.0**	**$25.0**	**$25.0**	**$25.0**	**$25.0**	**$25.0**

Source: The Benchmark Company, LLC

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Contract Awards and Other Notable Events

Aeluma (ALMU) has secured a variety of contracts and awards, primarily from U.S. government agencies, alongside significant capital raises through private placements and public offerings. These demonstrate Aeluma's strategic focus on both government and commercial markets for its high-performance, scalable semiconductor technologies. Below is a list of the contracts and awards Aeluma has received to date:

- **Contracts from U.S. Government Agencies** (Fiscal Year Ended June 30, 2024): Aeluma was awarded several contracts totaling $1.3M from entities including the U.S. Navy, the Office of the Secretary of Defense (OSD), and the Department of Energy. These were firm fixed price contracts for services and materials, paid upon the completion of certain milestones.
- **Office of the Secretary of Defense (OSD) Funding Award** (February 8, 2024): Aeluma received funding to develop foundry-scale, CMOS-compatible quantum materials, leveraging its large-scale semiconductor technology. This award provides further validation of Aeluma's broadly applicable technology. A "Second OSD Contract" is also indicated on the company's timeline.
- **DARPA Contract (September 6, 2024)**: Aeluma won a $11.7 million DARPA contract for nano-scale semiconductors. This contract is aimed at developing heterogeneous integration technology compatible with leading-edge and future advanced-node semiconductors, with applications in AI, mobile devices, and 5G/6G. The funding is structured with $6 million provided over 18 months, and the remaining $5.7 million over the following 18 months upon meeting certain milestones. Teledyne Scientific Company and the University of California Santa Barbara are proposed subcontractors.
- **NASA Contract** (November 21, 2024): Aeluma was awarded a NASA contract to develop quantum dot photonic integrated circuits (PICs) on silicon to enhance optical performance in space missions and autonomous systems.
- **U.S. Department of Energy Contract** (April 24, 2025): Aeluma received a contract to develop commercially viable, low-cost shortwave infrared (SWIR) photodetectors, which will accelerate the commercialization of its wafer-scale platform for high-sensitivity, energy-efficient photodetector sensors.
- **U.S. Navy Funding for High-Speed Photodetectors** (June 16, 2025): Aeluma won funding from the Navy to accelerate the development and commercialization of high-speed photodetectors for optical interconnects.
- **New Contracts from NASA and the U.S. Navy** (July 9/10, 2025): Aeluma secured new contracts with NASA and the U.S. Navy aimed at advancing scalable quantum and sensing technologies. The Navy specifically supports low SWaP (Size, Weight, and Power) imaging sensors for next-generation submarine systems, by directly integrating SWIR sensors on silicon.
- **Private Placements** (December 2022 - May 2023): Aeluma raised aggregate gross proceeds of $6M through the issuance of 2.02M shares of common stock to accredited investors at $3.00 per share.
- **Private Note Financing** (August 5 - August 27, 2024): The company issued convertible promissory notes totaling $3.2M to 10 accredited investors.
- **Public Offering** (March 26, 2025): Aeluma closed an oversubscribed public offering, raising approximately $13.8 million in gross proceeds. This included the full exercise of an overallotment option. The net proceeds were approximately $12.7 million. This offering brought the total capital raised in fiscal year 2025 to nearly $17 million.
- **Nasdaq Uplisting** (March 27, 2025): While not a contract, this is a significant corporate achievement, where Aeluma's common stock received approval to list on The Nasdaq Capital Market under the ticker symbol "ALMU".
- **ISO 9001:2015 Certification**: Aeluma has achieved ISO 9001:2015 Quality Management System Certification.
- **Russell 3000 Index Membership** (June 25, 2025): Aeluma was added to the membership of the Russell 3000 Index.

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Select Risk Factors

Technology Risk: As Aeluma's technology is still in the early phases of large-scale commercialization, there is a risk that it may not perform as expected in real-world, high-volume applications or that unforeseen manufacturing challenges could arise. Further, new semiconductor technologies face adoption challenges, particularly in critical safety applications, which may delay the company's expected revenue growth and may substantially impact our forecast estimates.

