



Scalable Fiber to Chip Connectivity

Carlos Viana, CEO
June 2024

Who we are?



Technological independent SME created in **2018**



Offices and Clean Room Facilities in France, Paris region



10 Headcounts - **Strong R&D** > 50% PhD in Photonics



We are a Spin-off from the CNRS



- **15+ years of R&D** in microfabrication and photonics integrated packaging
- 650m² cleanrooms **production-line** (Class 100) platform
- **Licensing agreement** worldwide with **exclusivity** including 7 patents

OUR CORE VALUES

Lead by
example

Bring out the
best in
everyone

Take
responsibility

Customer
success is our
success

Strive for
excellence

A multidisciplinary Team

Attn: DDI

Business and Management



Charles, Eng.

COO, late founder

7 years of experience in international business development of technological solutions.



Carlos, PhD

CEO & co-founder

15 years of experience in photonics technologies, Administration & Business development.



Jean-Luc, PhD

CTO & co-founder

25 years of experience in Photonics and microwaves, former Prof. at ESIEE-Paris



Operations

- 4 Highly-skilled members covering Design, fabrication, Test, quality and R&D
- Advisory Board with 80 years of combined experience in senior executive management in Photonics Industries

Advisory Board



Michel MARITON

Doctor in Physics, 30 years of professional experience in Photonics industry. **Former CEO of HORIBA Jobin Yvon, SURYS** and Executive Manager at **AMPLITUDE Laser**.



Dominique DUFOUR

Graduated in Chemistry, MBA ICG Lyon, over 30 years' experience in **senior executive management in worldwide companies** (J&J, Bayer Pharma, Nutricia Danone, DELL, Carestream Dental and Danaher Group).



Andreas UMBACH

Doctor in Physics, Andreas has more than 20 years experience in Photonics industry. **CEO at Aucept, former CEO at u²t Photonics** and General Manager at **Finisar Germany GmbH**

Photonics

Definition: The physical science of generating, manipulating and detecting light

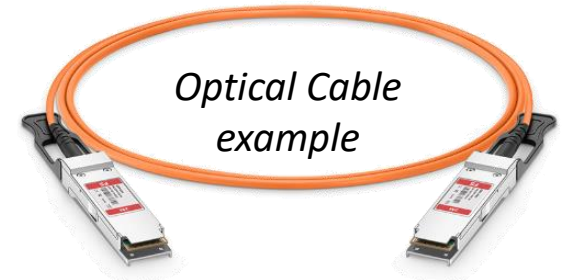


Growth from \$576B in 2019 to \$1.1T by 2028, 6.9% annual CAGR

Source: Prescient & Strategic Intelligence, Photonics Market Research Report, 2019 - Includes LEDs & Lasers, Sensors & Detectors, Optical Components & Systems

