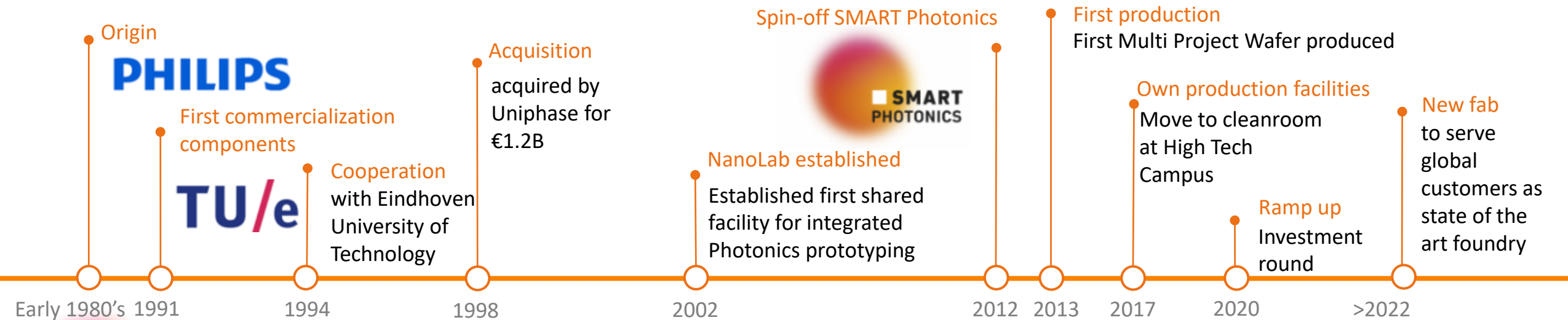


LIDAR TECHNOLOGY AND APPLICATION
EPIC online meeting- April 2020

Nazanin M. Shafiee
SMART Photonics

MORE THAN 30 YEARS OF TECHNOLOGY HERITAGE

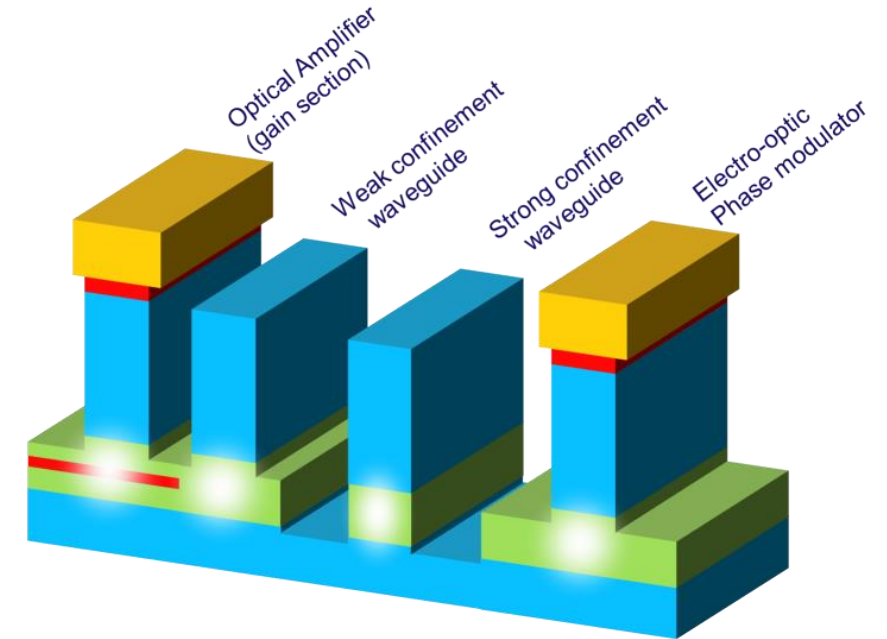


WE MAKE PHOTONIC INTEGRATED CIRCUITS

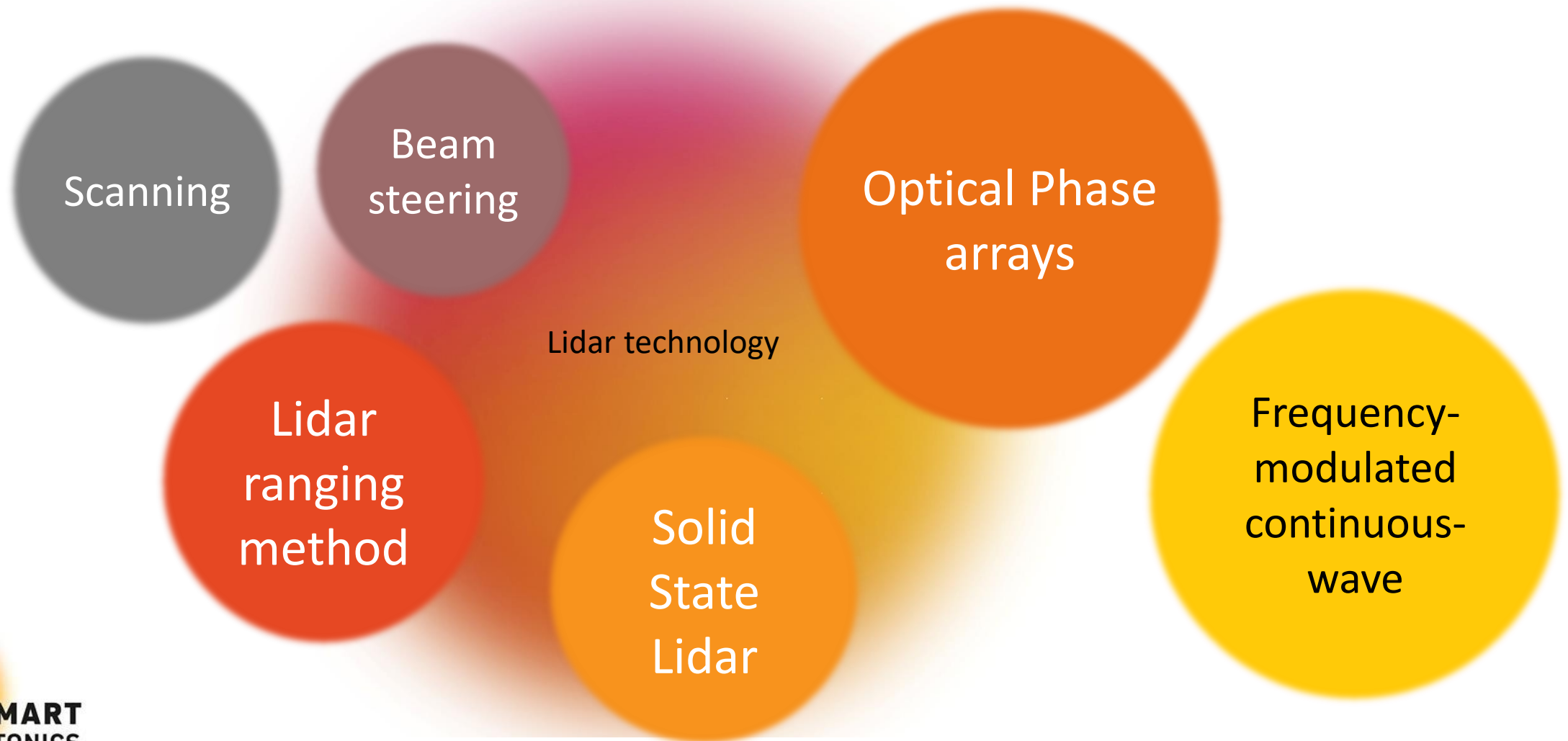
- Pure play InP foundry
- Custom design wafers
- Extensive portfolio of high-performance design/process building blocks

INP BASED INTEGRATION IS KEY TO SUCCESS!

- Photonic integration needs light sources and amplification:
 - InP offers monolithic integration of all functionalities!
- Butt-joint integration: no compromise between active and passive components
- Full on-wafer electrical testing
- Mature technology: no compromise on laser reliability
- Enabler for low-cost integrated circuits



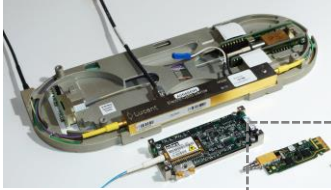
WHAT IS YOUR PERFECT LIDAR?



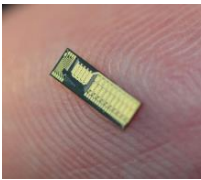
SNAPSHOT OF REFERENCE CASES

Enable 5G

Previous generations:



New generation:



Design challenge:

- More data and higher data rates to base station
- Harsh environment -40°C to 85°C
- Low Power dissipation and long reach: 40km

SMART Solution:

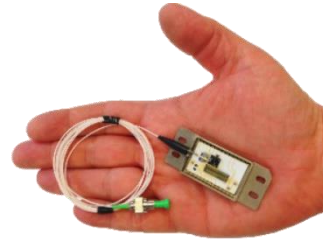
- PIC enables tunable laser at cost of discrete laser**
