Noctiluca

European OLED challenger

Initiation of coverage

Technology

19 January 2026

Noctiluca is a dynamic advanced materials company specialising in OLED materials for displays and other photonics applications. It has a growing base of engagements with key players globally and is now seeing a significant acceleration driven by the breakthrough performance of its NCEIL-4 material, which has shown a 100% improvement in OLED lifetime across multiple applications. Noctiluca is working with eight of the top 10 display manufacturers, the most advanced being a joint development project with Guangdong Juhua (TCL Group) and the world's largest telecommunications equipment vendor, which has progressed quickly to pre-production testing. The company appears to be on course to deliver a significant inflection in operationally leveraged growth from 2028.

Year end	Revenue (PLNm)	EBITDA (PLNm)	PBT (PLNm)	EPS (PLN)	EV/sales (x)	EV/EBITDA (x)	P/E (x)
12/24	2.5	(5.0)	(5.5)	(3.47)	54.9	N/A	N/A
12/25e	3.2	(3.9)	(4.3)	(2.61)	41.7	N/A	N/A
12/26e	6.2	(1.9)	(2.3)	(1.30)	21.6	N/A	N/A
12/27e	11.4	0.5	0.1	0.06	11.8	284.2	N/A
12/28e	21.3	5.7	5.1	2.95	6.3	23.6	31.2

Note: EBITDA excludes grant income.

Step change in scale and velocity of engagements

Noctiluca has rapidly established a strong position in the $14bn OLED materials market. Its customer engagements span both niche applications and transformational mass-market opportunities. The breakthrough performance of its NCEIL familty of materials (specifically NCEIL-4) is accelerating tier-one partner acquisition and development timelines, particularly with Chinese OEMs, which now account for over 50% of OLED display shipments globally. Notable engagements with the TCL Group and the world's largest telecoms equipment vendor (pre-production testing) provide solid endorsements of NCEIL-4's potential and put the company on track for a major inflection in growth around 2028.

Pathway to a significant inflection

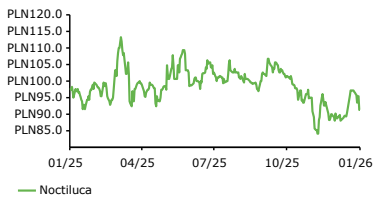
While timing and growth rate depend on successful qualification and ramp-ups, earnings potential under modest scenarios is significant. Our mid-term (c FY30) mid-case scenario of PLN73m (€16.2m) revenue and PLN34-42m (€7.6-9.3m) EBITDA (47-57% margin) could be achieved through broad adoption by one tier-one or limited adoption by two or three. Noctiluca has seven tier-ones testing NCEIL-4. Management estimates one tier-one could generate €6-7m annually from single-layer deployment, with potential to triple via multiple layers across product families.

Valuation: Mid-case fair value = PLN183

Our mid-case scenario articulated above returns a fair value of PLN183 per share. We believe the current share price could be justified by progressing just one or two tier-one partners to modest commercial volumes. Significant uptake by one or more tier-ones should support a valuation of around PLN400 per share. In an industry characterised by pre-commercialisation IP-based acquisitions, a strategic trade sale is a realistic possibility, providing a further avenue for significant upside potential.

Price	**PLN92.00**
Market cap	**PLN142m**
	PLN4.2/€
	PLN3.6/US$
Net cash at 30 September 2025	PLN6.9m
Shares in issue	1.5m
Code	NCL
Primary exchange	WSE
Secondary exchange	N/A

Share price performance



%	1m	3m	12m
Abs	6.9	(5.9)	(3.8)
52-week high/low		PLN115.2	PLN78.0

Business description

Noctiluca is a deep tech company specialising in the development of advanced chemical compounds for OLED display, with a particular focus on addressing critical performance challenges in blue OLED pixels.

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Analyst

Dan Ridsdale +44 (0)20 3077 5700

tmt@edisongroup.com

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Investment summary

Addressing critical bottlenecks in the $70bn+ OLED market

Noctiluca is a dynamic advanced materials company specialising in OLED materials for both displays and other applications. The company's primary focus is on developing materials to address key bottlenecks within OLED displays, particularly the high cost, energy consumption and failure rate of blue pixels. The OLED display industry is estimated to be worth between $50bn and $70bn (depending on the forecaster) and growing at a mid-to-high-teens rate, driven by market share gains in televisions and handsets and increased use in PC monitors, automotive and other electronic applications. Improvements in blue pixel performance are considered key to achieving these growth rates, across all applications. The OLED materials market is estimated to be worth $3.5-4bn (2024), growing at a 10-11% CAGR through to 2030, driven by both OLED adoption and the importance of innovative materials for addressing key industry bottlenecks.

Breakthrough performance

Noctiluca has developed a range of OLED materials, initially focusing on emitter materials (which emit light when energised) where a number of partners have either commenced or are progressing to commercial production, albeit in relatively low-volume markets such as printed OLED lighting (Inuru), security documents and anti-counterfeiting applications (European security systems/printing company), wearable devices (Swiss watch manufacturer) and passive matrix OLED displays for consumer electronics.

More recently the company has shifted the emphasis of development to the electron injection (EIL) and transport (ETL) layers, based on the NCEIL (Noctiluca Electron Injection Layer) family of materials, which facilitate the efficient movement of electrons through the OLED stack.

It is in this area that the company is achieving breakthrough results. Independent laboratory testing has validated NCEIL-4's performance, demonstrating a 5x improvement in blue pixel lifetime as a single EIL layer, extending to 15x improvement when deployed across both EIL and ETL layers in bottom-emitting type OLED devices, while simultaneously reducing power consumption.

These results are now being reflected in development work with key partners in industrial conditions and device architectures. Development tests with the world's largest telecommunications equipment manufacturer from China have achieved a lifetime extension in smartphone OLED displays of over 100%, and a leading Taiwanese passive matrix OLED (PMOLED) manufacturer achieved a lifetime improvement of approximately 130% in high-end top emitting devices. These results are transformative compared to industry norms, where lifetime gains of 20% have historically been considered significant.

A step change in the volume, scale and velocity of engagements

Noctiluca is experiencing a major acceleration in the volume, scale and pace of engagements with global display leaders, driven by its breakthrough NCEIL-4 technology. The company has over 20 active engagements overall, including multiple tier-one and mid-scale partners across China, Korea, Taiwan, the US and Europe, spanning smartphones, IT/monitors, automotive, PMOLED (small displays for wearables, industrial applications etc) and XR. China is a particular focus, reflecting a structural shift in the OLED supply chain: Chinese manufacturers have grown from nearly zero percent of global OLED panel production in 2014 to over 50% today, though they still lack the chemical expertise of Korean and Japanese peers.

These partnerships follow a four-stage cycle: initial contact and NDA to establish trust, a material transfer agreement (MTA) for testing and iteration that protects from reverse engineering of the proprietary materials, a joint development project (JDP) to co-develop and qualify materials for a defined application and use case, and finally a commercial supply agreement for volume shipments and potential IP licensing.

Engagement cycles are shortening significantly. Guangdong Juhua (henceforth TCL Group) moved from an MTA in 2023 to a JDP in December 2024, with volume shipments targeted for 2027-28. In Q3, Noctiluca announced that the world's largest telecoms equipment manufacturer (henceforth 'Leading Telco OEM') advanced from an MTA signed in May 2025 to pre-production volume testing scheduled for Q425/Q126, with production line testing targeted for Q226, potentially skipping the traditional JDP phase entirely. In Q4, the company signed a JDP with a Chinese OLED-on-Silicon micro

display manufacturer, the company's second JDP with a Chinese partner and seventh agreement in China in FY25.

Financials: Focus on breaking-even near term, significant inflection targeted

Noctiluca's financial pathway can be divided into two phases: from 2025 to 2027, the key financial focus will be on achieving operational sustainability by developing its base of development partnerships and increasing volume shipments for niche applications. With the cost base expected to remain relatively flat in the near term, we expect the company to achieve cash flow break-even at a revenue level of around PLN8.5m (€2m), which according to our forecasts should occur towards the end of 2026.

In the second phase, the progression of tier-one engagements to volume production should drive a substantial inflection in growth and acute, operationally geared margin expansion. The progression to this phase is not yet a given, and the timing and rate of inflection will depend on a number of variables, including successful material qualification, customer production ramp-ups and the company's ability to scale manufacturing efficiently. However, the company's volume of engagements and the rapid progress being made with key partners are encouraging and visibility should improve over the next 12 months. Key lead indicators are the progression of the company's most advanced partnerships (TCL Group and Leading Telco OEM) towards volume production and the conversion of engagements with leading players through MTA to JDP.

We show the potential revenue and EBITDA outcomes under a number of scenarios for 2030 in the table below. (We have used 2030 as it is a timescale in which partners at MVP and JDP stage could reasonably have been expected to achieve volume production.) It should be noted that a rapid inflection in growth would likely generate a period of very strong, supernormal margins, as the exhibit shows. In the longer term, reinvestment back into the business will be required, with peers registering margins of between 25% and 45%.

Exhibit 1: FY30 scenarios

Scenarios for FY30		Modest uptake by one tier one		Modest uptake by two tier ones or strong uptake by one tier one		Modest uptake by three tier ones or significant uptake by one or two		Significant uptake by two or more tier ones		Widespread and deep tier 1 adoption	
		PLNm	€m	PLNm	€m	PLNm	€m	PLNm	€m	PLNm	€m
	Revenue	31,563	7,462	52,713	12,462	73,863	17,462	169,038	39,962	221,913	52,462
Low investment	EBITDA	10,727	2,536	26,589	6,286	42,452	10,036	113,833	26,911	153,489	36,286
Fixed cost CAGR FY25–30 = 15%	Margin	34%	34%	50%	50%	57%	57%	67%	67%	69%	69%
Mid investment	EBITDA	6,727	1,590	22,589	5,340	38,452	9,090	109,833	25,965	149,489	35,340
Fixed cost CAGR FY25–30 = 25%	Margin	21%	21%	43%	43%	52%	52%	65%	65%	67%	67%
High investment	EBITDA	2,727	645	18,589	4,395	34,452	8,145	105,833	25,020	145,489	34,395
Fixed cost CAGR FY25–30 = 40%	Margin	9%	9%	35%	35%	47%	47%	63%	63%	66%	66%

Source: Edison Investment Research

Following a PLN13.4m ($3.1m) fund raise at PLN90 per share in June 2025, the company had net cash of PLN6.92m (€1.6m) at end Q325. The company has multiple funding options to support the move to commercialisation. It has secured over PLN6.8m in grant funding in FY25, and has financing agreements for up to PLN5m with Synthex and up to PLN6m with Rubicon Partners. Notably, the company has also signed a non-binding letter of intent (LOI) with a potential strategic partner regarding an equity investment to support production scale-up and international expansion.

