Rigorous empirical research on intellectual property

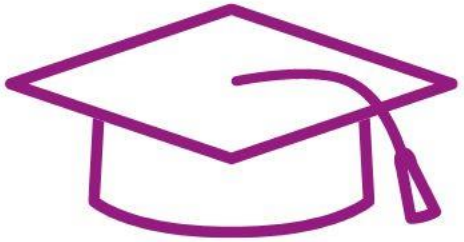
From Semiconductor to Embracing a Better Life: IP Models for an Innovation Ecosystem at IMEC

Host: Ellen Deuter

Speakers: Deepak George and Petra Kurzawski

What do we do?

Non-Profit Activities



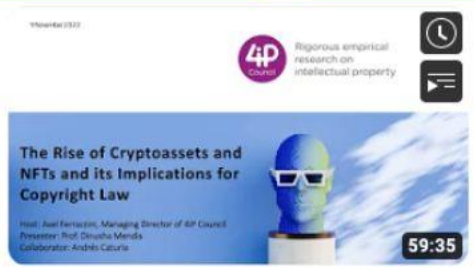
High Quality Academic Research

Education

Promotion Innovative SMEs

Free materials on...

1. Summaries of papers, studies, guides and case law
2. Interactive graphics
3. Interviews to inspire SMEs
4. Webinars



4iP Council Webinar: The Rise of Cryptoassets and NFTs and its Implication...

Workshop 'IP & Protection' - Collaboration with Global Biotech Revolution

Features

Exoskeletons to help children with neurological diseases

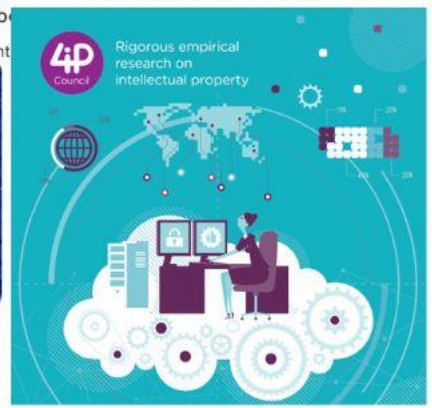
01 February 2022

Interviewing Elena García Armada, CEO at Marsi Bionics

Elena García Armada (CEO) and Manuel Prieto (CTO). Photo from Javier Valeiro.

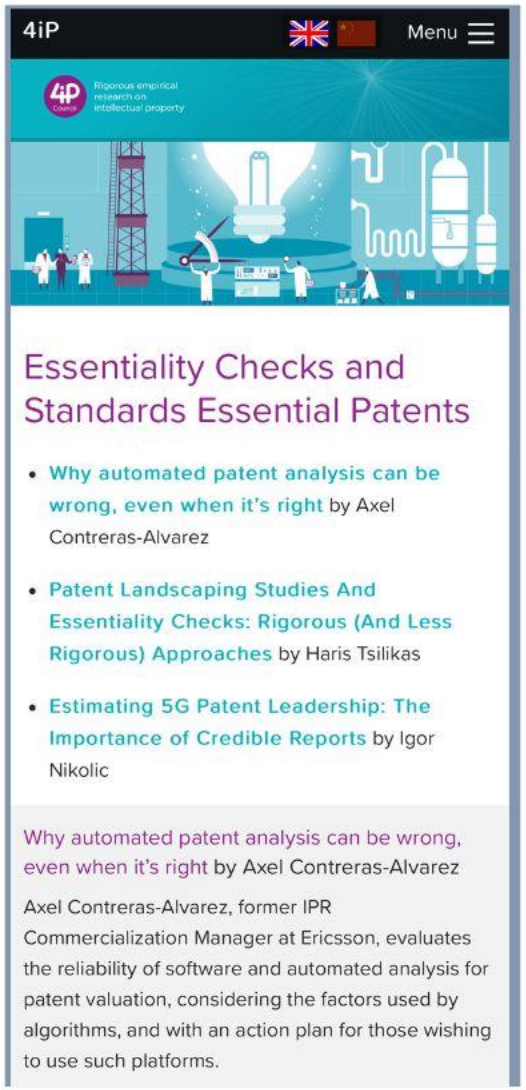
Was the exoskeletons' technology something that you were drawn to from the b

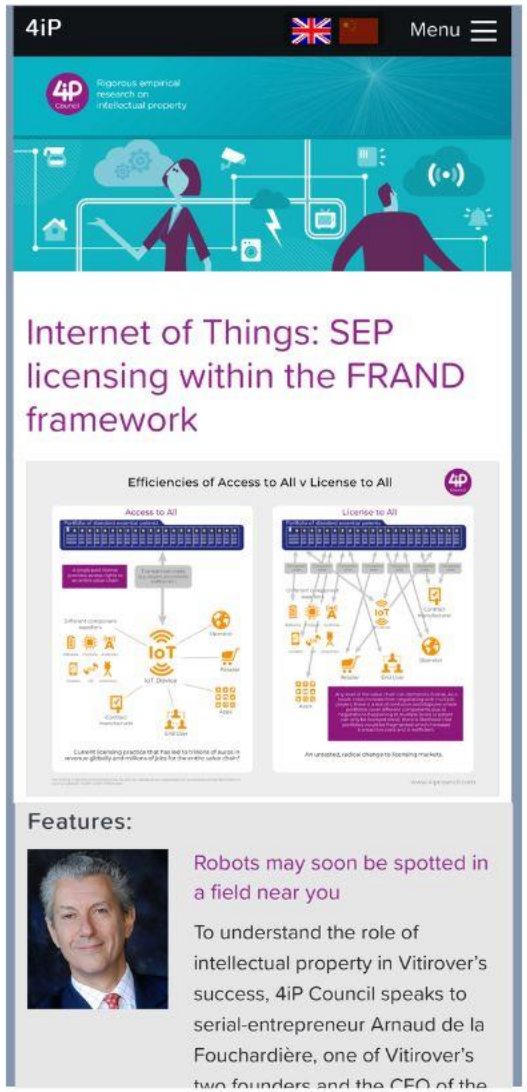
I spent



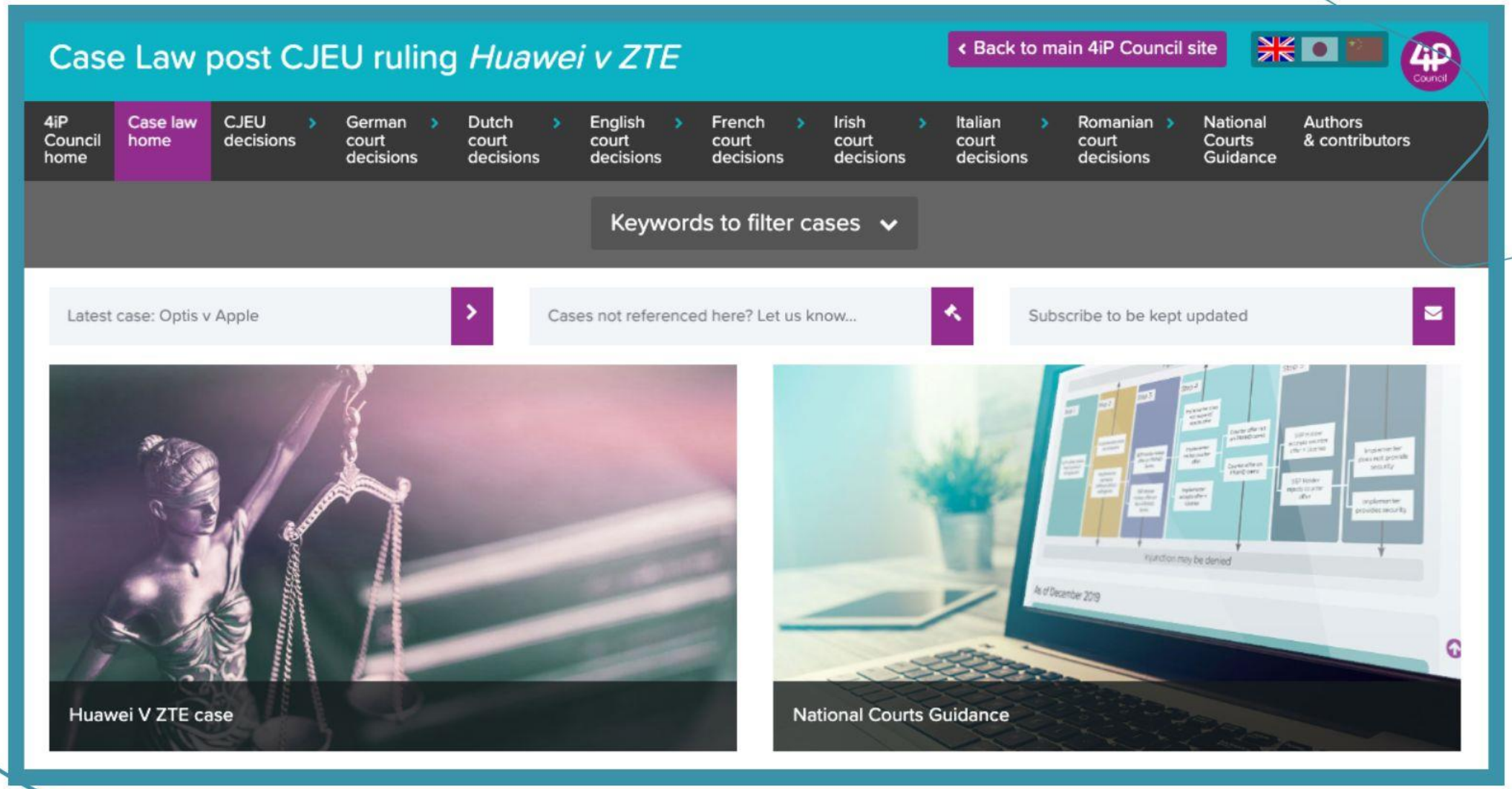
The Value of Standard Essential Patents and the Level of Licensing

Bundle pages





Case Law Area



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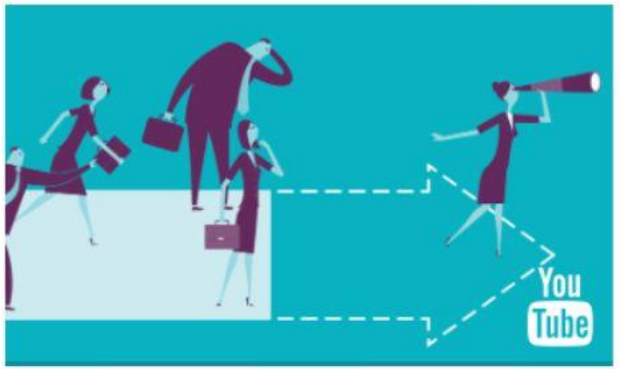
Connect with 4iP Council on LinkedIn >



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Follow @4ipcouncil on Instagram >

FROM SEMICONDUCTOR TO EMBRACING A BETTER LIFE: IP MODELS FOR AN INNOVATION ECOSYSTEM AT IMEC

PETRA KURZAWSKI

IP Business & Intelligence Specialist, IMEC vzw.

