Investor Day 2025

Ready for what's next

Microsystems

The next level of integration

Volker Herbig, Vice President Business Unit Microsystems

Playing to our strengths

X-FAB's three strategic technology pillars

Powering the future

More efficiency for e-power generation, conversion, distribution, and storage

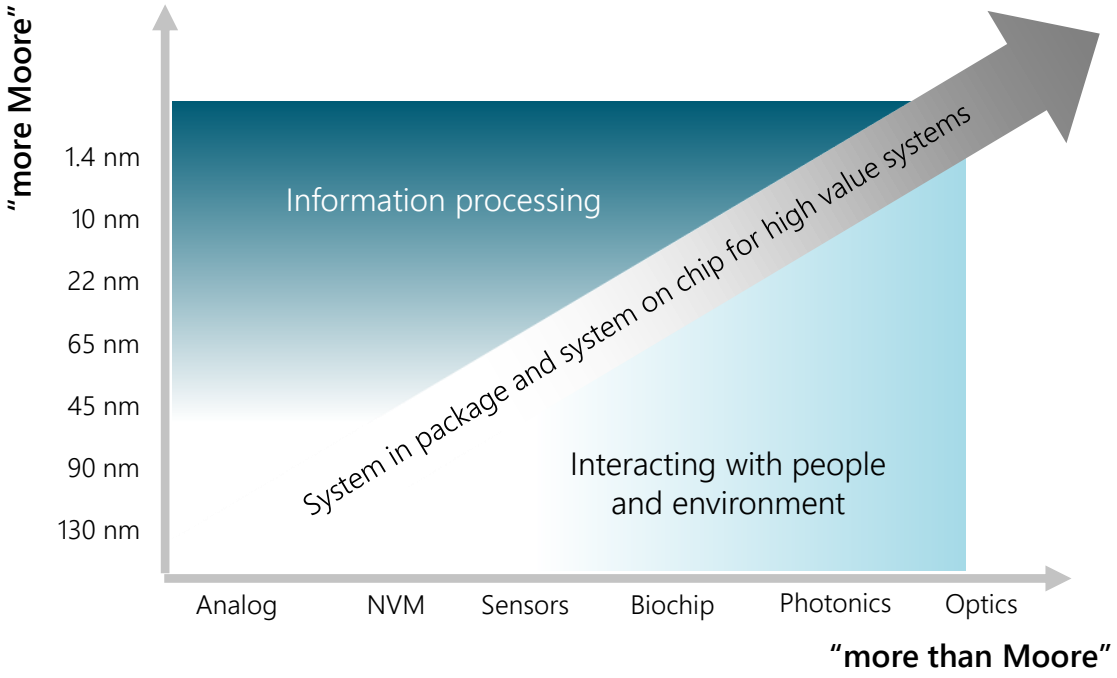
Sensing the real world

Smart sensors everywhere: automotive, medical, industrial automation, and consumer

The next level of integration

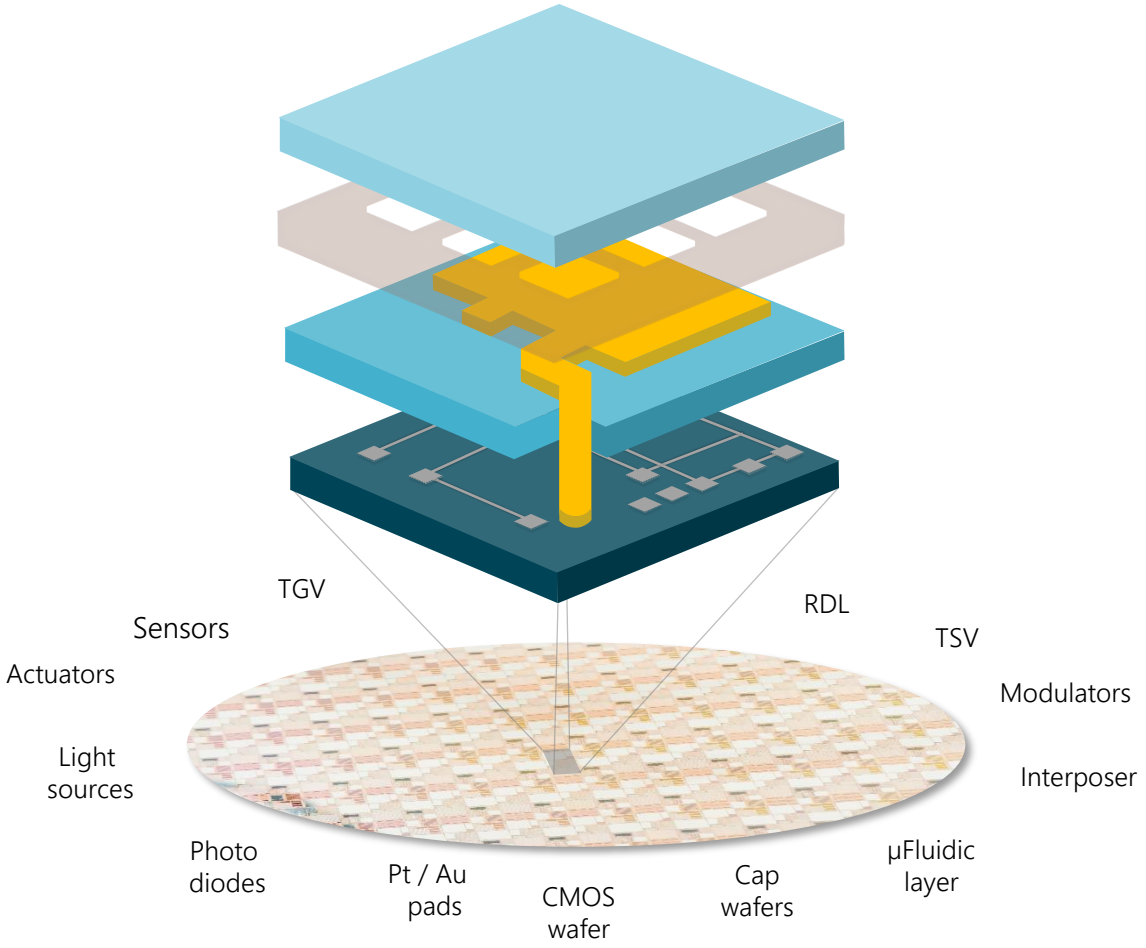
Continuous minimization of form factor, smart integration, and lower cost

