



Ministry of Science and Higher Education  
Republic of Poland

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# STUDY VISIT & MATCHMAKING

Digital hospital



**Organisation name:** VIGO Photonics S.A..

**Organisation type:** Global photonic semiconductors company and manufacturer of epitaxial structures, as well as MWIR and LWIR detectors.

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# About Vigo Photonics - Overview



**European manufacturer of epitaxial wafers and instruments for photonics and microelectronics, specialized in MWIR and LWIR detectors and modules, produced with the use of internally-developed technology.**

- The mission of VIGO Photonics is to provide fast and convenient, easy to use IR detectors at any wavelength from 2 to 16  $\mu\text{m}$ , reaching fundamental BLIP limits without cryocooling.
- VIGO Photonics has a complete front-end and back-end production line for semiconductor high capacity instruments – from epitaxy of II-IV and III-V groups, through detector chips, and their assembly and integration with electronics. The company is constantly expanding its market reach and now has its subsidiaries in the USA.



# SWOT Analysis of VIGO Photonics



## Strengths:

- **Complete in-house value chain:** VIGO maintains full control over the production process – from epitaxy, through processing and packaging, to electronics integration.
- **Extensive experience and reputation:** Present on the market since 1987, the company provides custom-fit solutions that pass the most rigorous validations for military, defense, and space applications (e.g., components for NASA's Artemis II mission).
- **High production capacity and strong R&D:** VIGO offers a production capacity of 10,000 epiwafers and 500,000 detectors annually.
- **Global reach:** The recent strategic acquisition of the US-based InfraRed Associates has strengthened VIGO's position in the American market, expanding our engineering and production capabilities.

## Weaknesses:

- **Dependence on end-user integration:** New, highly integrated solutions like the HyperPIC (Photonic Integrated Circuits) are currently in development and require external partners to successfully test and integrate them into final end-user applications (such as automotive or medical systems)

# SWOT Analysis of VIGO Photonics



## Opportunities:

- **EU Funding Acquisition:** Upcoming calls in Horizon Europe (Cluster 1 and 4), specifically targeting digital emerging technologies (DIGITAL-EMERGING) and energy-efficient production (MAT-PROD) for 2027.
- **Technology miniaturization (HyperPIC):** A major opportunity to revolutionize the market by replacing expensive and bulky mid-IR sensing systems with fully integrated, scalable PIC chips.
- **Expansion into emerging sectors:** Growing demand for advanced infrared detection in autonomous automotive systems, digital health monitoring, and environmental monitoring.

## Threats:

- **Technological challenges:** Increasing market pressure demands that high-performance photonics fit into ever-smaller and more energy-efficient form factors.
- **Scaling risks:** Transitioning complex lab photonics technologies into industrial mass production lines carries significant process and operational challenges.

# Calls of interest



## 1. HORIZON-CL4-2027-05-DIGITAL-EMERGING-03

*Devices for extended features and ultra-low power consumption (RIA)*

- **Why relevant for VIGO:**
  - Photonic devices
  - IR sensing technologies
  - Advanced photonic integration
- **Potential role:**
  - Technology provider for detector development and photonic integration

## 2. HORIZON-CL4-2027-01-MAT-PROD-61

*Energy-efficient production and process innovation in industrial technologies*

- **Why relevant for VIGO:**
  - Semiconductor manufacturing
  - Process optimization
  - Industrial scale-up
- **Potential role:**
  - Industrial partner for process development and validation



# Calls of interest



## 3. HORIZON-CL4-2027-01-MAT-PROD-02

*Advanced manufacturing for key products (IA) (Made in Europe partnership)*

- **Why relevant for VIGO:**
  - IR photodetectors and infrared sensing technologies (core competence in MWIR/LWIR range)
  - MOCVD-grown HgCdTe and III-V semiconductor materials for high-performance photonic devices
  - Advanced hybrid integration (e.g., flip-chip bonding, monolithic/heterogeneous integration)
  - High-reliability detector modules for industrial, defense and space applications aligned with advanced manufacturing goals
  - Experience in scaling lab photonics technologies into industrial production lines (pilot-to-production transition)
- **Potential role:**
  - Core technology provider for infrared detector development, Pilot manufacturing and scaling partner for next-generation IR photonic components, End-user validation partner

# Collaboration



## What VIGO Offers to Partners:

- **Unique technology and value:** Highest-quality mid-wave (MWIR) and long-wave (LWIR) infrared detectors, multi-element arrays, and semiconductor materials (HgCdTe, III-V) with an exceptional quality-to-price ratio.
- **Project experience:** Proven track record acting as both a coordinator and commercial partner in major national and EU research initiatives (e.g., Horizon 2020).
- **Custom-fit flexibility:** The ability to tailor and validate hardware solutions for the most demanding and highly restrictive requirements.

## What VIGO Expects from a Partner:

- Integrating detectors into new end-user devices.
- Validating and testing the technology in real-world environments, specifically in: environmental monitoring, digital health, secure free-space communication, automotive systems, and industrial gas monitoring.

## VIGO's Target Roles in a Consortium:

VIGO aims to join consortia in the following key roles:

- **Core technology provider:** Supplying expertise and components for infrared detector development and advanced photonic integration.
- **Pilot manufacturing and scaling partner:** Facilitating the pilot-to-production transition, scaling next-generation IR photonic components from the lab to high-volume industrial production lines.
- **Industrial / End-user validation partner:** Implementing innovations, optimizing processes, and validating process developments within energy-efficient semiconductor manufacturing environments.





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# Thank you

Digital hospital

Please wait