PhotonDelta
Integrated photonics ecosystem

Ewit Roos, CEO PhotonDelta

PhotonDelta
Gateway to Integrated Photonics

We are living in a technological revolution with continuous generation of data

Global megatrends are shaping a more and more connected world

Cloud

5G & Infrastructure

Artificial intelligence

Intelligent edge

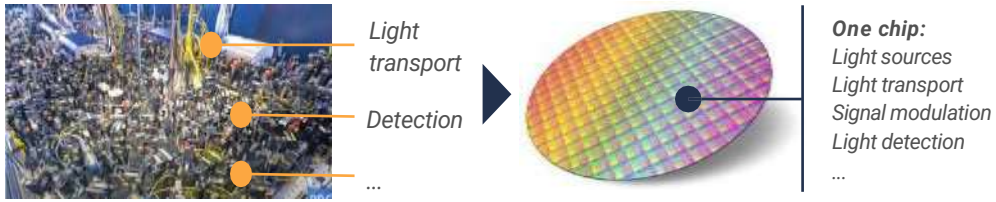
Gaming, simulation & visualisation

Integrated photonics – Key enabling Technology

Challenges driving change…

… requiring Integrated photonics

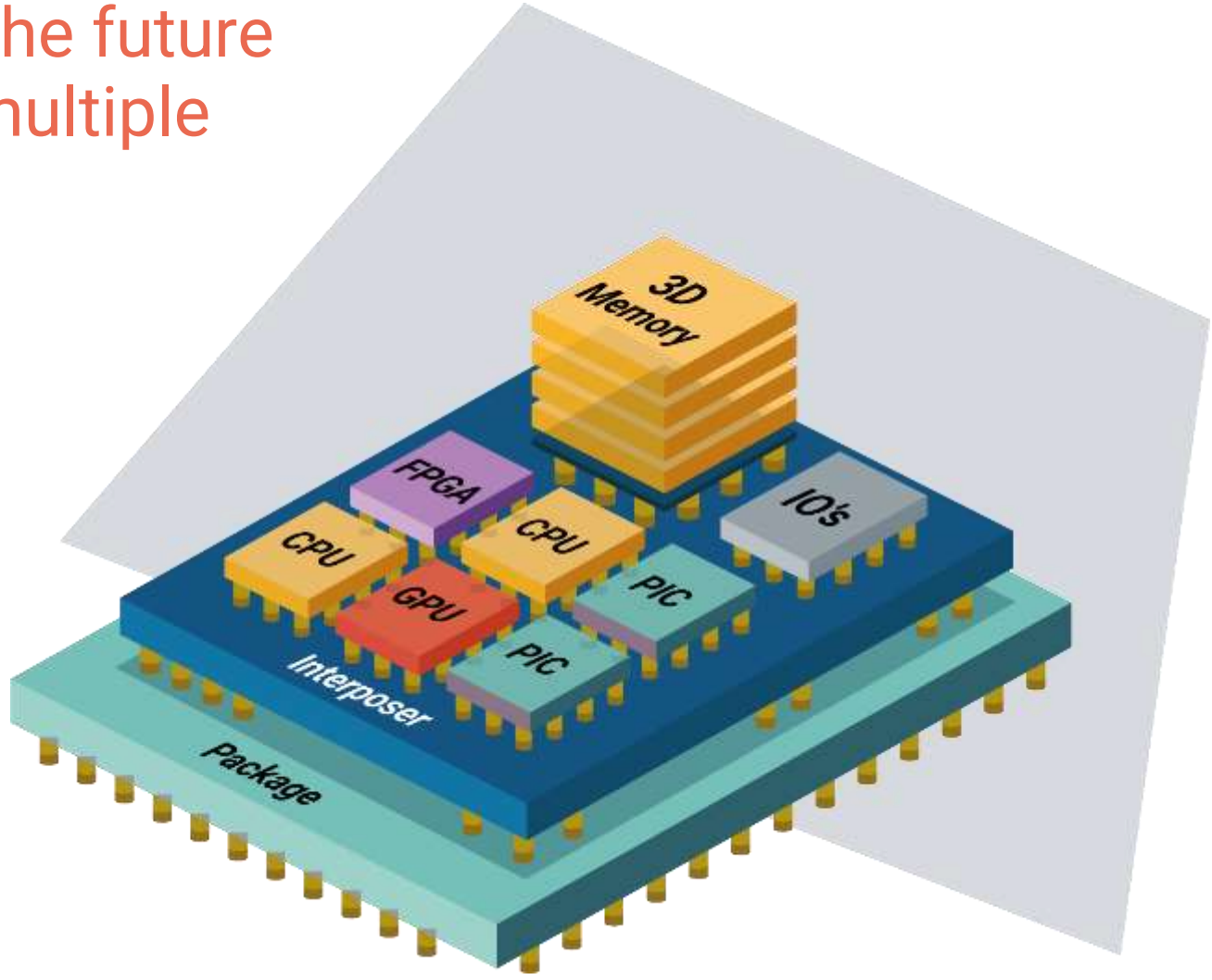
Photonic integrated circuit (PIC) integrate multiple photonic functions, like electronic ICs but with light waves instead of electrons…