Advances in semiconductor technology



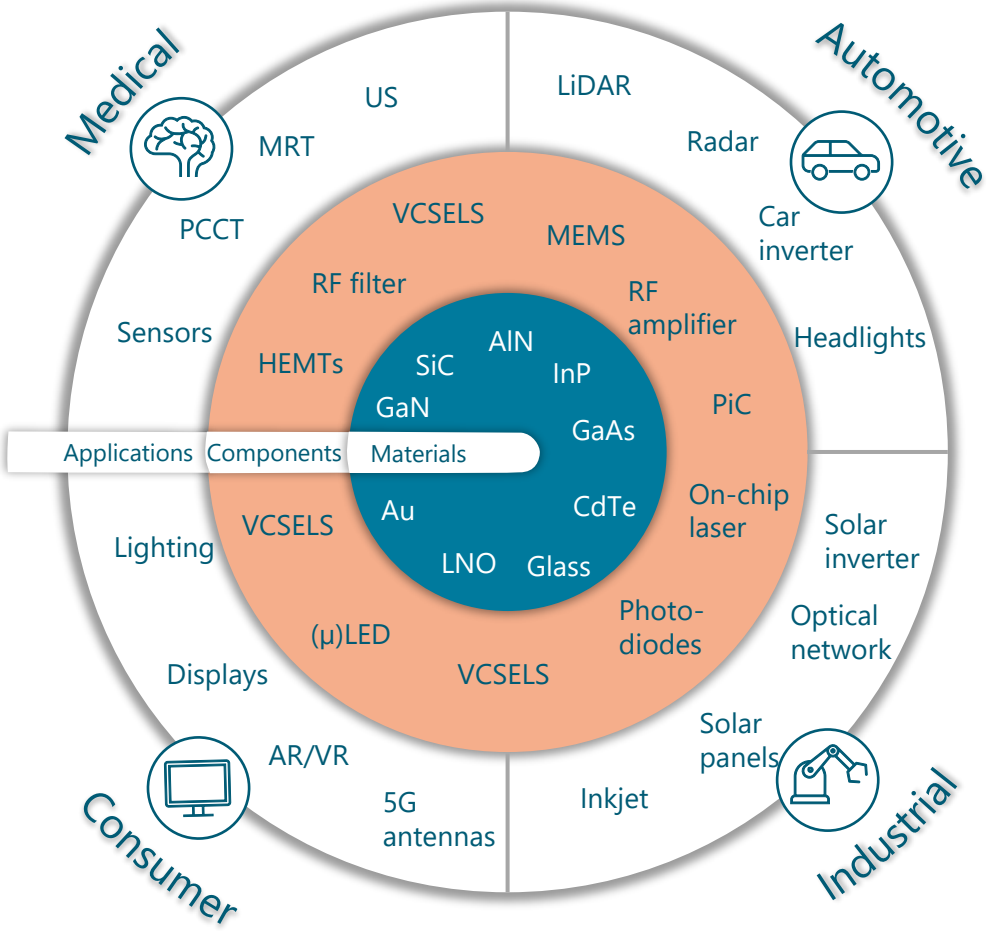
- Semiconductor technology is advancing on 2 tracks
  - "More Moore"
  - "More than Moore"
- New playing field of integrating best-in-class features from both tracks has emerged
  - 3D system integration on wafers or substrates creating systems on chips (SoC) or system in package (SiP)
- X-FAB has chosen to play in this area
  - Pull by existing and new X-FAB customers