Optical Interconnects applications

Optical interconnects use light to transfer data



Datacom optics



*Datacenters
HPC*

Telecom optics



5G+ networks

Quantum



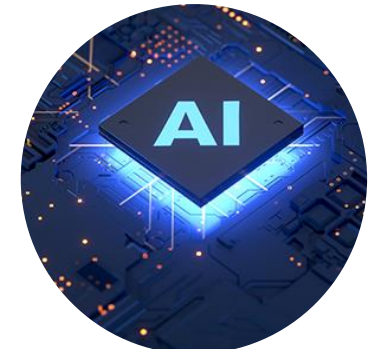
*Photonics
Hardware*

3D Sensing



*LIDAR
Sensing*

AI

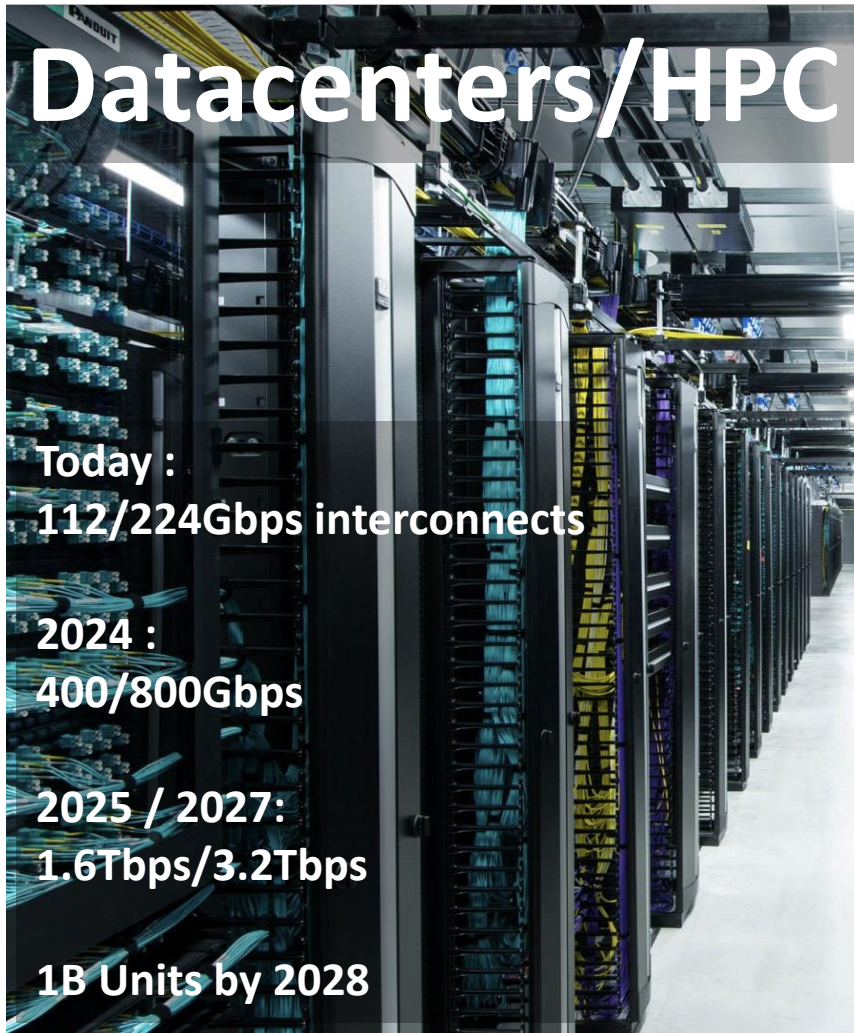


*Optical
computing*

Speed  Size  Density  Cost 

Main industrial drivers

Attn: DDI

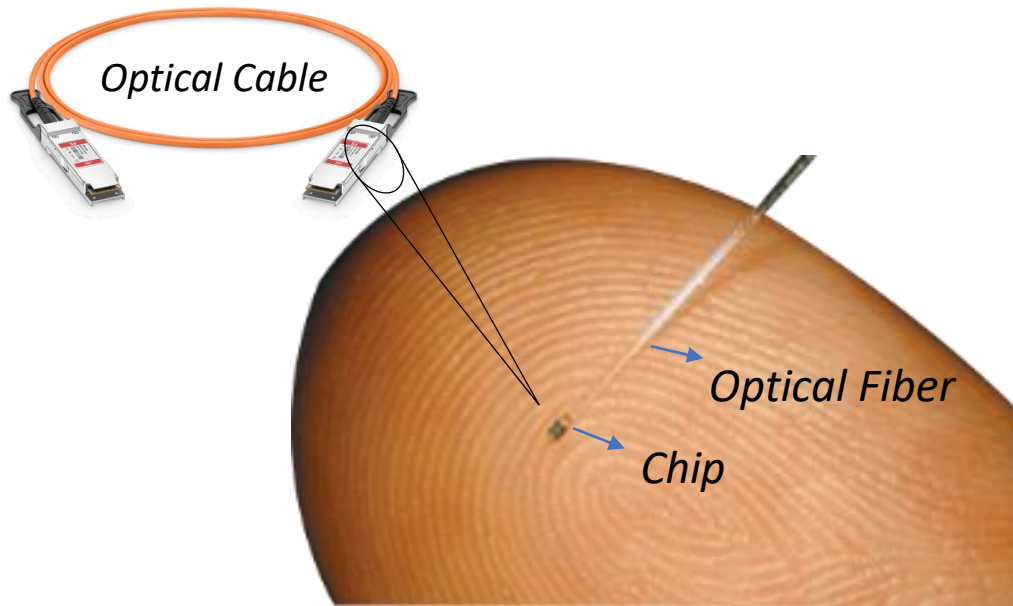


Facebook/Meta

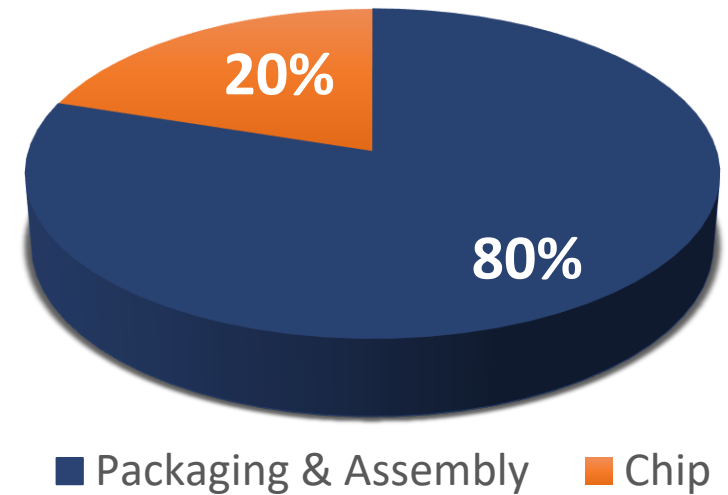


Rocco Ceselin/Google

Fiber to chip connectivity



Photonics Cost Breakdown

