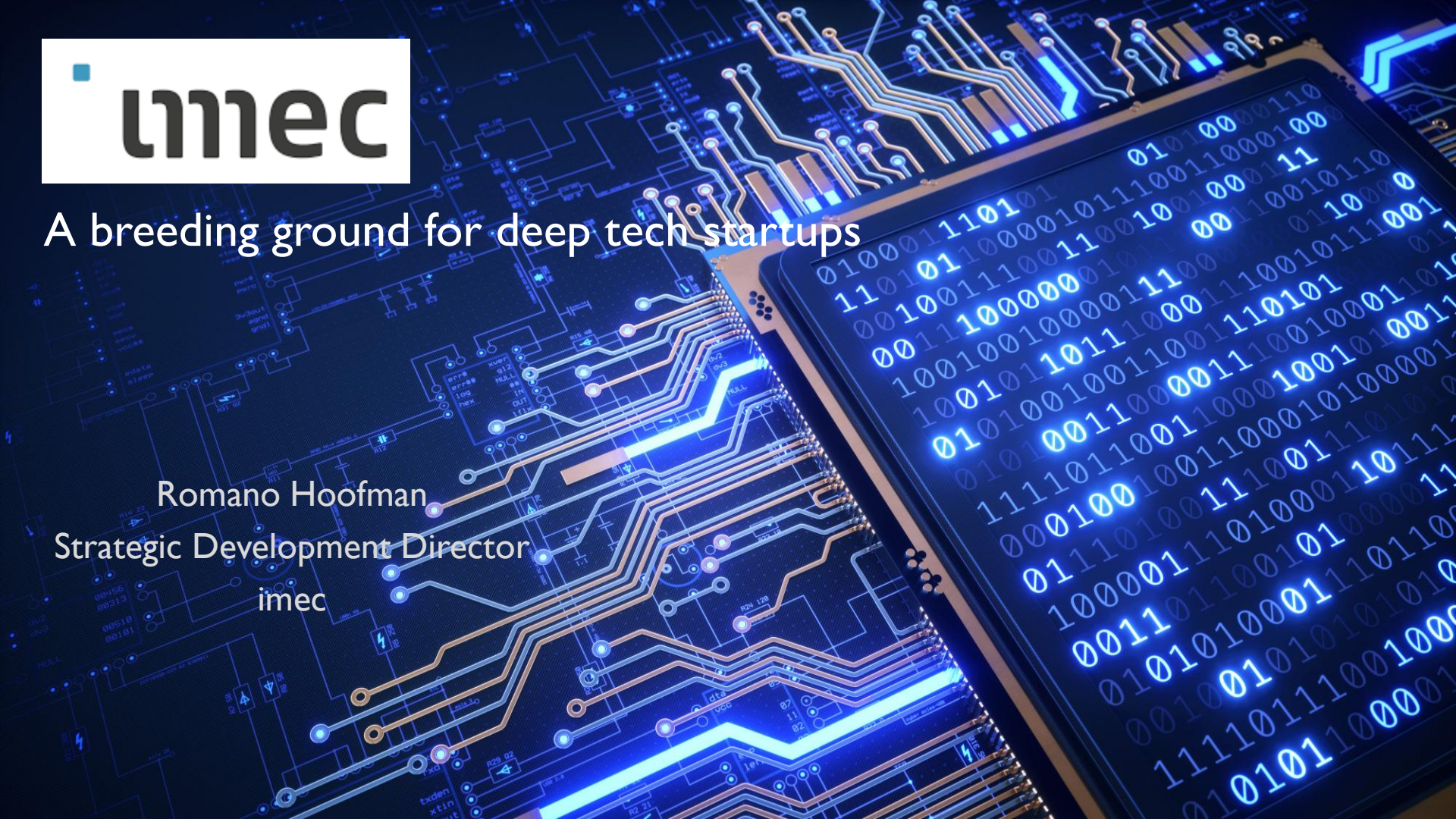




A breeding ground for deep tech startups

Romano Hoofman
Strategic Development Director
imec



The dawn of the 4th disruptive innovation wave



19th century

1st wave
industrialization

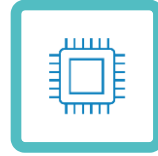
steam, steel, electricity
chemistry
communications