DEEPAK GEORGE

IP Business & Intelligence Specialist, IMEC vzw.

Content

- Brief Overview on IMEC
- IMEC Innovation Platform(s)
- R&D Life Cycle
- IP Considerations for Collaborations
- IMEC Offering
- Application Domain Examples

How IMEC started

1984

- Established by state government of Flanders in Belgium
- Non-profit organization
- Initial investment: 62M€
- Initial staff: ~70


The Netherlands
Wageningen/Nijmegen – OnePlanet Research Center
Belgium
Leuven (HQ)
The Netherlands
Eindhoven – Holst Centre
USA
San Francisco
USA
Berkeley
USA
Orlando
Japan
Osaka
Japan
Tokyo
China
Shanghai
Taiwan
Hsinchu
India
Bangalore

imec

As a **world-leading R&D** hub, we aspire the impossible and aim for **disruptive innovation**. We maximize societal impact by creating **smart sustainable solutions** that enhance **quality of life**.

At imec, we shape the future.

WORLD-CLASS INFRASTRUCTURE

> 12,000 M²

CLEANROOM

CAPACITY

MORE THAN

5,500 SKILLED PEOPLE

FROM OVER 95 NATIONALITIES

> 800 PhDs

WITH 5 UNIVERSITIES

> 50 Postdocs

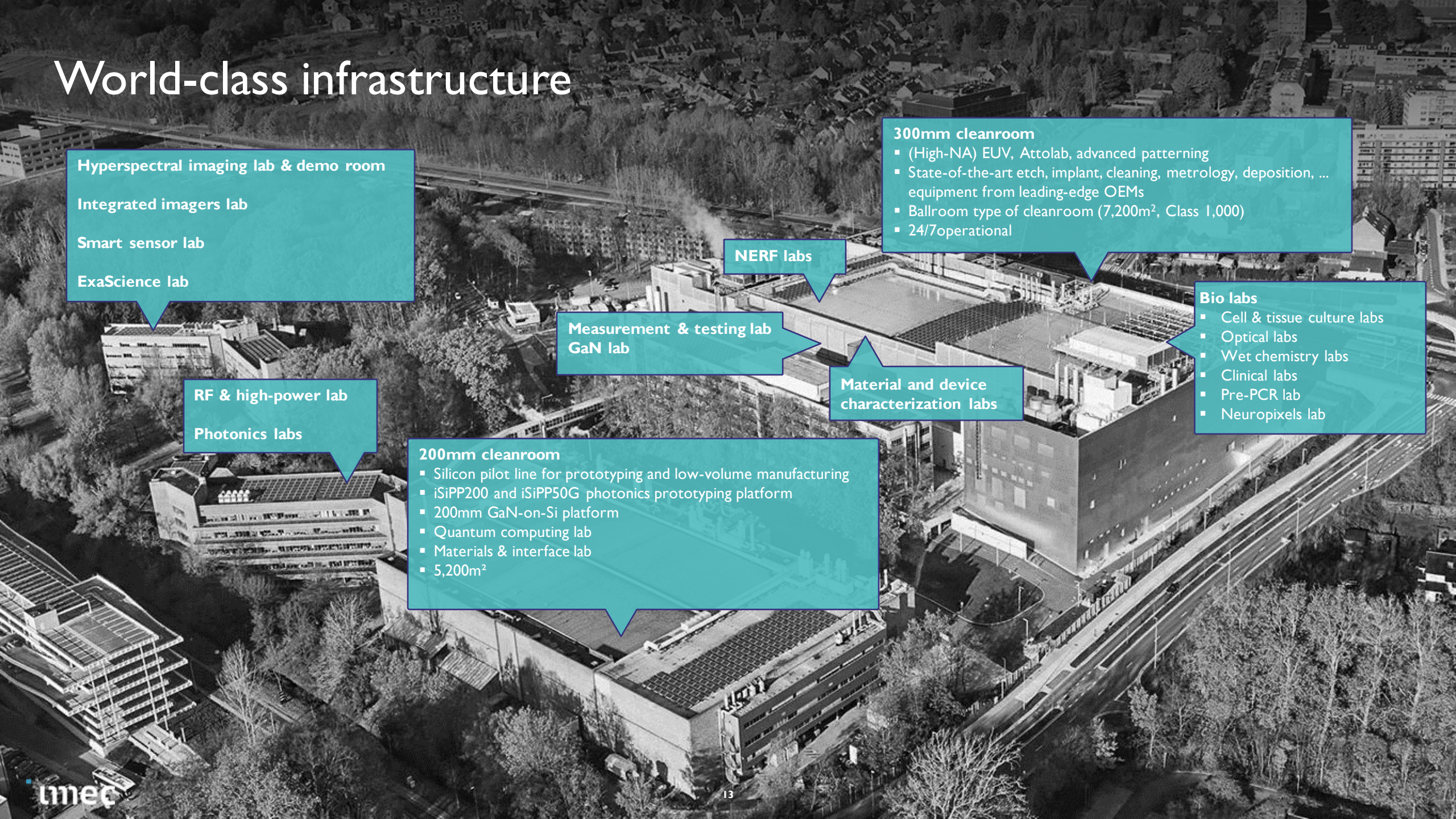
WITH 5 UNIVERSITIES

A

TRUSTED PARTNER

FOR COMPANIES, STARTUPS & ACADEMIA

World-class infrastructure



Distributed R&D groups at Flemish universities

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Imec drives the semiconductor roadmap

