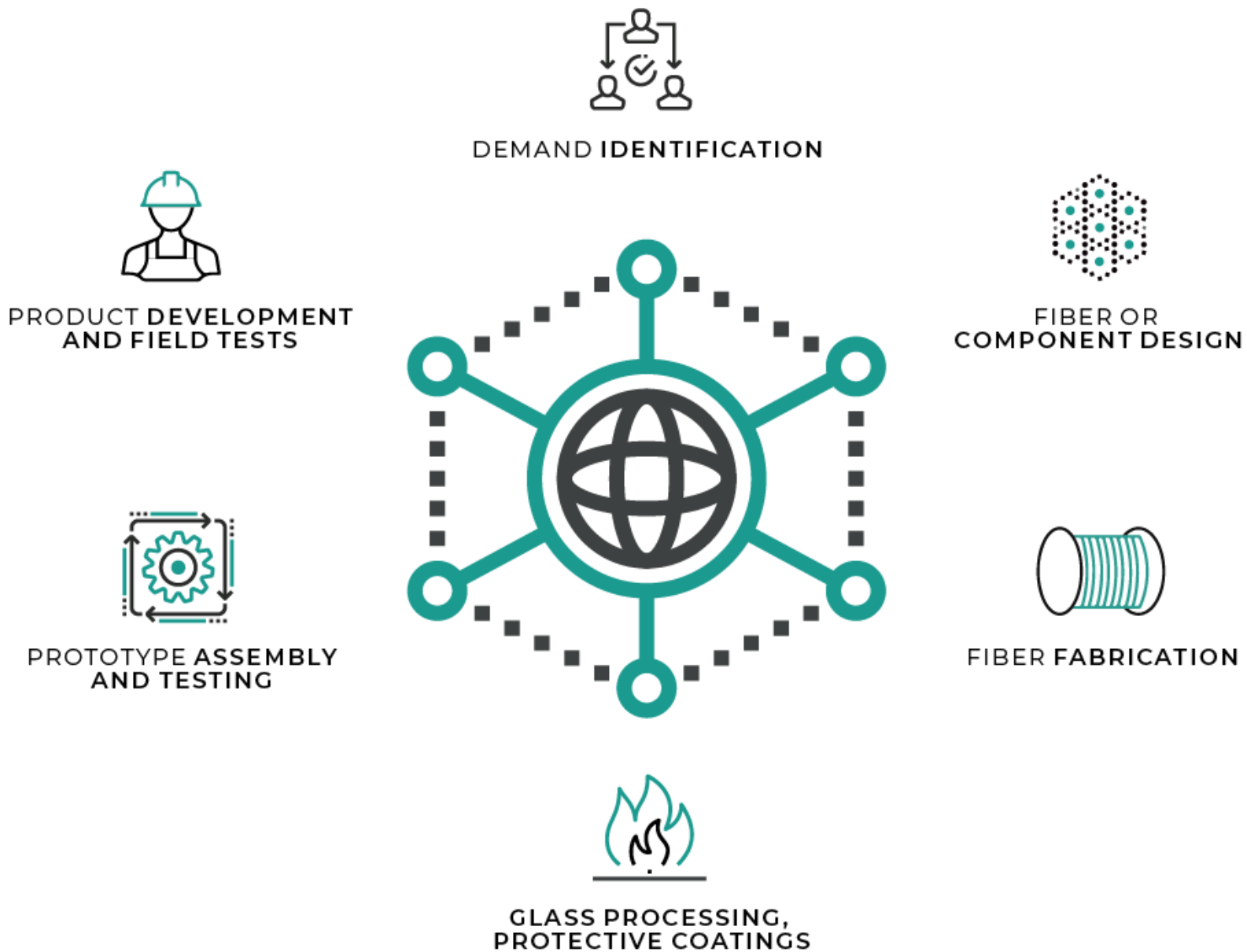




OPTICAL FIBERS FOR CANCER DIAGNOSTICS

Alejandro Dominguez, PhD | Senior R&D Engineer
Marek Napierala, PhD | R&D Manager
ERP Event in Stockholm | June 12th, 2018