Manufacturing Scalability Risk: Translating novel, lab-proven processes for heterogeneous integration into a high-yield, high-reliability, automotive-grade mass manufacturing environment is difficult, and may not be successful, or fail to demonstrate the performance advantages expected.

Early Stage of Commercialization: The company has a limited history of commercial revenue, and its long-term profitability is not yet proven. Many factors can impact the timing to revenue including design win cycles, customer production ramp, manufacturing, economics, and geopolitical, which may delay or significantly change our revenue forecasts and expected cash requirements.

Execution Risk: The company's success is heavily dependent on its ability to execute its business plan. This includes scaling up its manufacturing processes with foundry partners, managing a complex global supply chain, and successfully converting its development pipeline into large, recurring commercial contracts. While the company has historically achieved its progress milestones, risks to future execution include resource constraints, technology challenges, market dynamics, foundry partners, yields, pace of adoption as well as many other potential unknowns.

Competitive Risk: The markets Aeluma is targeting are highly attractive, and the company faces potential competition from larger, more established players with greater financial resources, as well as from other agile startups that may develop alternative or superior technologies. Further, competitors often have strong established relationships with OEM/ODM partners with existing production contracts in place. Although ALMU's products may have superior performance and cost characteristics vs competing devices, this could create friction entering the supply chain.

End Market Adoption Risk: The growth forecasts for Aeluma are predicated on the timely and widespread adoption of next-generation technologies like high-speed optical interconnects, automotive LiDAR, and quantum computing. A slower-than-anticipated adoption curve in these key end markets could materially impact on the company's growth trajectory. Additionally, the company's key target markets, especially automotive, are characterized by long design, validation, and production cycles, which can delay revenue generation.

Financial Risk: Aeluma has a history of operating losses, which is typical for a company at its stage of development. There is a risk that the company may require additional capital in the future to fund its operations before it achieves sustained profitability, which could result in dilution for existing shareholders. We believe the current balance sheet is sufficient to fund operation through profitability, but any unforeseen delays or capital expenses could require additional funding, including debt, equity, strategic investment or other sources, which would likely impact our forecast.

Customer Concentration: In the automotive and defense sectors, winning a contract with a single large customer can lead to significant pricing pressure and a dependency that limits strategic flexibility.

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Management and Board of Directors

Jonathan Klamkin, 44, is the Chief Executive Officer, Chief Financial Officer, President, and Chairman of the Board of Aeluma, having previously served as CEO and Director of Biond Photonics (now Aeluma) since February 2019. He has also been a professor of Electrical and Computer Engineering at the University of California, Santa Barbara since 2015, where his research focuses on integrated photonics and optoelectronics. Earlier in his career, he worked at BinOptics Corp. (2001-2002). Dr. Klamkin is a highly accomplished professional, recognized with awards such as the NASA Young Faculty Award, DARPA Young Faculty Award, and DARPA Director's Fellowship. He has authored or co-authored over 200 papers, holds several patents, and has given over 100 invited presentations. He earned his Bachelor of Science in Electrical and Computer Engineering from Cornell University, and his Master of Science in Electrical and Computer Engineering and Ph.D. in Materials from the University of California, Santa Barbara.

Matthew Dummer serves as Director of Technology and brings over 20 years of expertise in optoelectronic device design and manufacturing. He currently leads a team of engineers focused on new technology development, IP strategy, and scalable production solutions. Before Aeluma, Dr. Dummer was a Principal Scientist at Vixar Inc., a VCSEL manufacturer, where he developed sensor products across various markets. After Vixar's acquisition by Osram Opto-Semiconductors in 2018, he successfully spearheaded the commercialization and mass production of the first high-efficiency multijunction VCSELs for 3D sensing and LiDAR. Dr. Dummer holds a Ph.D. in Electrical and Computer Engineering from the University of California, Santa Barbara, along with six patents and over 60 publications in compound semiconductor devices.