Innovation platform

APPLICATION DOMAINS

HEALTH

MOBILITY

CITIES

INDUSTRIES

ENERGY

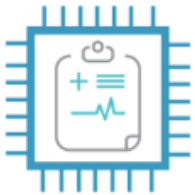
EDUCATION

INFOTAINMENT

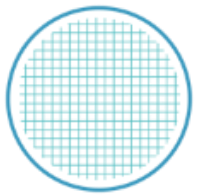
AGROFOOD

SEMICONDUCTOR & SYSTEM TECHNOLOGIES

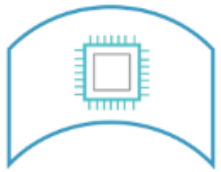
CORE CMOS



SENSOR TECHNOLOGY



FLEXIBLE TECHNOLOGY



- PATTERNING TECHNOLOGY
- LOGIC TECHNOLOGY
- MEMORY TECHNOLOGY
- INTERCONNECT TECHNOLOGY
- 3D INTEGRATION OPTICAL I/O

DIGITAL TECHNOLOGY PLATFORMS

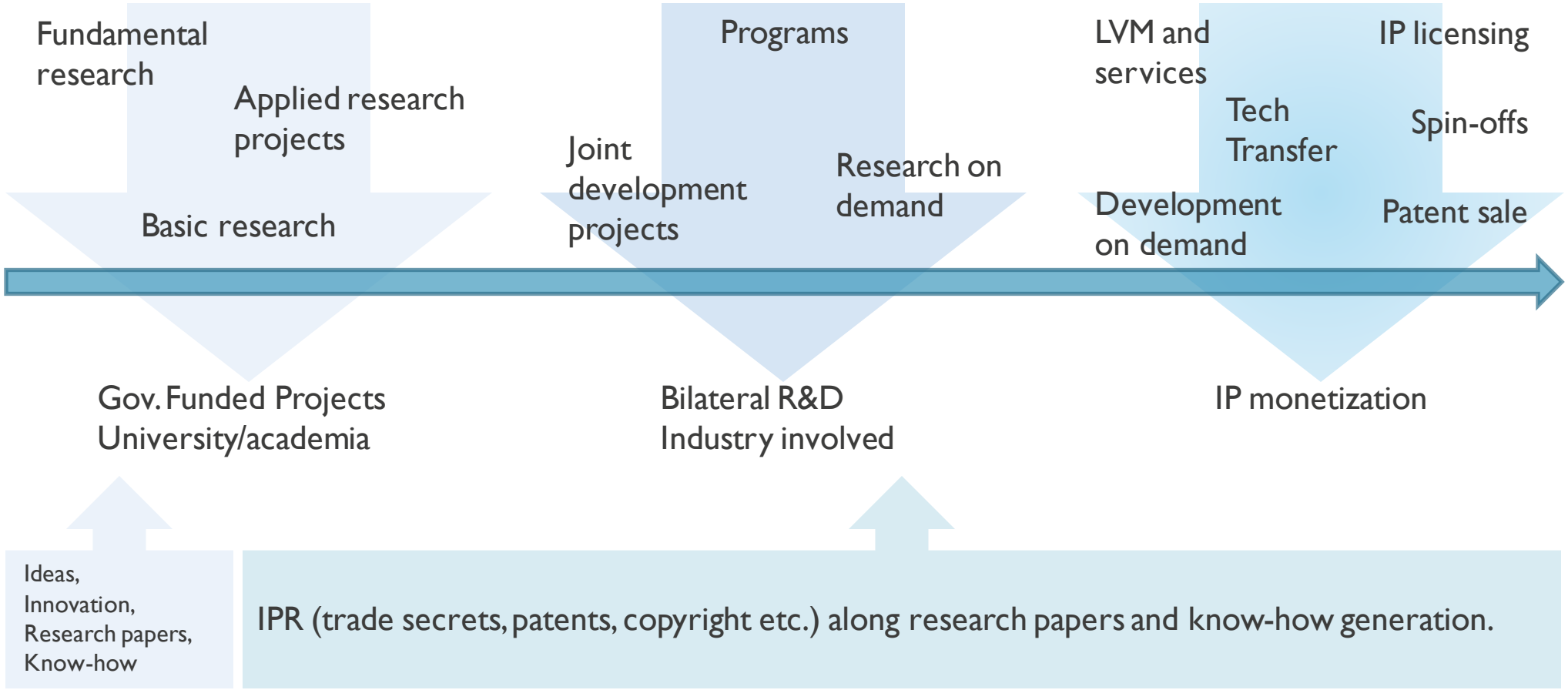
NETWORKING

DIGITAL PRIVACY & SECURITY

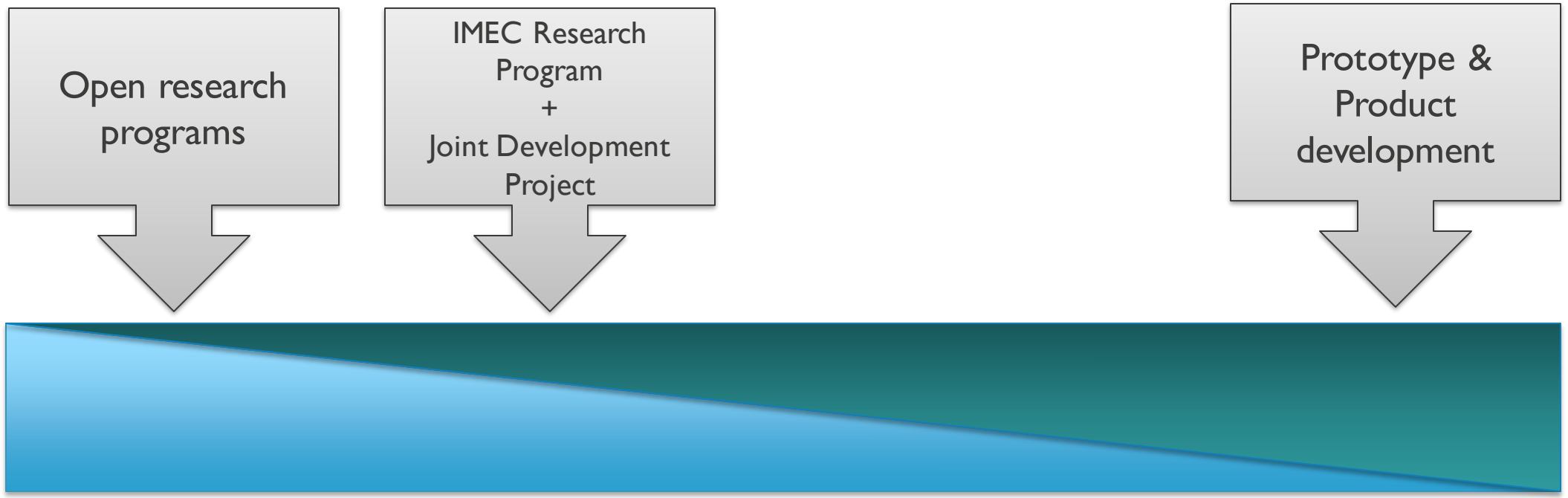
SOFTWARE & DATA MANAGEMENT SKILLS


UNIVERSITIES
EUROPE
IMEC
GOVERNMENT
INDUSTRY

R&D Life Cycle



Flexible R&D models



Shared IP — Technology and knowledge transfer — Proprietary / Exclusive IP

Shared Cost & Risk — Full Cost

Generic building blocks & pre-competetive — LVM

public

IP Considerations

KEY QUESTION:
WHAT IS THE CONTEXT ?

KEY ATTITUDE:
DON'T ASSUME !

SCOPE

- WHO IS THE PARTNER
- TYPE OF COLLABORATION
  - TERM
- WHERE IN R&D LIFE CYCLE

IP ASPECTS

- WHAT TYPE OF IP FOR BACKGROUND* & FOREGROUND**, E.G. DATA, HARDWARE, SOFTWARE, KNOW-HOW
  - GENERIC OR SPECIFIC IN NATURE?
  - DEFINITIONS
- THIRD PARTY IP INVOLVED/NEEDED?
  - LICENSING IN?
- ASSIGNMENT OF OWNERSHIP FOR FOREGROUND
- LICENSES NEEDED BY OTHER PARTY ON BACKGROUND & FOREGROUND
  (I) DURING AND
  (II) AFTER COLLABORATION
  - ACCESS RIGHT / LICENSE RESTRICTIONS?
  - LICENSE FEE (LUMP-SUM / ROYALTIES)
- FILING & MAINTAINING FORMALITIES, E.G. FOR JOINT PATENT APPLICATION

OTHER

- CONFIDENTIALITY
- PUBLICATION
- REPRESENTATION / WARRANTIES
  - SPECIAL PROVISIONS
- EXPORT CONTROL
- LIABILITY
- SURVIVAL

* *Background = IPR & know-how prior to an engagement of a research project*
** *Foreground = Results, IPR & know-how that will be developed during the performance of the research project*

Basic Guiding Principles

Avoid IP blocking for IMEC and its partners

Secure IP rights for IMEC and its partners

Freedom to operate for IMEC (and its partners)

What IMEC offers

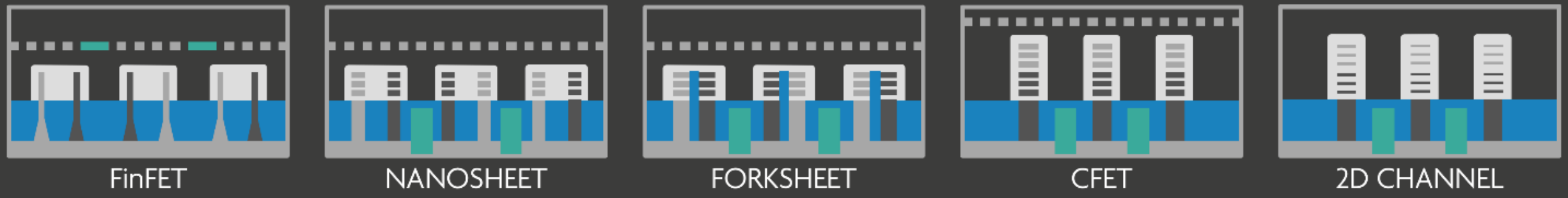
R&D
COLLABORATION

DEVELOPMENT

VENTURING
STARTUPS & FUNDS

Scaling roadmap

"3nm" → "2nm" → "1nm" → "sub-1nm"

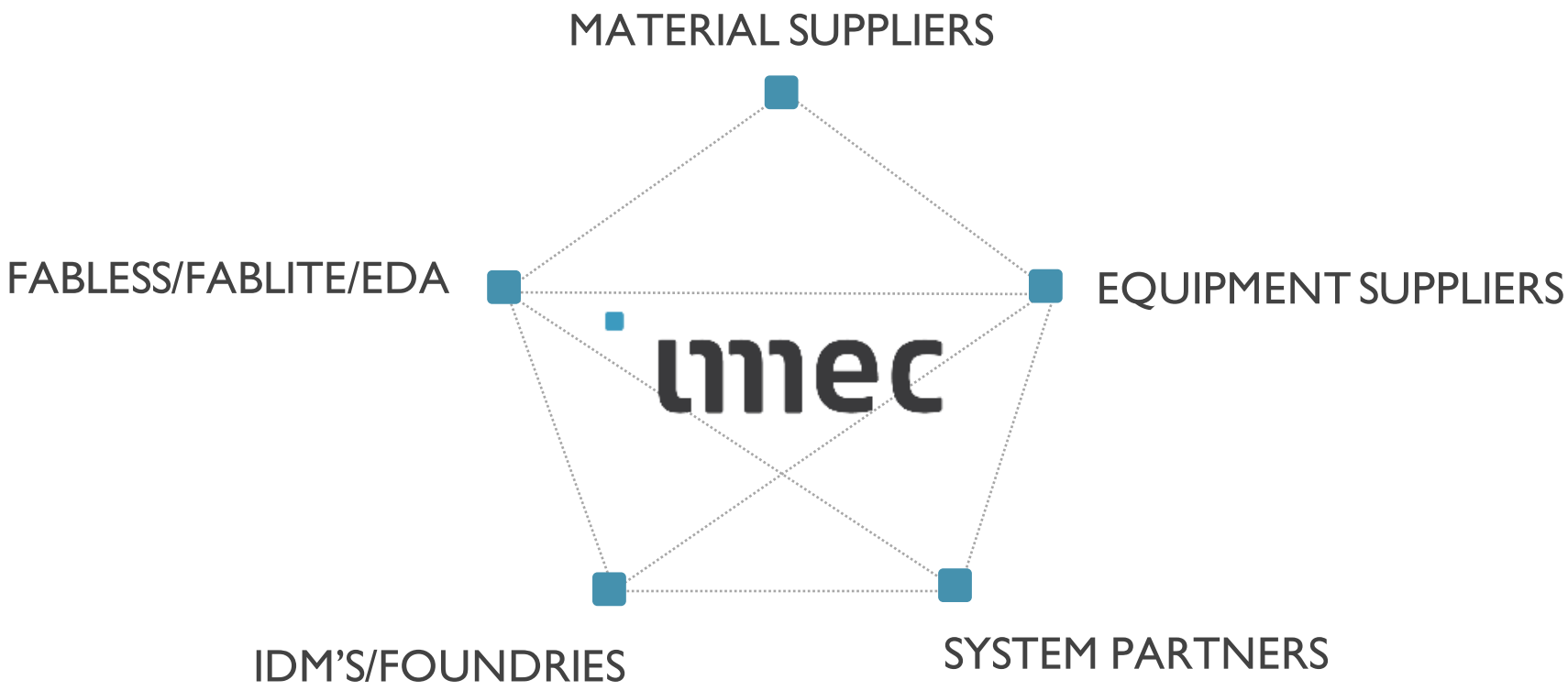


Imec framework that allows companies to make more sustainable manufacturing choices