1945

2nd wave
technology

space rockets, nuclear power
first mainframe computers
materials innovation



1980

3rd wave
digital

SW & internet
computing &
communications HW



2015

4th wave
deeptech

HW & AI
nanotechnologies
molecular engineering

The dawn of the 4th disruptive innovation wave

Deeptech: when digital meets physical - a tale of bits and molecules



2015



4th wave
deeptech

HW & AI
nanotechnologies
molecular engineering

Deeptech start-ups address fundamental challenges



Life science

Food & agriculture

Environment

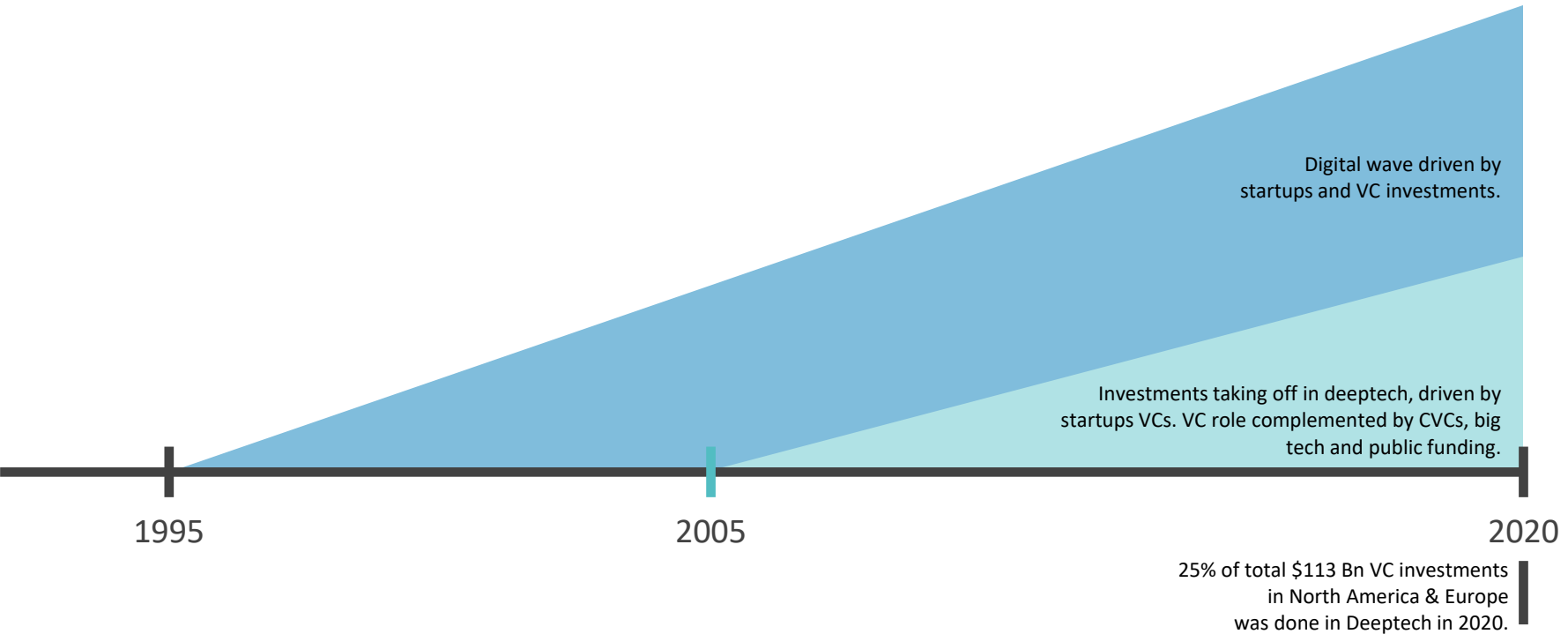
Transport

Energy

Entertainment

Communications

Investments in deeptech are taking off but challenged by risk profile



Deeptech vs. digital venturing



stronger risk profile



disruptive technology

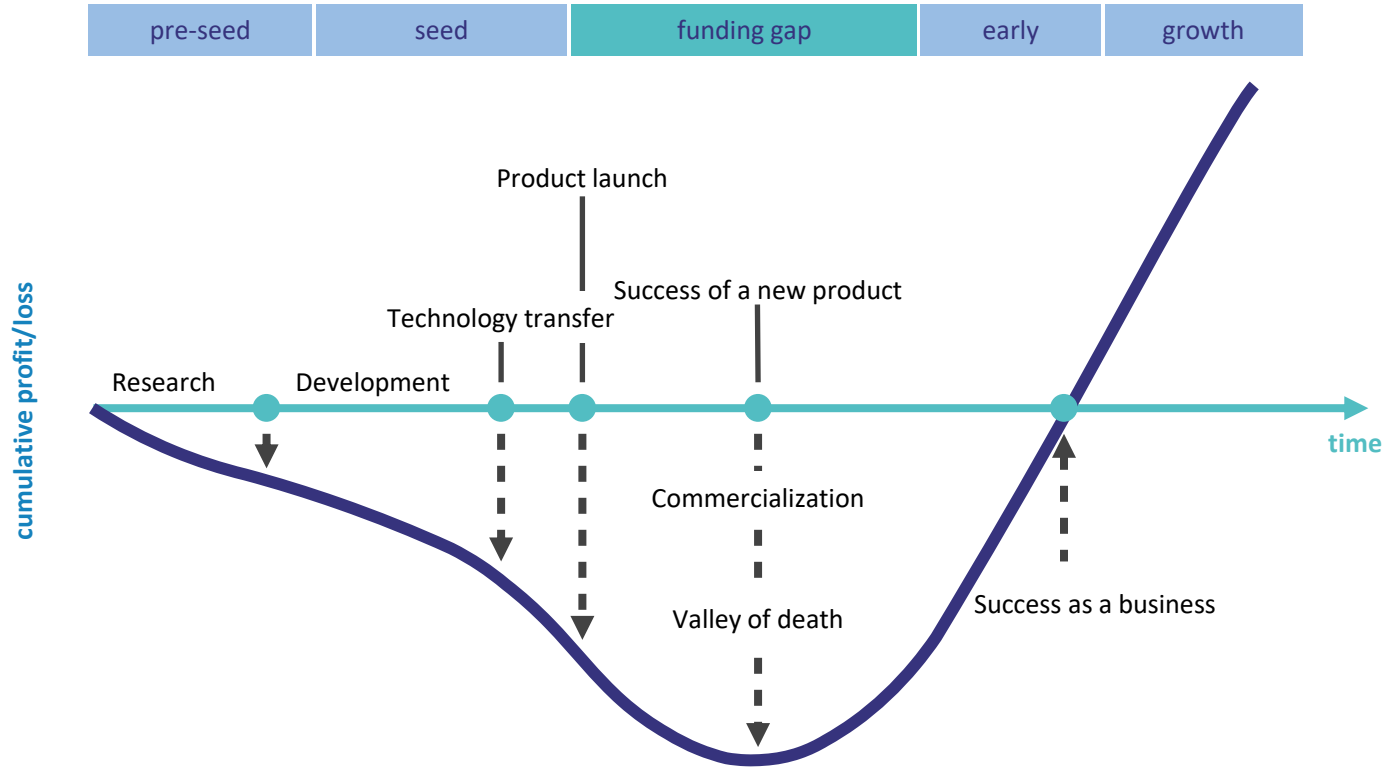


extended talent pool



new eco-system

Deeptech challenges in the valley of death



imec is
a world-leading R&D and innovation hub
in **nanoelectronics** and **digital technology**