James Seo serves as Interim Chief Financial Officer (Principal Financial and Accounting Officer) and has served as the company's Controller since May 2023 where his responsibilities include SEC periodic reports, coordinating with external audit firms on financial and compliance matters, and providing strategic oversight for financial operations, accounting, budgeting, and financial planning. Before joining Aeluma, Mr. Seo was a Financial Analyst, Compliance and Reporting, at Transphorm, Inc. from January 2020 to April 2023, where he played a key role in their 2020 public offering and 2022 Nasdaq uplist, and led the annual SOX 404 financial statement mapping and risk assessment. He holds a B.B.A. in Accounting from the University of Wisconsin, Milwaukee. A search for a permanent CFO is ongoing.

Board of Directors:

Mike Byron - Director: Mr. Byron brings deep experience in financial operations, accounting, and scaling technology companies, with a 22-year career at NVIDIA, joining in 2002. He has held various finance leadership roles, including Vice President of Finance Operations & Systems and Vice President & Chief Accounting Officer (2011-2019). Before NVIDIA, Mr. Byron worked in finance and accounting at other public technology companies and spent eight years as an auditor at Deloitte. He earned his bachelor's degree in business economics from UC Santa Barbara and became a Certified Public Accountant in 1990. Beyond his corporate leadership, Byron is dedicated to fostering financial and technological innovation, serving as a Trustee of the UC Santa Barbara Foundation and advising the Dean's Investment Group.

Seven P. DenBaars - Director: Mr. DenBaars joined Aeluma's Board of Directors on June 5, 2021, and is a Professor of Materials and Electrical and Computer Engineering at the University of California Santa Barbara, a position he's held since 1991. A prolific entrepreneur, Professor DenBaars has co-founded several photonics and electronics startups, most notably, Nitres, Inc. in 1996, which was acquired by Cree, Inc. in 2000. He also co-founded SLD Laser (2013), helping it grow to over 150 employees before its acquisition by Kyocera Corporation in 2021. He assisted in the founding of Akoustis Technologies, Inc. (AKTS) in 2014, where he currently serves on the Board of Directors. Dr. DenBaars's distinguished career includes being named an IEEE Fellow (2005), a member of the National Academy of Engineers (2012), and a National Academy of Inventors (2014). He holds a Bachelor of Science in Metallurgical Engineering from the University of Arizona, and a Master of Science in Material Science and a Ph.D. in Electrical Engineering from the University of Southern California.

John K. Paglia – Director: Mr. Paglia is an accomplished finance professional, recognized for his expertise in financing and capital markets. He also serves as an independent board director and audit committee chair for Simulations Plus, Inc. (NASDAQ: SLP) and Cal-X Business Accelerator, Inc., the latter overseeing over 30 regenerative health technology startups. As a tenured Professor of Finance at Pepperdine University's Graziadio Business School, Dr. Paglia specializes in venture capital, private equity, corporate finance, business valuations, and mergers and acquisitions. Dr. Paglia holds a Ph.D. in Finance, an MBA, and a B.S. in Finance. He is also a Certified Public Accountant, Chartered Financial Analyst, and is NACD Directorship Certified™. His extensive knowledge of technical accounting and business experience make him a highly qualified candidate for the Board.

Craig Ensley – Director: Mr. Ensley is a seasoned executive with extensive experience leading global semiconductor businesses in Analog & DSP, MEMS & Sensors, and Communications. His prior leadership roles include CEO of Atomica (formerly IMT), the largest U.S. MEMS & Sensors manufacturing foundry; CEO of DisplayLink, an enterprise video networking firm; President of Peregrine, an RF & Wireless devices company; and SVP at Cirrus Logic, a mixed-signal circuits company.. Mr. Ensley currently serves on the Boards of Mentium Technologies (an AI company) and the MEMS & Sensors Industry Group. He previously held board positions with the Consumer Electronics Association Audio

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and Home Networking Divisions, and KLRU Austin PBS Television Station. Craig holds an MBA from Stanford University and a B.S. in Applied Physics and B.A. in Economics from the University of California San Diego.

