



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



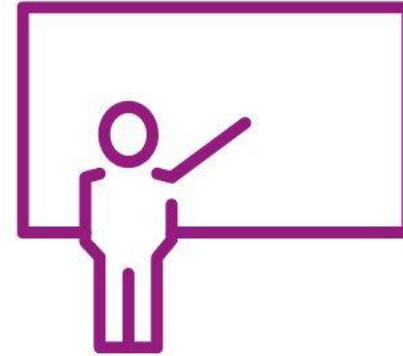
What do we do?



Non-Profit
Activities



High Quality
Academic
Research



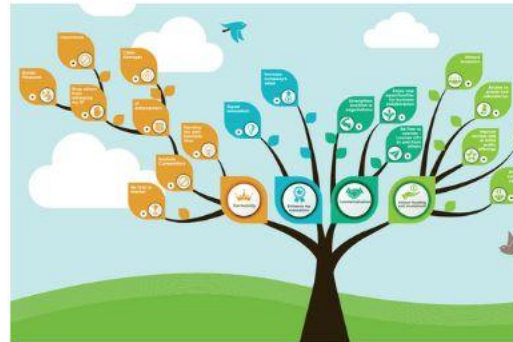
Education



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



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



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

Features

Exoskeletons to help children with neurological diseases

01 February 2022

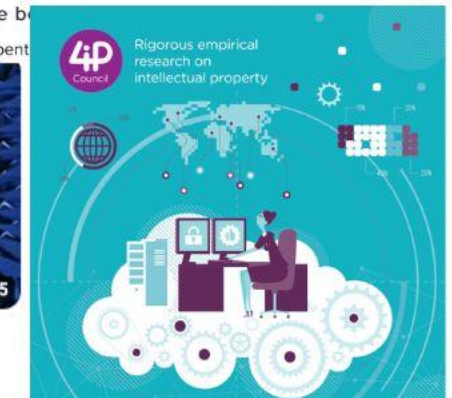
Interviewing Elena García Armada, CEO at Marsi Bionics



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

Boorman Holden
Co-Director, Center for Intellectual Property (CIP), Chalmers/USC/ETH Zurich Visiting Scholar at The
Professor Professor, Stanford University
Jorge Padilla
Senior Managing Director, Compass Law
Russell Peters
CEO, Peters IP Consultancy B.V., Former Chief IP Officer and Executive Vice President
Pharos NV



Bundle pages

4iP

Menu

4iP Council

Rigorous empirical research on intellectual property

SEP related research: key findings by 4iP Council

- **A Policy Governance Framework for SEP Licensing: Assessing private versus public market interventions**
- **The Value of Cellular Connectivity – From Mobile Devices to the Internet-of-Things (IoT)**
- **The Value of Connectivity in the Automotive Sector**
- **The Value of Standardized Technology to Connected Cars**

Research:

A Policy Governance Framework for SEP Licensing: Assessing private versus public market interventions by Dr. Bowman Heiden, Dr. Justus Baron

This paper strives to provide a balanced, evidence-driven policy governance framework for SEP licensing. It warns about the negative impact to

4iP

Menu

4iP Council

Rigorous empirical research on intellectual property

Essentiality Checks and Standards Essential Patents

- **Why automated patent analysis can be wrong, even when it's right** by Axel Contreras-Alvarez
- **Patent Landscaping Studies And Essentiality Checks: Rigorous (And Less Rigorous) Approaches** by Haris Tsilikas
- **Estimating 5G Patent Leadership: The Importance of Credible Reports** by Igor Nikolic

Why automated patent analysis can be wrong, even when it's right by Axel Contreras-Alvarez

Axel Contreras-Alvarez, former IPR Commercialization Manager at Ericsson, evaluates the reliability of software and automated analysis for patent valuation, considering the factors used by algorithms, and with an action plan for those wishing to use such platforms.

4iP

Menu

4iP Council

Rigorous empirical research on intellectual property

Internet of Things: SEP licensing within the FRAND framework

Efficiencies of Access to All v License to All

The diagram compares two models: 'Access to All' and 'License to All'. 'Access to All' shows a central 'IoT Device' connected to various services (e.g., Smart Home, Smart City, Smart Industry). 'License to All' shows a central 'IoT Device' connected to various services, but with a focus on 'Access to All' and 'License to All'.

Features:

Robots may soon be spotted in a field near you

To understand the role of intellectual property in Vitrover's success, 4iP Council speaks to serial-entrepreneur Arnaud de la Fouchardière, one of Vitrover's two founders and the CEO of the

4iP

Menu

4iP Council

Rigorous empirical research on intellectual property

Open Source Software Research

FEATURED ARTICLE:

Downsides of Using Inadequate Open Source Software Processes and Licenses within Standard Development

Open Source Software and Standards Development: Competition Law Implications

This paper considers the competition law implications of integrating standards development and open source efforts, to help facilitate that potential "win-win" outcome, and achieve the procompetitive goals of standards development, rather than create risks of competitive harm that will deter innovation.

[Read article >](#)

Case Law Area

Case Law post CJEU ruling *Huawei v ZTE*

[Back to main 4iP Council site](#)





4iP Council home

Case law home

CJEU decisions

German court decisions

Dutch court decisions

English court decisions

French court decisions

Irish court decisions

Italian court decisions

Romanian court decisions

National Courts Guidance

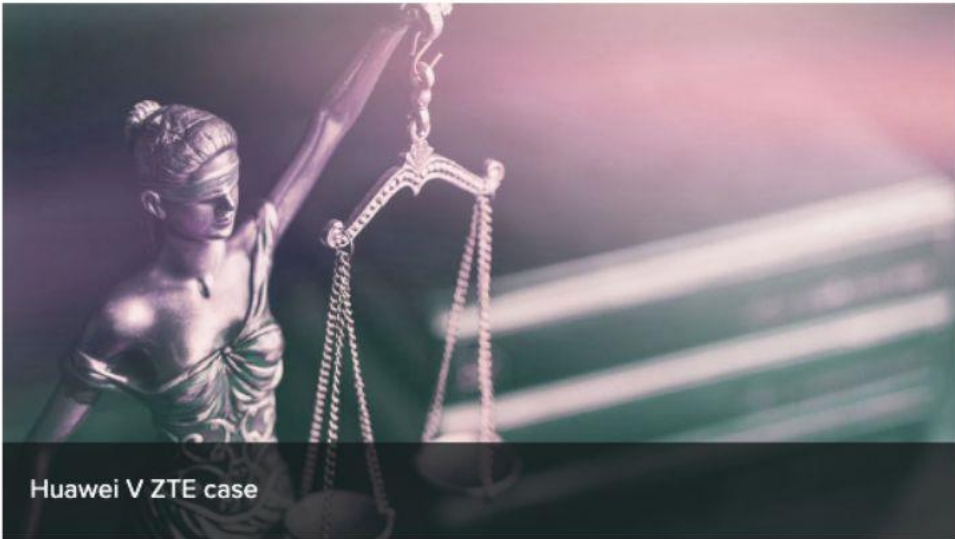
Authors & contributors

Keywords to filter cases

Latest case: Optis v Apple

Cases not referenced here? Let us know...

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Huawei V ZTE case



National Courts Guidance

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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

Japan
Osaka
Japan
Tokyo

China
Shanghai

Taiwan
Hsinchu

India
Bangalore

USA
San Francisco

USA
Berkeley

USA
Orlando

A pair of hands is shown holding a small, realistic globe of the Earth. The hands are positioned at the bottom, with fingers gently cupping the globe. The globe shows continents and oceans in detail. The background is dark and filled with soft, out-of-focus light spots, resembling a starry night sky or a nebula. The overall mood is hopeful and forward-looking.