Valuation: Upside under nearly all tier-one adoption scenarios

Edison's discounted cash flow (DCF) sensitivity analysis shows a fair value per share ranging from PLN66 to PLN405 depending on the breadth and extent of adoption by tier-ones and long-term margin assumptions (20-40%). Noctiluca's current market cap of PLN133m (€30m) implies only marginal success: one tier-one partner reaching €5m annual revenue by 2030 (the bottom of tier-one potential) with 30% EBITDA margins. Any outperformance to this scenario should generate substantial upside. At this stage of development, we believe that the mid-case scenario here is a credible potential outcome, justifying a PLN183/share valuation. Under varying scenarios our analysis returns the following DCF valuations:

- **Modest uptake by one-tier (T1) one partner:** PLN70/share,
- **Modest uptake by three T1 partners or significant adoption by one or two:** PLN183/share, and
- **Significant uptake across multiple high volume devices by two or more T1s:** PLN436/share upwards.

Strategic acquisition remains a realistic outcome, with precedent deals (Samsung's €260m Novaled acquisition at 10x sales; Cynora's $300m IP purchase with zero revenue) highlighting the premium value of IP-rich OLED innovators.

Key catalysts for value creation include: 1) new MTAs/JDPs targeting high-volume applications, 2) progression of these collaborations and 3) global patent grants for NCEIL. Each new JDP expands revenue potential, reduces risk and validates the technology.

Sensitivities

- **IP protection:** strong patent coverage and defence capability will be critical to defend and monetize the company'y IP. Litigation could be an upside or driver but is always costly. Noctiluca has dedicated in-house IP team and a growing portfolio of patents to mitigate risk.
- **Execution risk:** the timing of tier-one conversion to volume shipments is uncertain; delays could have an impact on the financial performance and valuation. The company has over 20 active engagements providing a optionality and mitigation in the longer term but near to mid term performance will be largely influenced by the company's progress with tier-one partners.
- **Competitive opacity:** OLED stack designs are closely guarded; visibility into competitive positioning is limited.
- **Funding needs:** additional capital may be required if commercialisation timelines extend beyond 2027.

Company background and model

Noctiluca was founded in 2019 in Toruń, Poland, as a spin-out from Synthex Technologies, a chemical contract research organisation, with a view to commercialising novel thermally activated delayed fluorescence (TADF) compounds (third-generation OLED compounds) developed at Synthex for next-generation display markets. The company was established by co-founders Mariusz Bosiak (president and CTO) and Krzysztof Czaplicki (chief operating officer), with early backing from Rubicon Partners Ventures, a Polish venture builder and venture capital firm that is still involved with the company.

The company raised PLN10.1m (€2.4m) in funding prior to its IPO on Poland's NewConnect market in April 2022, before moving to the main market of the Warsaw Stock Exchange in December 2024. Since the IPO, it has raised an additional PLN22m (€4.6m) across several funding rounds, most recently a PLN13.4m (€3.2m) fund raise at PLN90 per share in June 2025

Headquartered in a Polish science hub, global presence

Noctiluca is headquartered in Toruń, Poland, an educational and scientific hub and one of the key centres of the growing Polish technology sector. The company has established an international footprint across all key geographies relevant to the OLED industry, with laboratory facilities in Seoul, South Korea, and a business development presence in Taiwan and the US. The company maintains active research collaborations with institutions across Taiwan, South Korea, Germany, Japan, and broader Europe.

The company employs over 30 professionals, with the 20-strong R&D team comprising more than 20 PhDs, who drive materials innovation and development. The company also has three-person intellectual property team dedicated to protecting the company's innovations. This team includes an in-house IP lawyer with a PhD in chemistry, supported by two specialists who conduct weekly IP scanning and manage strategic filing activities across global markets, supported by external patent offices, in Poland and the US.

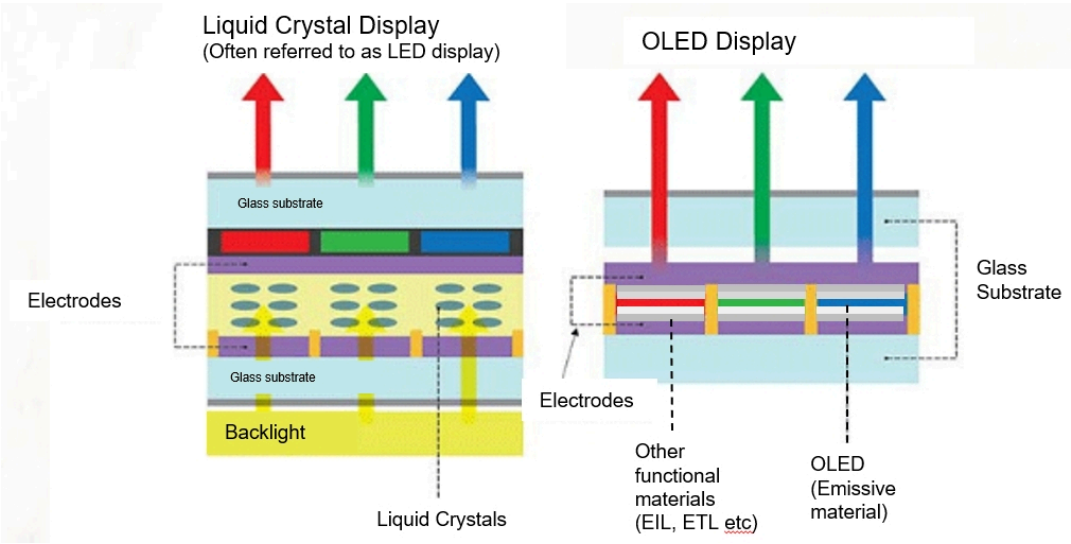
Unlike some peers that operate fabless models, Noctiluca has established in-house manufacturing capabilities at its Toruń facilities. The company operates comprehensive laboratory and synthesis capabilities, supported by quality control systems to ensure consistent materials production. These facilities have been designed to be easily scalable to enable the company to transition from gram-level R&D samples to kilogram-level commercial quantities as partnerships progress from development to commercial implementation.

Addressing critical challenges in the $70bn+ OLED industry

OLED materials are organic compounds, typically made of organic molecules or polymers that exhibit electroluminescence; that is, they emit light when an electric current passes through them. They are principally used in OLED displays, but other applications such as organic photovoltaic cells, solid-state lighting, wearable electronics, transparent displays and automotive lighting are being commercialised, which Noctiluca also develops and markets.

In OLED displays, each pixel consists of three sub-pixels: one red, one green and one blue. Each sub-pixel then contains a layer of either red, green or blue OLED emitting material, sandwiched between other functional layers which are essential to proper operation and electrodes which provide the energy. When energised, these materials emit precise, bright colours from each pixel to form the picture. This architecture is fundamentally different from the older LED/LCD configurations, in which LCD crystals act as light modulators, blocking or allowing light from a separate backlight rather than generating light themselves. A red, green or blue filter is used to set the colour of each sub-pixel.

Exhibit 2: OLED versus LED display



Source: Edison

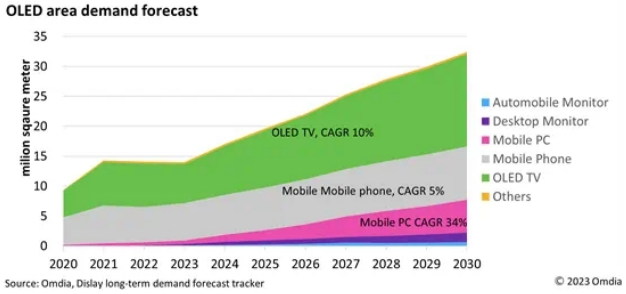
Noctiluca is addressing key bottlenecks and market share shifts

OLED displays deliver superior contrast, true blacks, faster response times and ultra-thin, flexible form factors, making them the preferred technology for premium visual experiences. However, adoption has historically been constrained by high production costs, limited manufacturing capacity and the shorter lifespan of specific components, particularly blue emitters. These factors have kept OLEDs primarily in high-end devices, but recent advances are rapidly reducing these barriers. Significant investment is now focused on improving efficiency, durability and cost competitiveness, while addressing market dynamics such as the rise of Chinese manufacturers. Noctiluca's product and market strategy targets these critical challenges, with a particular emphasis on enhancing blue pixel performance and positioning for growth in emerging applications.

Successful market penetration should result in very significant growth

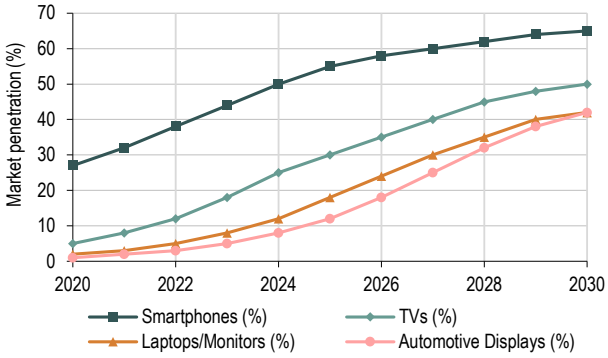
The OLED display market is substantial and expanding rapidly, with forecasts ranging from $31.6bn (Mordor Intelligence) to $100.9bn (Global Growth Insights) depending on the scope and methodology used by analysts. While estimates of total market size vary, there is broad consensus around a sustained double-digit CAGR in market value, with most forecasts in the 19–23% range, resulting in a doubling of the overall market value within four to five years.

Exhibit 3: Growth in OLED display area



Source: Omdia

Exhibit 4: OLED penetration of displays by application



Source: Edison Investment Research

Growth is being fuelled by a number of factors. Cost reductions from manufacturing optimisation is making panels more affordable and enabling penetration into mid-market TVs and mid-tier smartphones. We are now also seeing increased adoption of OLED in laptops, monitors and automotive displays from a lower base, enabled by advances in manufacturing and innovations such as thin film transistor (TFT) backplanes and tandem OLED structures, as well and QD-OLED technology, which improve brightness, durability and colour accuracy. Development work on OLED materials by companies such Noctiluca and its peers will be key to sustaining or accelerating this trend.