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Figure 10: ALMU P&L Model

	FY24	1Q25A Sep-24	2Q25A Dec-24	3Q25A Mar-25	4Q25E Jun-25	FY25E	1Q26E Sep-25	2Q26E Dec-25	3Q26E Mar-26	4Q26E Jun-26	FY26E	1Q27E Sep-26	2Q27E Dec-26	3Q27E Mar-27	4Q27E Jun-27	FY27E	FY28E	FY29E
Sales	0.92	0.48	1.61	1.25	1.27	4.62	1.39	1.53	1.76	2.20	6.90	2.76	3.44	4.31	5.38	15.89	38.79	94.71
COGS	0.62	0.31	0.58	0.41	0.44	1.75	0.48	0.52	0.60	0.82	2.42	1.10	1.48	1.94	2.42	6.95	20.06	56.55
Gross Profit	**0.30**	**0.17**	**1.03**	**0.84**	**0.82**	**2.86**	**0.91**	**1.01**	**1.16**	**1.39**	**4.48**	**1.65**	**1.96**	**2.37**	**2.96**	**8.94**	**18.73**	**38.15**
Research & Development	2.51	0.40	0.27	0.47	0.52	1.66	0.54	0.56	0.59	0.66	2.35	0.71	0.78	0.87	0.98	3.34	4.98	7.30
SG&A	2.04	0.40	0.27	1.10	0.40	2.16	0.47	0.54	0.65	0.87	2.52	1.09	1.33	1.59	1.91	5.93	10.99	19.22
Depreciation & Amortization Expense	0.31	0.10	0.10	0.10	0.10	0.41	0.10	0.10	0.10	0.10	0.42	0.10	0.10	0.10	0.10	0.42	0.42	0.42
Total OpEx	**4.86**	**0.90**	**0.64**	**1.67**	**1.03**	**4.23**	**1.11**	**1.20**	**1.35**	**1.63**	**5.29**	**1.91**	**2.22**	**2.56**	**2.99**	**9.69**	**16.39**	**26.94**
Adjusted OpEx	**4.11**	**0.72**	**0.48**	**0.84**	**0.86**	**2.91**	**0.95**	**1.04**	**1.19**	**1.47**	**4.64**	**1.75**	**2.06**	**2.40**	**2.83**	**9.04**	**15.75**	**26.29**
EBIT (Operating Income	**-4.56**	**-0.73**	**0.39**	**-0.83**	**-0.20**	**-1.37**	**-0.19**	**-0.19**	**-0.18**	**-0.25**	**-0.81**	**-0.26**	**-0.26**	**-0.20**	**-0.04**	**-0.75**	**2.34**	**11.21**
Adjusted Operating Income (EBIT)	**-3.81**	**-0.56**	**0.55**	**0.00**	**-0.04**	**-0.04**	**-0.03**	**-0.02**	**-0.02**	**-0.08**	**-0.16**	**-0.10**	**-0.10**	**-0.04**	**0.13**	**-0.10**	**2.98**	**11.86**
Interest Income	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Amortization of discount on convertible notes	0.00	-0.14	-0.28	-0.29	-0.29	-1.00	-0.29	-0.29	-0.29	-0.29	-1.15	-0.29	-0.29	-0.29	-0.29	-1.15	-1.15	-1.15
Chnges in fair value of derivative liabilities	0.00	0.15	-3.00	2.58	0.00	-0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Other Income	**0.00**	**0.00**	**-3.28**	**2.29**	**-0.28**	**-1.27**	**-0.28**	**-0.28**	**-0.28**	**-0.28**	**-1.14**	**-0.28**	**-0.28**	**-0.28**	**-0.28**	**-1.14**	**-1.14**	**-1.14**