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

Hyperspectral imaging lab & demo room

Integrated imagers lab

Smart sensor lab

ExaScience lab

RF & high-power lab

Photonics labs

NERF labs

Measurement & testing lab
GaN lab

Material and device
characterization labs

300mm cleanroom

- (High-NA) EUV, Attolab, advanced patterning
- State-of-the-art etch, implant, cleaning, metrology, deposition, ... equipment from leading-edge OEMs
- Ballroom type of cleanroom (7,200m², Class 1,000)
- 24/7 operational

Bio labs

- Cell & tissue culture labs
- Optical labs
- Wet chemistry labs
- Clinical labs
- Pre-PCR lab
- Neuropixels lab

200mm cleanroom

- Silicon pilot line for prototyping and low-volume manufacturing
- iSiPP200 and iSiPP50G photonics prototyping platform
- 200mm GaN-on-Si platform
- Quantum computing lab
- Materials & interface lab
- 5,200m²

Distributed R&D groups at Flemish universities



Imec drives the semiconductor roadmap



Innovation platform

APPLICATION DOMAINS

HEALTH



MOBILITY



CITIES



INDUSTRIES



ENERGY



EDUCATION



INFOTAINMENT

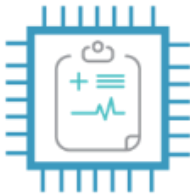


AGROFOOD

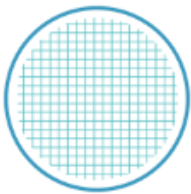


SEMICONDUCTOR & SYSTEM TECHNOLOGIES

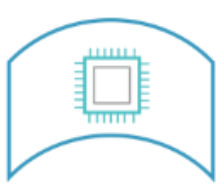
CORE
CMOS



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

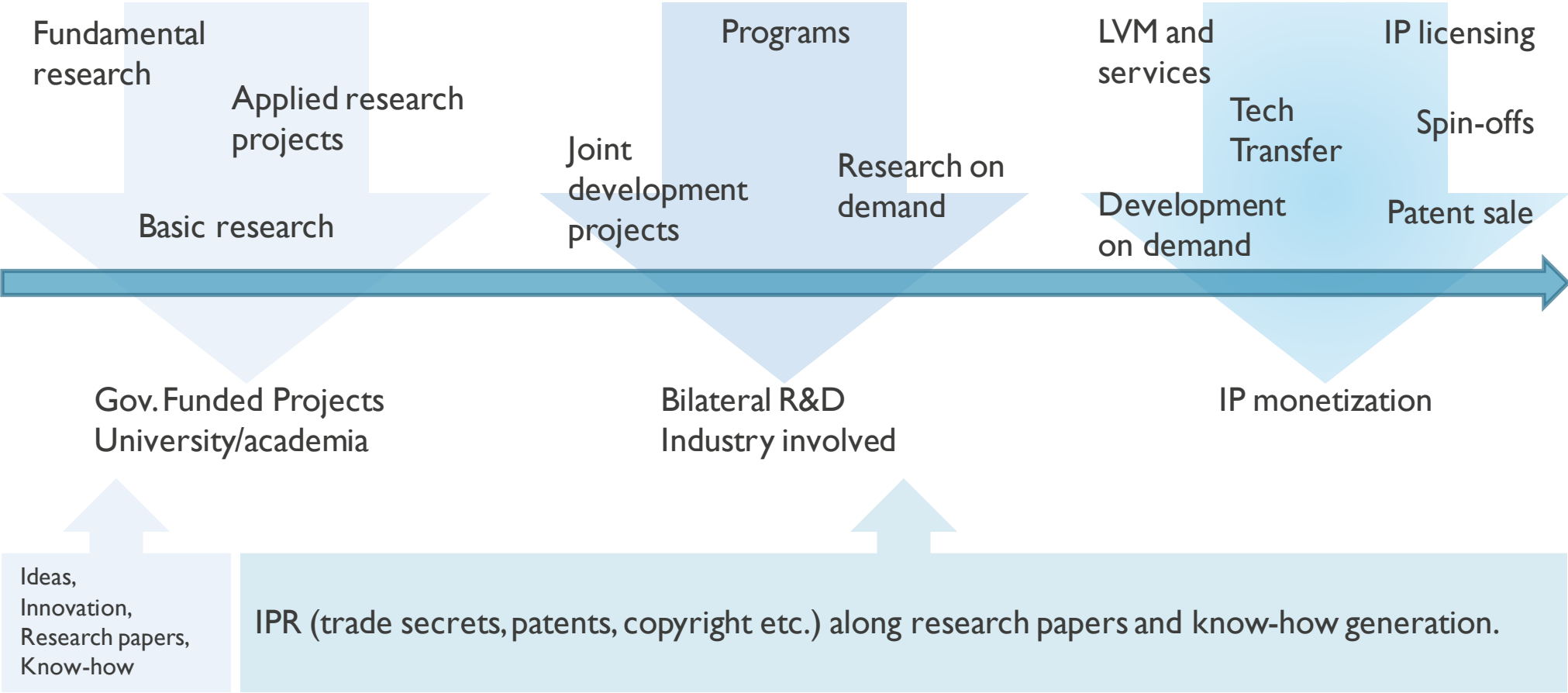


GOVERNMENT

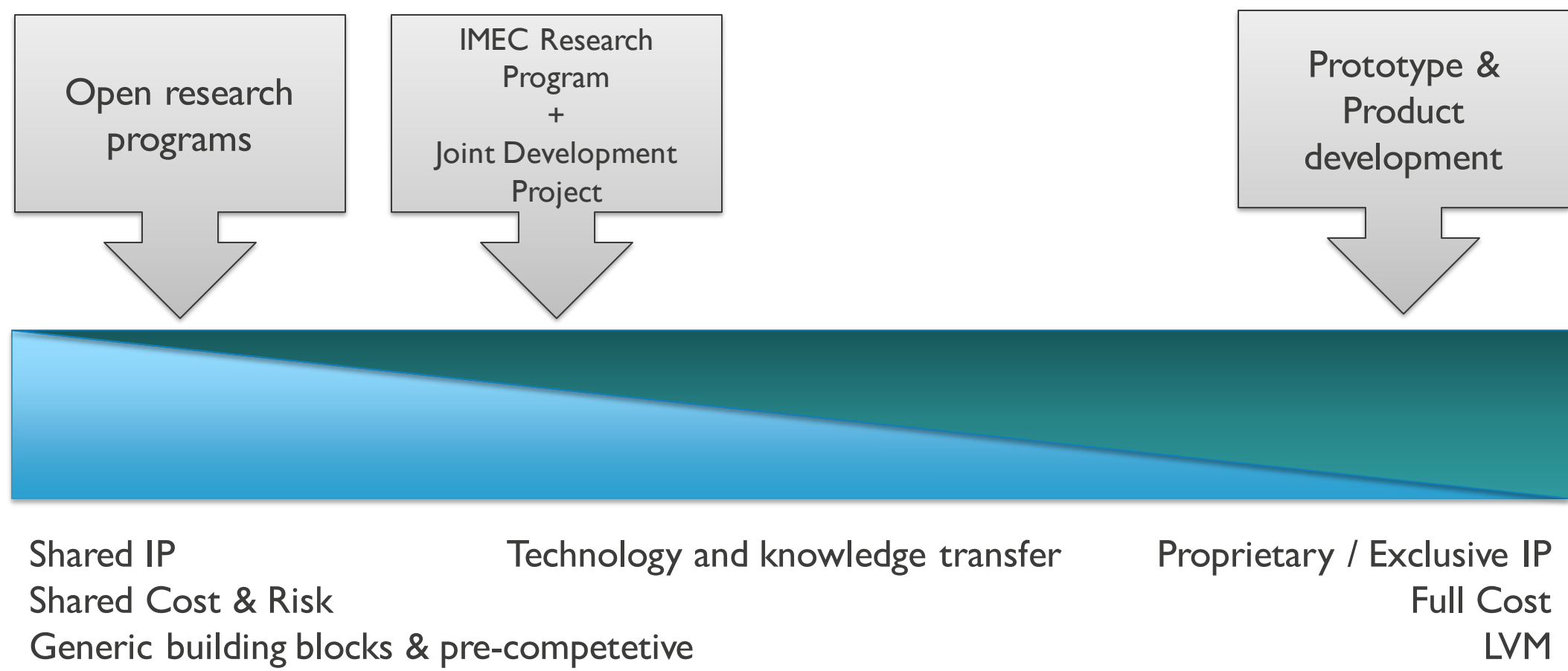


INDUSTRY

R&D Life Cycle



Flexible R&D models



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



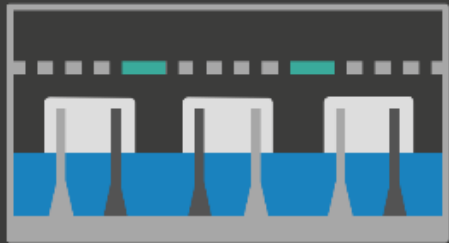
Scaling roadmap

"3nm"

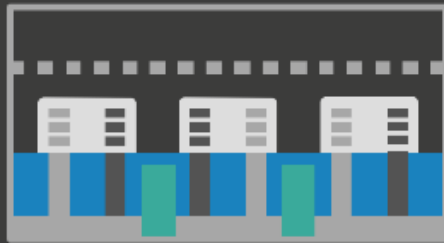
"2nm"

"1nm"

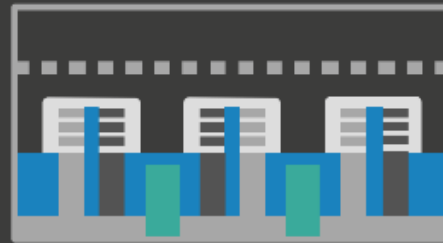
"sub-1nm"



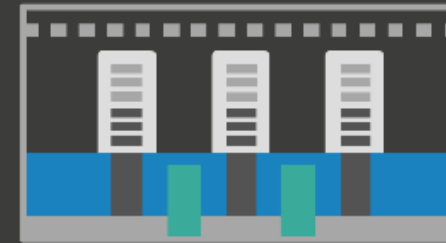
FinFET



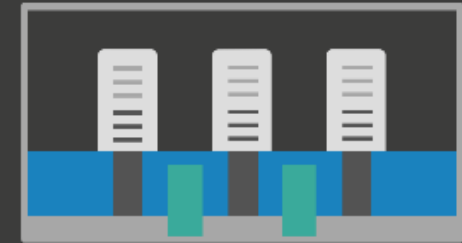
NANOSHEET



FORKSHEET



CFET



2D CHANNEL

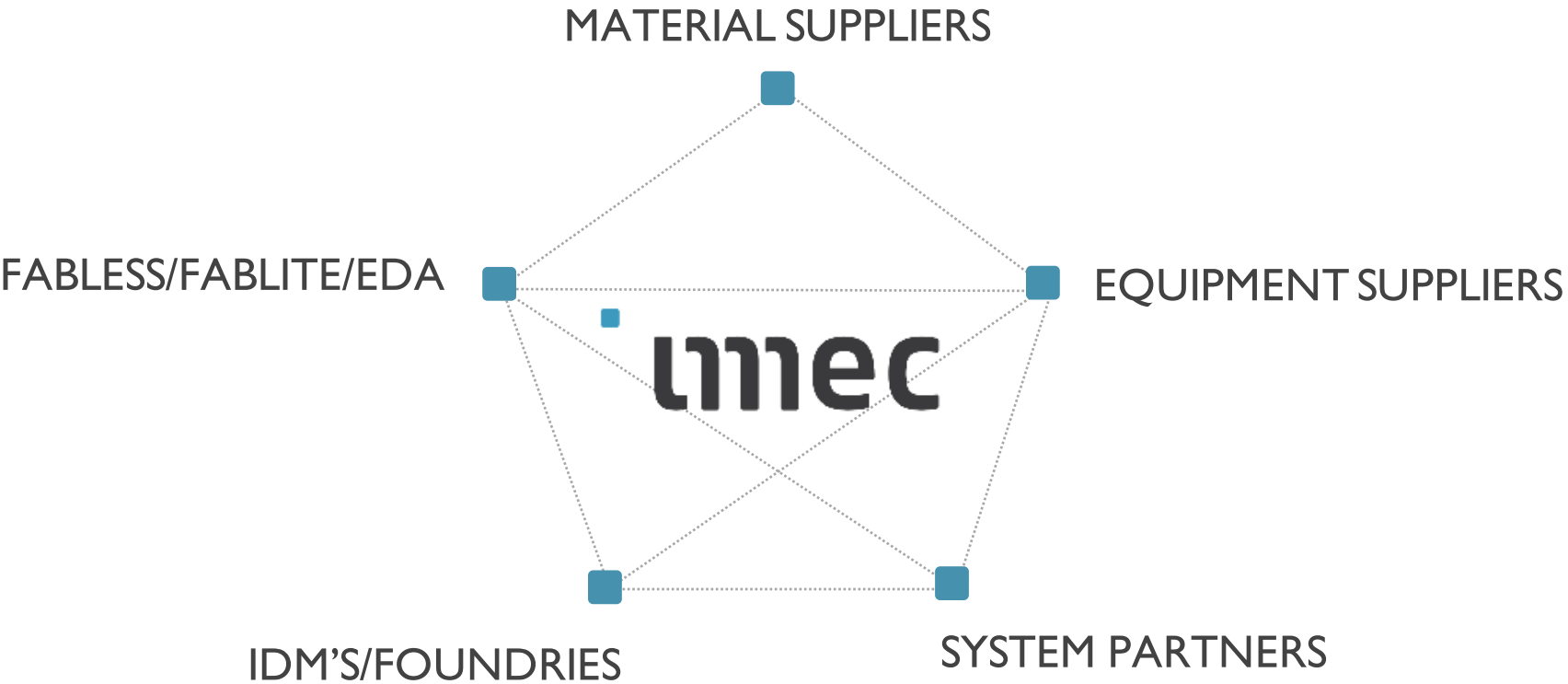
Imec framework that allows companies to make more sustainable manufacturing choices