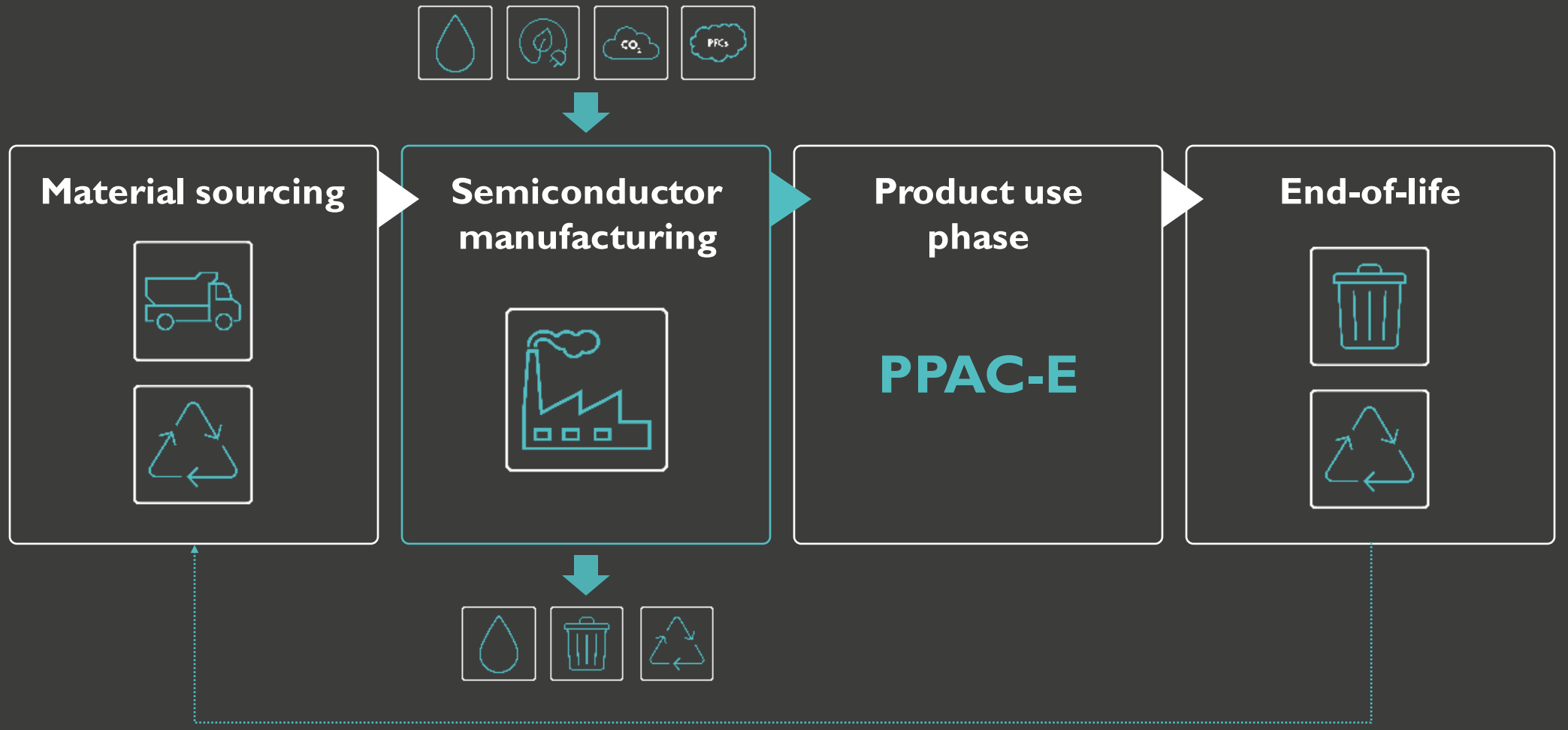
PPAC-E

Power - Performance - Area - Cost - Environment

Networked innovation model



IMEC unites partners from the semiconductor value chain to jointly target net-zero emissions for chip manufacturing



Virtual Fab Model

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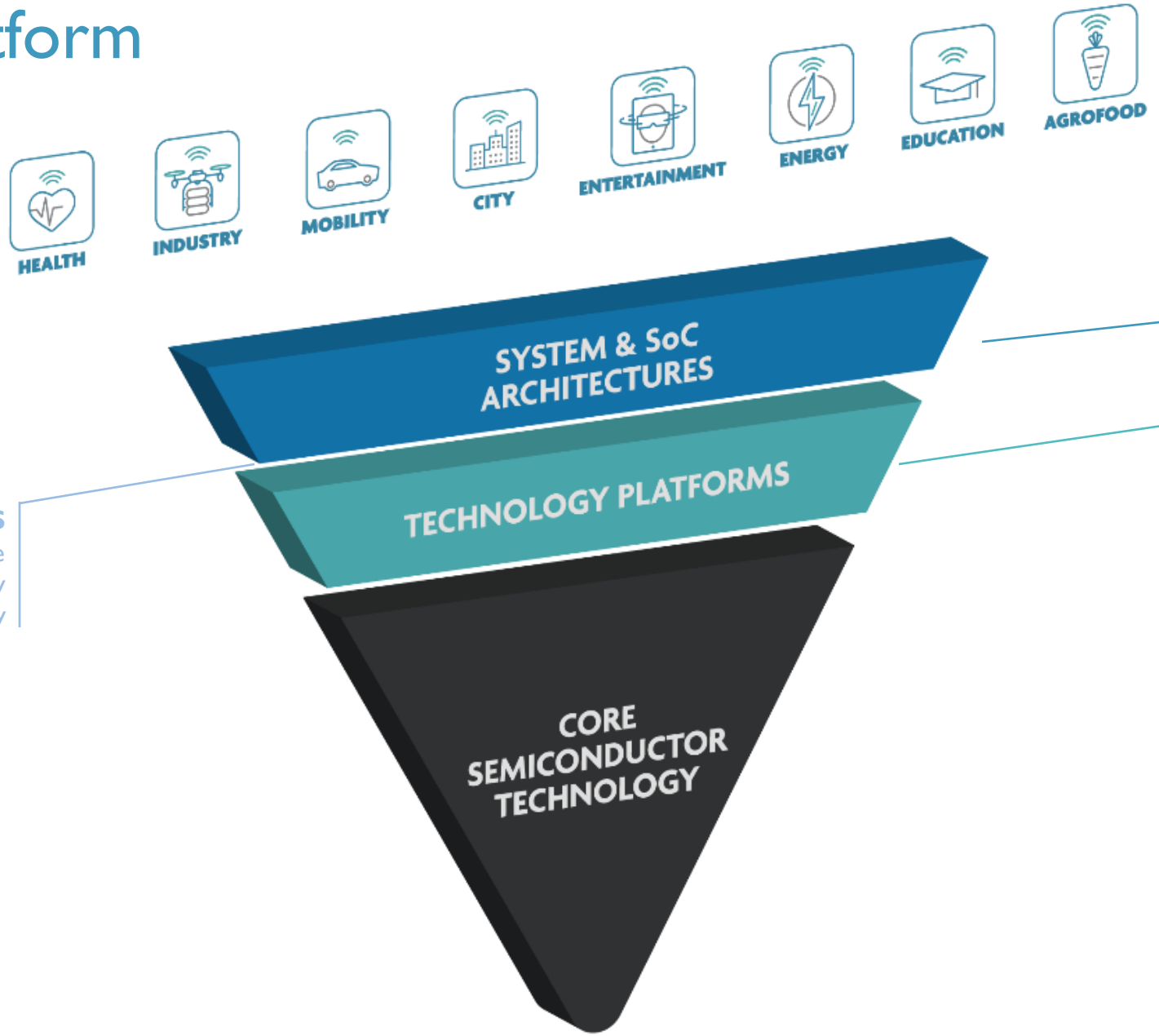
Innovation platform



SYSTEM PLATFORMS
Optical beamforming
DNA sequencing
Nanofluidics processor
Cell sorter
RF technologies for (beyond) 5G
Lens-free imaging
Hyperspectral imaging
…

TECHNOLOGY PLATFORMS
Logic CMOS
Memory
3D heterogeneous integration
Photonics
MEMS & microfluidics
Sensor platform
Flexible technologies

DIGITAL TECHNOLOGIES
Artificial intelligence
Privacy / cybersecurity
(Beyond) 5G connectivity technology

imec

public

Application domains

HEALTH

MOBILITY

CITIES

INDUSTRIES

ENERGY

INFOTAINMENT

AGROFOOD

EDUCATION

Application domains

HEALTH

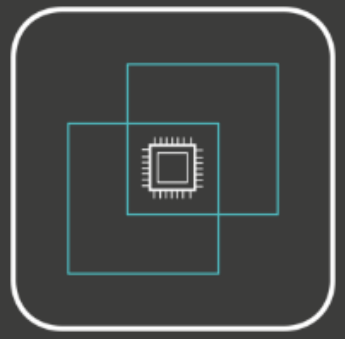
Towards effective personalized treatments

DNA sequencing (<100$, 1HR)