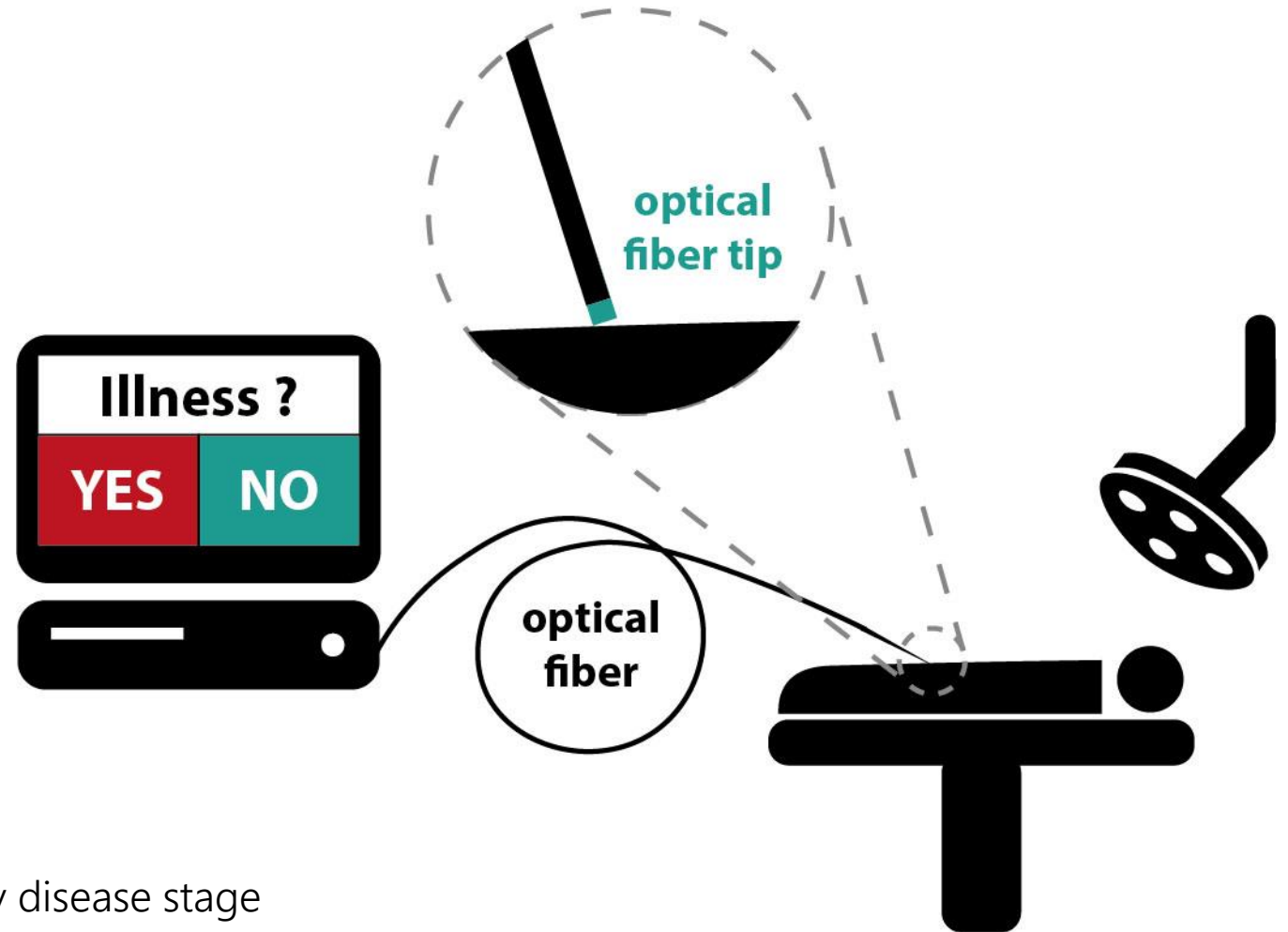
DESIGN **FUTURE** WITH PHOTONICS





OBJECTIVES

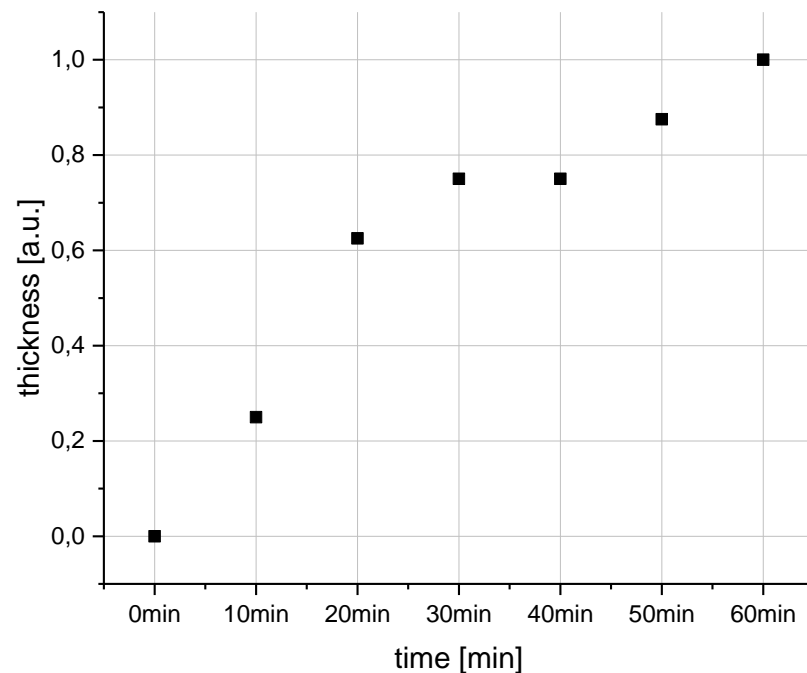
- Alternative for biopsy
- Fast response
- Not expensive
- Minimally invasive
- In vivo diagnostics of breast cancer at early disease stage



BIOMARKER DETECTION – Results – old type of microprobe



- Immunoglobulin G from rabbit serum
- Specific anti-immunoglobulin from goat serum - coating
- Sensitivity of 4 $\mu\text{g/ml}$ (in 1 hour)