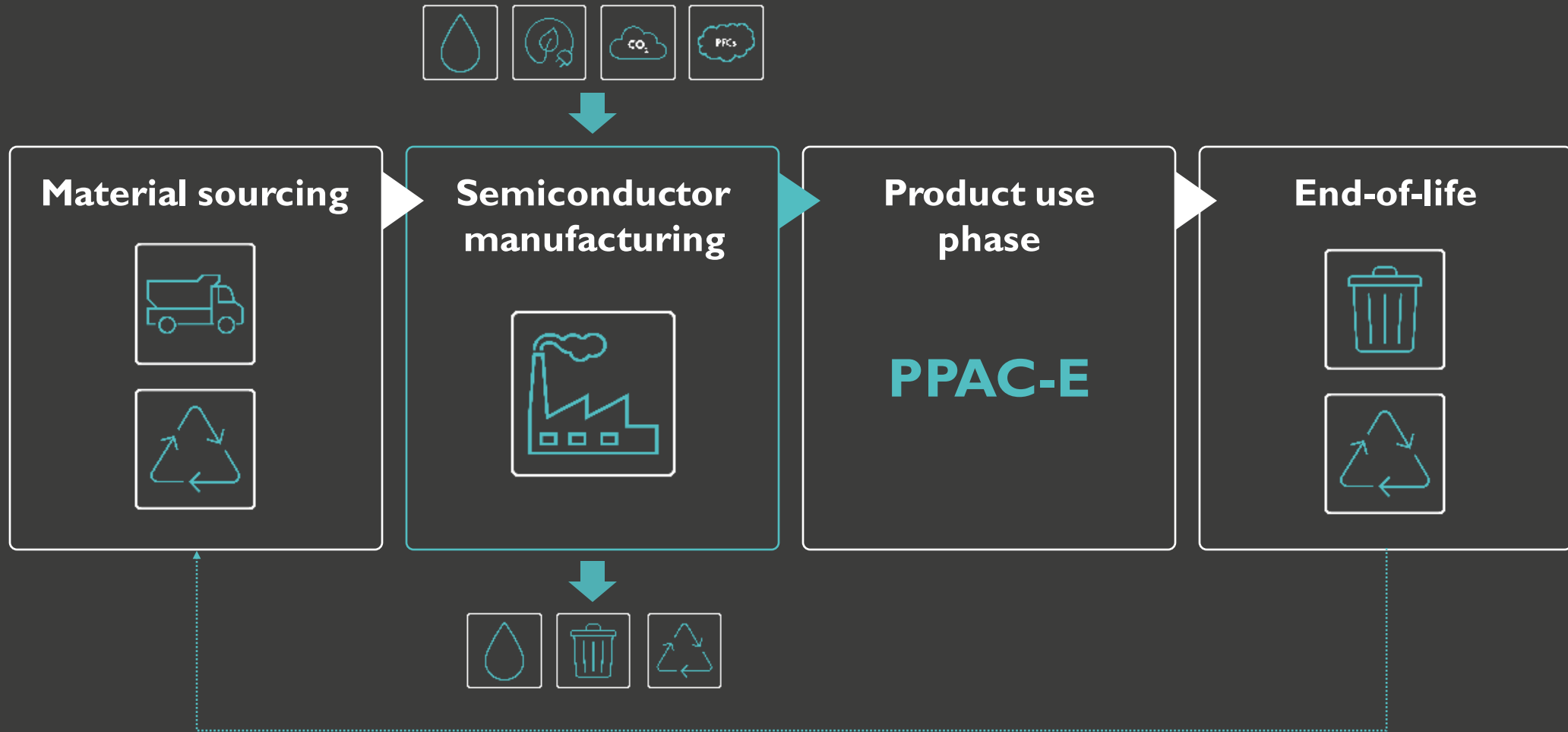
PPAC-E

Power - Performance - Area - Cost - Environment

Networked innovation model

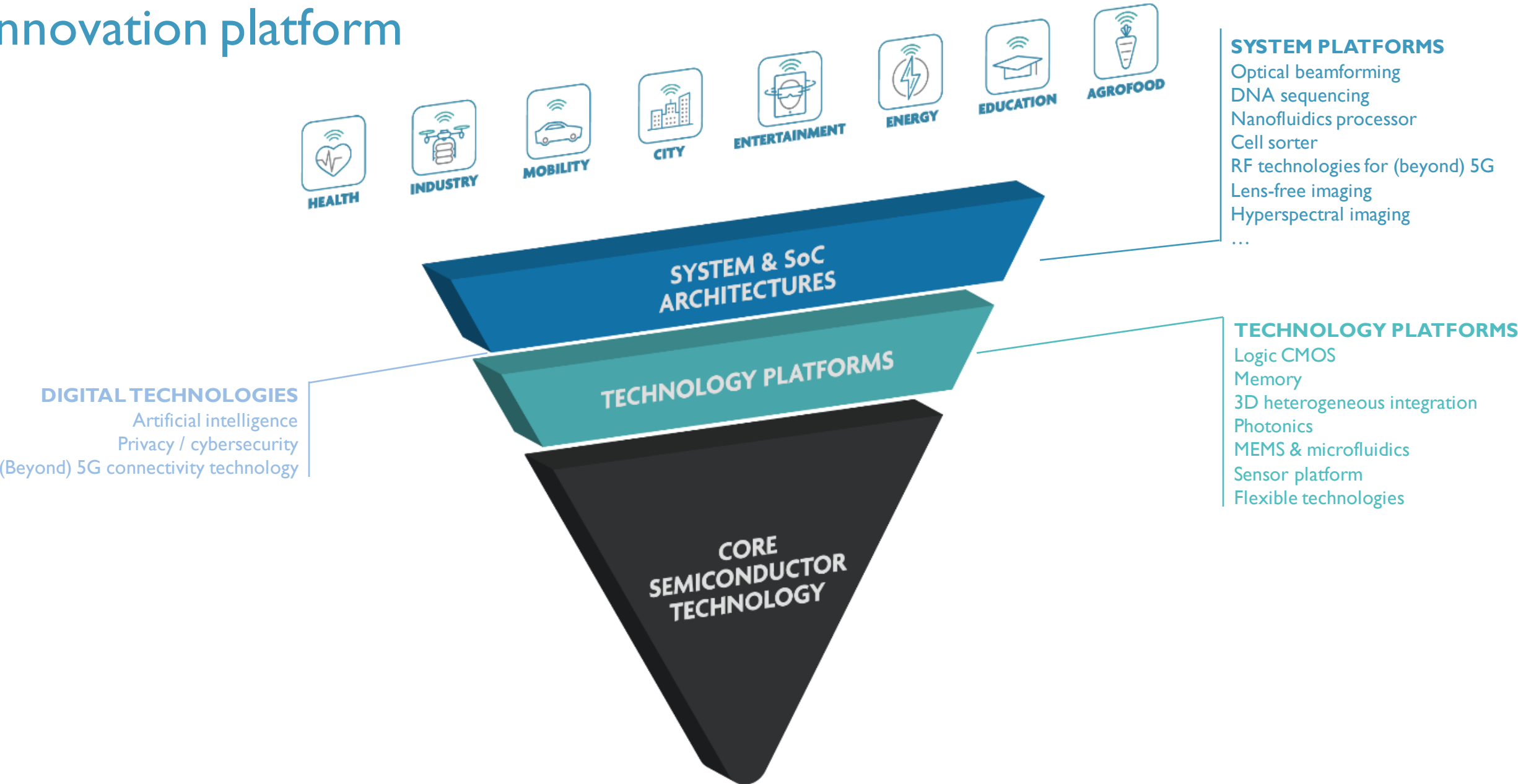


IMEC unites partners from the semiconductor value chain to jointly target net-zero emissions for chip manufacturing



Virtual Fab Model

Innovation platform



Application domains



HEALTH



MOBILITY



CITIES



INDUSTRIES



ENERGY



INFOTAINMENT



AGROFOOD



EDUCATION

Application domains



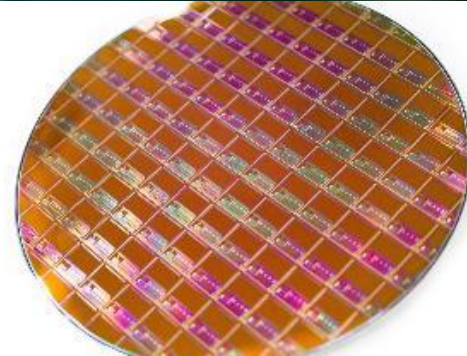
HEALTH

Towards effective personalized treatments

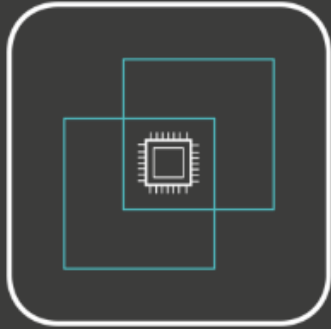


DNA sequencing (<100\$, 1HR)