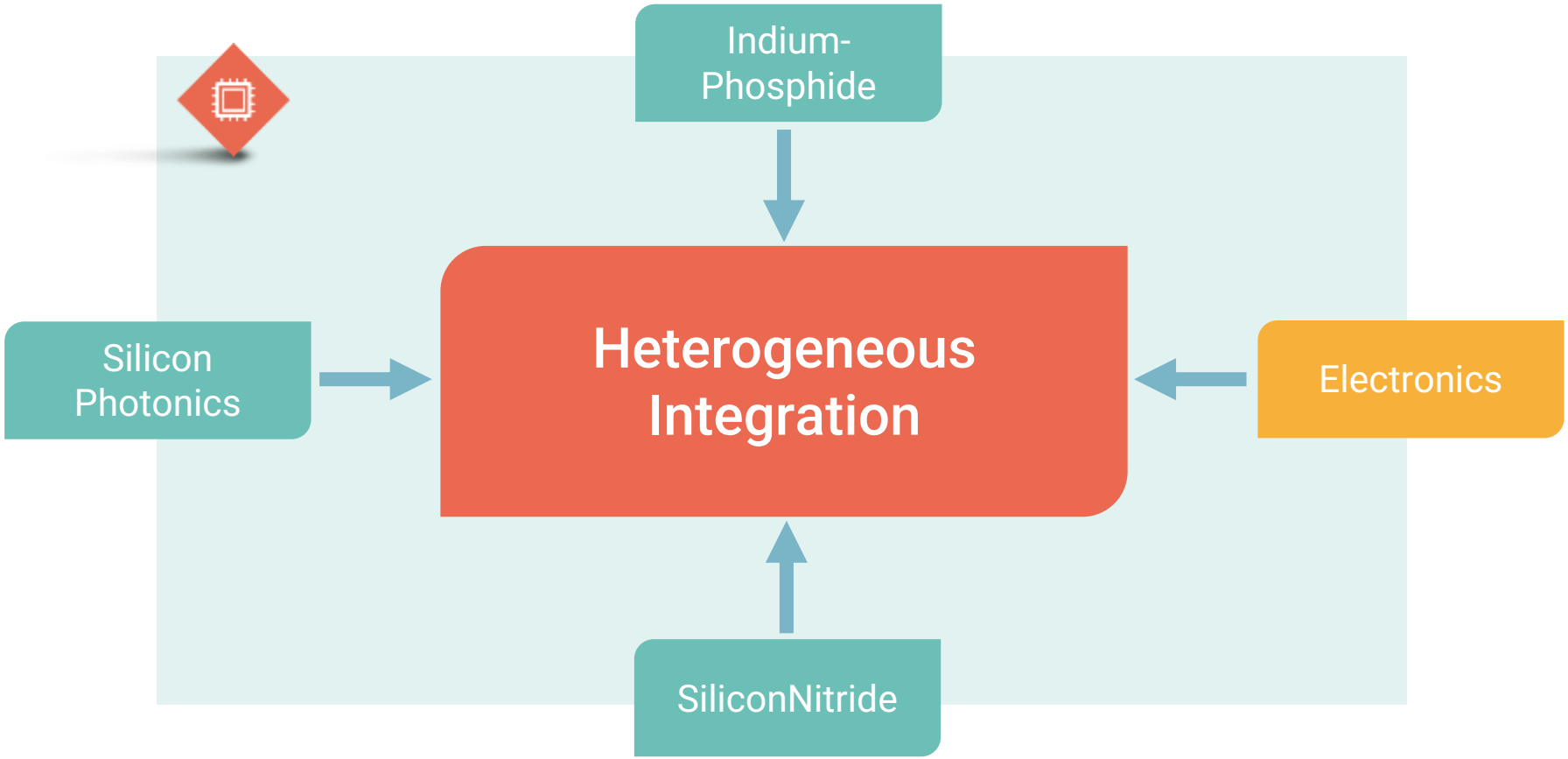
Which has many advantages over discrete photonics or electronic ICs:

- More data
- Increased speed
- Increased reliability
- Less power consumption
- Lower cost
- Small form factor

The system of the future will consist of multiple technologies

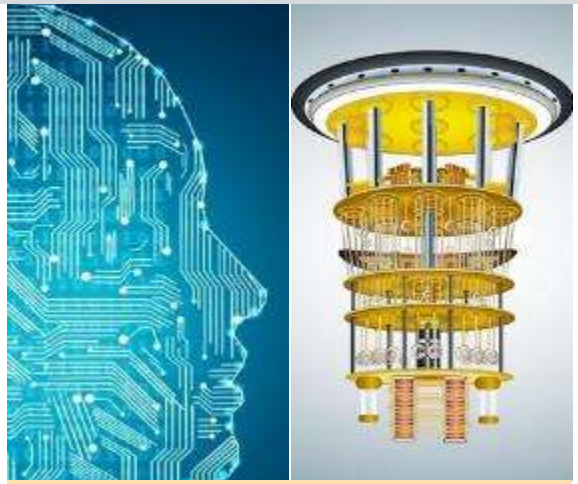


Combining platforms: a stronger solution



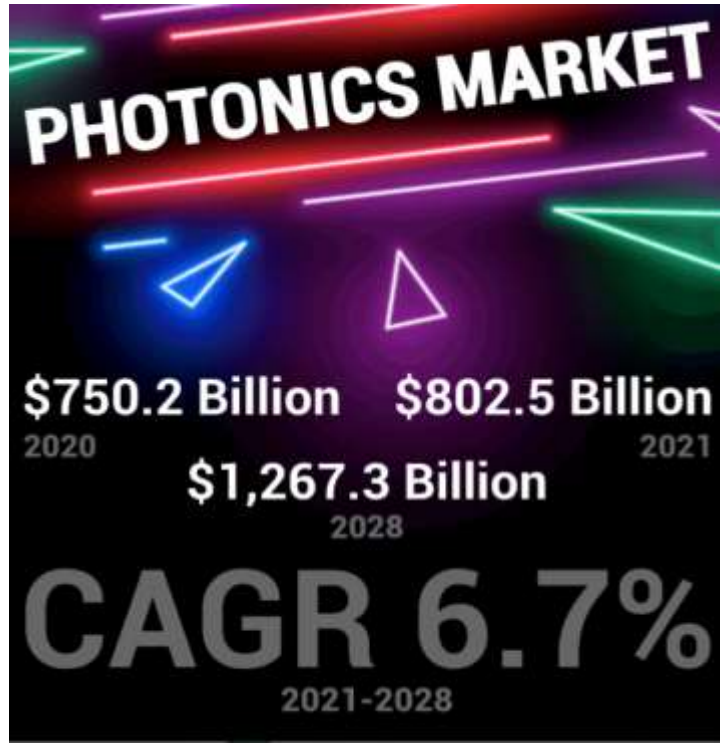
We design, develop and manufacture innovative solutions with PIC technology

Opening the door to new applications and markets

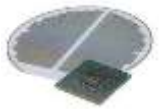
Communication	Sensing	Computing
Now	Emerging	Future
		
Datacom and 5G+	Continuum-of-Care Food and Agriculture Infrastructure & Transportation	AI, Neuromorphic Quantum

Integrated Photonics is part of two fast-growing markets: Semicon & Photonics

- Semicon and Deep tech is critical for European technological sovereignty and autonomy
- Integrated Photonics is part of the EU Chips Act and identified as key enabling for EU Semicon goals
- Integrated Photonics is material for Quantum communication and computing



Value creation in supply chain is identical to semicon industry

	Chip design	Chip manufacturing	Packaging	System integration
				
	Fabless designers	*Foundries*	*Packaging companies*	*Computer, Electronics, Automotive, Industrial, etc.*
Semi-conductor	Qualcomm	tsmc	Amkor Technology	SIEMENS
	Vertically integrated device manufacturers		SAMSUNG	
Photonics	BRIGHT Integrated PHOTONICS	SMART PHOTONICS	phix	LUMINAR
	Vertically integrated device manufacturers		LUMENTUM	