Dual-core all-fiber integrated immunosensor for detection of protein antigens

Karol Wysokiński^{a,*}, Dawid Budnicki^a, Janusz Fidelus^a, Łukasz Szostkiewicz^a, Łukasz Ostrowski^b, Micha Murawski^b, Marcin Staniszewski^c, Magdalena Staniszevska^c, Marek Napierała^a, Tomasz Nasiłowski^a

^a InPhoTech Sp. z o. o., ul. Słomińskiego 17/31, 00-195 Warszawa, Poland

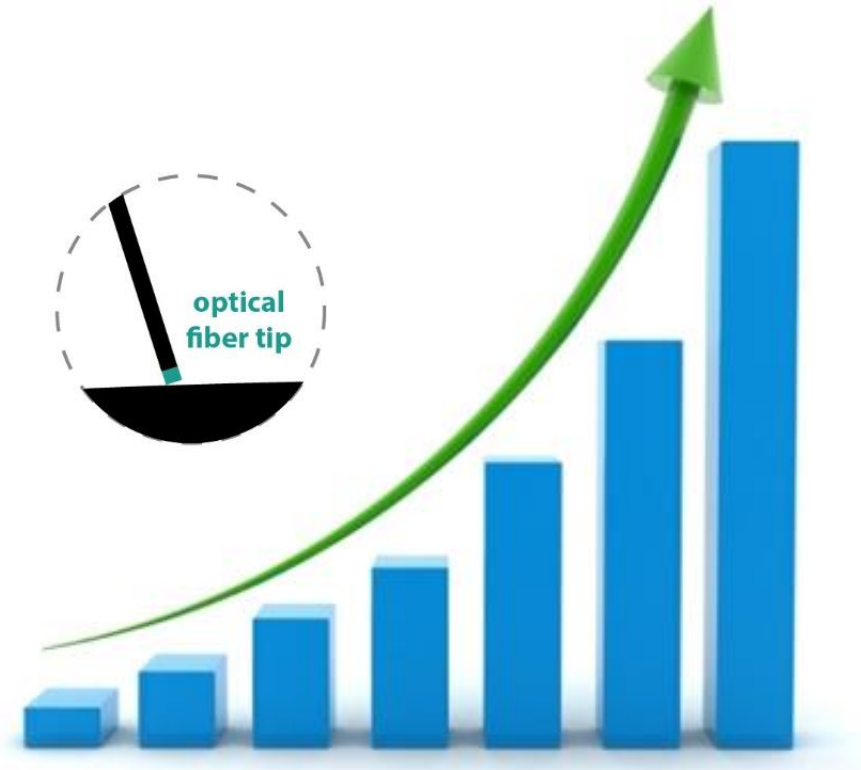
^b Polish Centre for Photonics and Fibre Optics, Rogoźnica 312, 36-060 Głogów Małopolski, Poland