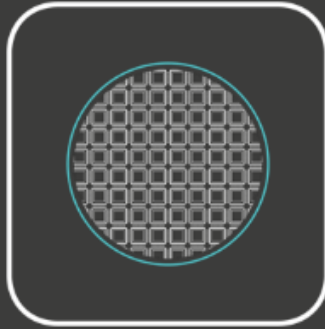
Using semiconductor and compute algorithms expertise to enable precision medicine



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

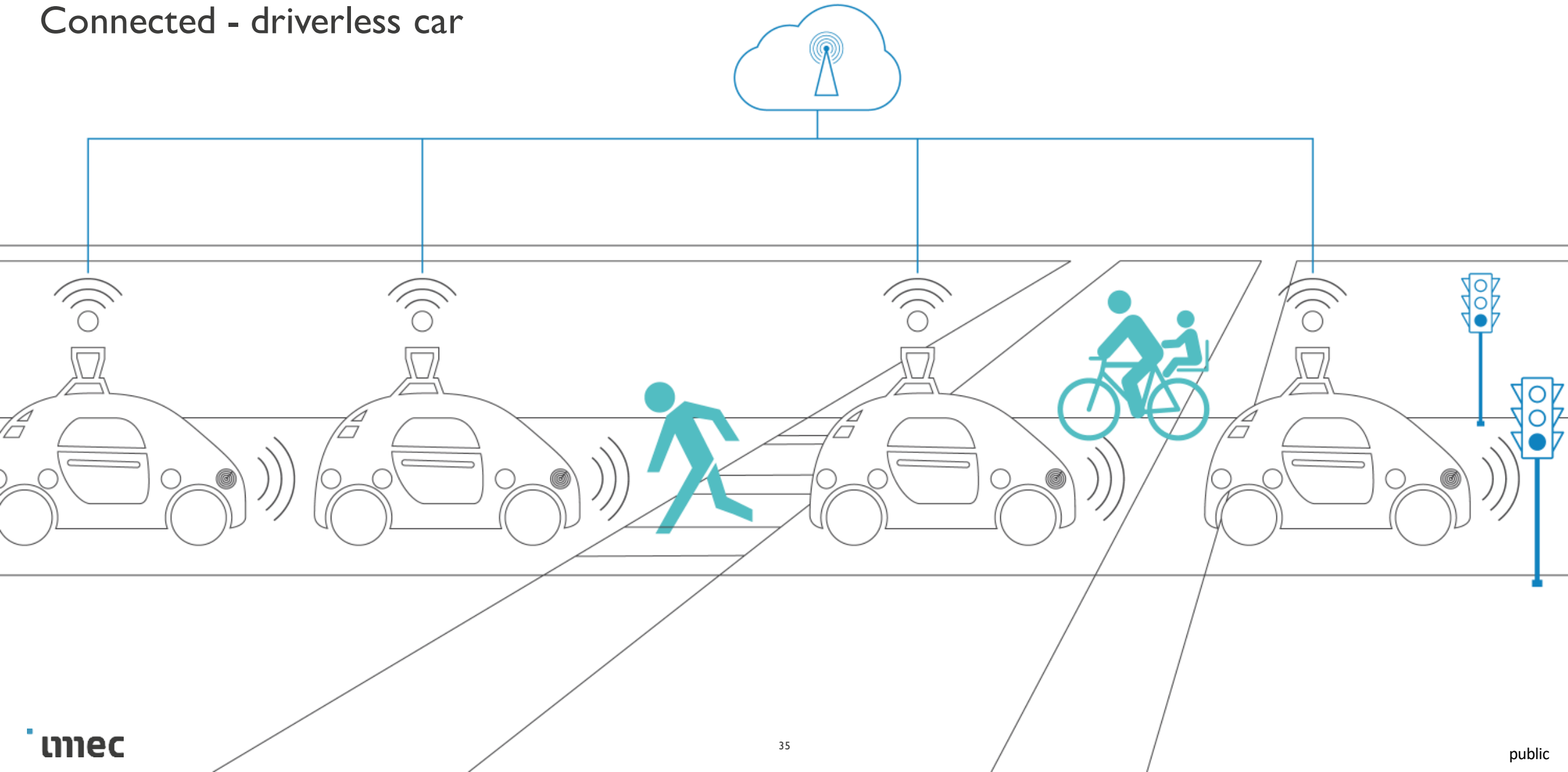
Application domains



MOBILITY

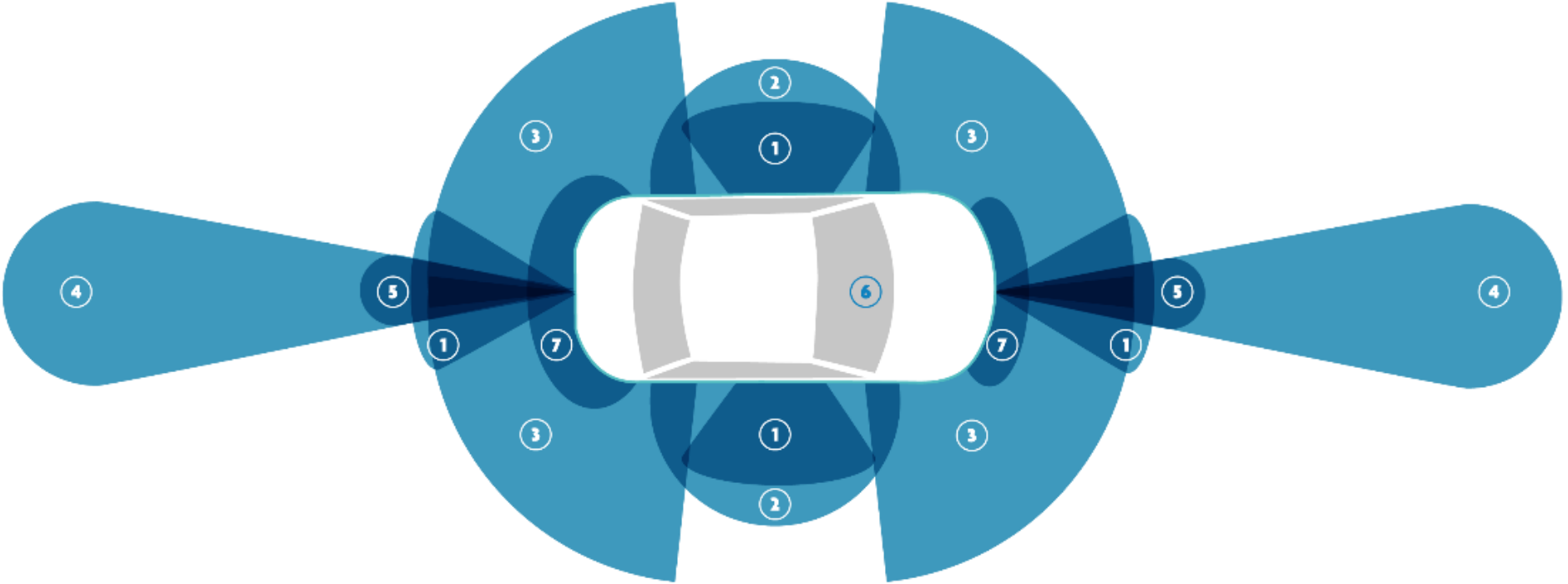
Towards smart mobility

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