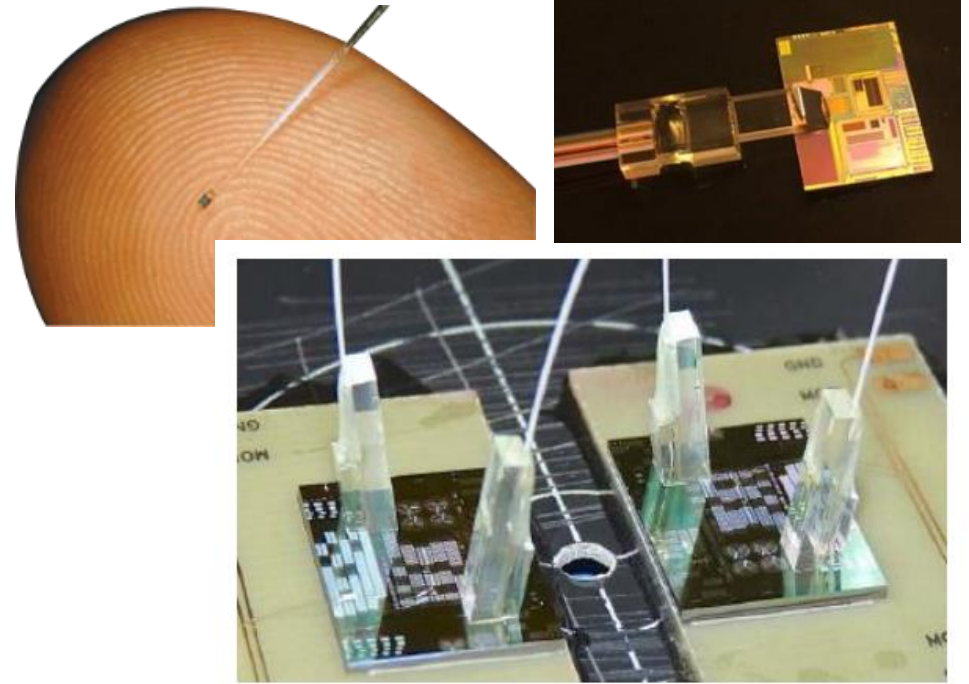


Source: Yole Silicon Photonics Report 2021.

Attaching fibers to chips **efficiently** remains the main bottleneck

- Existing scaling solutions relies on **manual assembly** steps
- Continuous need of **miniaturization** and **fiber density**
- Packaging and assembly represents **80% of the total cost**

How to attach fiber to photonics chip efficiently?



Source: imec, leti

What are the market needs:

- + Light Coupling efficiency
- + High precision Mechanics
- + Compact and reliable
- + Easy assembly: passive and automated
- + High Volume Manufacturing (HVM)