^c SDS OPTIC Sp. z o. o., ul. Ceramiczna 8a, 20-150 Lublin, Poland

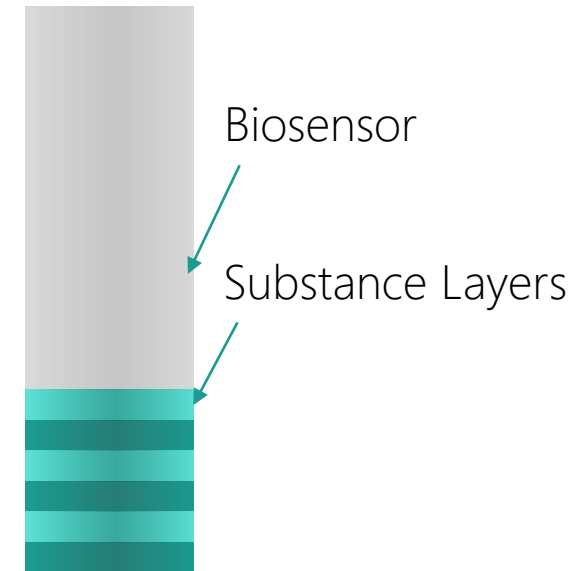
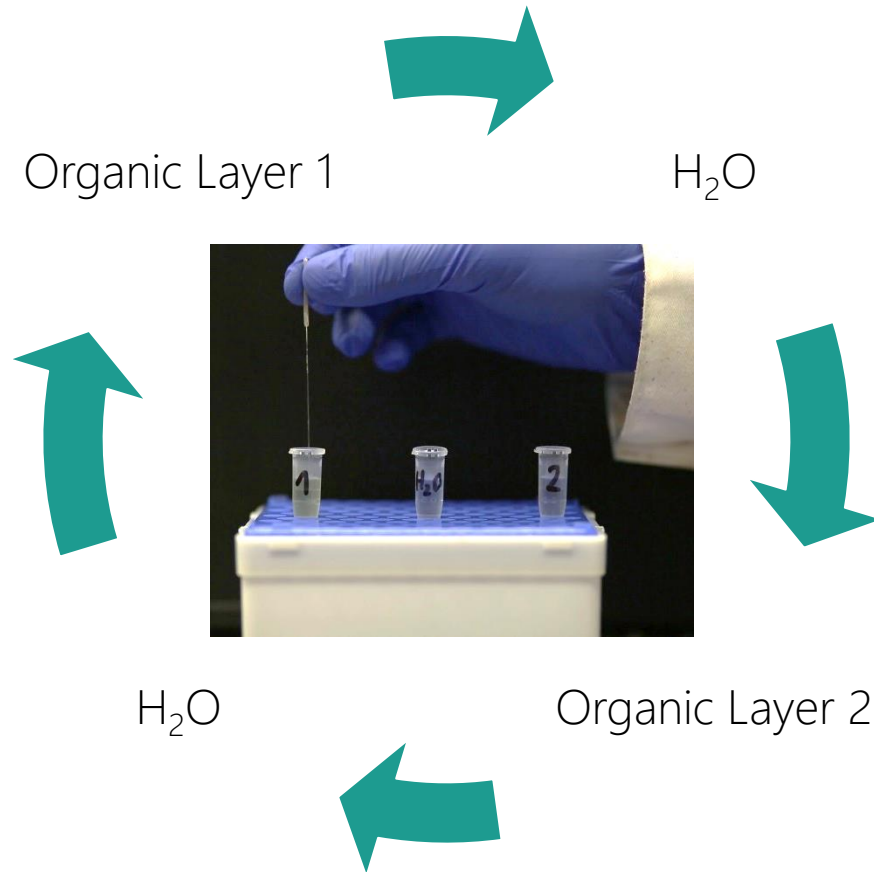


Our Product: Fast and Sensitive Biosensor - new type of microprobe

- Higher sensitivity (down to ~100 ng/ml → 1 h)
- Extremely short fabrication time
- Adapted to mass production
- Low Cost



Organic Layer Measurement



- cationic & anionic layers
- thickness: 2,3 – 8,6 nm

Summary

Problem:

Cancer diagnostic

The annual incidence of breast and prostate cancer is 3 500 000 cases in 5 years

Present solution:

Biopsy

Our solution:

Optical fiber sensor

Added value:

Alternative for biopsy
Fast response & not invasive
Not expensive
In-vivo diagnostics