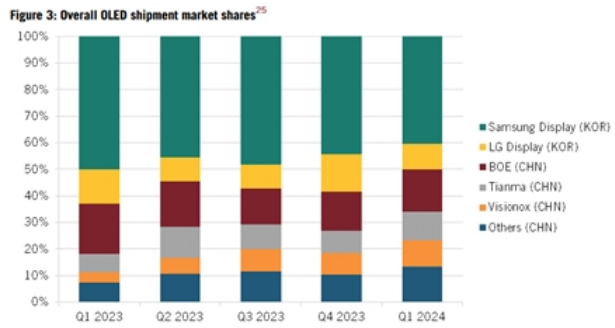
Key growth drivers include:

- **Flexible and foldable displays**, which require advanced materials.
- **Automotive integration**, in dashboards, infotainment systems and rear taillights (especially in premium EVs).
- **Efficiency gains** from phosphorescent or MR-TADF-based emitters, particularly blue, which are nearing commercialisation.
- **Expansion into IT and industrial applications**, where OLEDs are replacing LCDs.

The rapid rise of Chinese manufacturers

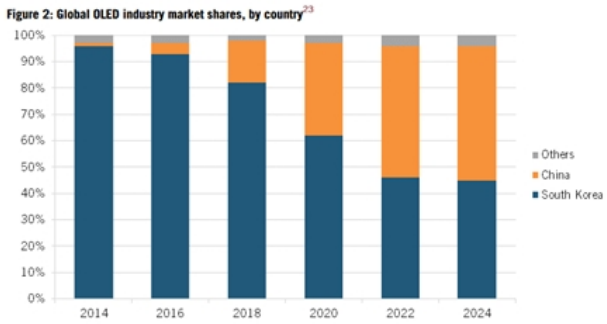
Over the past 24 months or so, Noctiluca has successfully focused on growing its presence with Chinese vendors, most notably with TCL Group (JDP) and the world's largest telecoms equipment manufacturer (progressed from an MTA to pre-production volume testing) and earlier-stage engagements with all relevant players. This aligns with a significant structural shift in the OLED supply chain. China has grown from negligible OLED capacity in 2014 to over 50% of global production, led by BOE, TCL, Tianma and others. This rapid penetration of the market has been enabled by huge investment in building manufacturing expertise and technical capability. From 2020 to 2027, China is expected to account for around 85% of capital expenditure investment in display technologies.

Exhibit 5: Overall OLED shipment market shares



Source: Information Technology and Innovation Foundation (https://creativecommons.org/licenses/by/4.0/)

Exhibit 6: Global OLED industry market share, by country



Source: Information Technology and Innovation Foundation (https://creativecommons.org/licenses/by/4.0/)

OLED materials: Targeting a $12bn market, growing at a 17%+ rate

The **OLED materials market** is experiencing rapid growth, valued at approximately **$16.99bn in 2025**, up from **$14.46bn in 2024**, and is forecast to reach **$72.64bn by 2034** at a **CAGR of around 17.5%**, according to Global Growth Insights. Some analysts project even more aggressive expansion, reflecting strong demand across consumer electronics, automotive and lighting applications. R&D spending in this sector grew by an estimated **33% in 2024**, highlighting the importance of material innovation to unlock growth in new markets, such as PC displays and automotive, and overcoming performance bottlenecks, such as durability, energy efficiency and cost.

Emissive and transport layers - where players like **Noctiluca** operate - account for roughly **70% of the market**, with **emitters representing about 36%** of consumption and **transport materials around 33%**, based on segmentation data from Global Growth Insights.

Need for chemicals expertise and vendor diversification provides the entry point

The rapid expansion in manufacturing capacity in China has not been matched by corresponding development in advanced materials chemistry, creating a strategic opportunity that Noctiluca is well positioned to exploit. Chinese and tier-two suppliers are actively seeking alternative materials partners to reduce their reliance on incumbent vendors such as UDC, Merck, Sumitomo and Toray. While Chinese vendors now account for more than 50% of OLED display production, they represent less than 10% of the global OLED materials market. On a global scale, only Korean innovation leaders Samsung and LG are vertically integrated with in-house materials design and production capabilities. As China's manufacturing base matures and cost advantages become fully exploited, Chinese manufacturers are expected to pursue vertical integration in materials expertise as their next competitive frontier. Noctiluca offers differentiated materials innovation, commercial agility and strategic alignment with Chinese OEM priorities, including supply chain independence, accelerated development cycles and proprietary materials access.

Europe, while not a major OLED panel manufacturer, remains highly competitive in materials development through strong chemical and electronics expertise. Companies like Merck lead in advanced OLED materials, while strategic acquisitions –notably Samsung's €260m purchase of German specialist Novaled and Idemitsu Kosan's Basel-based operations –demonstrate Europe's value as a materials innovation hub and Noctiluca's positioning within a recognised centre of excellence.

The race for blue: The blue OLED challenge

Blue pixels are the primary technical and commercial bottleneck in OLED display technology. The key shortcomings of OLED versus LED – shorter lifespan, burn-in risk and higher energy consumption – are all directly tied to the inefficiency and instability of blue emitters. Consequently, a significant proportion of industry R&D spend is focused on addressing this problem.

The fundamental challenge is that blue OLEDs require higher-energy photons (with a wavelength of approximately 450nm) than red (c 620nm) or green (c 530nm). This places greater stress on the emitter materials and surrounding layers. While red and green pixels now use second-generation, organometallic phosphorescent materials, these are not stable enough for high-energy blue light. As a result, most OLED displays still rely on older fluorescent blue emitters, which are less efficient and degrade more rapidly than red or green.

Addressing the lifespan of blue pixels is particularly critical for expanding OLED adoption into applications with static imagery (computer monitors, automotive displays), requiring high brightness/current flow (XR and applications operating in direct sunlight) and long lifespans, where burn-in and degradation severely limit commercial viability.

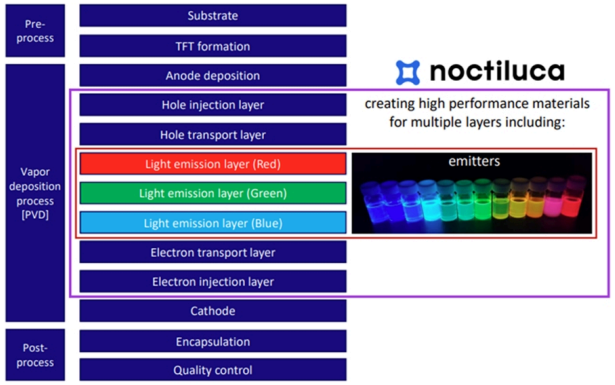
Key blue OLED challenges:

- **Energy inefficiency:** blue light accounts for a significant proportion of an OLED display's energy budget.
- **Burn-in:** pixel degradation manifests as 'burn-in' (eg, logos burned into TV corners), a major barrier for monitors, laptops and automotive displays with static content.
- **Colour shift and degradation:** pixel failure reduces brightness and colour accuracy over time.
- **Cost issues:** workarounds – such as complex architectures, stacked emissive layers and corrective software – are required to achieve adequate brightness and longevity, adding cost.

Comprehensive materials coverage

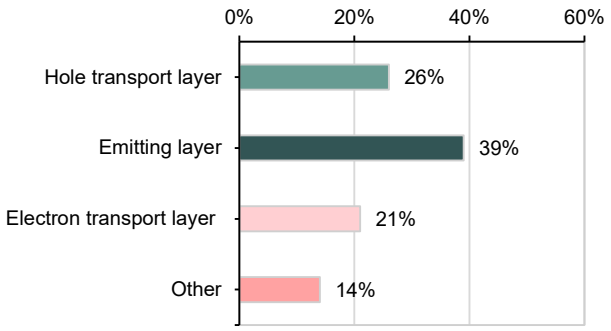
Noctiluca is developing a comprehensive range of OLED materials, spanning multiple layers of the OLED stack representing approximately 86% of the addressable OLED materials market. The company has developed over 1,200 compounds to date, of which approximately 400 are proprietary materials covered by patent applications across nine patent families.

Exhibit 7: Layers in an OLED sub-pixel



Source: Noctiluca

Exhibit 8: OLED materials market value by layer



Source: Noctiluca

Initial focus on next generation emitter materials

Noctiluca initially focused on developing next-generation TADF emitters: third-generation OLED technology that delivers significant efficiency gains without relying on expensive heavy metals. The company created proprietary TADF emitters compatible with both vacuum deposition (PVD), the current predominant manufacturing process, and the emerging inkjet printing (IJP) process, which is gaining traction for large-scale panels. Of Noctiluca's 10 patent families, eight relate to emitters, reflecting this historical emphasis.

Expansion into other layers of the OLED stack - led by the NCEIL product family

More recently, the company has made rapid progress on the cathode side of the OLED stack, particularly in electron injection and transport layers, with its NCEIL family of products providing the platform for this advancement. Most significantly, NCEIL-4 has delivered breakthrough performance and attracted immediate commercial interest from major display manufacturers.

Materials can be supplied in various formats. Initially the focus was on providing materials as standalone layers, but the company is now seeing increased activity around using materials as 'dopants', where they are mixed with other materials to optimise performance. The company is also developing 'plug-and-play' solutions, which combine multiple co-optimised layers in the stack to simplify integration.

NCEIL-4: Breakthrough performance driving rapid adoption

NCEIL-4 is Noctiluca's most significant product development and the primary driver of near-term commercial momentum. Developed in 2024 through collaboration with Inuru, NCEIL-4 is designed for the electron injection layer (EIL), which facilitates efficient injection of electrons from the cathode into the organic emitter materials, with additional applications in electron transport (ETL), which transports electrons toward the emissive layer and helps balance charge carriers.

NCEIL-4 achieves its breakthrough performance by extracting electrons much more efficiently from the cathode, transporting more of them to the emissive layers to generate light and also reducing heat generation produced by 'lost' electrons that do not make it through.