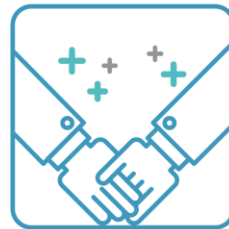




WORLD-CLASS INFRASTRUCTURE
>12,000 M²
CLEANROOM
CAPACITY



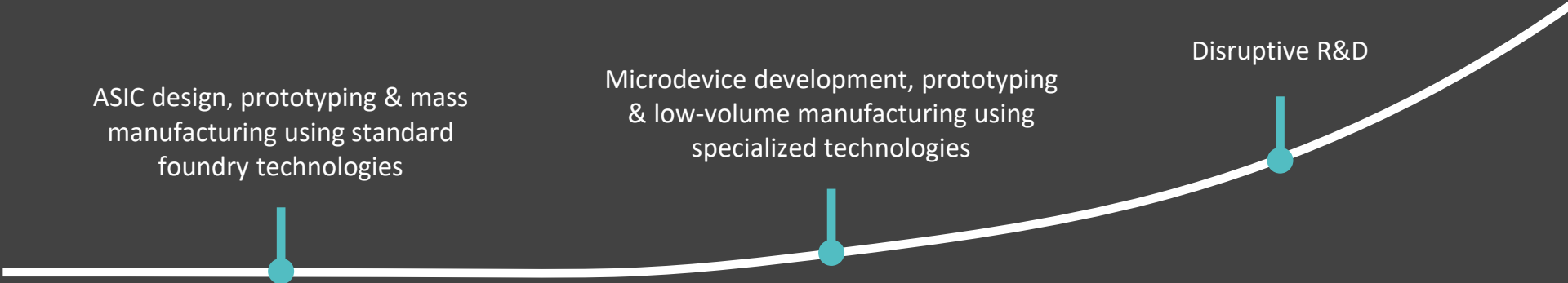
CLOSE TO
4,500 SKILLED
RESEARCHERS
FROM OVER 95 NATIONALITIES



A
TRUSTED
PARTNER FOR
COMPANIES, STARTUPS & ACADEMIA

Growing technology, infrastructure & expertise needs

Increasing risk



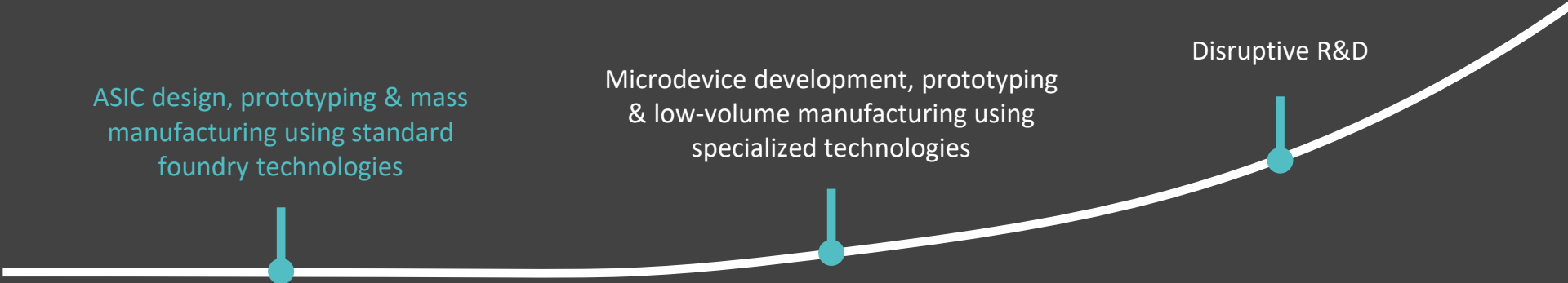
ASIC design, prototyping & mass
manufacturing using standard
foundry technologies

Microdevice development, prototyping
& low-volume manufacturing using
specialized technologies

Disruptive R&D

Growing technology, infrastructure & expertise needs

Increasing risk

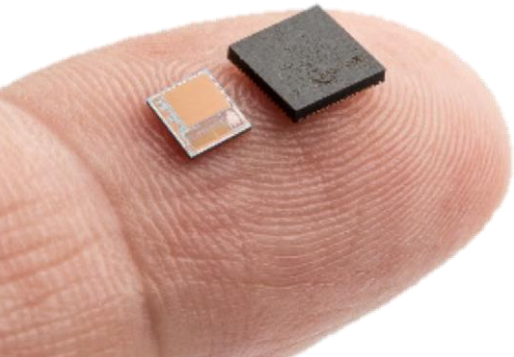
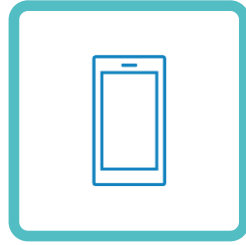


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Microdevice development, prototyping
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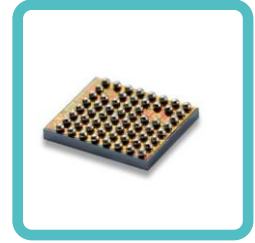
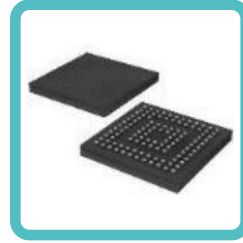
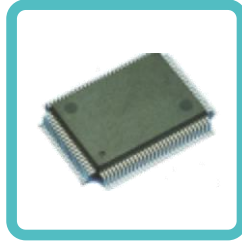
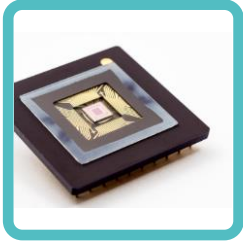
Disruptive R&D

Microchips drive the deeptech revolution



Custom silicon is a business differentiator

Application specific integrated circuits (ASICs)