Adjusted Other Income	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.01**	**0.01**
Pretax Income	-4.56	-0.73	-2.89	1.46	-0.48	-2.65	-0.48	-0.47	-0.47	-0.53	-1.95	-0.54	-0.54	-0.48	-0.32	-1.88	1.20	10.08
Net Income (GAAP)	**-4.56**	**-0.73**	**-2.89**	**1.46**	**-0.48**	**-2.65**	**-0.48**	**-0.47**	**-0.47**	**-0.53**	**-1.95**	**-0.54**	**-0.54**	**-0.48**	**-0.32**	**-1.88**	**1.20**	**10.08**
Stock-based comp	0.73	0.17	0.15	0.83	0.16	1.31	0.16	0.16	0.16	0.16	0.63	0.16	0.16	0.16	0.16	0.63	0.63	0.63
Consulting and advisory - restricted stock aw ard	0.02	0.01	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Amortization of discount on convertible notes	0.00	0.14	0.28	0.29	0.29	1.00	0.29	0.29	0.29	0.29	1.15	0.29	0.29	0.29	0.29	1.15	1.15	1.15
Changes in fair value of derivative liabilities	0.00	-0.15	3.00	-2.58	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted Net Income (loss)	**-3.81**	**-0.56**	**0.55**	**0.01**	**-0.03**	**-0.04**	**-0.03**	**-0.02**	**-0.02**	**-0.08**	**-0.15**	**-0.09**	**-0.09**	**-0.03**	**0.13**	**-0.09**	**2.99**	**11.87**
EPS (basic)	-0.37	-0.06	-0.24	0.12	-0.04	-0.21	-0.04	-0.04	-0.04	-0.04	-0.16	-0.04	-0.04	-0.04	-0.03	-0.15	0.09	0.78
EPS (diluted)	-0.37	-0.06	-0.24	0.11	-0.03	-0.20	-0.03	-0.03	-0.03	-0.03	-0.12	-0.03	-0.03	-0.03	-0.02	-0.12	0.07	0.60
Adjusted EPS (loss per share) diluted	**-0.31**	**-0.05**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**-0.01**	**-0.01**	**-0.01**	**-0.01**	**0.00**	**0.01**	**-0.01**	**0.18**	**0.71**
Basic Shares Outstanding	12.30	12.18	12.21	12.47	12.47	12.33	12.50	12.53	12.57	12.60	12.55	12.63	12.66	12.69	12.72	12.68	12.80	12.93
Total Shares Outstanding	12.18	12.18	12.24	13.21	15.80	13.36	15.83	15.87	15.91	15.95	15.89	16.03	16.11	16.19	16.28	16.15	16.48	16.81
EBITDA	**-4.25**	**-0.63**	**0.49**	**-0.73**	**-0.10**	**-0.96**	**-0.09**	**-0.08**	**-0.08**	**-0.14**	**-0.39**	**-0.15**	**-0.15**	**-0.09**	**0.07**	**-0.33**	**2.76**	**11.63**
Adjusted EBITDA	**-3.50**	**-0.46**	**0.65**	**0.11**	**0.07**	**0.37**	**0.07**	**0.08**	**0.08**	**0.02**	**0.26**	**0.01**	**0.01**	**0.07**	**0.23**	**0.32**	**3.40**	**12.28**