Potentially transformative results

The results being recorded for NCEIL-4 are impressive and potentially transformative for Noctiluca. Experiments at Kyung Hee University showed that NCEIL-4 in bottom-emitting OLEDs (BE OLEDs) used solely for the EIL layer achieved up to 5x longer lifetime versus reference devices. When applied in both EIL and ETL layers, blue OLED pixel lifetime increased by up to 15x, with reduced power consumption. These results were confirmed at Sungkyunkwan University and with industry partners. For context, the industry has been working for years to extend blue pixel lifetime by 'more than 20%', making NCEIL-4's improvement a significant breakthrough.

Most significantly, the world's largest telecommunication equipment vendor, with whom the company has an MTA agreement now appears to be commencing an accelerated commercialisation cycle, with the possibility of moving directly to production line testing in the second quarter of 2026. Management reports that test results in smartphone test structures have shown an increase in the lifetime of OLED devices by over 100% compared to the currently used

reference stack.

NCEIL application in the transport layer could expand revenue opportunity three-fold

NCEIL-4's commercial potential is particularly significant because it can be used both in its pure form as an EIL but also as a dopant in the ETL, and potentially in other layers as well. This is particularly important because the ETL is 30–40x thicker than the EIL, and depending on NCEIL-4's concentration, management estimates that the revenue opportunity in the ETL could be around three times as large as EIL alone. Whereas the TCL Group JDP initially focused on TADF emitters, the partnership has now evolved to prioritise NCEIL tested across three different layers. Management estimates that one tier-one player (MC27.1) could generate revenues of €6–7m annually from NCEIL on the EIL layer alone, and implementing it on both the EIL and ETL layer could expand the opportunity from €6.4m to €18–25m annually.

Emitters: Niche applications, display panels and dopants

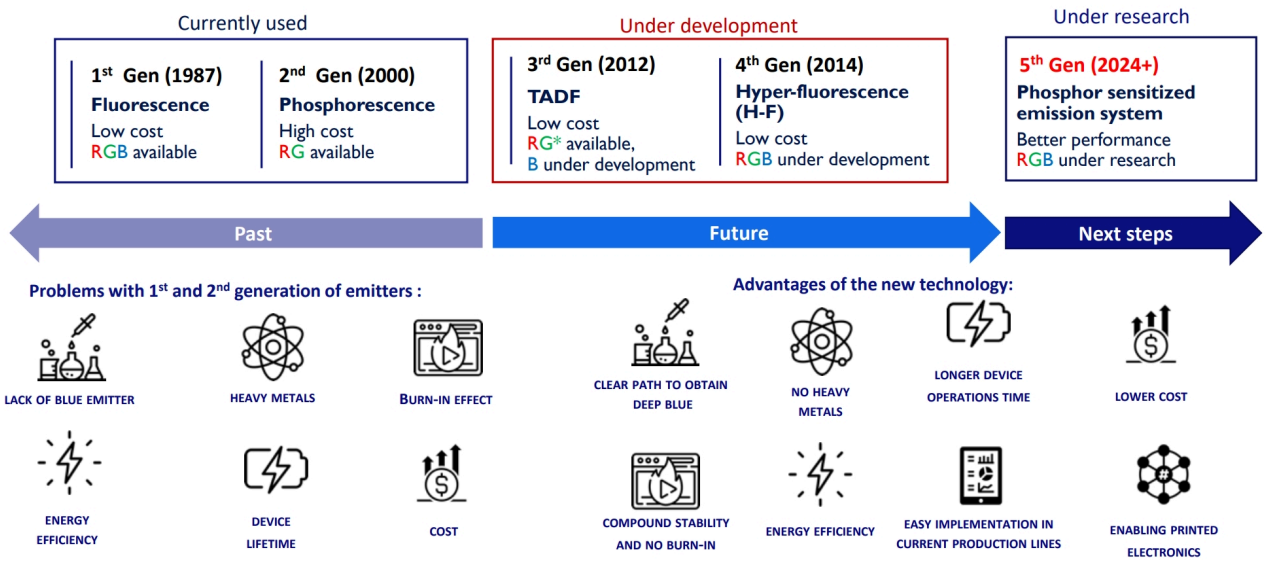
Noctiluca has developed a broad portfolio of TADF emitters – protected by eight patent families developed over six years – providing a substantial dopant opportunity. The company has made commercial progress with emitters in niche applications, such as specialist packaging, security and ID documentation. As a result, some of its partners for these applications are the most mature on their pathway to volume production.

Inuru, a German printed OLED company, was Noctiluca's first customer for commercial product and has been a repeat commercial customer for over a year, using Noctiluca's materials (including EIL) in mass-produced lighting applications for clothing, marketing labels and medical uses. Inuru is expected to introduce Noctiluca's next generation of materials (including emitters) into its product line in 2026.

Exhibit 9: Inuru – printed OLED

Source: Noctiluca / Inuru

Exhibit 10: Noctiluca's emitter developments



Source: Noctiluca

Progress within mass market display applications has been a drawn-out process. This is a highly invested and contested field, and materials must meet stringent criteria in terms of durability, colour accuracy, energy efficiency and manufacturing scalability. However, management is now seeing promising opportunities for its emitters in electronic display panels and is using them as dopants for mainstream displays:

- **Dopants** – the company is working with a number of display manufacturers exploring the potential to use the company's emitters as dopants, mixed with other compounds to enhance performance characteristics such as brightness, colour purity and energy efficiency. This approach may allow manufacturers to fine-tune OLED layers

without overhauling existing processes, thus offering a more rapid potential pathway into high-volume devices.

- **Display panels** – management now sees good potential for Noctiluca's emitters in mainstream electronic panels, for example white goods, consumer electronics and industrial panels etc, where durability is a key performance criteria, but much less colour tuning is required than for mainstream display applications.

IP protection

Noctiluca has a three-strong IP protection team dedicated to ensuring the company's technology is adequately protected. It has built a comprehensive intellectual property portfolio comprising 11 patent applications covering multiple families of chemical compounds across its materials portfolio, with one patent for one compound family already granted and protected in 22 countries.Eight of the nine patent families are emitter-related, reflecting the company's historical focus. More most recent applications cover the NCEIL family of functional materials as well as extending the portfolio in both classical emitters and advanced TADF emitters. The company filed two new patent applications in 2025 - one for combined EIL-ETL layer compounds (July 2025) and another for advanced TADF emitters - and is entering the national phase (converting international PCT filings to enforceable patent applications) in over 40 countries as international PCT applications mature.

The company is employing a 'double-edged sword' IP strategy for NCEIL-4, filing patent applications that cover both the material's structure and its use cases in different OLED device configurations. This is designed to provide more comprehensive protection but also to make infringement detectable either at the production stage or through reverse-engineering of finished consumer products.

Management estimates that the IP value of the NCEIL family could range from $10m to over $100m depending on the scale of implementation and number of validated use cases.

Diversified business model, with significant scale-up opportunities

Noctiluca's goal is to become a global materials partner for the next-generation display industry. To achieve this, the company is progressively evolving its business model, shifting from a traditional venture capital approach focused on large-scale, high-risk, high-return 'moonshot' opportunities, to a more balanced one, engaging with a more diverse customer base, with a spread of risk, reward and commercialisation timescales across engagements on a broad range of projects. By achieving this balance, the company aims to continue to fund the development of breakthrough innovations while reducing cash burn.

The span of engagements can be divided into three broad categories:

- **Tier-one engagements (c €5m+ annual revenue potential per account)** with leading industry players targeting high-volume, mass market products, which management believes can generate €5m annual revenues once volume production commences. Examples include the company's JDP with TCL Group for NCEIL-4 material targeting gaming monitors and laptops. Collaborations with seven major players are at the earlier MTA stage.
- **Mid-scale engagements (c €500k annual revenue potential per account)**, which are typically with smaller partners or for more niche applications, typically with faster development cycles but with the potential to generate at least €500k annual revenues once volume production commences. Examples include: a European security documents manufacturer developing luminescent materials for anti-counterfeiting applications in passports, banknotes and military key cards; and a partnership with Inuru for printed OLED lighting applications in clothing, marketing labels and medical applications. This category also includes OLED XR (VR/AR) and OLED lighting engagements.
- **Smaller engagements**, which include relationships with distributors, research institutions and niche manufacturers. Examples include a European PV manufacturer that placed orders in H125.

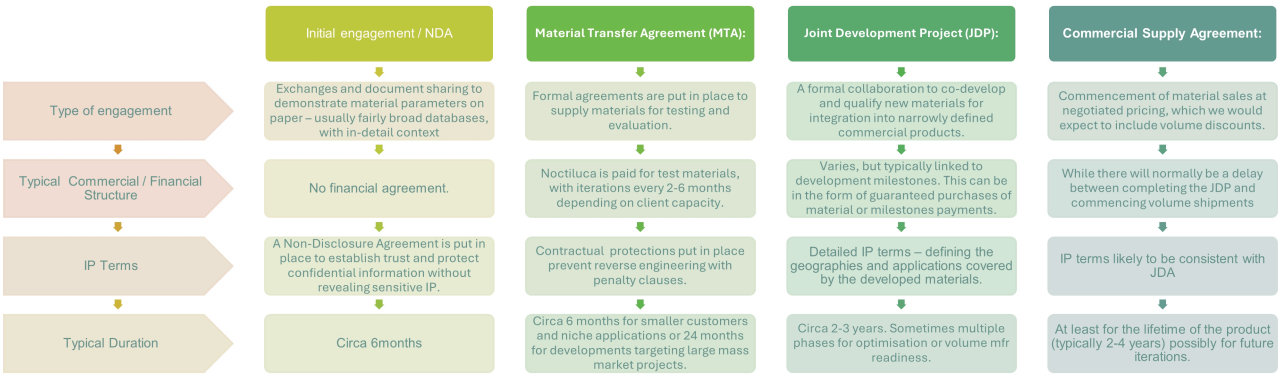
The company also provides some contract research organisation (CRO) services, which provide immediate service revenue while leveraging excess laboratory capacity and expertise. These engagements are only pursued when they offer very high margins and profitability without interfering with core proprietary R&D activities. Examples include an MIT spin-off client that has been utilising Noctiluca's lab and resources for the past two years.