UNIT COST

FORM FACTOR

PERFORMANCE

IP PROTECTION

MARKET
DIFFERENTIATION

Imec.IC-link

Providing a fast route from prototype to volume



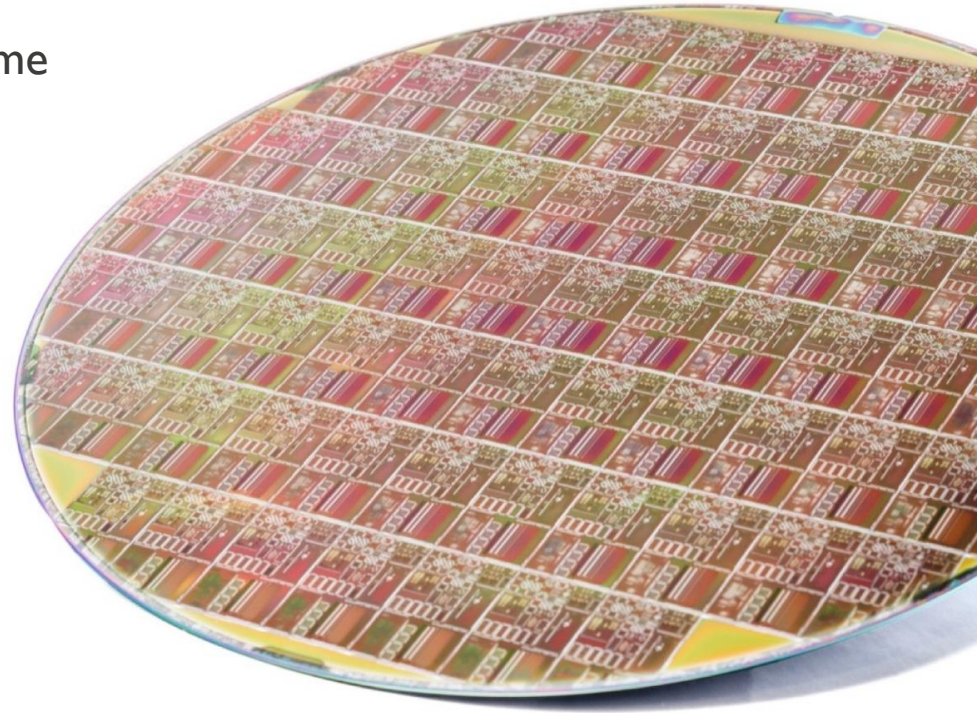
TSMCVCA

xfab

imec

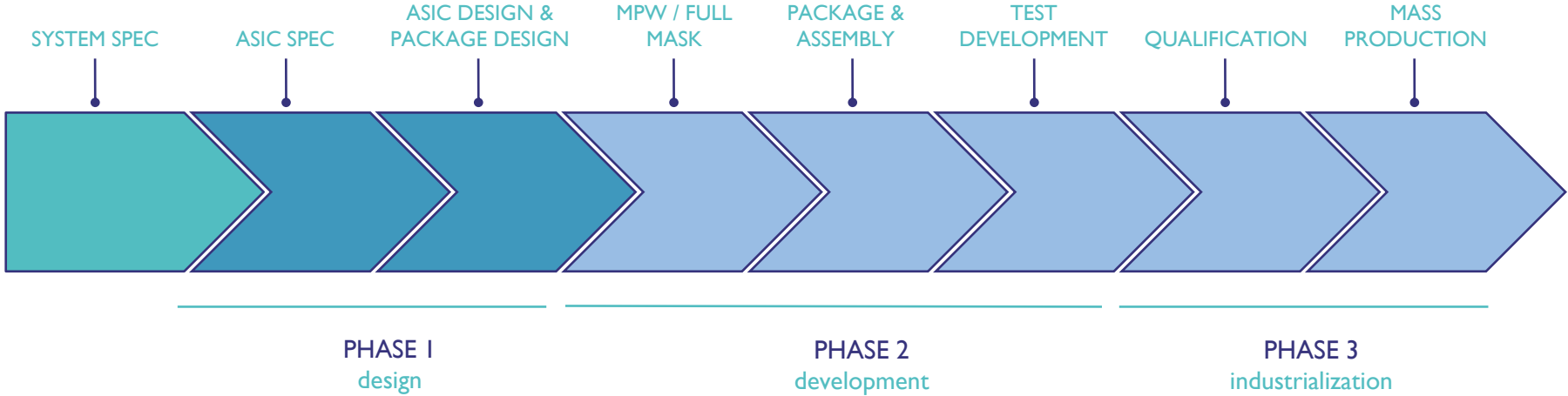
UMC

onsemi



Custom ASIC flow

From development to mass production



-  CUSTOMER
-  DESIGN HOUSE
-  IMEC.IC-LINK

Custom ASIC flow

From development to mass production



Covering the full ASIC ecosystem

Design, IP, packaging and testing





Axelera AI

Democratizing AI at the edge



*“As a start-up, we have to synchronize several steps as much as possible. But that requires a lot of coordination and **a partner who can deliver on his promises.** That’s exactly what we found in imec.IC-link.”*

Hailo

The Hailo logo consists of the word "HAILO" in a bold, sans-serif font. The letters "H", "A", "I", and "L" are in a dark blue color, while the letters "O" and "O" are in a lighter blue color. The logo is positioned in the top right corner of the slide.

Next generation AI chips

The background of the slide is an isometric illustration of a city or industrial environment. It features various elements: a factory with a robotic arm and conveyor belt, a blue car with green sensor waves, a person on a bicycle, a person walking, and a store interior with shelves of goods. A large, blue, square chip is prominently displayed in the center. The entire scene is connected by a network of white lines, suggesting a data or communication network.

*“We needed a **design partner** that helps us with what we don’t know about the **silicon development** .”*

CAIRDAC



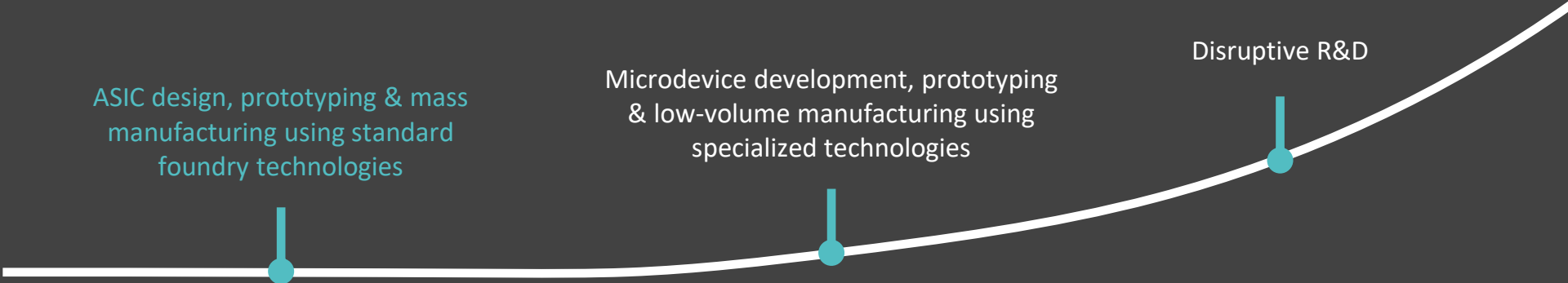
Autonomous and leadless pacemaker

*“Imec’s experience and its partners are essential for us. They provide us with the **quickest route from prototyping to productization.**”*