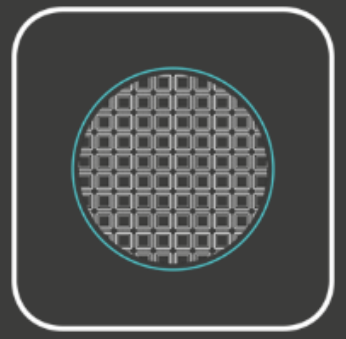
Using semiconductor and compute algorithms expertise to enable precision medicine

imec

Microchip technology enables



INTEGRATION



MASS PRODUCTION

LOW COST

Pacific Biosciences and imec collaboration

Advanced microchips for single molecule sequencing applications

7x faster
3 x smaller
2 x lower cost

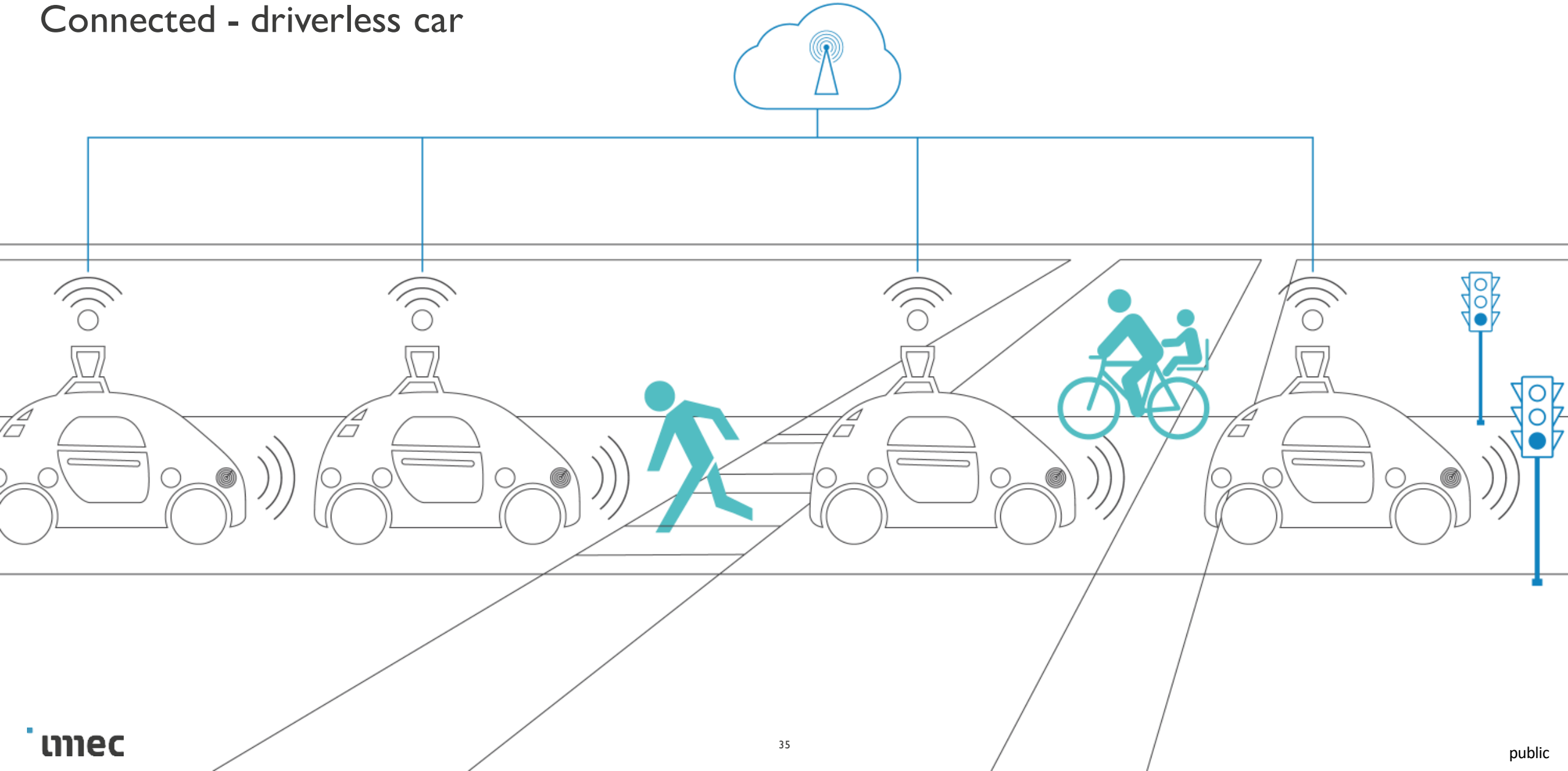
SEQUEL

Application domains

MOBILITY

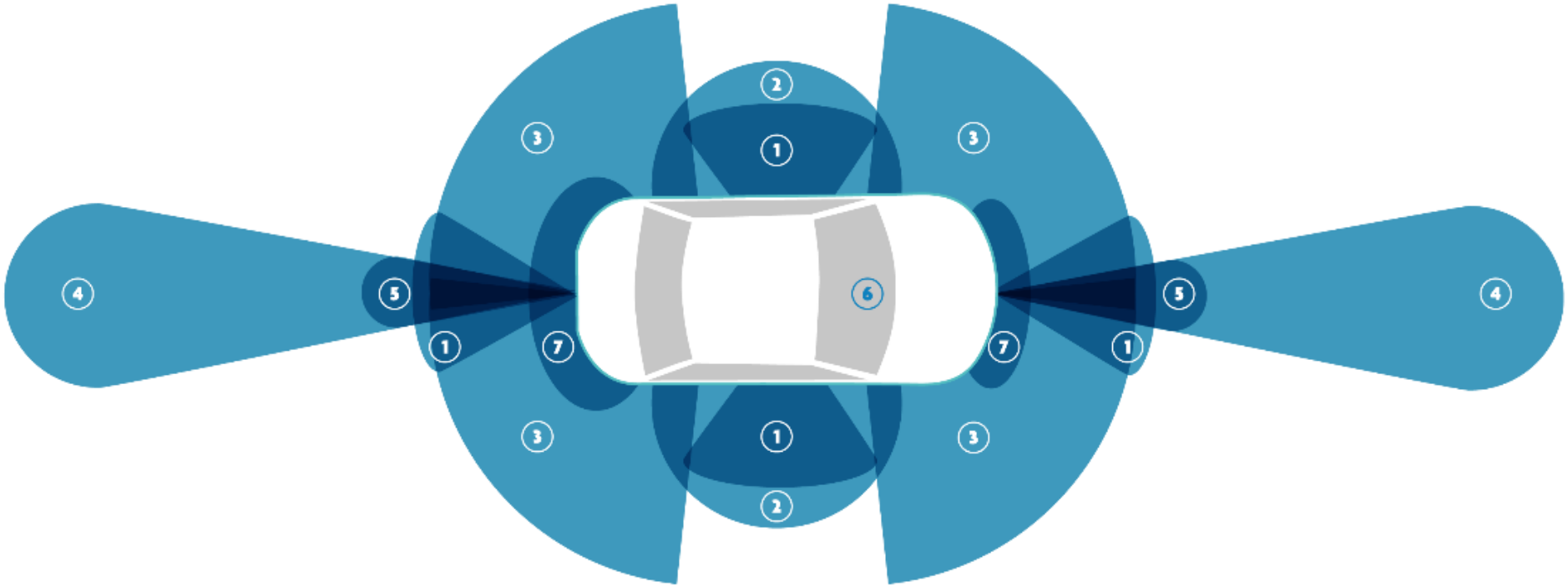
Towards smart mobility

Connected - driverless car



Massive technology innovation

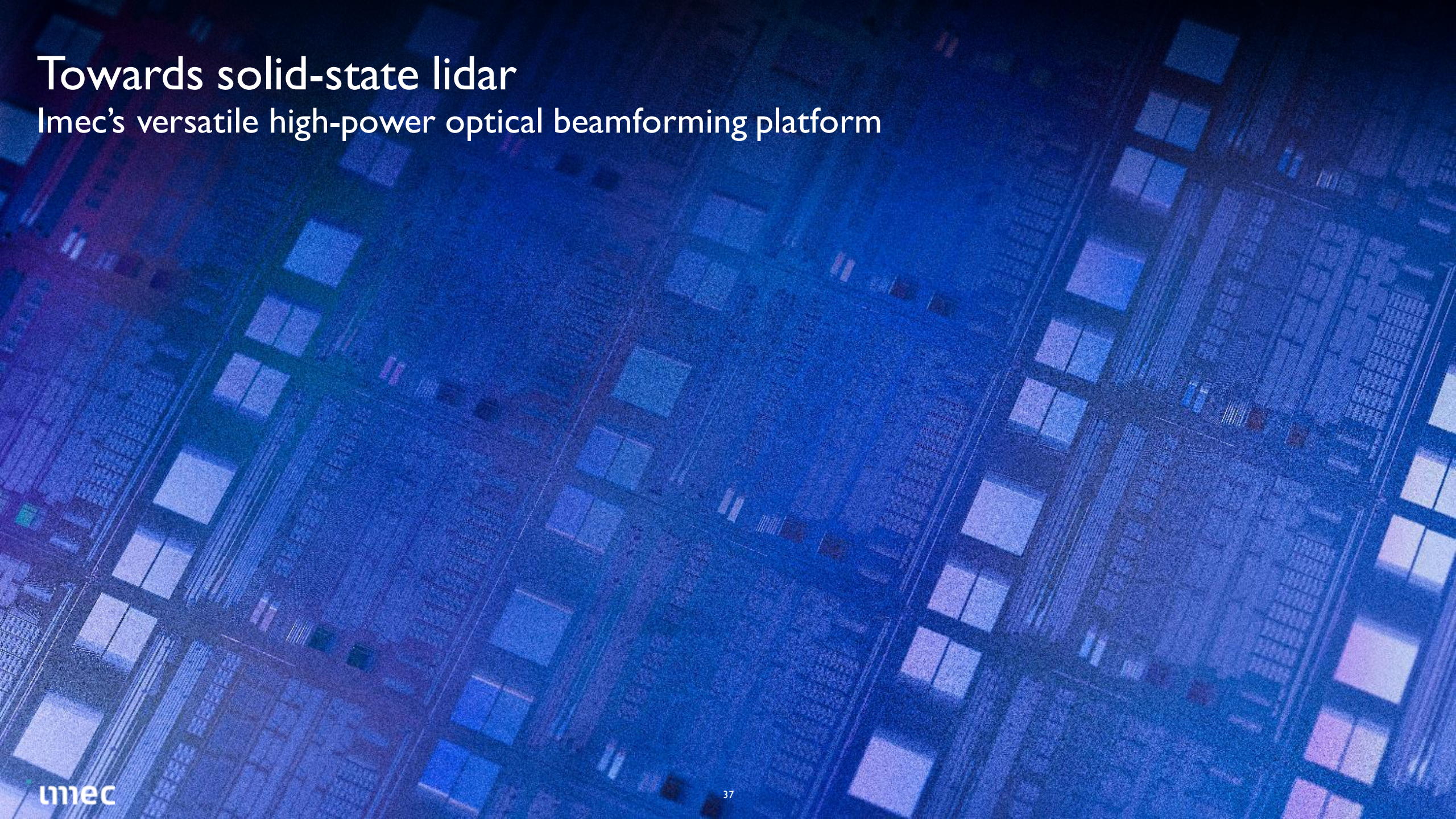
Sensor systems with integrated processing and memory / on-board processing