Four-phase engagement cycle

Noctiluca's engagement cycle with partners is typical of the advanced electronic materials industry and can essentially be broken into four phases, from initial engagement culminating in volume shipments:

- **Phase 1: initial contact and NDA**: initial exchanges and document sharing to demonstrate material parameters on paper, followed by signing a non-disclosure agreement to establish trust and protect confidential information without revealing sensitive IP.
- **Phase 2: material transfer agreement (MTA):** where formal agreements are put in place to develop and supply materials for testing and evaluation, with material iterations occurring every two to six months depending on client capacity. At this stage, contractual protections are put in place to prevent reverse engineering with penalty clauses. This stage of the cycle typically lasts from 12 months, for smaller customers and niche applications, to 24 months, for developments targeting large mass-market projects. An MTA Plus is a more advanced, paid MTA stage, with the partner purchasing evaluation materials at a relatively high price per gram. This is now the predominant model for new MTA engagements.
- **Phase 3: joint development project (JDP):** a formal collaboration to co-develop and qualify new materials for integration into commercial products. The commercial structure can vary, but payments are typically linked to technical milestones, which can be in the form of guaranteed purchases of material or milestones payments. This phase can span two to three years.
- **Phase 4: commercial supply agreement:** if all the steps above are successful, the company will commence material sales at negotiated pricing, which we would expect to include volume discounts. The company may also consider IP licensing and royalty agreements for high-volume, mass market applications.

Exhibit 11: Phases in the commercialisation cycle



Source: Edison / Noctiluca

Commercialisation cycle

Step change in the scale and velocity of commercial engagements since early 2025

Noctiluca is rapidly evolving from a development-stage business into a commercial enterprise, a transition significantly accelerated by **NCEIL-4**. This breakthrough technology is enabling a step change in both the scale and speed of commercial engagements. The most meaningful indicators of progress are:

1. The **volume of strategic engagements** with tier-one partners.
2. The **revenue potential** of these partnerships at maturity.
3. **Advancement through the commercialisation pipeline** towards volume production.

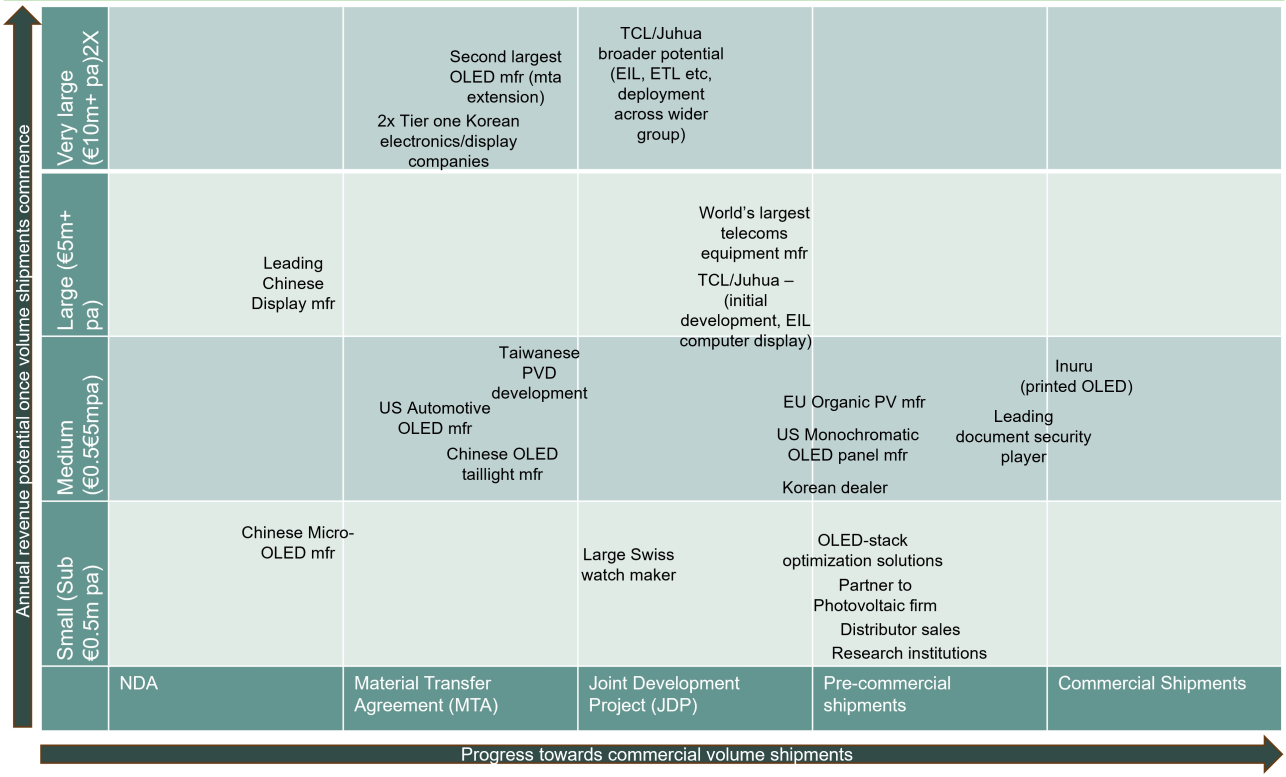
Commercialisation pipeline and key partnerships

The Exhibit 12 illustrates our framework for tracking Noctiluca's commercialisation journey. The company currently maintains over 20 active engagements at various stages of development. Critically, NCEIL-4 has enabled Noctiluca to secure a substantial number of high-potential opportunities (€5m+ annual revenue) with leading display manufacturers, primarily in China, and also with major South Korean players.

More granular feedback supporting an acceleration in development cycles

The expansion of Chinese partnerships, together with the significant potential benefits of NCEIL-4, appear to have fundamentally accelerated Noctiluca's development cycle. Feedback from partners, previously received quarterly, now arrives twice a month, enabling faster material optimisation, quicker resolution of technical challenges and rapid progression from MTAs to JDPs. A notable example is the world's largest telecommunications equipment manufacturer, which advanced from an MTA in May 2025 to production line testing within months. This dynamic, powered by NCEIL-4's breakthrough performance and the responsiveness of Chinese vendors, suggests that commercialisation cycles could be significantly shorter than historical norms.

Exhibit 12: Commercialisation pipeline by potential and maturity



Source: Edison / Noctiluca

Key developments with partners in 2025 included:

- A JDP with Guangdong Juhua/TCL Group on using EIL material in OLED monitors.
- An MTA plus (a more developed, paid MTA) and trial sales of Noctiluca materials to the world's largest telecommunications equipment manufacturer in China
  - Test results*:* OLED device lifetime was extended by >100% versus the reference stack.
  - Next step*:* potentially skip the JDP stage and begin production line testing in Q226.
- A JDP (Dec 26) with a Chinese OLED on Silicon (SiOLED) micro-display manufacturer
  - co-development and qualification of Noctiluca's EIL/NCEIL materials for silicon based micro-displays targetting high brightness displays for AR/VR/XR applications
- An MTA with a Chinese OLED panel manufacturer for automotive applications.
- An MTA with a US OLED panel manufacturer for automotive and specialist lighting.
- An MTA plus with one of the world's largest display manufacturers from China.

- An MTA plus with a leading Chinese flat-panel display manufacturer.

Other ongoing, potentially significant partnerships signed prior to 2025 include

MTA with a leading OLED-panel producer from Korea - extended in 2025

- MTA with the world's leading OLED manufacturer
- MTA with one of the largest display makers in Taiwan
- MTA and JDP negotiations with a leading Taiwanese OEM—using TADF, NCEIL and and the partner's stack to build a comprehensive PVD offering
- MTA with the world's largest consumer-electronics manufacture

JDP with Guagndong Juhua (TCL Group)

The most advanced tier-one engagement is the JDP with Guangdong Juhua Printing Display Technology, a joint venture 66% owned by TCL and 33% by Tianma Microelectronics. Signed in December 2024, this project focuses on qualifying Noctiluca's NCEIL family of materials for IT OLED applications, particularly monitors and laptops. The project is evaluating NCEIL across three different layers: EIL, ETL, and circular polariser optical layers (CPL). With EIL testing approximately 50% complete and ETL testing 40–50% complete, both showing satisfactory results, successful completion could lead to mass production within three years of the project's initiation.

Management estimates that one tier-one player could generate revenues of €6-7m annually from implementing NCEIL on the EIL layer alone (by implementing it on both the EIL and ETL layer this value could triple), which would be sufficient to provide financial independence from a single large partner contract.

Accelerated engagement with the world's largest telecom's equipment vendor

The most rapidly progressing tier-one engagement is the MTA+ with the world's largest telecommunications equipment manufacturer, targeting smartphone OLED displays and automotive lighting applications. The relationship began in 2022–23 with initial discussions and NDA signing, followed by a six-month plus process of building interest in NCEIL materials. In May 2025, a commercial MTA was signed for NCEIL-type materials, with first deliveries commencing in Q225. By September 2025, testing in structures corresponding to actual smartphone displays demonstrated an improvement of over 100% in blue OLED device lifetime versus the reference stack currently used in mass smartphone production. These results prompted executives from the partner's branches in China, Japan and Germany to visit Noctiluca's facility in Toruń, Poland. In November 2025 the partner confirmed that NCEIL-4 had 'passed all the entire checklist for the R&D and pilot material' and is now moving to preparation for mass production, essentially bypassing the traditional JDP phase entirely. This represents a dramatic compression of the typical three- to four-year commercialisation timeline. The collaboration process now shifts from customised chemistry R&D to chemical engineering, ensuring process repeatability and quality control at production scale. If successfully qualified for the partner's smartphone displays, this single engagement could generate annual revenues comparable to or exceeding the TCL Group opportunity.

Collaborations with South Korean and Taiwanese giants

Beyond TCL Group and the Leading Telco OEM, Noctiluca has established MTAs with several other major tier-one players, including the South Korean incumbents. One of the biggest players, with which Noctiluca has maintained a relationship since 2022, has extended and expanded its MTA to include additional colours, volumes and testing of EIL materials. Management estimated that there was a 70% probability of converting this engagement to a JDP in 2026. We believe that Samsung is also actively evaluating NCEIL-4 materials, while two Taiwanese multinational technology companies signed MTAs in August 2024 to test Noctiluca's third- and fourth-generation TADF emitters.

Lower-volume applications advancing towards volume production

In parallel with these tier-one opportunities, Noctiluca has developed a portfolio of approximately 10 smaller engagements that are either at or approaching volume production. Management estimates that collectively, the company's current engagements have the potential to generate c €5m in annual revenue from commercial shipments, with management targeting $2m by end-2026.