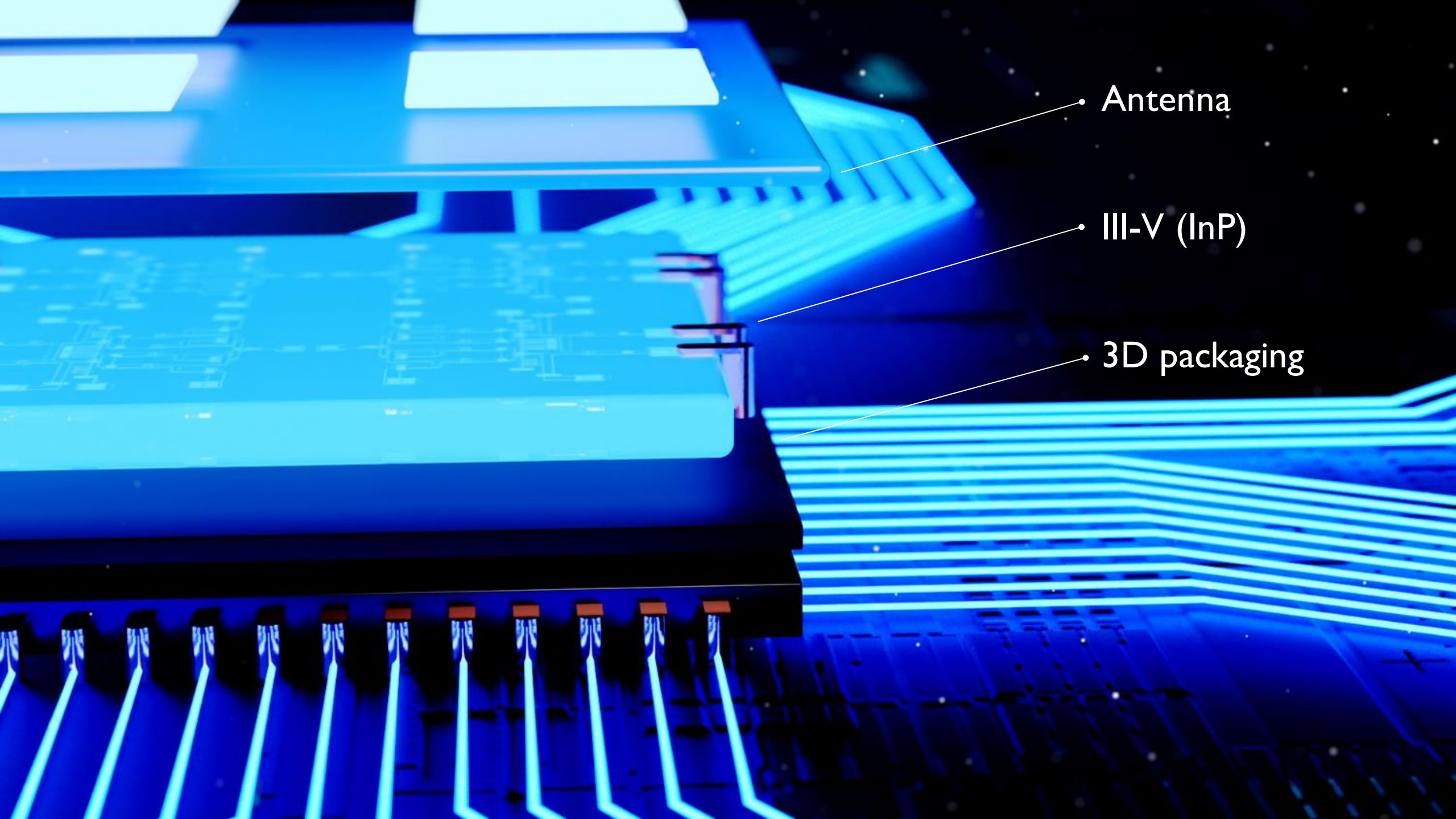
Imec's versatile high-power optical beamforming platform

CMOS-based SWIR and NIR imagers

Affordable imaging technologies that transcend the visible spectrum

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





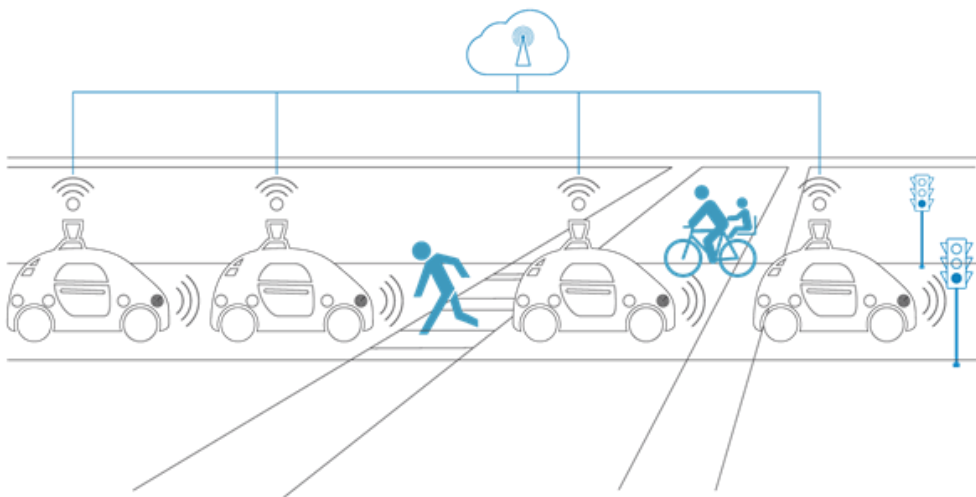
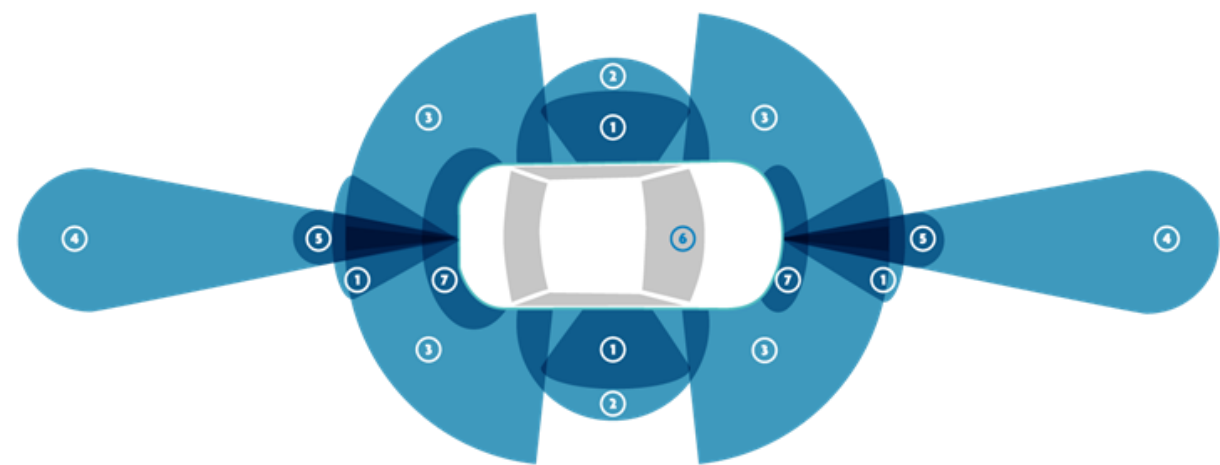
• Antenna

• III-V (InP)