Wafer-level chip scale microsystems



- Wafer-level: instead of building and packaging each chip one by one, everything is done while the chips are still part of a wafer.
  - 3D integration of best-in-class elements
- Chip scale: the final packaged device is almost the same size as the chip itself
- Why it matters:
  - Smaller and thinner
  - Higher performance and lower power
  - Lower system cost
  - More reliable

Driving performance with novel materials



- Introduction into semiconductor fabrication is a complex, painful process
- Materials vary in their stages of introduction at X-FAB:
  - Mature: SiC, GaN, Au, Pt
  - Developing: InP, LNO, AlN , GaAs, Glass
- Why it matters:
  - Enables breakthroughs in system performance

Momentum for X-FAB microsystems

EUR 730 million R&D RTO funding via EU Chip Act in APECS, in wafer level chip scale microsystems in Germany

EU pilot lines

APECS
Advanced packaging and heterogeneous integration

NanoIC
Beyond 2nm on chip technologies

WBG
Wide band gap materials (GaN, SiC)

FAMESs
FD-SOI applications

PIXEuropa
Photonics integrated circuits

Technologies

- 3D integration
- Chiplet architectures
- Heterogeneous integration
- System-in-Package (SiP)

Outcomes

- Demonstrators
- European capabilities in 3D integration
- Support for SMEs and startups

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Technologies

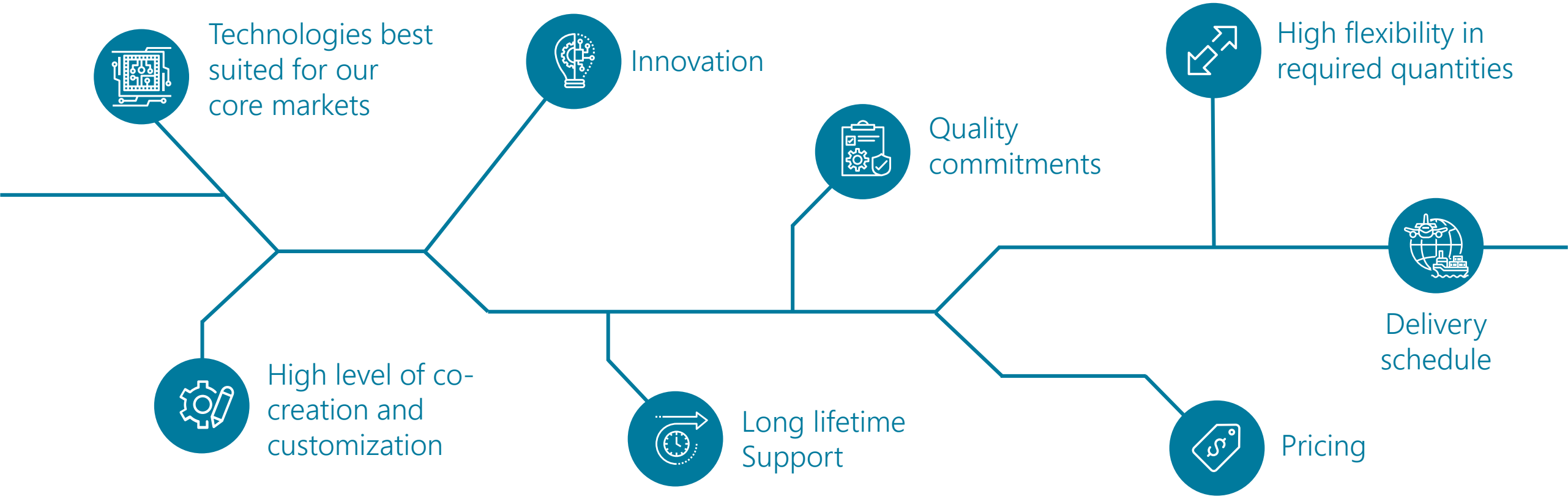
- 3D integration
- Chiplet architectures
- Heterogeneous integration
- System-in-Package (SiP)

Outcomes

- European capabilities in 3D integration in high volume
- Support for startups, SMEs and large customers

X-FAB is developing supply chains

Our proven business model enables continuous growth and long-term success in automotive, industrial, and medical markets