Engagements include (not exclusive):

- A European security documents manufacturer has already completed orders in Q224 and Q424 and is taking ongoing deliveries in 2025 for 11 different SKUs used in anti-counterfeiting applications for passports, banknotes and military key cards, with a formal JDP budgeted for 2025.
- A Swiss watch manufacturer (we believe most likely to be Swatch) is in advanced development with Noctiluca's green emitter for printed OLED applications; the ink formulation has been developed and was submitted for testing in Q424, with entry to the production line expected in 2026.
- Inuru, the German printed OLED company, has been a repeat commercial customer for over a year, using Noctiluca's materials (including EIL) in mass-produced lighting applications for clothing, marketing labels and medical uses, and is expected to introduce Noctiluca's next-generation materials, including emitters into its product line in 2026.
- Additional volume shipments are underway to a US manufacturer of monochrome OLED panels (first order fulfilled 2024, framework agreement in place), a South Korean intermediary/dealer (first deliveries completed) and a Polish partner executing projects for a European photonics solutions manufacturer.

Competitors and peers

The OLED materials industry is defined by **strong IP protection**, **high entry barriers** and **significant value creation potential** for companies that secure a position. While start-up attrition is high, those with robust IP and tier-one partnerships can scale rapidly, achieving **high-margin models** and **premium valuations**. Noctiluca is making promising progress toward this transition.

The industry is characterised by:

- **IP-driven value creation:** strong patent portfolios attract premium valuations.
- **Tier-one partnerships:** enable rapid revenue growth at commercialisation.
- **High-margin potential:** established players can achieve **25-40% EBITDA margins**, though timelines vary.
- **Strategic acquisition profile:** premium valuations reflect strategic importance.

We highlight some of the company's key peers and competitors below.

Universal Display Corporation (UDC) (NASDAQ: OLED): Nasdaq-listed UDC ($6.7bn market cap) dominates OLED materials, building a near-monopoly in phosphorescent OLEDs (2nd gen) through innovation and aggressive IP acquisition. It does not pursue TADF emitters, focusing instead on phosphorescent platforms and host materials (potentially competing with Noctiluca's NCEIL-4).

Notable acquisitions: Adesis ($36m), BASF's OLED patents ($96m), Merck's 550 patents (2023).

UDC operates a fabless model, licensing technology to Samsung, BOE, LG Display, TCL and Tianma, generating 41% of revenue from royalties and maintaining EBITDA margins of 43-45%.

Samsung (KRX: 005930): Samsung, the largest OLED panel maker, runs a vertically integrated model for critical materials. Its German subsidiary Novaled supplies ETL for Samsung's QD-OLED panels. Samsung acquired Novaled in 2013 for $347m and Cynora's IP portfolio for $300m in 2022, securing blue emitter technology, which we believe is still in R&D.

Model: captive supply + strategic acquisitions + IP enforcement.

LG Chem (KRX: 051910): LG Chem supplies OLED materials primarily to LG Display under a captive model, producing HIL, HTL, EML and ETL. Recent breakthroughs in p-type dopants strengthen IP and support LG's Tandem OLED architecture for improved brightness and lifespan.

Model: captive supply + R&D-driven IP independence.

Merck (XETRA: MRK): Merck leads in transport and host materials. In 2023, it sold its phosphorescent emitter IP (550 patents) to UDC while entering a multi-year collaboration to co-develop PHOLED stacks.

Model: manufacturing + collaborative IP approach.

Sumitomo Chemical (TYO: 4005): Sumitomo pioneered polymer OLED (P-OLED) materials for solution processing. Its acquisition of Cambridge Display Technology ($285m) secured key IP for printable OLEDs. Sumitomo partners with JOLED and Kateeva to advance inkjet printing for large-area OLEDs.

Model: manufacturing + IP ownership + process innovation partnerships.

Duksan Neolux (KOSDAQ: 213420): Duksan Neolux is probably Noctiluca's most direct comparator in terms of target business model. The specialised OLED producer's portfolio spans emitters, transport and injection layers and other functional materials, which it manufactures and supplies to leading OLED panel manufacturers, including Samsung Display. The company is capitalised at $134m, with revenues of $156m in 2024 and has achieved consistent 26–29% EBITDA margins over the last five years.

Other players include:

- **Kyulux** (private), a Japanese pioneer of third-generation (TADF) and fourth-generation (hyperfluorescent) emitter materials. It is still in commercialisation phase with ~185 patent families. It raised $86m in its latest Series C at a $275m valuation (2023).
- **Solus Advanced Materials (KOSDAQ: 336370)**, a South Korean-listed ($466m market cap) leader in hole blocking layers (HBL) with ~740 patents; OLED makes up ~22% of its revenue.
- **beeOLED** and **CREDOXYS** (private): German start-ups focused on deep-blue emitters; beeOLED ($36.9m valuation) targets commercialisation in three to four years; CREDOXYS ($8.6m valuation) remains early stage.

Financials

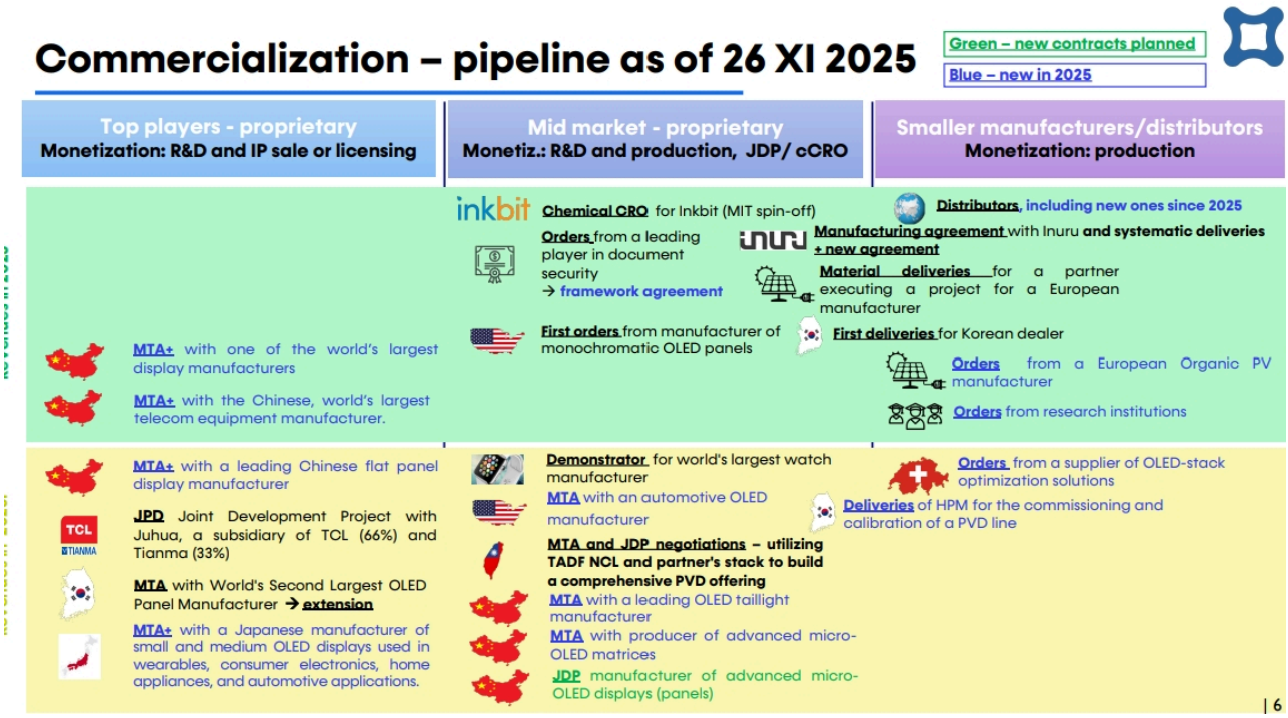
Noctiluca's financial pathway can be divided into two phases: from 2025 to 2027, the key financial focus will be on achieving operational sustainability by developing its base of development partnerships and increasing volume shipments for niche applications. This phase lays the groundwork for a second stage, when tier-one engagements progress towards volume production; some investment will be required to support the volume production, which should drive a significant acceleration in growth and margin expansion. The timing and rate of acceleration hinges on a number of factors, with late 2027 being the earliest potential inflection point, if the company's collaboration TCL Group and/or the Leading Telco OEM progress smoothly and other factors also align.

2025–27: Focus on reaching cash flow break even

Our forecast revenue growth through 2027 reflects the expansion of the company's development funnel over the last 18 months, the progression of more of these to higher-value JDP engagements and the growth of lower-volume shipments into document security, photovoltaics, speciality lighting and potentially watches.

The company's near-term commercialisation pipeline is shown below.

Exhibit 13: Near-term commercialisation pipeline, Q325



Source: Noctiluca

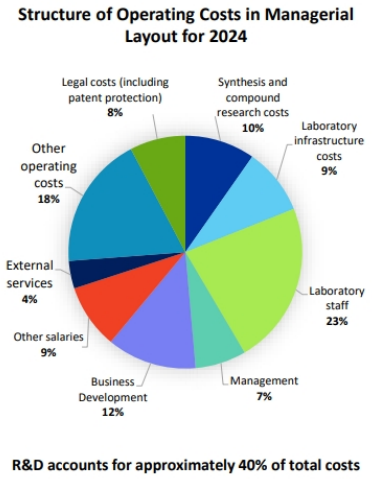
We expect the company to achieve cash flow break-even at a revenue level of around PLN8.5m (€2m), which in our current forecasts should occur towards the end of 2026 on a run-rate basis.

Over this period, we expect costs to remain relatively flat. The company's cash operating cost base (excluding depreciation) is currently c PLN550k (€130k) per month or PLN6.6m (€1,557k) per year, which reduced from c PLN650k (€154k) per month following an efficiency programme, completed in Q424.

Prior to volume sales scaling, the cost base is largely fixed, with around c 40% of cash costs attributed to R&D-related activities and 12% to business development, with c 8% on patent protection and legal. The large majority of costs are currently classified in cost of goods sold, hence gross margin is currently negative.

We model increased capex in FY27 and FY28 to support the move to volume production, which results in a short-term return to net cash outflow. As discussed below, at this stage, we believe that the company will have multiple opportunities to fund this investment.