• 3D packaging

Sensor fusion

Combining data from radar, lidar, sensors and imagers



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What IMEC offers

R&D
COLLABORATION



DEVELOPMENT

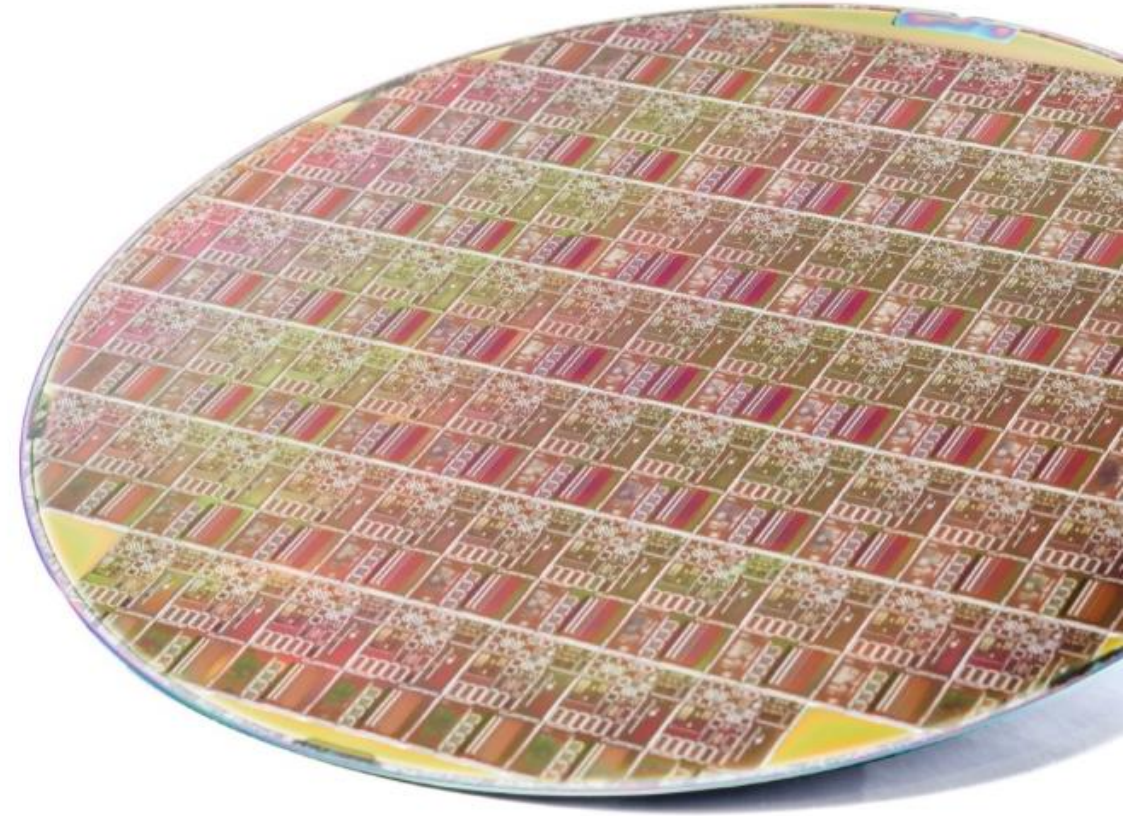


VENTURING
STARTUPS & FUNDS



Imec.IC-link & EuroPractice

Providing a fast route from prototype to volume



<https://www.imecidlink.com/en>

<https://europractice-ic.com/technologies/photonics/imec/>

Innovation platform

APPLICATION DOMAINS

HEALTH



MOBILITY



CITIES



INDUSTRIES



ENERGY



EDUCATION



INFOTAINMENT

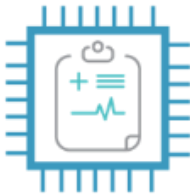


AGROFOOD

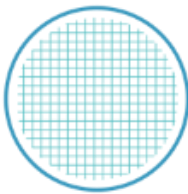


SEMICONDUCTOR & SYSTEM TECHNOLOGIES

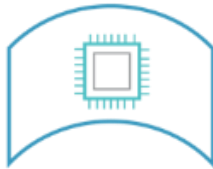
CORE
CMOS



SENSOR
TECHNOLOGY



FLEXIBLE
TECHNOLOGY



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DIGITAL TECHNOLOGY PLATFORMS