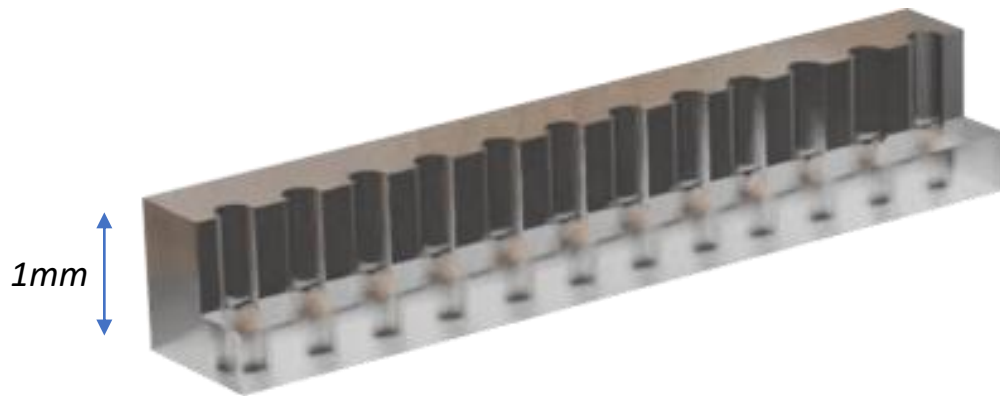


Scale Packaging

Our solution

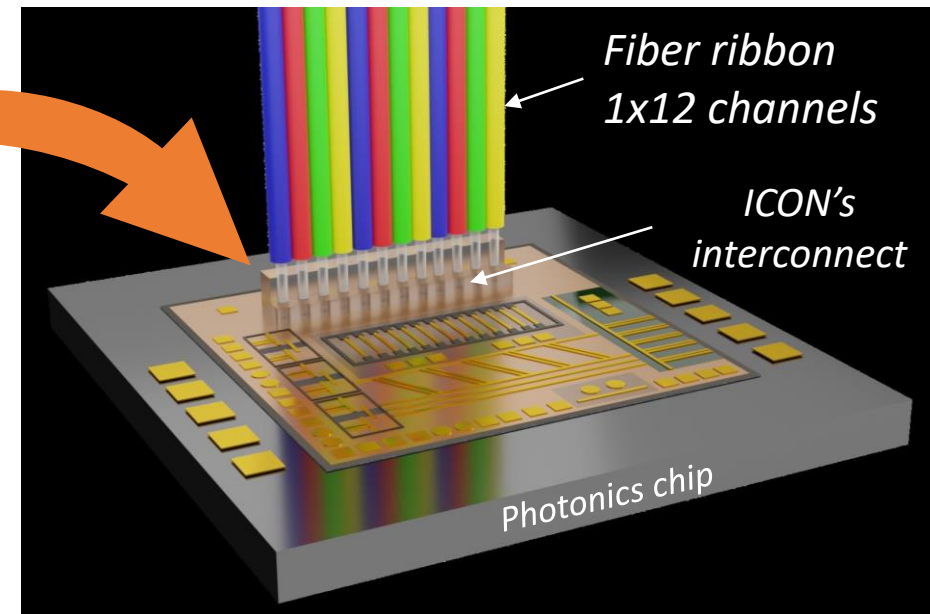
Efficient fiber-to-chip connectivity

Opto-Mechanical interconnect



Integrating multiple functionalities:

- + *Embedded optics for light coupling*
- + *Mechanics for fiber attach*
- + *Alignment fiducials for assembly*

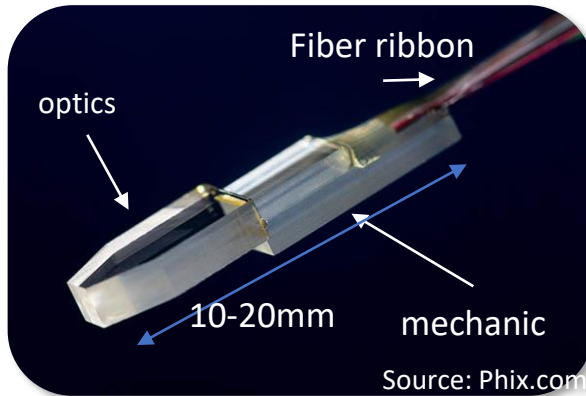


- ✓ *Lowest optical losses*
- ✓ *Easy assembly*
- ✓ *Scale packaging cost*

Use-case comparison

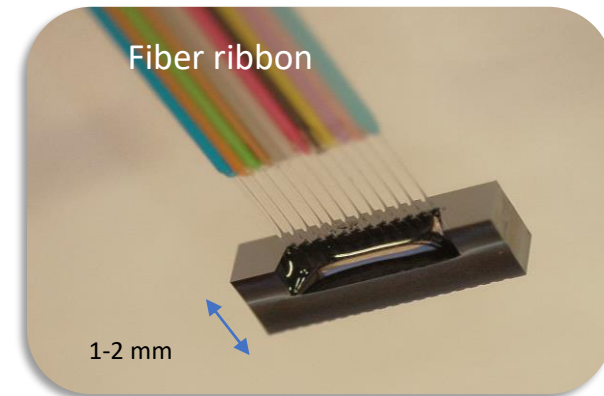
Current solutions

- Multiple components assembly
- Active alignment required
- Bulk solution
- Not scalable