Exhibit 14: Cash cost breakdown



Source: Noctiluca

Ample funding options to support scaling of the business

Following a PLN13.4m (€3.2m) fund raise at PLN90 per share in June 2025, the company had net cash of PLN6.92m at end Q325. The company also has a number of funding options available to support the business through to volume production including non-dilutive grants (both secured and in progress) a financing line with Synthex Technologies and Rubicon as well as potential equity from the market or strategic investors:

- **Grant funding.** As part of the company's 'grant offensive', Noctiluca has secured five grants in FY25 with an aggregate funding value of PLN 6.8m (€1.6M) and project value of over PLN 10m (€2.M) alongside further applications still under review. The most recent of these were:
  - A project focused on MR-TADF materials based on silicon for fifth-generation OLED devices, with a total project value of around PLN 4m and up to approx. PLN 2.7m of funding.

  - A project focused on developing and promoting lithium-free EIL materials that extend OLED display lifetime, with a total project value of around PLN 4.4m and up to approx. PLN 3m of funding.

- **Financing agreement with Synthex and Rubicon Partners.** Noctiluca has a development financing agreement with Synthex Technologies, which provides access to a credit line of up to PLN3m for purchasing laboratory equipment and devices and the possibility of a cash loan of up to PLN2m, which Noctiluca can draw if needed. It also has a financing agreement with Rubicon Partners, which provides access to a cash loan of up to PLN6m. As of 30 September 2025, Noctiluca had no outstanding loan debt to either Synthex or Rubicon Partners but had used about PLN0.7m from the credit line for laboratory expansion.
- **LOI with a potential strategic partner.** In July 2025, the company signed a non-binding LOI with a potential investor to acquire shares in Noctiluca to provide additional funding for scaling production and R&D. Due diligence is ongoing and completion is not expected in 2025. While the identity of this investor is not disclosed, management has stated that it could become a strategic partner, supporting Noctiluca's international expansion.

2028 and beyond: Targeting strong growth and operational leverage

Successful progression with tier-one partners - from MTA to JDP and ultimately volume shipments - should trigger a sharp growth inflection and rapid margin expansion. Timing and scale depend on several factors, but assuming current development stays on track, late 2027 or 2028 looks realistic.

Management aims to become an integrated developer and manufacturer of high-value OLED materials, rather than follow UDC's IP-licensing model, partly to mitigate IP leakage and reverse engineering risks.

IP-driven, high-value, low-volume economics

The planned model is IP centric and high margin, with focused R&D and low capex. Volume growth should translate strongly into profits and cash generation.

Noctiluca currently achieves 70-80% gross margins on proprietary materials, which is expected to hold at scale as yield improvements and scale economies offset price declines.

- **High-value, low-volume economics:** OLED materials sell in tiny quantities relative to value. Even at 'volume', a major customer like Guangdong Juhua is expected to require only ~10kg annually, with potential expansion to ~80kg across the TCL partner group.
- **IP-driven value capture:** margins reflect IP, not manufacturing complexity or volumes. Customers pay for years of R&D, patent protection and performance advantages that are hard to replicate.

The same factors also mean that the model is likely to be relatively capex light. For example, the capex/sales ratio of Duksan Neolux, averages 3-4%. Incremental capex is likely to be required to support the move to volume production for mass products (we model PLN3m (€0.7k) and PLN4m (€0.9k) for FY27 and FY28, respectively).

Supernormal margins are possible in the ramp-up phase

With focused R&D and an indirect sales model, strong revenue growth can be achieved without any significant investment in opex. Consequently, rapid penetration of high-volume markets could push EBITDA margins to very high levels: 50%+ or higher.

Exhibit 15: 2030 revenue and EBITDA scenarios

Scenarios for FY30		Modest uptake by one tier one		Modest uptake by two tier ones or strong uptake by one tier one		Modest uptake by three tier ones or significant uptake by one or two		Significant uptake by two or more tier ones		Widespread and deep tier 1 adoption	
		PLNm	€m	PLNm	€m	PLNm	€m	PLNm	€m	PLNm	€m
	Revenue	31,563	7,462	52,713	12,462	73,863	17,462	169,038	39,962	221,913	52,462
Low investment	EBITDA	10,727	2,536	26,589	6,286	42,452	10,036	113,833	26,911	153,489	36,286
Fixed cost CAGR FY25–30 = 15%	Margin	34%	34%	50%	50%	57%	57%	67%	67%	69%	69%
Mid investment	EBITDA	6,727	1,590	22,589	5,340	38,452	9,090	109,833	25,965	149,489	35,340
Fixed cost CAGR FY25–30 = 25%	Margin	21%	21%	43%	43%	52%	52%	65%	65%	67%	67%
High investment	EBITDA	2,727	645	18,589	4,395	34,452	8,145	105,833	25,020	145,489	34,395
Fixed cost CAGR FY25–30 = 40%	Margin	9%	9%	35%	35%	47%	47%	63%	63%	66%	66%

Source: Edison Investment Research

Where margins trend in this time frame will likely depend on management's strategy for the corporate structure of the business:

- If a sale to a strategic partner with interest in specific IP (most likely NCEIL-4) looks on the cards, then we believe that management may moderate investment into longer-term growth and hence operational leverage should drive significant margin expansion.
- In the case of an organic strategy being pursued, while 'supernormal' margins are possible for a period, reinvestment in IP/product development, sales and account management and infrastructure will be key to achieving sustainability. Consequently, a sustainable target of 25-30% EBITDA margins appears reasonable. Duksan Neolux has registered EBITDA margins of between 26% and 29% over the past four years. Consequently, we taper margins to a 30% level over 10 years in our base-case DCF model.

Exhibit 16: Peer margins and model comparison

Company name	Ticker	Market cap	EBITDA margin (2024)	5-year average EBITDA margin	OLED materials	IP-centric	High value/low volume	Integrated developer & manufacturer
Universal Display Corp	NASDAQ: OLED	$5.65bn	45%	c 47%	Yes	Yes	Yes	No (fabless licensing)
Merck (Electronics Division)	N/A	N/A	26%	27–29%	Display 20% of electronics sales	Yes	Yes	Yes
Duksan Neolux	KOSDAQ: 213420	$0.87bn	31%	c 30%	Yes	Yes	Yes	Yes
Solus Advanced Materials	KRX: 336370	$0.61bn	9.9% (OLED 23%)	c 15% (OLED margins expanding)	Yes, also battery copper foil	Partial	Partial	Yes

Source: Edison Investment Research

Sensitivities

Intellectual property and strategic positioning: Noctiluca operates in an IP-intensive industry where patent portfolios often drive valuations and M&A activity independent of current revenues. The risk of IP theft is material, but litigation can be both a risk and an upside opportunity, and is always costly. In 2025, BOE (China's largest display manufacturer and Apple's primary OLED supplier) lost a patent infringement lawsuit to Samsung, faced potential exclusion from the US market for 11–14 years, and settled overnight for approximately $650m. Equally, Nanoco, a UK-listed quantum dot supplier into the display industry, successfully settled a patent infringement claim with Samsung for $150m, followed by a recent $5m settlement claim with LG. Historical precedent suggests that OLED materials companies are frequently acquired before reaching full commercial production (Cynora was acquired by Samsung for $300m with no revenue; Novaled was acquired by Samsung for €260m at 10x revenues), with IP value often the primary acquisition driver. Consequently, a rigorous approach to IP generation and protection is required. Noctiluca has a dedicated in-house IP team with 11 patent applications being pursued in key geographies and one already granted.

Opaque competitive landscape and customer disclosure practices: The competitive landscape in OLED materials is opaque, with most competitors either privately held (Kyulux, various Chinese materials developers) or operating as divisions within larger conglomerates (Samsung SDI/Novaled, LG Chem, Merck, DuPont). The design of OLED stacks used by major display manufacturers is a closely guarded secret, with customers typically not disclosing device architectures, material suppliers or performance specifications until products are near commercial launch, and often not even then due to competitive sensitivities. This opacity creates information asymmetry that limits visibility into Noctiluca's true competitive position.

Operational leverage and achievable margins versus sustainable margins: Noctiluca operates a highly operationally leveraged business model with gross margins of 70-80% and low fixed costs. As the company transitions to volume production, the timing and rate of revenue acceleration is difficult to predict, with earnings volatility even more pronounced. Successful penetration of high-volume devices from major manufacturers should generate rapid revenue growth with significant and rapid margin expansion. We believe that EBITDA margins of 50-60%+ are achievable as incremental production costs are minimal relative to the fixed cost base. However, sustained success requires ongoing investment in R&D, engineering capabilities, patent filings and quality control infrastructure to maintain competitive positioning. While supernormal margins are possible during initial commercialisation when revenues scale rapidly against fixed costs, we believe sustainable margins for a commercially mature Noctiluca are more likely in the 25-30% range.

Valuation

Scenario-based approach to DCF valuation

Noctiluca's shareholder returns will essentially be dictated by its success expanding and progressing its partnerships with tier-one vendors to volume production. The company is making encouraging progress; with collaborations ongoing with eight of the top 10 display manufacturers, the company has many 'shots on goal', while recent developments with TCL Group and the Leading Telco OEM provide a much clearer pathway towards initial volume shipments. Nevertheless, the range of potential financial outcomes is very wide and success is not yet a given.

Consequently, we have adopted a scenario-based DCF approach, using two key variables:

1. Varying adoption scenarios, from modest uptake with one tier-one partner to extensive adoption across a number of OEMs by the year 2030 (a time period in which we believe NCEIL-4 can achieve good market penetration).
2. Long-term EBITDA margins, based on the margins of more mature peers. As previously discussed, margins in the growth phase can expand significantly further than these levels.

We assume that revenues from smaller engagements grow to PLN12.4m (€2.5m) by 2030.

Exhibit 17: DCF scenario analysis by uptake and long-term margins

	Fair value (PLN)	Modest uptake by one tier one	Modest uptake by two tier ones or strong uptake by one tier one	Modest uptake by three tier ones or significant uptake by one or two	Significant uptake by two or more tier ones	Widespread and deep tier 1 adoption
Long-term EBITDA margin	20%	48	90	131	318	421
	25%	59	108	157	377	499
	30%	70	127	183	436	577
	35%	81	145	209	495	654
	40%	92	164	235	555	732

Source: Edison Investment Research

We assume a weighted average cost of capital (WACC) of 15%, a terminal growth rate of 3%, capex/sales in the mid-to-long term of 4%, and working capital/sales of 20%, based on industry peers.