1 CAMERAS 2 RADARS UP TO 30M 3 RADARS UP TO 50M 4 RADARS UP TO 250M 5 LIDAR 6 GPS 7 ULTRASOUND

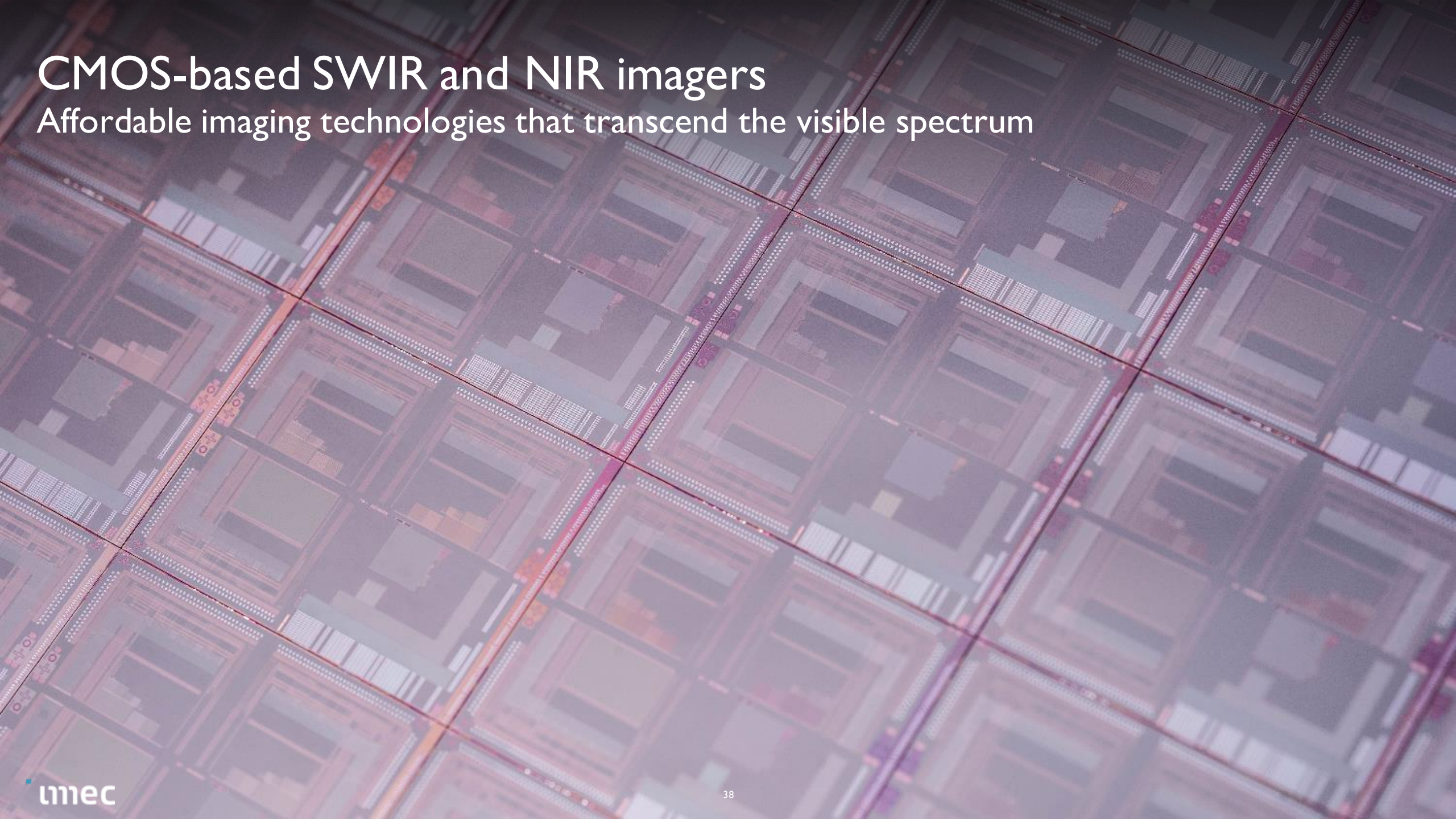
Towards solid-state lidar

Imec's versatile high-power optical beamforming platform

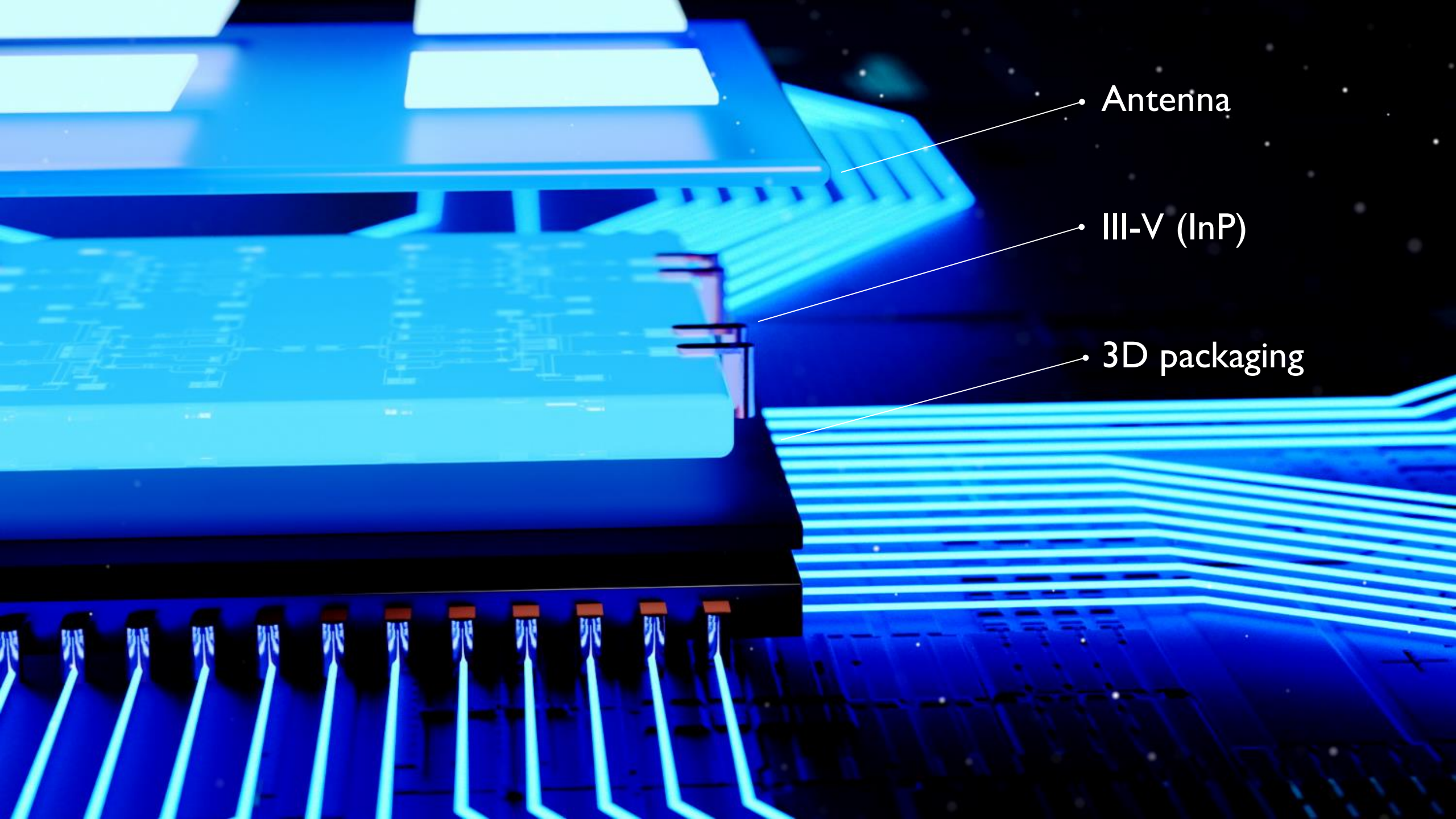


CMOS-based SWIR and NIR imagers

Affordable imaging technologies that transcend the visible spectrum

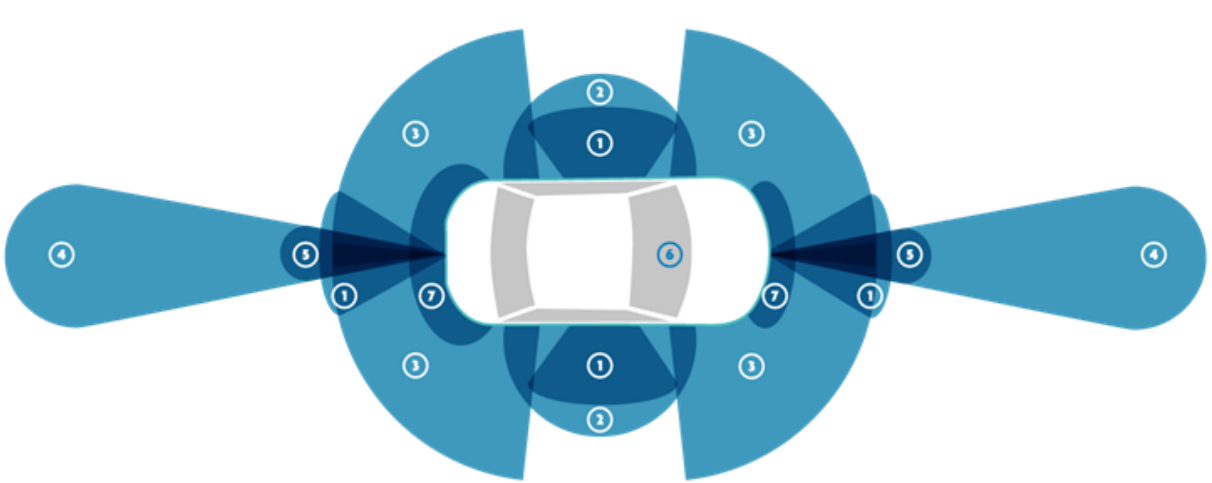


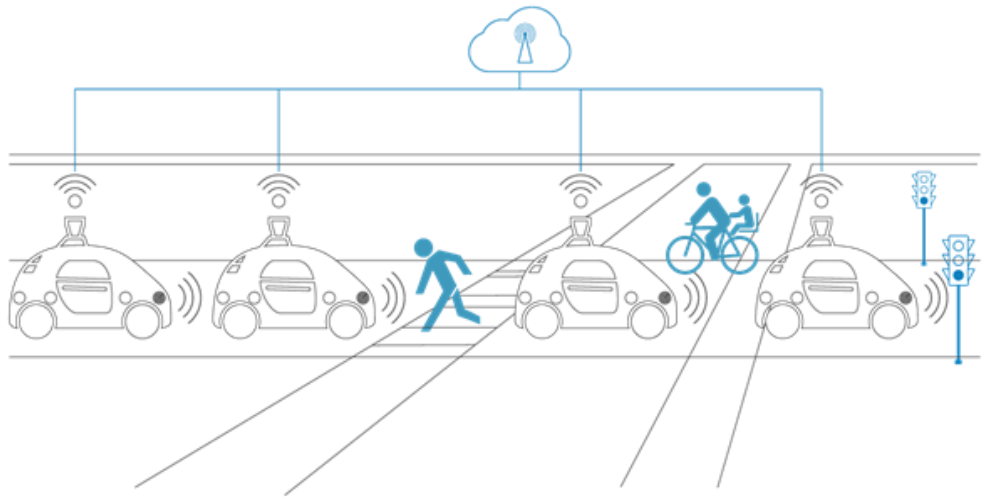
140GHz radar chip in deeply-scaled CMOS for autonomous driving