ICON solutions

- Single component: **all-in-one**
- passive alignment
- Compact solution
- Scalable



| | | | |
|-------------------------|-------------------|------|-------------------------|
| BoM | \$\$ (50\$) | \$\$ | BoM |
| Assembly steps | \$\$\$ (300-700€) | \$ | Assembly steps |
| Chip Integration | \$\$ | \$ | Chip Integration |



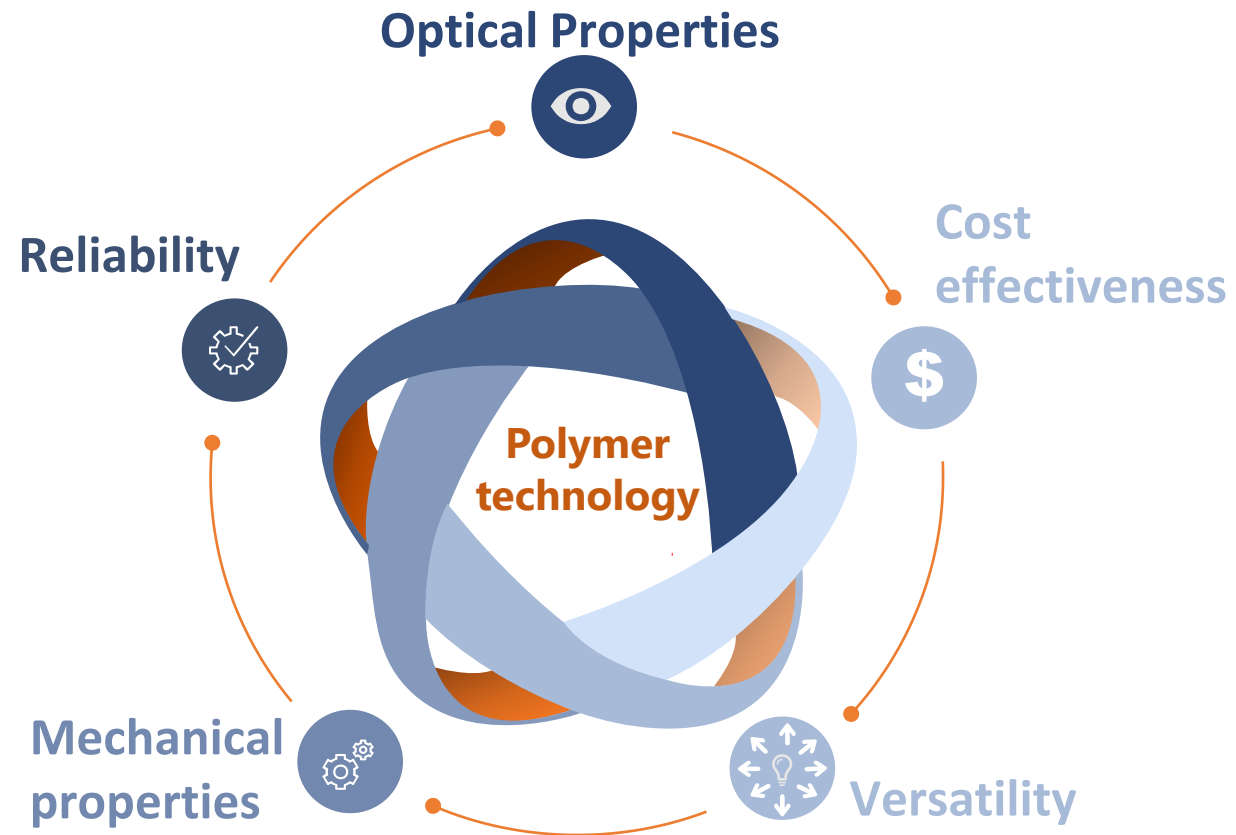
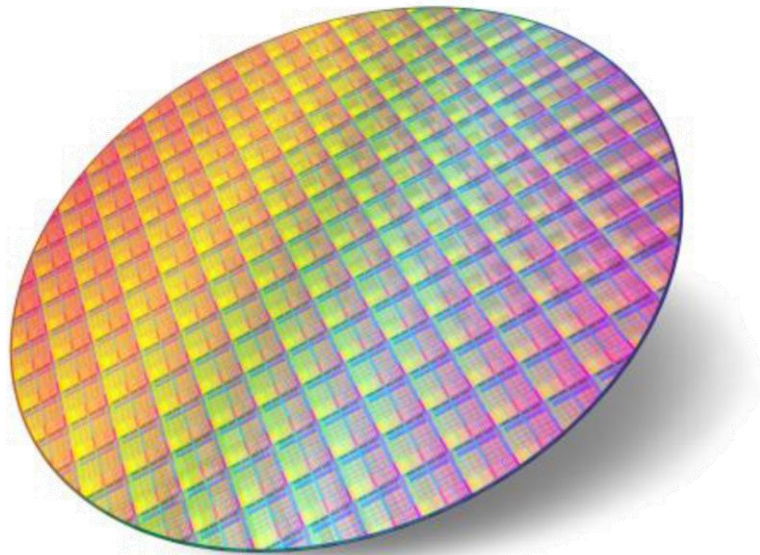
20-50% customer savings