- Much smaller with enhanced performance**
- Full integration of light sources and modulators**
- Route to low-cost high bandwidth >>100Gb/s**

Sensing within Aerospace

Original:



New:



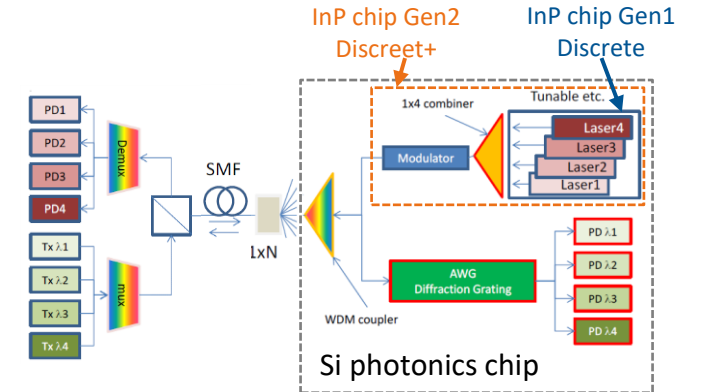
Design challenge:

- Original solution is too large, fragile and not in-flight

SMART Solution:

- Much smaller**
- 10,000 times more sensitive**
- Lower power consumption**
- Lower cost**
- Full integration allows continuous safety monitoring**

Enable Fiber to the Home



Design challenge:

- Multiplexing to accommodate traffic growth
- Needs to be compact, tunable, low cost and reduce power consumption

SMART Solution:

- Gen1 discrete within Si photonic chip
- Gen2 discrete+ component to:
 - Add functionality** (incl. modulator)
 - Reduce power loss**
 - Simplify integration with Si chip**

NEXT STEPS

What can we offer you?

- Indium Phosphide platform
- Rapid prototyping & manufacturing of optical chips
- Strong process technology foundation and know-how
- Extensive portfolio of high-performance design/process building blocks

What can you offer us?

- Ambitious companies
- Partners to develop new applications
- System integrator partner
- Collaborations in research projects



**■ SMART
PHOTONICS**

Independent InP Foundry