Highly comparable design, process and economic principles apply

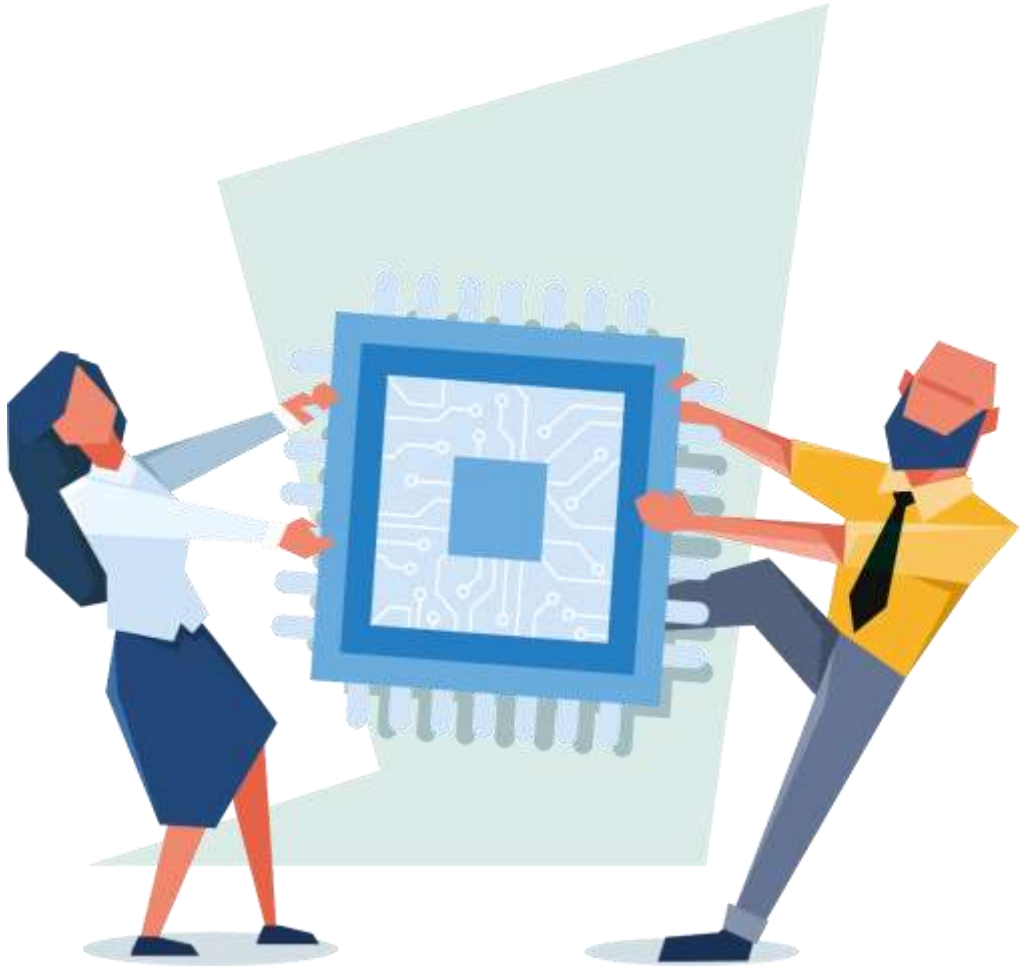
Example companies, not exhaustive.