Growing technology, infrastructure & expertise needs

Increasing risk



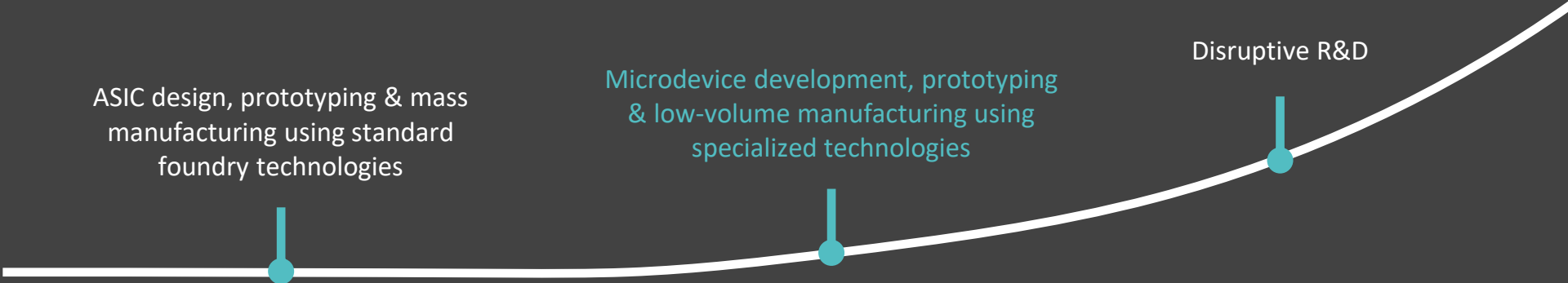
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Microdevice development, prototyping
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specialized technologies

Disruptive R&D

Growing technology, infrastructure & expertise needs

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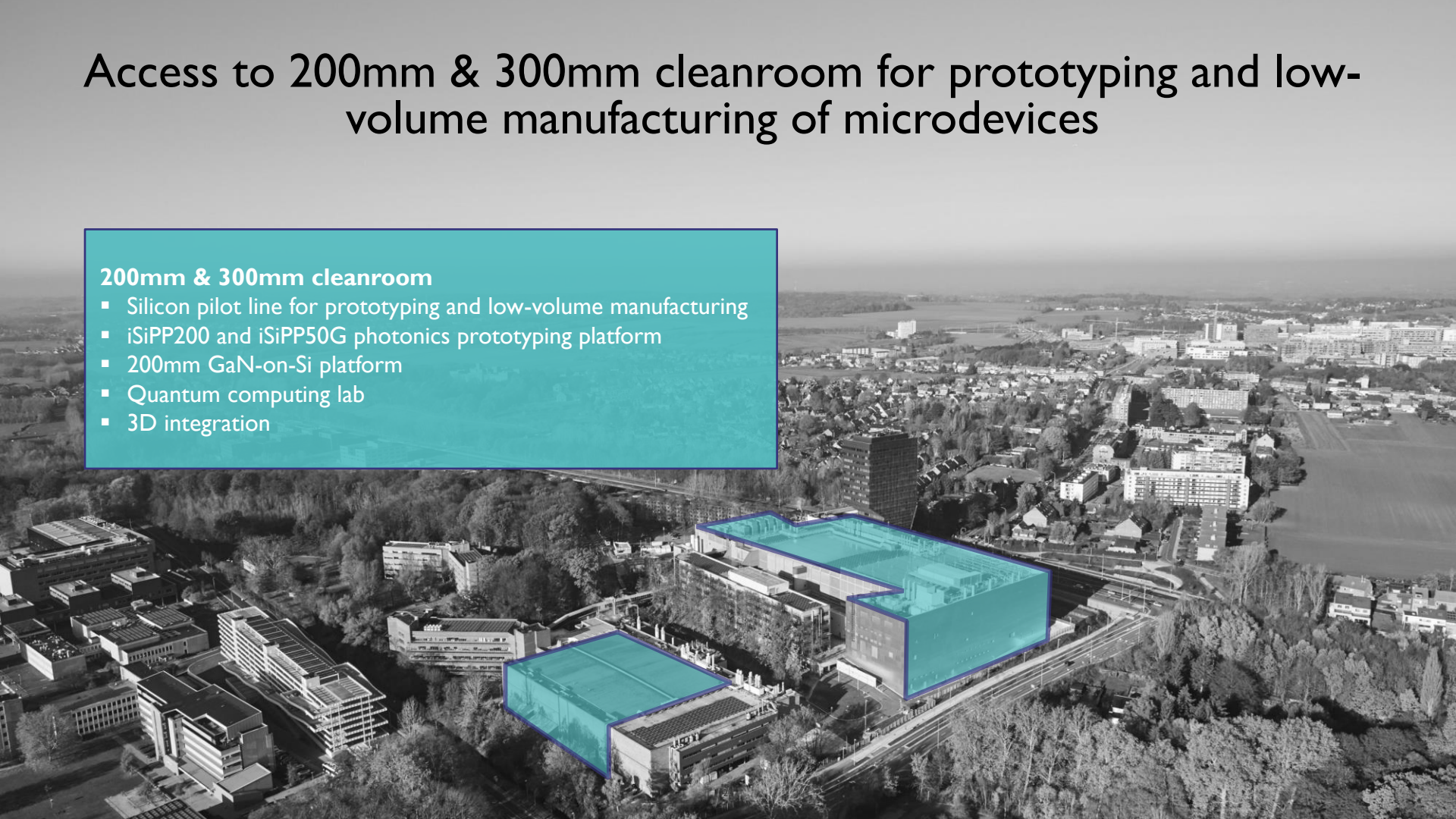
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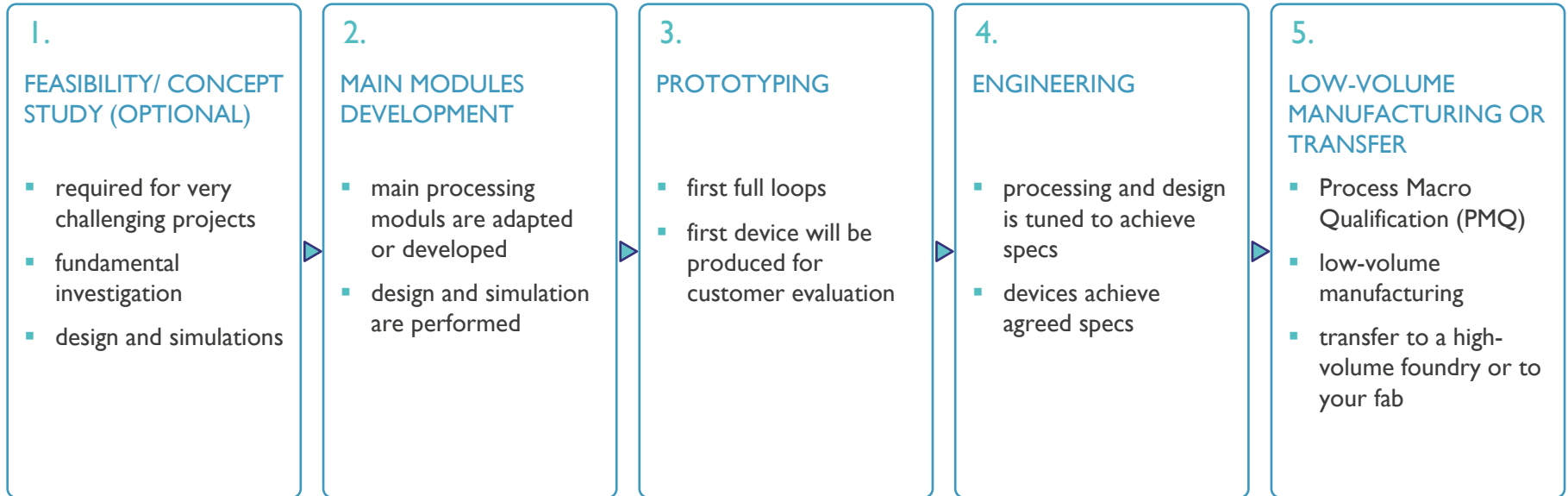
Access to 200mm & 300mm cleanroom for prototyping and low-volume manufacturing of microdevices