Progression of multiple one tier-one partners should support significant upside

What is clear from this analysis is that Noctiluca's current valuation implies only marginal commercialisation success for NCEIL-4, with tier-one revenues reaching just €12m by 2030 and then sustained at that level, with EBITDA margins trending to 30%.

Any achievement above this level should generate material upside, through both increasing revenue potential and diversifying risk. Given the progress and pipeline so far, we can readily see a pathway to three or more tier-one partners progressing to volume production, justifying a PLN183 fair value, c100% upside to the current share price.

The more positive scenario, but in our view achievable, rather than blue sky scenarios generate significant upside.

We have used a WACC of 15%, in our view appropriate to a loss-making development stage business. Catalysts for lowering the WACC would include achieving cash flow break even and volume shipments to a tier-one customer. In the exhibit below, we show the sensitivity of the valuation to WACC under different commercial traction scenarios, using a central 30% long-term EBITDA forecast.

DCF scenario analysis by uptake and WACC assuming 30% long term margin

Fair Value (PLN)		Modest uptake by one tier one	Modest uptake by two tier ones or strong uptake by one tier one	Modest uptake by three tier ones or significant uptake by one or two	Significant uptake by two or more tier ones	Widespread and deep tier 1 adoption
WACC	15%	70	127	183	436	577
	13%	87	157	226	539	713
	10%	115	206	296	704	930
	8%	173	304	435	1,025	1,352

Source: Edison Investment Research

Acquisitions of non-public OLED materials companies

In reality, the chances that Noctiluca pursues a purely organic growth strategy over the next decade are low. The OLED materials sector has witnessed several significant strategic acquisitions as major players seek to secure technology leadership and IP portfolios. We believe that Noctiluca could easily become an acquisition target, especially as the company's technology receives further validation through the progression of its agreements with major display players and patent awards.

Strategic acquisitions in OLED materials

Samsung acquired Novaled in 2013 for approximately €260m, following rapid sales growth driven by inclusion in Galaxy smartphones, which pushed Novaled's revenue to €26m in 2012. A decade later, Samsung Display purchased **Cynora's TADF-focused IP for $300m in 2022**, despite Cynora having no revenue at the time, underscoring the strategic value of next-generation emitter technology. Universal Display Corporation (UDC) has also aggressively expanded its IP base through acquisitions, including Fujifilm's OLED patent portfolio in 2012, BASF's OLED IP assets for €87m in 2016 and multiple deals with Merck since 2023, adding hundreds of patents covering advanced emissive device structures. These transactions demonstrate that IP-rich OLED innovators can command significant valuations even before achieving large-scale commercialisation.

Private company funding and independent growth paths

Alongside acquisitions, several OLED materials companies have pursued independent growth strategies supported by substantial venture funding. **Kyulux**, a Japanese pioneer in hyperfluorescent emitters (combining TADF and fluorescent technologies), has raised approximately $86m across multiple rounds, including $13.5m in 2016 and $31.8m in 2019, with backing from Samsung, LG and JOLED. In 2024, Kyulux signed a strategic agreement with Nippon Soda to launch mass production of OLED materials, with estimated annual revenues exceeding $20m, demonstrating successful commercialisation without being acquired. Similarly, **OTI Lumionics**, a Canadian company specialising in ConducTorr cathode patterning materials for under-display cameras and sensors, raised $55m in 2022 from investors including Samsung Ventures, LG Technology Ventures and UDC Ventures. OTI's technology is already being integrated into next-generation smartphones and automotive displays, reinforcing the trend of pre-commercialisation OLED materials companies achieving strong valuations and strategic interest based on IP strength and alignment with tier-one device ecosystems.

Exhibit 18: Financial summary

PLN (000's)	2023	2024	2025e	2026e	2027e	2028e
PROFIT & LOSS						
Revenue	**754**	**2,459**	**3,238**	**6,239**	**11,425**	**21,329**
Cost of Sales	(5,538)	(7,460)	(7,177)	(8,119)	(10,950)	(15,622)
Gross Profit	(4,783)	(5,001)	(3,939)	(1,880)	475	5,707
EBITDA	**(4,783)**	**(5,001)**	**(3,939)**	**(1,880)**	**475**	**5,707**
Operating Profit (before amort. and except.)	**(6,183)**	**(5,951)**	**(4,415)**	**(2,355)**	**(1)**	**5,107**
Intangible Amortisation	0	0	0	0	0	0
Exceptionals	0	0	0	0	0	0
Other	1,015	655	287	0	0	0
Operating Profit	**(5,169)**	**(5,296)**	**(4,127)**	**(2,355)**	**(1)**	**5,107**
Net Interest	53	(191)	(202)	100	100	0
Profit Before Tax (norm)	**(5,116)**	**(5,486)**	**(4,329)**	**(2,255)**	**99**	**5,107**
Profit Before Tax (FRS 3)	**(5,116)**	**(5,504)**	**(4,329)**	**(2,255)**	**99**	**5,107**
Tax	0	0	0	0	0	0
Profit After Tax (norm)	**(5,116)**	**(5,486)**	**(4,329)**	**(2,255)**	**99**	**5,107**
Profit After Tax (FRS 3)	**(5,116)**	**(5,504)**	**(4,329)**	**(2,255)**	**99**	**5,107**
Average Number of Shares Outstanding (m)	1,557.5	1,581.5	1,658.0	1,732.5	1,732.5	1,732.5
EPS - normalised (PLN)	(3.28)	(3.47)	(2.61)	(1.30)	0.06	2.95
EPS - normalised and fully diluted (PLN)	(3.28)	(3.47)	(2.61)	(1.30)	0.06	2.95
EPS - (IFRS) (PLN)	(3.28)	(3.48)	(2.61)	(1.30)	0.06	2.95
Dividend per share (PLN)	0.00	0.00	0.00	0.00	0.00	0.00
Gross margin (%)	-634.4	-203.4	-121.7	-30.1	4.2	26.8
EBITDA margin (%)	-634.4	-203.4	-121.7	-30.1	4.2	26.8
Operating margin (before GW and except.) (%)	-820.1	-242.0	-136.4	-37.8	0.0	23.9
BALANCE SHEET						
Fixed Assets	**1,765**	**1,824**	**2,158**	**2,303**	**4,024**	**7,706**
Intangible Assets	862	193	254	374	571	853
Tangible Assets	903	671	346	371	1,895	5,295
Other	0	960	1,558	1,558	1,558	1,558
Current Assets	**2,837**	**1,413**	**7,257**	**4,489**	**1,303**	**558**
Stocks	5	156	262	505	926	1,728
Debtors	780	775	1,014	1,560	2,285	3,199
Cash	2,033	466	5,927	2,370	(1,962)	(4,424)
Other	20	15	54	54	54	54
Current Liabilities	**(952)**	**(1,103)**	**(1,069)**	**(1,182)**	**(1,520)**	**(3,068)**
Creditors and deferred income	(952)	(1,103)	(1,069)	(1,182)	(1,520)	(2,568)
Short-term borrowings	0	0	0	0	0	(500)
Long-Term Liabilities	**(332)**	**(1,926)**	**0**	**0**	**0**	**0**
Long-term borrowings	0	0	0	0	0	0
Other long-term liabilities	(332)	(1,926)	0	0	0	0
Net Assets	**3,319**	**208**	**8,346**	**5,610**	**3,806**	**5,195**
CASH FLOW						
Operating Cash Flow	**(4,936)**	**(5,489)**	**(4,318)**	**(2,557)**	**(332)**	**5,039**
Net interest	85	8	6	0	0	0
Tax	0	0	0	0	0	0
Capex	(433)	(57)	(150)	(500)	(3,000)	(4,000)
Acquisitions/disposals	0	0	0	0	0	0
Financing	6,418	3,961	5,036	0	0	0
Dividends	0	0	0	0	0	0
Net Cash Flow	1,134	(1,577)	5,461	(3,557)	(4,332)	(2,962)
Opening net debt/(cash)	**910**	**2,033**	**455**	**5,916**	**2,359**	**(1,973)**
HP finance leases initiated	0	(11)	0	0	0	0
Other	(14)	10	0	0	0	0
Closing net cash (debt)	**2,033**	**455**	**5,916**	**2,359**	**(1,973)**	**(4,935)**

Source: Company data, Edison Investment Research

Contact details

Jurija Gagarina 7 / 41B,
87-100 Toruń, Poland.
+48 573 821 838
inwestorzy@noctiluca.eu

Revenue by geography

Not disclosed

Management team

Managing director and CTO: Mariusz Bosiak

Mariusz Bosiak is a co-founder of the chemical technology company Synthex Technologies and has 15 years of experience in the optoelectronic industry. He has led innovations in emitters and electron transport materials.

COO: Krzysztof Czaplicki

Krzysztof Czaplicki is an experienced entrepreneur and manager of seed and venture capital funds. He has worked with organisations such as the World Bank Group and specialises in corporate development strategies and the commercialisation of scientific innovations.

CCO: Mateusz Nowak

Mateusz Nowak is a manager with experience in the realisation of nearly to 100 projects, ranging from the creation and implementation of the strategy, to M&A and due diligence. He has experience from his time at PwC and in venture capital and co-founded the MIT Enterprise Forum Poland for deep-tech startups.

Principal shareholders

	%
Synthex Technologies sp. z o.o.	12%
Impera Invest Sp. z o.o.	9%
R Ventures I ASI Sp. z o.o. oraz Rubicon Partners Ventures ASI Sp. z o.o.	7%
Mariusz Jan Bosiak	6%
ASI Valuetech Seed Sp. z o.o.	6%
Polski Instytut Badań i Rozwoju Inwestycje Sp. z o.o.	6%
Rest	56%

Synthex Technologies sp. z o.o. – entity related to :

- Mariusz Bosiak (CEO),
- Krzysztof Czaplciki (Board Member)
- Andrzej Wolan (Supervisory Board Members)
- Rubicon Partners (albo shareholder as R Ventures I ASI Sp. z o.o. oraz Rubicon Partners Ventures ASI Sp. z o.o)

Impera Invest Sp. z o.o. – shares borrowed from Synthex Technologies

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London | New York | Frankfurt
20 Red Lion Street
London, WC1R 4PS
United Kingdom