Antenna
III-V (InP)
3D packaging

Sensor fusion

Combining data from radar, lidar, sensors and imagers





public

What IMEC offers

R&D
COLLABORATION

DEVELOPMENT

VENTURING
STARTUPS & FUNDS

Imec.IC-link & EuroPractice

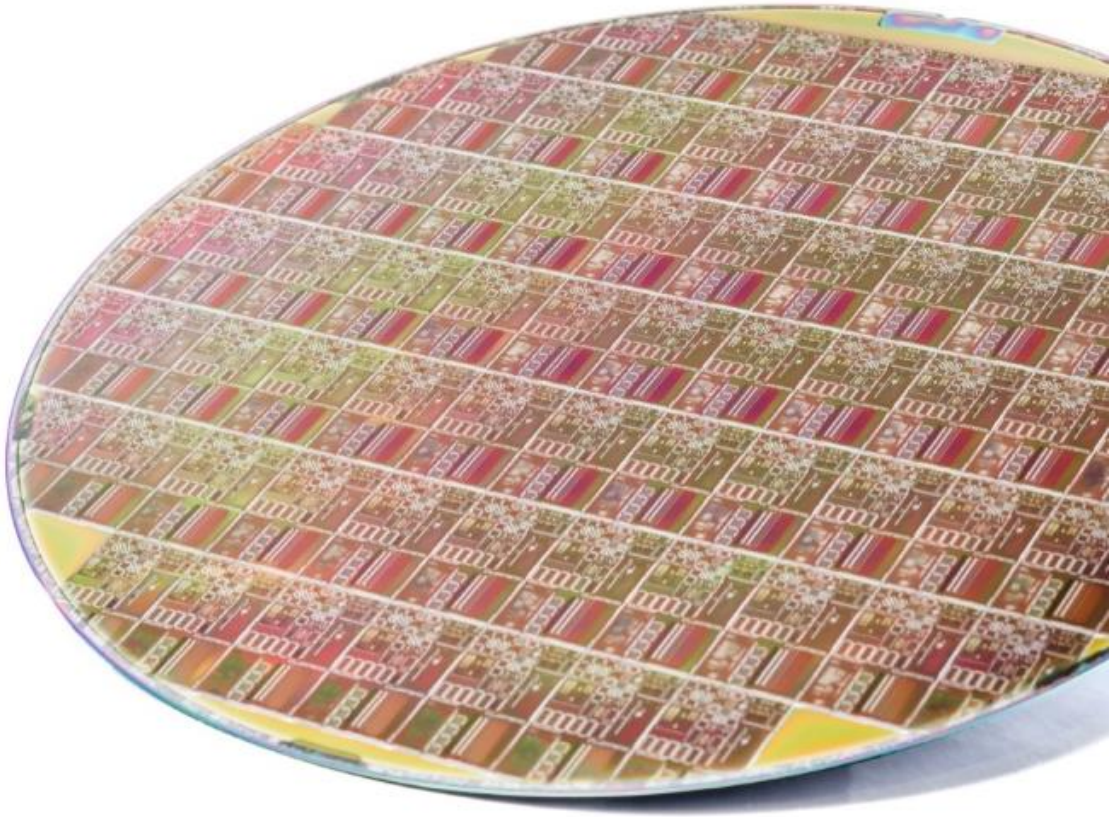
Providing a fast route from prototype to volume

ON Semiconductor®

XFAB MIXED-SIGNAL FOUNDRY EXPERTS

UMC

tsmc TSMC VCA



https://www.imeciclink.com/en
https://europractice-ic.com/technologies/photonics/imec/