200mm & 300mm cleanroom

- Silicon pilot line for prototyping and low-volume manufacturing
- iSiPP200 and iSiPP50G photonics prototyping platform
- 200mm GaN-on-Si platform
- Quantum computing lab
- 3D integration



Imec guides companies through all the steps to a functional product



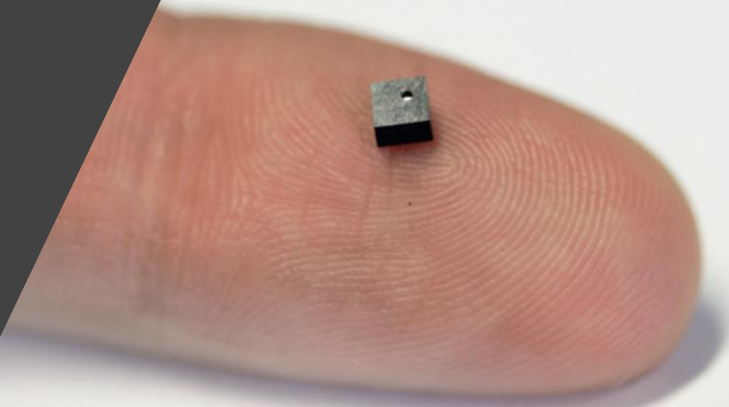
Development and photonics IC manufacturing for FMWC Lidar on chip by Scantinel

SCAN  **TINEL**®
PHOTONICS

Scan | Detect | Navigate

Spectricity

The world's tiniest spectral sensor
based on imec hyperspectral imaging
technology