PhotonDelta is an ecosystem for integrated photonics

- Supply-chain
- Research
- Financing
- Market
- Human capital

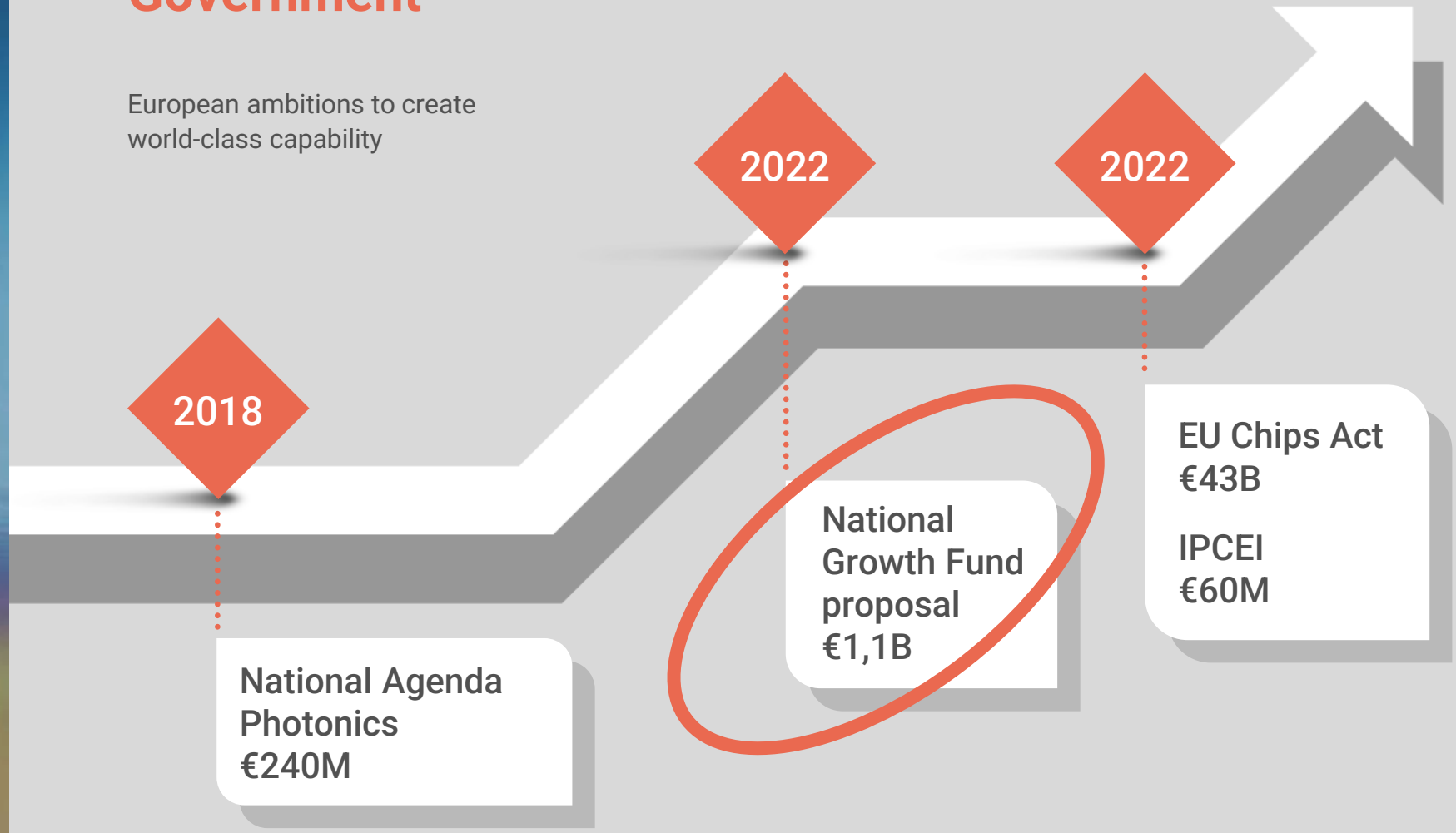
Geopolitics drives Europe to strongly invest in photonics

Recent shortages have exposed supply-chain vulnerability:



Strong Support from the Dutch Government

European ambitions to create world-class capability



Strategy is built upon three core pillars

Ecosystem development

a. Talent programme
b. Startup support
c. Shared innovation facilities
d. Internationalisation
e. Programme management

Application technology

a. Design library
b. Functional optimisation & combination

Industrialisation & scaling

a. Hybrid integration
b. Process optimisation
c. Scalability

Building product roadmaps with industry

Biosensing

Automotive

Data/telecom

Agri food

De leading applications in NGF program:

- ❑ LIDAR-module for automotive
- ❑ Biosensing module for health devices
- ❑ Optical transceivers for data- and telecom
- ❑ Integrated spectrometer for agrifood
- ❑ Fibre Optic Sensing for continuous monitoring of infrastructure, energy management systems, critical human functions, etc.

Applications drive the industry

- Make your idea happen, challenge it and start your business
- PhotonDelta supports in many ways
- As of 2023: EUR 60Mio
- EUR 250 – 500K funding for startups developing Integrated Photonics enabled applications

With the help of our industry network

Europe

Yili · Rabobank · ellips · Microsoft · HORTILUX · certhon · Besi · AVANTES · imec · BOSCH · THALES · VTT · ZEISS · Solynta · TNO · Tyndall · ASML · OSRAM · BÜHLER · PHILIPS · Grodan · NXP · PHILIPS · LIGENTEC · esa · NOKIA · signify · kpn · TERNA ENERGY · MBDA · veoneer · VDL · AIRBUS · GrowPura

North America

intel · NASA · IBM · AIM PHOTONICS · IBM · Google · MIT · OPTICA · MRSI · Microsoft · Viasat · PI · Infinera · DOW · stryker · aurora

Asia

TSMC · NTT · MITSUBISHI · amf · SURUGA SEIKI · DIMUTO · 鹿島

Wrap up PhotonDelta

- A Dutch ecosystem for integrated photonics in the heart of Europe
- Supply chain: from design to assembly
- Open invitation to innovate in and with this ecosystem
- Invite to international industry to join
- Start your business