QoQ Sales Grow th	N/A	72.1%	235.4%	(22.2%)	1.0%	N/A	10.0%	10.0%	15.0%	25.0%	N/A	25.0%	25.0%	25.0%	25.0%	N/A	N/A	N/A
YoY Sales Grow th	N/A	N/M	513.1%	264.9%	353.9%	402.5%	190.0%	(4.9%)	40.5%	73.9%	49.4%	97.7%	124.6%	144.1%	144.1%	130.4%	144.1%	144.1%
Gross Margin	32.6%	34.6%	63.7%	67.1%	65.1%	62.0%	65.6%	66.0%	66.0%	63.0%	64.9%	60.0%	57.0%	55.0%	55.0%	56.3%	48.3%	40.3%
R&D Percent of Sales	272.9%	83.4%	16.6%	37.5%	40.9%	35.9%	38.5%	36.4%	33.6%	29.9%	34.0%	25.9%	22.7%	20.2%	18.1%	21.0%	12.9%	7.7%
Sales and Marketing Percent of Sales	222.6%	82.4%	16.6%	87.5%	31.7%	46.9%	33.4%	34.9%	36.9%	39.5%	36.6%	39.6%	38.7%	36.9%	35.6%	37.3%	28.3%	20.3%
Total Opex	$4.86	$0.90	$0.64	$1.67	$1.03	$4.23	$1.11	$1.20	$1.35	$1.63	$5.29	$1.91	$2.22	$2.56	$2.99	$9.69	$16.39	$26.94
Operating Margin	(496.8%)	(152.1%)	24.2%	(66.3%)	(15.8%)	(29.8%)	(13.8%)	(12.1%)	(10.4%)	(11.1%)	(11.7%)	(9.3%)	(7.5%)	(4.6%)	(0.7%)	(4.7%)	6.0%	11.8%
Net Margin	(496.8%)	(151.5%)	(179.5%)	116.4%	(38.3%)	(57.3%)	(34.3%)	(30.7%)	(26.6%)	(24.1%)	(28.2%)	(19.7%)	(15.7%)	(11.2%)	(5.9%)	(11.9%)	3.1%	10.6%
Tax Rate	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Adjusted Ratios																		
Total Adjusted OPEX	$3.82	$0.63	$0.39	$0.74	$0.76	$2.51	$0.84	$0.93	$1.09	$1.37	$4.24	$1.65	$1.96	$2.30	$2.73	$8.64	$15.34	$25.88
Incremental Opex Spend (⌂ per $ of revs) adjusted	447.6%	(69.6%)	(21.3%)	(99.3%)	195.6%	(32.6%)	66.0%	65.0%	65.9%	64.6%	76.2%	50.0%	45.0%	40.0%	40.0%	48.9%	29.3%	18.9%
Adjusted Operating Margin	(415.0%)	(115.9%)	33.8%	0.4%	(2.9%)	(1.0%)	(2.2%)	(1.6%)	(1.4%)	(3.8%)	(2.4%)	(3.4%)	(2.8%)	(0.8%)	2.3%	(0.6%)	7.7%	12.5%
Incremental Op Income Margin	(415.0%)	129.5%	628.0%	72.6%	168.9%	101.9%	4.6%	(0.6%)	1.9%	(8.9%)	(5.2%)	(2.0%)	(2.0%)	3.9%	11.4%	0.7%	13.5%	15.9%
Net Margin Adjusted	(415.0%)	(115.7%)	33.9%	0.6%	(2.7%)	(0.8%)	(2.1%)	(1.4%)	(1.2%)	(3.7%)	(2.2%)	(3.4%)	(2.7%)	(0.8%)	2.4%	(0.6%)	7.7%	12.5%
Adjusted EPS Grow th Sequential	N/A	(32.0%)	(197.8%)	(98.8%)	(514.3%)	N/A	(17.0%)	(24.4%)	(1.0%)	276.6%	N/A	12.9%	(0.4%)	(65.1%)	(494.9%)	N/A	N/A	N/A
Adusted EPS Grow th Annual	#DIV/0!	(52.5%)	(154.7%)	(100.8%)	(96.7%)	(99.1%)	(96.0%)	(103.1%)	(357.2%)	133.8%	248.8%	218.1%	319.1%	47.8%	(254.9%)	(43.2%)	(3408.7%)	288.6%