spectricity 

Technology development with genomics start-ups



evonetix

3rd generation gene synthesis platform

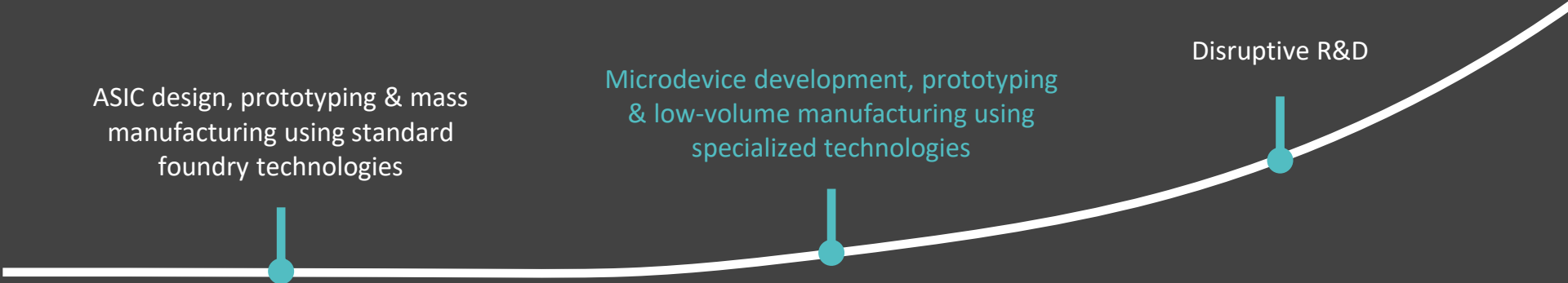


Roswell
BIOTECHNOLOGIES®

Molecular electronics biosensing chips

Growing technology, infrastructure & expertise needs

Increasing risk



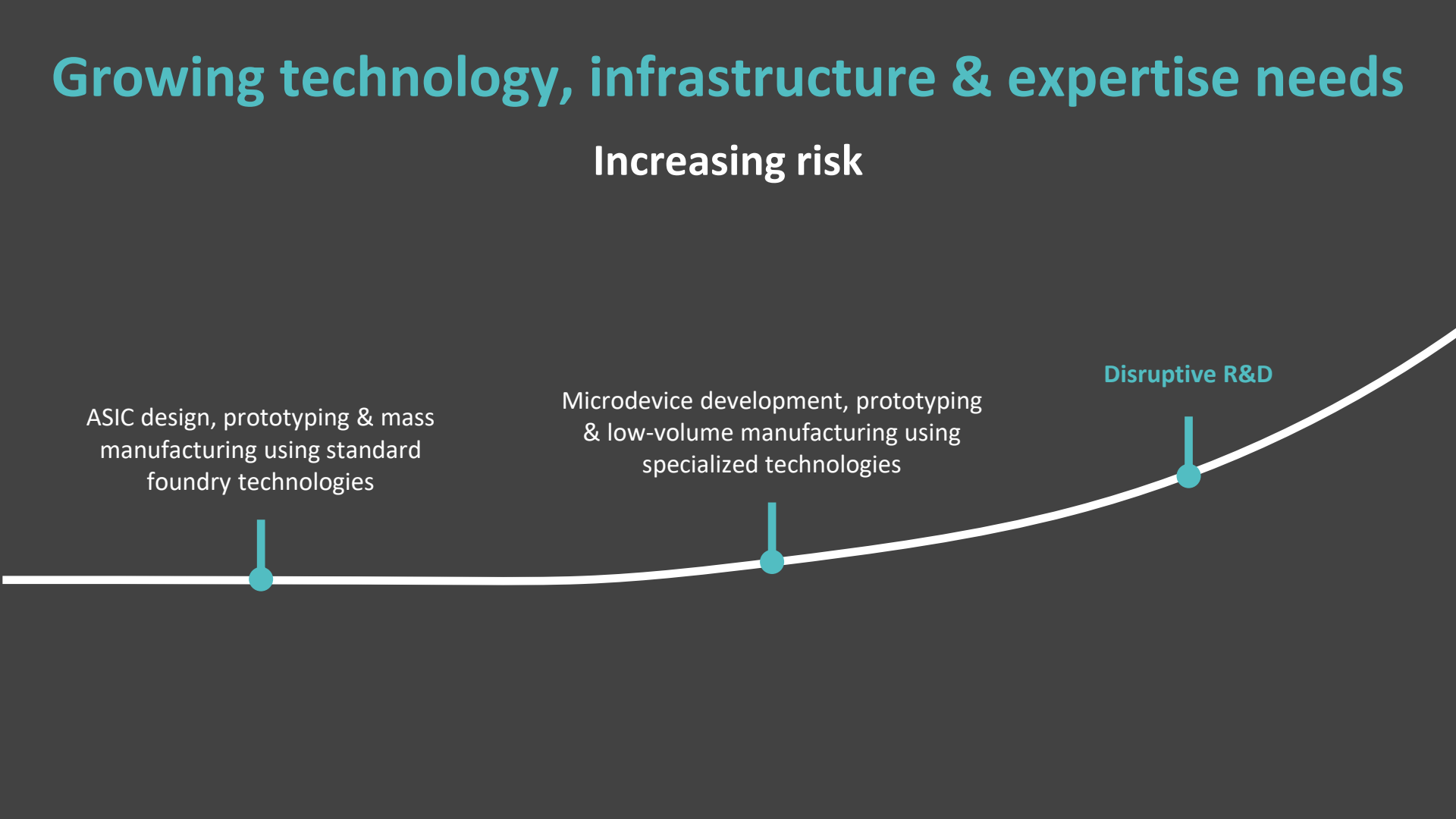
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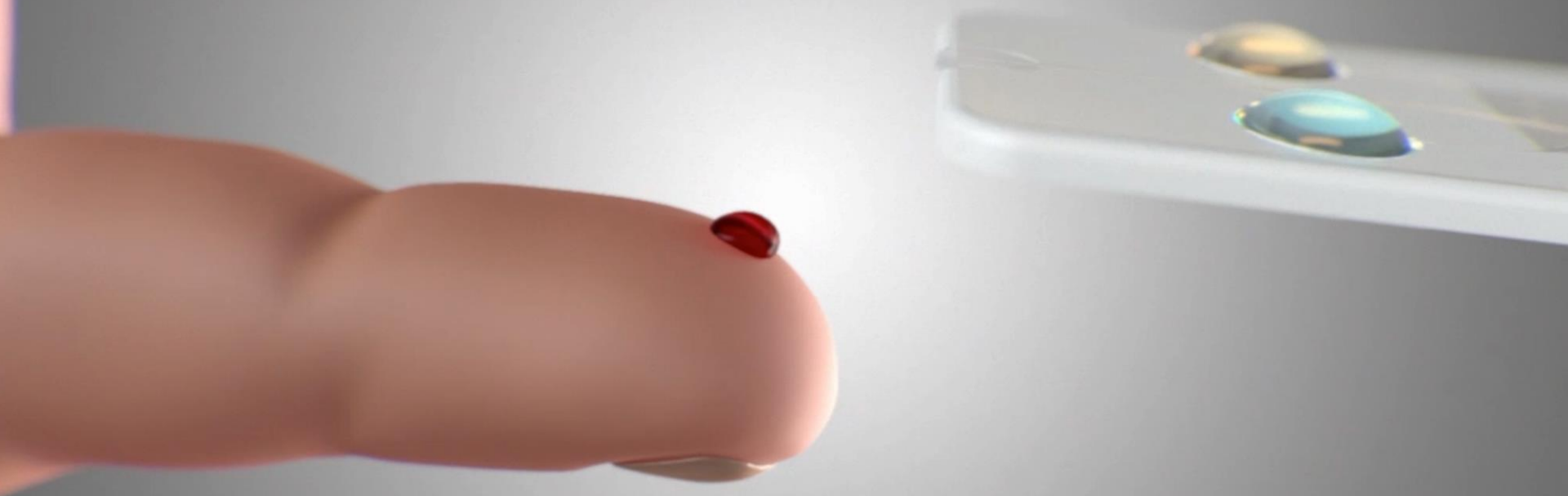