Innovation platform

APPLICATION DOMAINS

HEALTH

MOBILITY

CITIES

INDUSTRIES

ENERGY

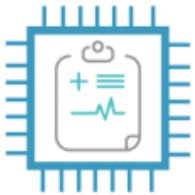
EDUCATION

INFOTAINMENT

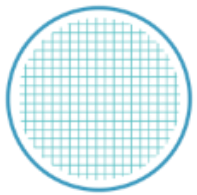
AGROFOOD

SEMICONDUCTOR & SYSTEM TECHNOLOGIES

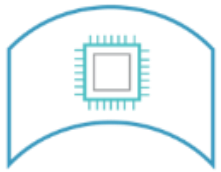
CORE CMOS



SENSOR TECHNOLOGY



FLEXIBLE TECHNOLOGY



- PATTERNING TECHNOLOGY
- LOGIC TECHNOLOGY
- MEMORY TECHNOLOGY
- INTERCONNECT TECHNOLOGY
- 3D INTEGRATION OPTICAL I/O

DIGITAL TECHNOLOGY PLATFORMS

NETWORKING

DIGITAL PRIVACY & SECURITY

SOFTWARE & DATA MANAGEMENT SKILLS

Imec.istart

Business accelerator for digital start-ups

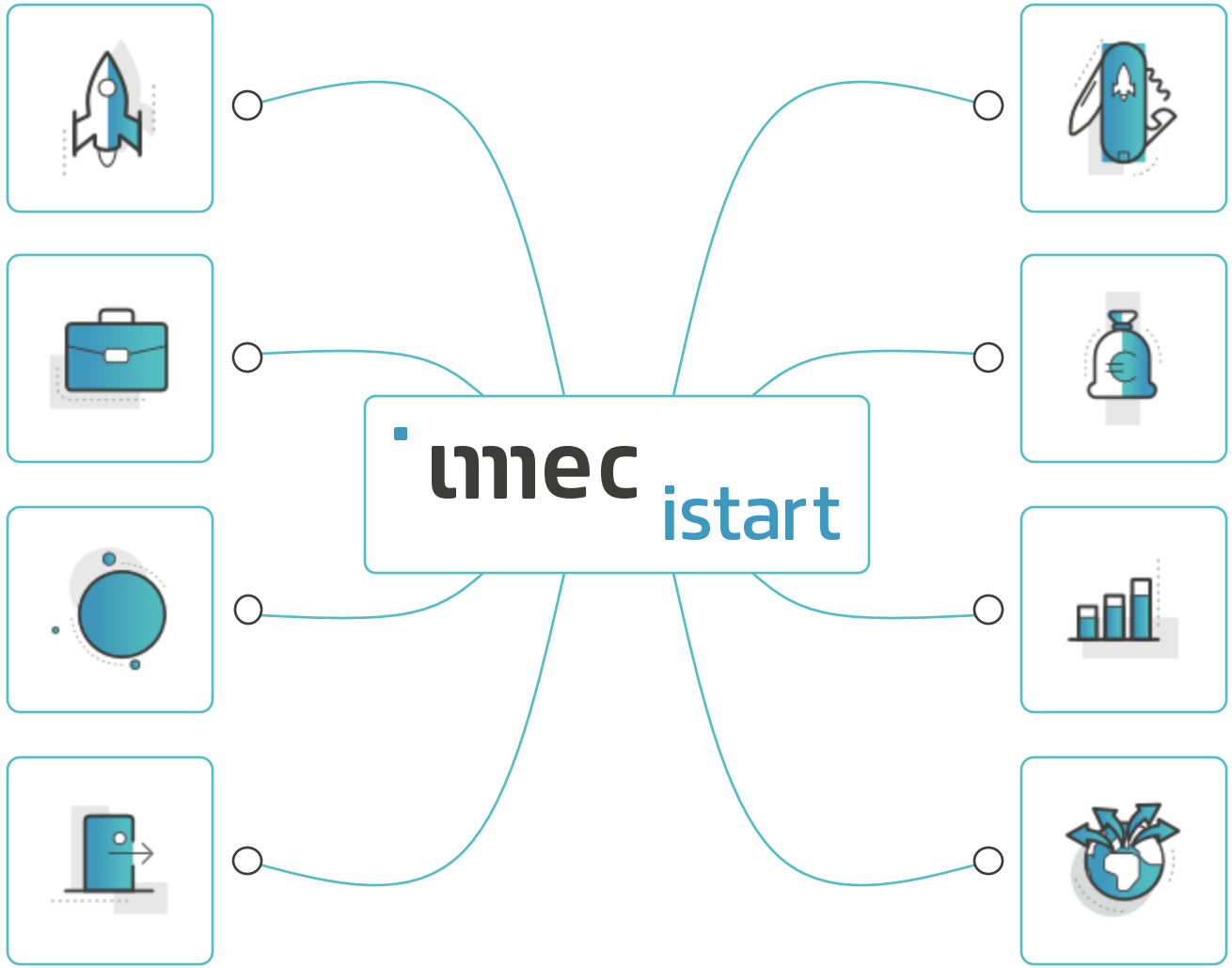
* TOP BUSINESS ACCELERATOR — LINKED TO UNIVERSITY — UBI GLOBAL — WORLD

+250 start-ups &
70 scale-ups

+2600 jobs created

#4 accelerator worldwide*

38 exits
(acquisition or MBOs)



85% survival rate

+570€M follow-up funding

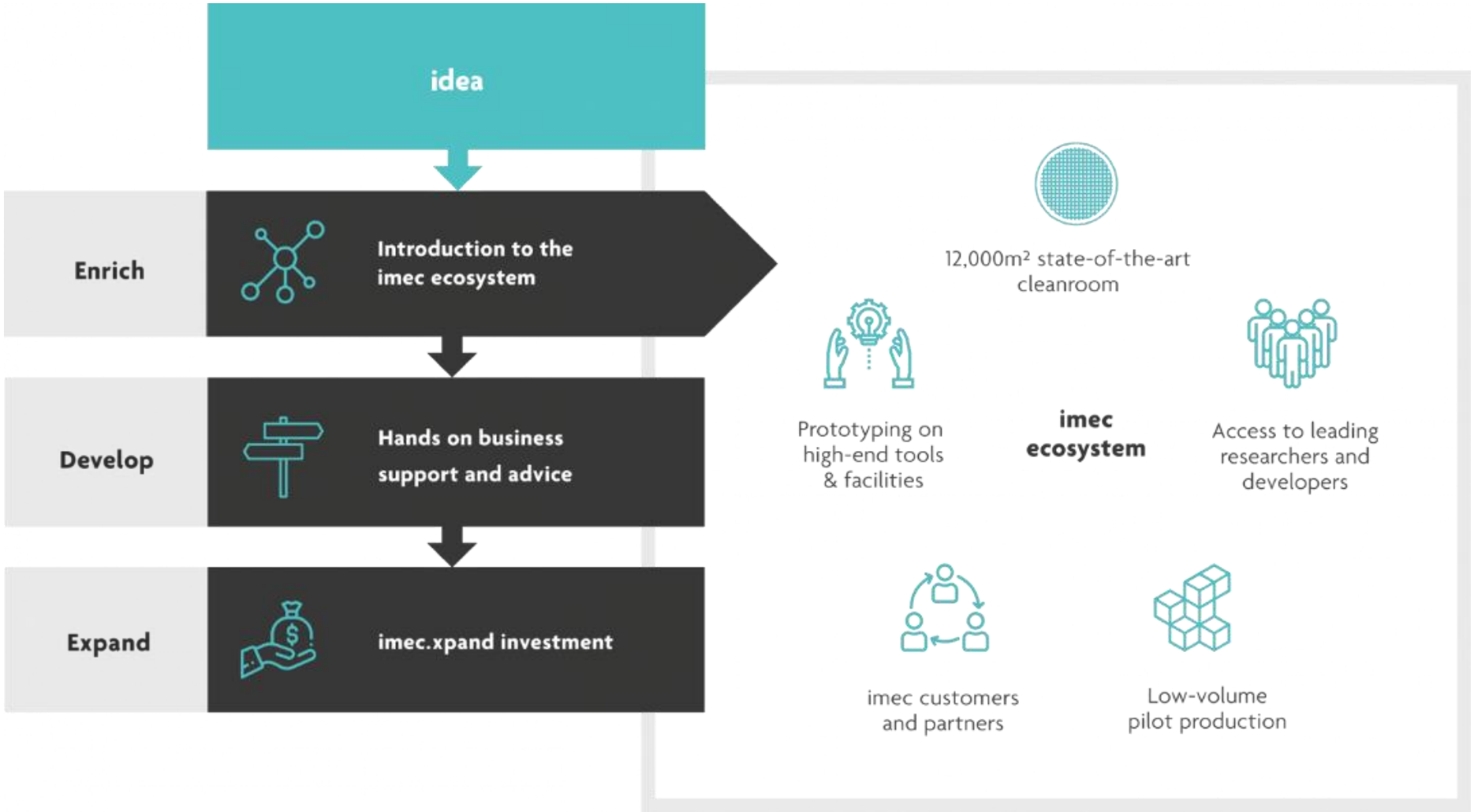
+160€M revenue

+175 internationally active

https://www.imecistart.com/en

Imec.xpand

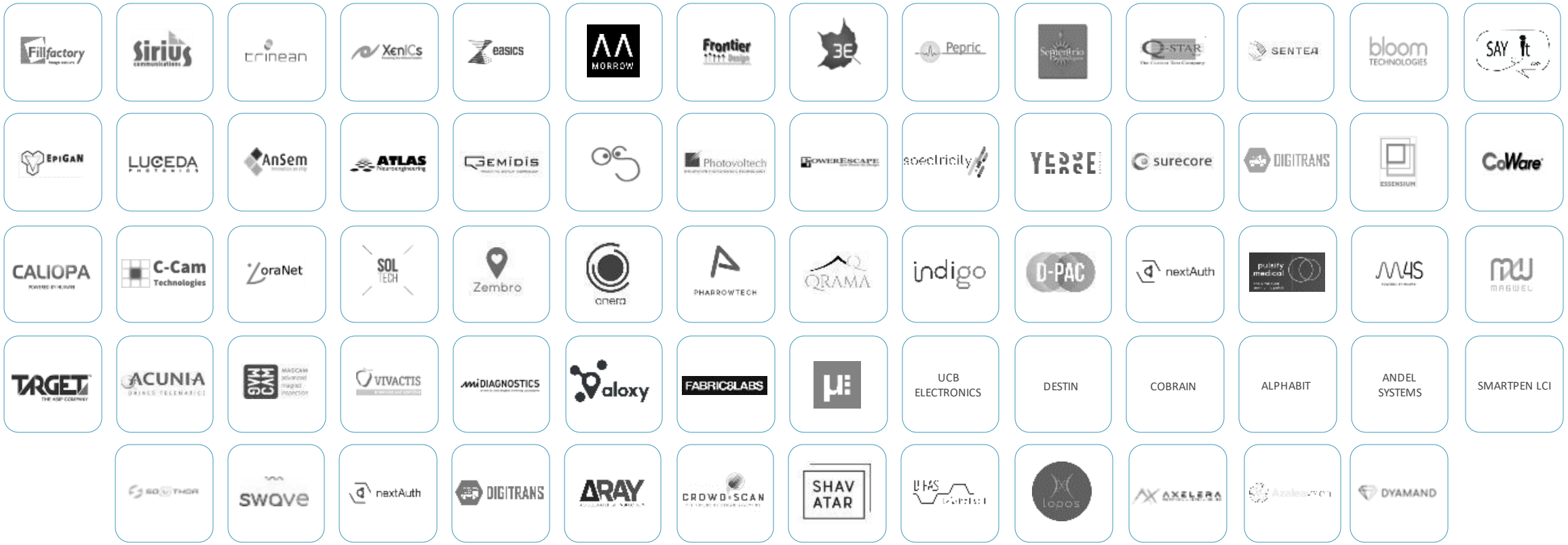
Access to imec ecosystem: infrastructure, support & expertise



https://imecxpand.com/

public

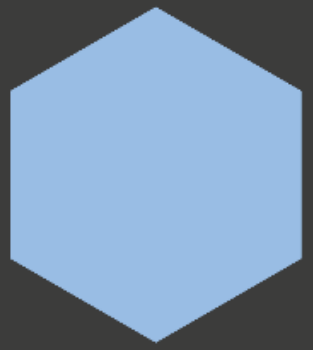
Spin-offs



public

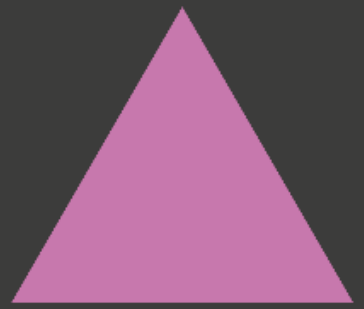
Our corporate values

INTEGRITY



CONNECTEDNESS

PASSION



EXCELLENCE

embracing a better life

THANK YOU!

Make sure you come to our next webinar!

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