The Technology

Wafer-level platform
std. semiconductor manufacturing facilities

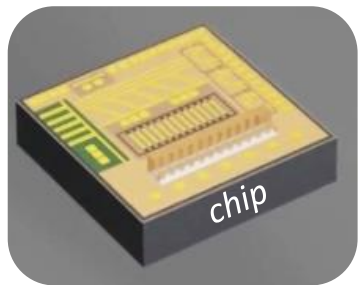
€2 M+ invested / 20+ development years
have resulted in 6 patents and a strong know-how



Our offer

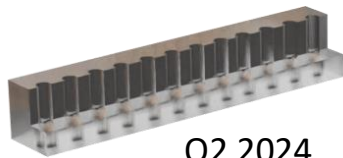
Providing Fiber to the chip connectivity solutions

Design and manufacturing of high precision optical components



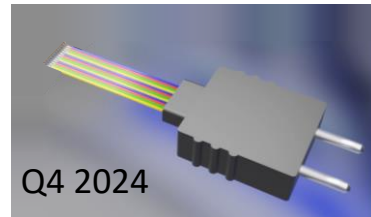
Integrated solutions

Advanced "V-Groove"



Q2 2024

Fiber Array Unit / detachability



Q4 2024



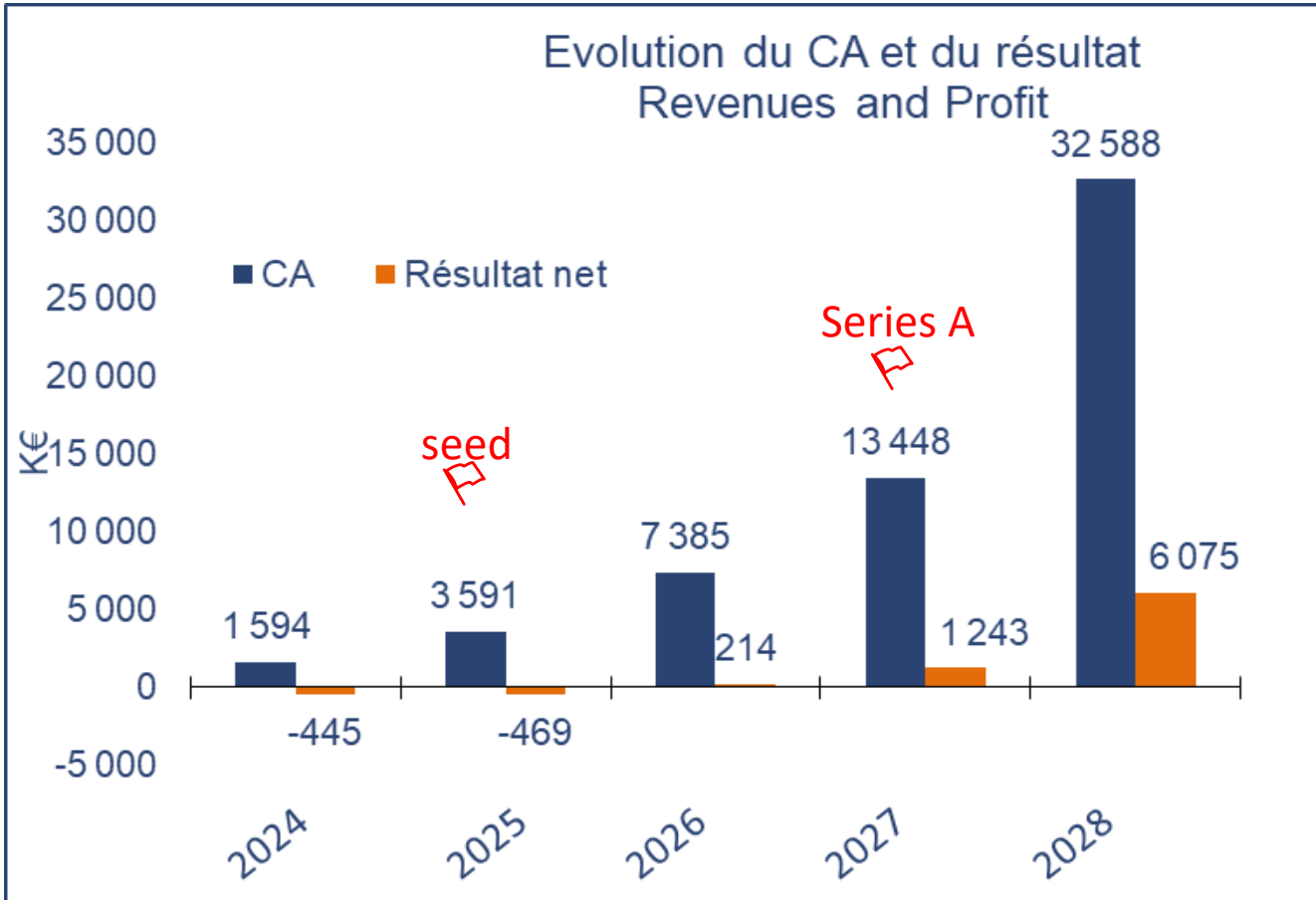
Standalone solutions



Transceiver /
Module maker
OEMs

Fast prototyping services:
Component modeling, design, production, assembly, measurement
and testing capabilities

Business projection post-fund



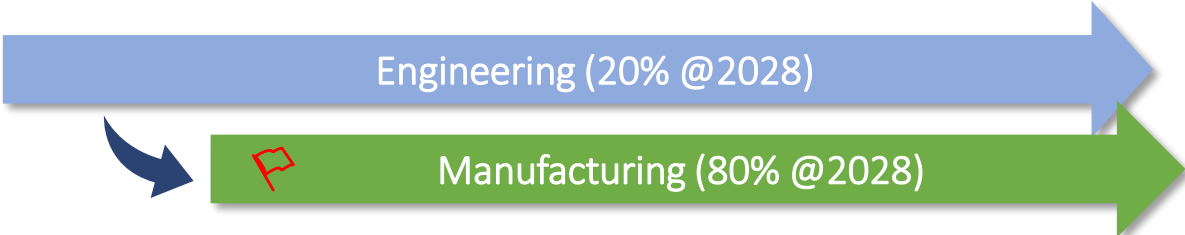
Seed 2025: 2.5M€



Series A 2027: 7M€

Ambition: To be the world tech **market leader** in providing **fiber to chip connectivity** solutions enabling the next generation optical and quantum applications

| | | | | | |
|-------|---|----|----|----|----|
| Staff | 8 | 18 | 24 | 38 | 68 |
|-------|---|----|----|----|----|



2023 Main achievements

- 0.5M€ Revenue (x2 2022)
- 3 new customers (65% CA, 20% Japon, 7% DE, 7% DK and 1%FR)
- Agreement negotiation with leader in QC for industrialization and preparing ramp-up: 1M€+
- Substantial progress on our internal roadmap moving from service business to a product business:
 - Industrialization POC development
successful pre-sample demo at ECOC international exhibition (in Glasgow 09/23)

2024 Roadmap

- 1 New Patent application 03/2024
- Deeptech50 selection at Vivatech 05/2024
- Product samples Q2/Q3 2024
- Full demo at ECOC internation exhibition in Frankfurt, Q3 2024
- 1.0M€ Revenue objective / 5 new customers
- Team: 10 ETP by the end of 2024 (marketing & sales development)
- Industrialization: establish an assembly line, product qualification



Merci !

www.icon-photonics.com