NETWORKING



DIGITAL PRIVACY &
SECURITY

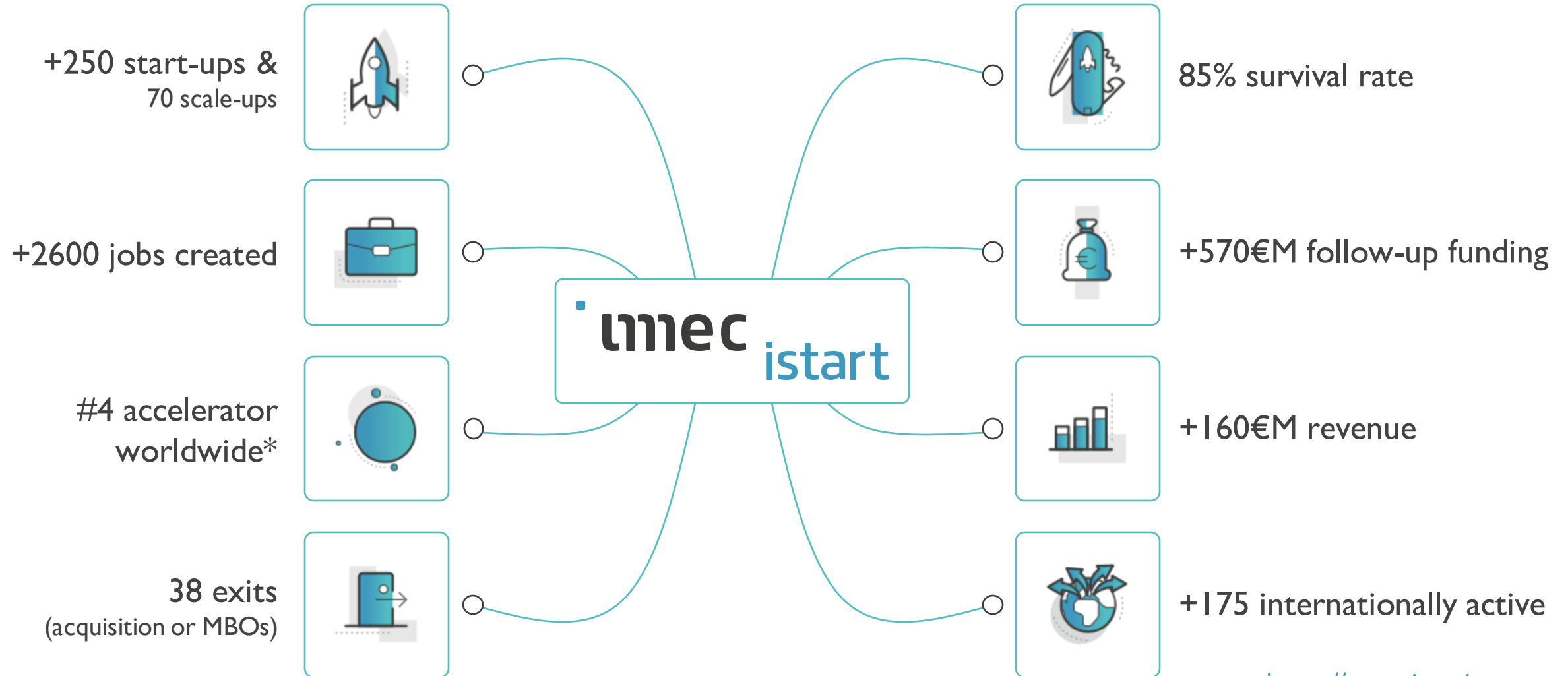


SOFTWARE & DATA
MANAGEMENT SKILLS



Imec.istart

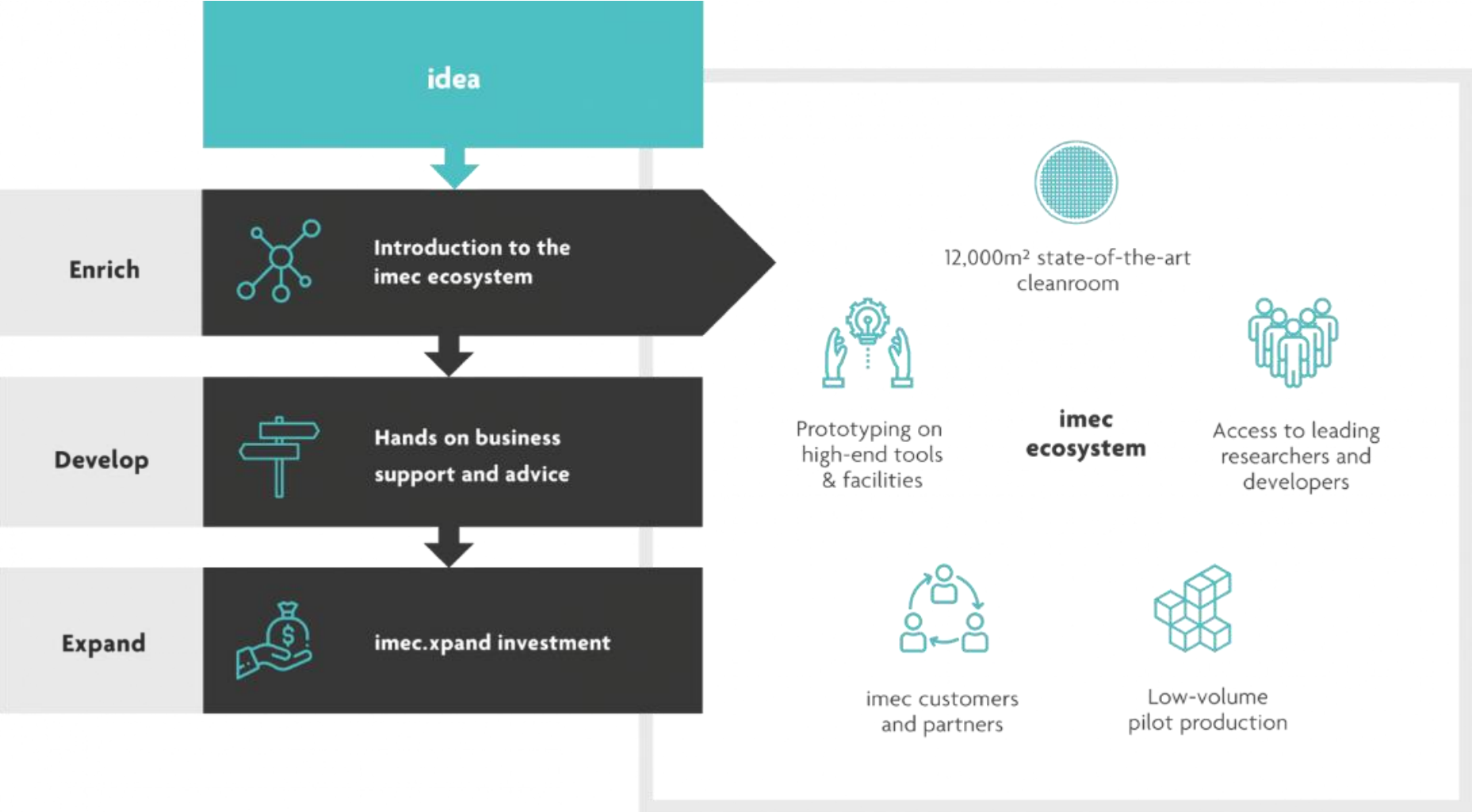
Business accelerator for digital start-ups



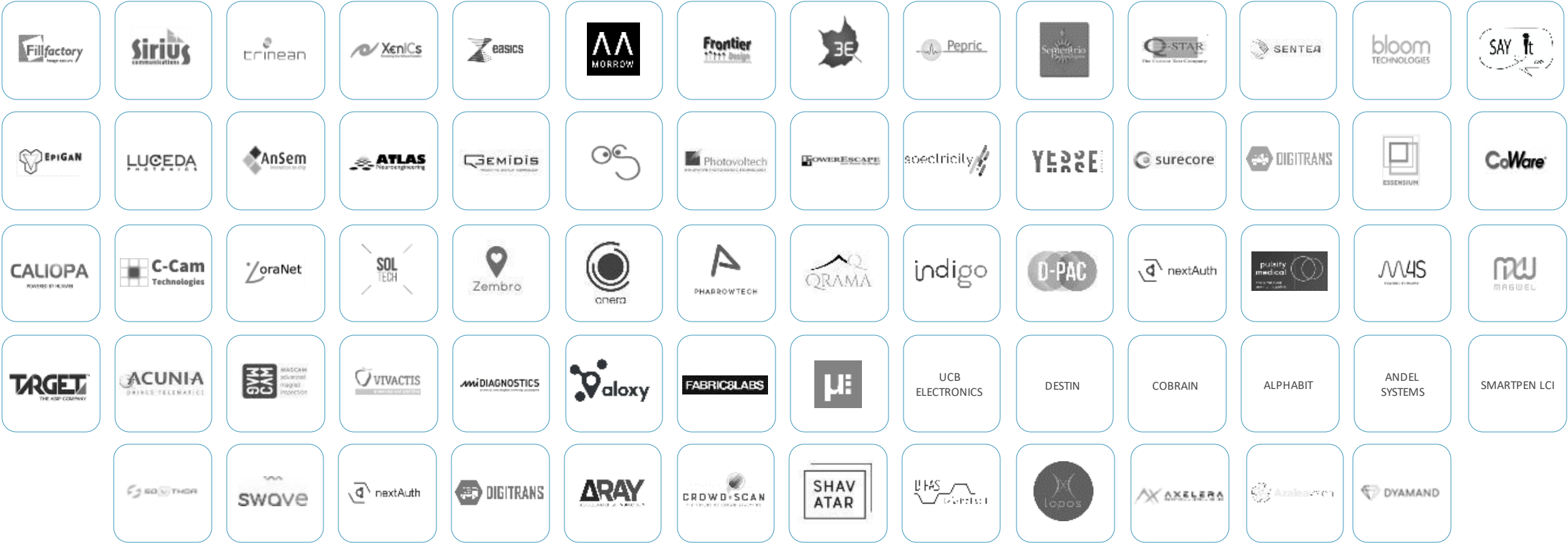
<https://www.imecistart.com/en>

Imec.xpand

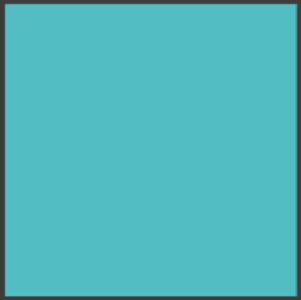
Access to imec ecosystem: infrastructure, support & expertise



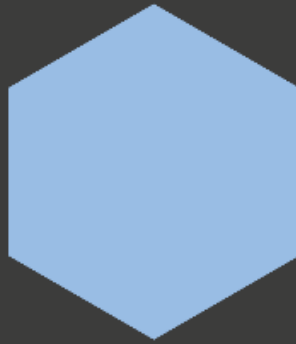
Spin-offs



Our corporate values



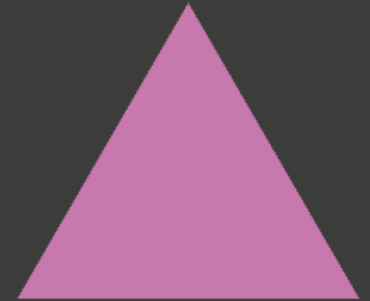
INTEGRITY



CONNECTEDNESS



PASSION



EXCELLENCE



umec

embracing a better life

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to our next webinar!**



<https://www.4ipcouncil.com/webinars>