Source: The Benchmark Company, LLC

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Important Disclosures

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Firm-Wide Stock Ratings Distribution

As of June 30, 2025

	All Covered Companies		Investment Banking Clients	
Buy	**272**	**74.5%**	**62**	**17.0%**
Hold	**70**	**19.2%**	**5**	**1.4%**
Speculative Buy	**21**	**5.8%**	**12**	**3.3%**
Sell	**2**	**0.6%**	**0**	**0.0%**

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Benchmark Disclosures as of July 23, 2025

Company	Disclosure
Aeluma, Inc.	3

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Investment Risk

Technology Risk: As Aeluma's technology is still in the early phases of large-scale commercialization, there is a risk that it may not perform as expected in real-world, high-volume applications or that unforeseen manufacturing challenges could arise. Further, new semiconductor technologies face adoption challenges, particularly in critical safety applications, which may delay the company's expected revenue growth and may substantially impact our forecast estimates.

Manufacturing Scalability Risk: Translating novel, lab-proven processes for heterogeneous integration into a high-yield, high-reliability, automotive-grade mass manufacturing environment is difficult, and may not be successful, or fail to demonstrate the performance advantages expected.

Early Stage of Commercialization: The company has a limited history of commercial revenue, and its long-term profitability is not yet proven. Many factors can impact the timing to revenue including design win cycles, customer production ramp, manufacturing, economics, and geopolitical, which may delay or significantly change our revenue forecasts and expected cash requirements.

Execution Risk: The company's success is heavily dependent on its ability to execute its business plan. This includes scaling up its manufacturing processes with foundry partners, managing a complex global supply chain, and successfully converting its development pipeline into large, recurring commercial contracts. While the company has historically achieved its progress milestones, risks to future execution include resource constraints, technology challenges, market dynamics, foundry

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partners, yields, pace of adoption as well as many other potential unknowns.

Competitive Risk: The markets Aeluma is targeting are highly attractive, and the company faces potential competition from larger, more established players with greater financial resources, as well as from other agile startups that may develop alternative or superior technologies. Further, competitors often have strong established relationships with OEM/ODM partners with existing production contracts in place. Although ALMU's products may have superior performance and cost characteristics vs competing devices, this could create friction entering the supply chain.

End Market Adoption Risk: The growth forecasts for Aeluma are predicated on the timely and widespread adoption of next-generation technologies like high-speed optical interconnects, automotive LiDAR, and quantum computing. A slower-than-anticipated adoption curve in these key end markets could materially impact on the company's growth trajectory. Additionally, the company's key target markets, especially automotive, are characterized by long design, validation, and production cycles, which can delay revenue generation.

Financial Risk: Aeluma has a history of operating losses, which is typical for a company at its stage of development. There is a risk that the company may require additional capital in the future to fund its operations before it achieves sustained profitability, which could result in dilution for existing shareholders. We believe the current balance sheet is sufficient to fund operation through profitability, but any unforeseen delays or capital expenses could require additional funding, including debt, equity, strategic investment or other sources, which would likely impact our forecast.

Customer Concentration: In the automotive and defense sectors, winning a contract with a single large customer can lead to significant pricing pressure and a dependency that limits strategic flexibility.

Valuation Methodology

Our $25 PT equates to a 10.5x EV/Sales multiple on our FY28 sales estimate of $39M, which we believe will prove conservative. While customer engagement activity is accelerating and we anticipate design wins to begin over the next few quarters, visibility into timing of production volume ramps is not yet clear. However, a single win in the high volume mobile or communications end market is likely to meaningfully accelerate the revenue trajectory.

Price Charts

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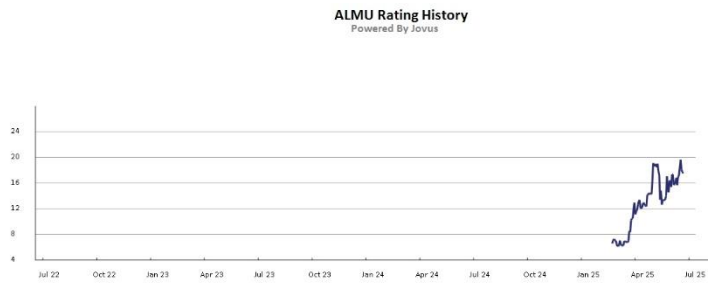

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