*Market size for biopsy:
European Market*

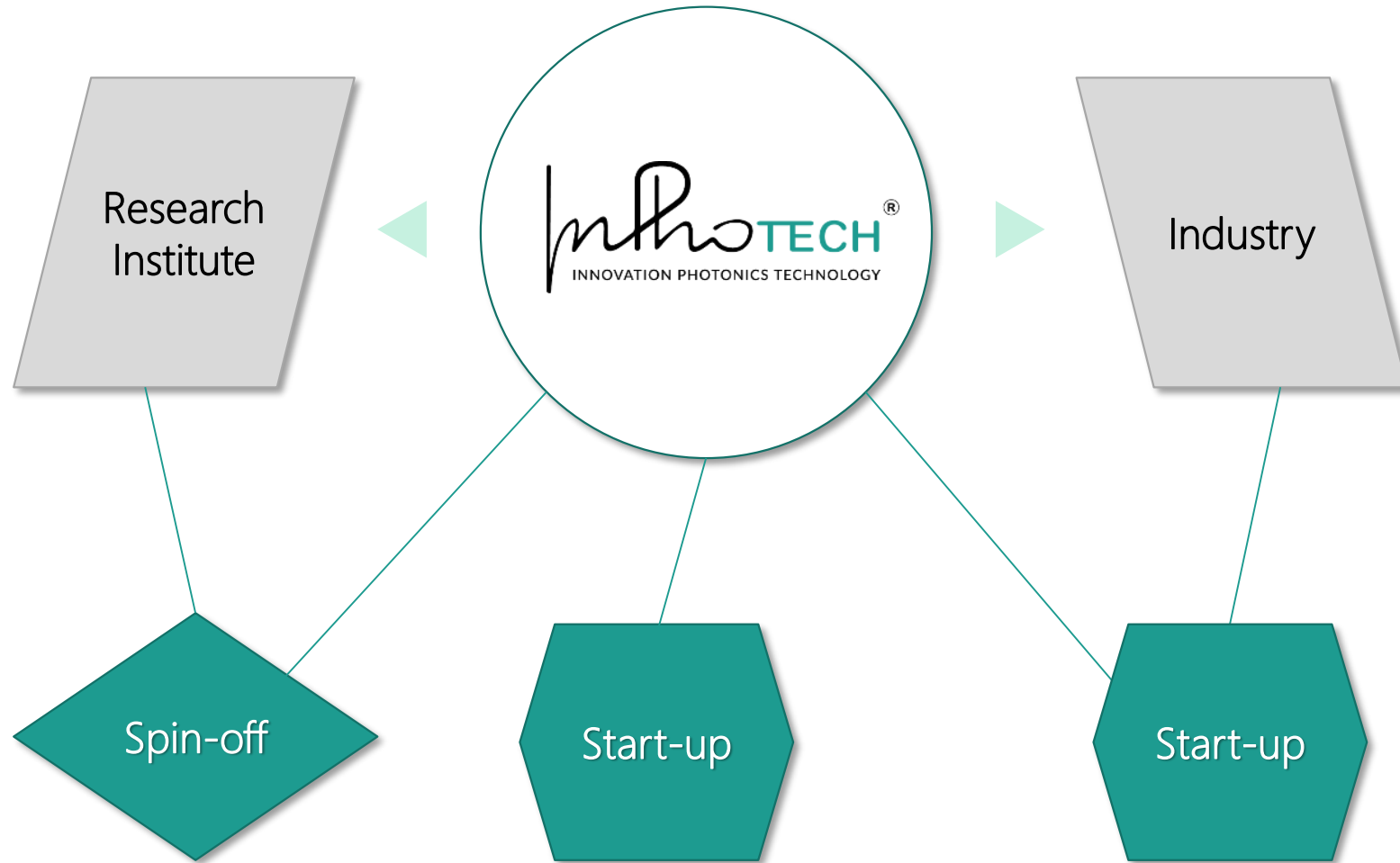
430 M € in 2013
~ 700 M € in 2020

Market entry:

Oncological clinics
Hospitals with oncological departments
General healthcare practitioners



Business Model: Enabling Transfer of Technology





SUPPLIERS

PARTNERS

- Foundations
- Research institutes
- Universities
- Companies



CLIENTS

- Telecom
- Healthcare
- Mining
- Oil & Gas
- Transportation
- Aerospace
- Defense
- Civil Engineering

SUBSIDIARIES





DESIGN **FUTURE** WITH PHOTONICS

Thank you!

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