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Disruptive R&D

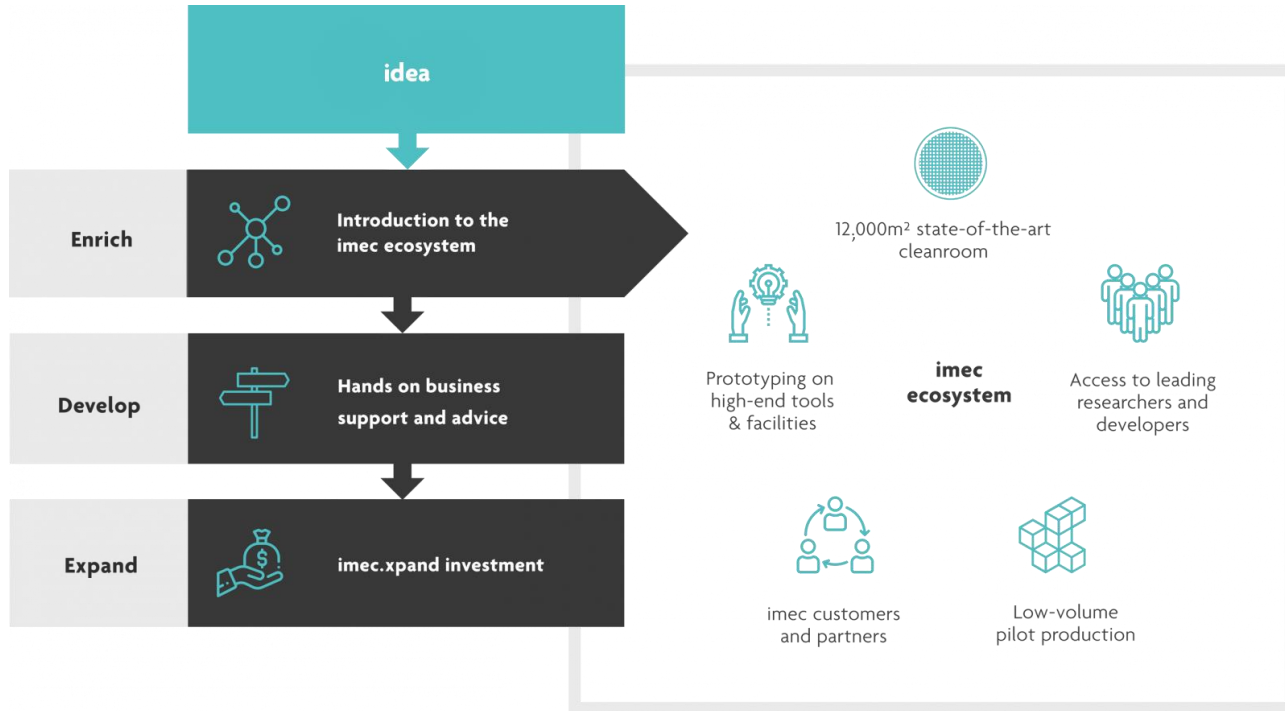
Personal diagnostics



*mi*DIAGNOSTICS

imec.xpand

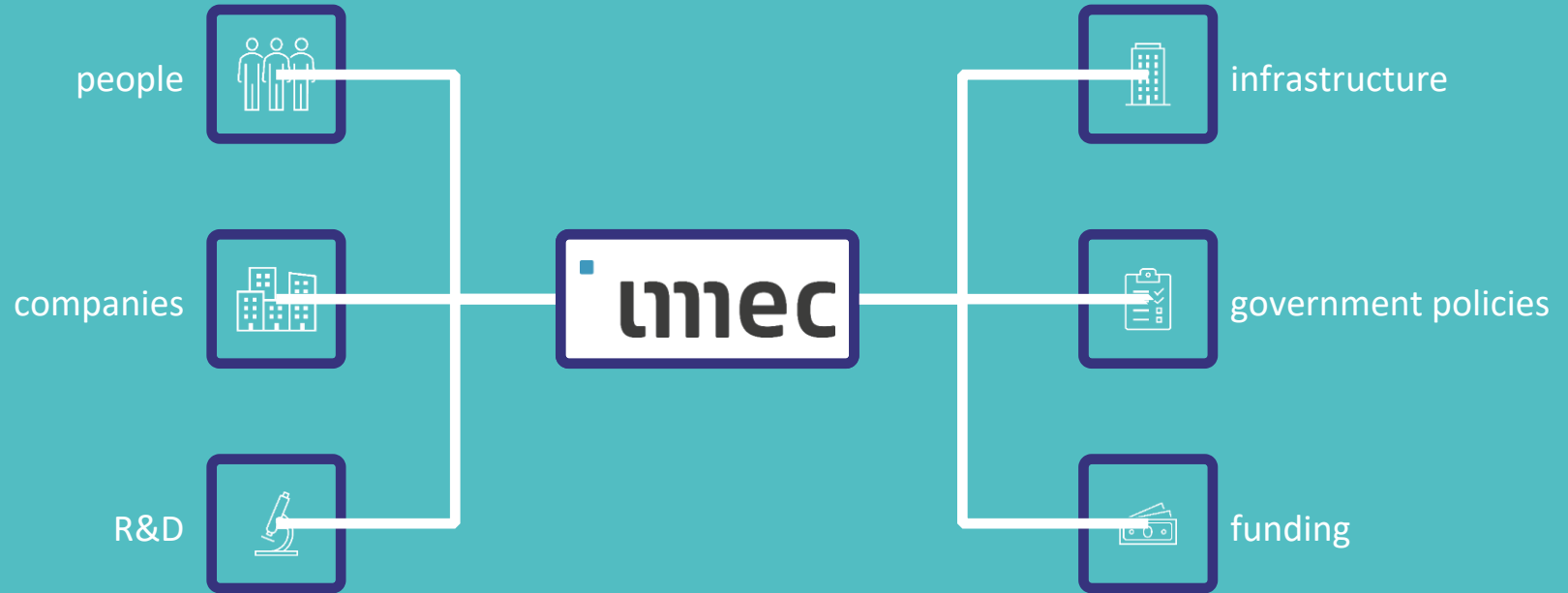
Access to imec ecosystem: infrastructure, support & expertise



**Enabling the next
wave of global disruptors
solving major challenges**



Deeptech innovation ecosystem





mec

embracing a better life