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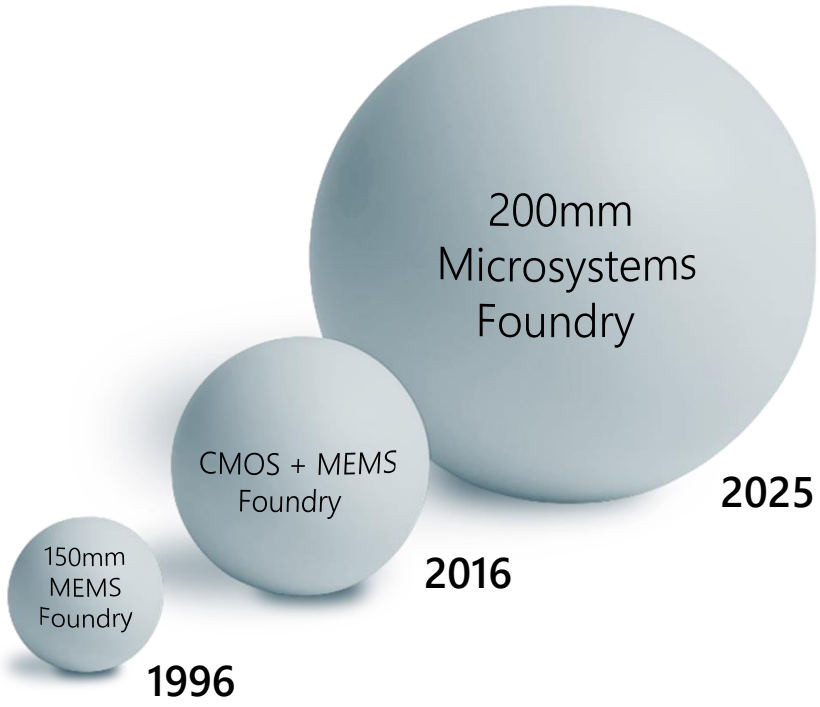
Business

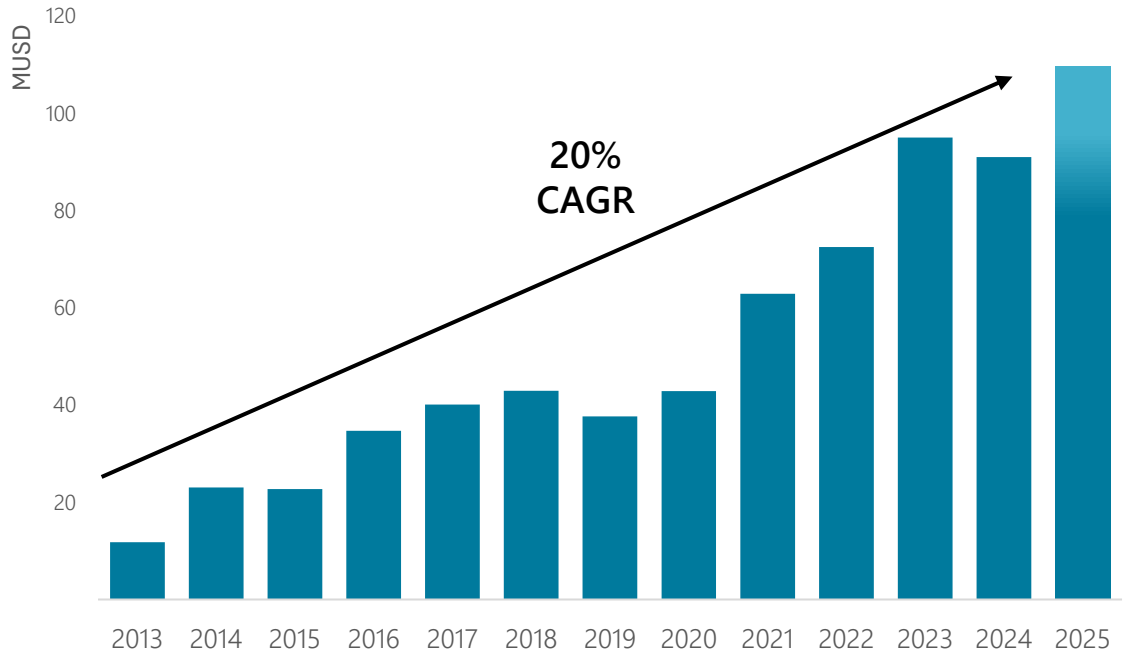
Tenfold growth in total addressable market



- Successful transitioning from 150mm MEMS to microsystems foundry
  - Novel material integration
  - Wafer level chip scale microsystems on
    - X-FAB CMOS
    - Alien (non-X-FAB) CMOS
  - 200mm MEMS
- Why it matters:
  - 10x total addressable market increase (TAM)
  - More and different customers
  - More and different applications
  - Higher average selling price (ASP)

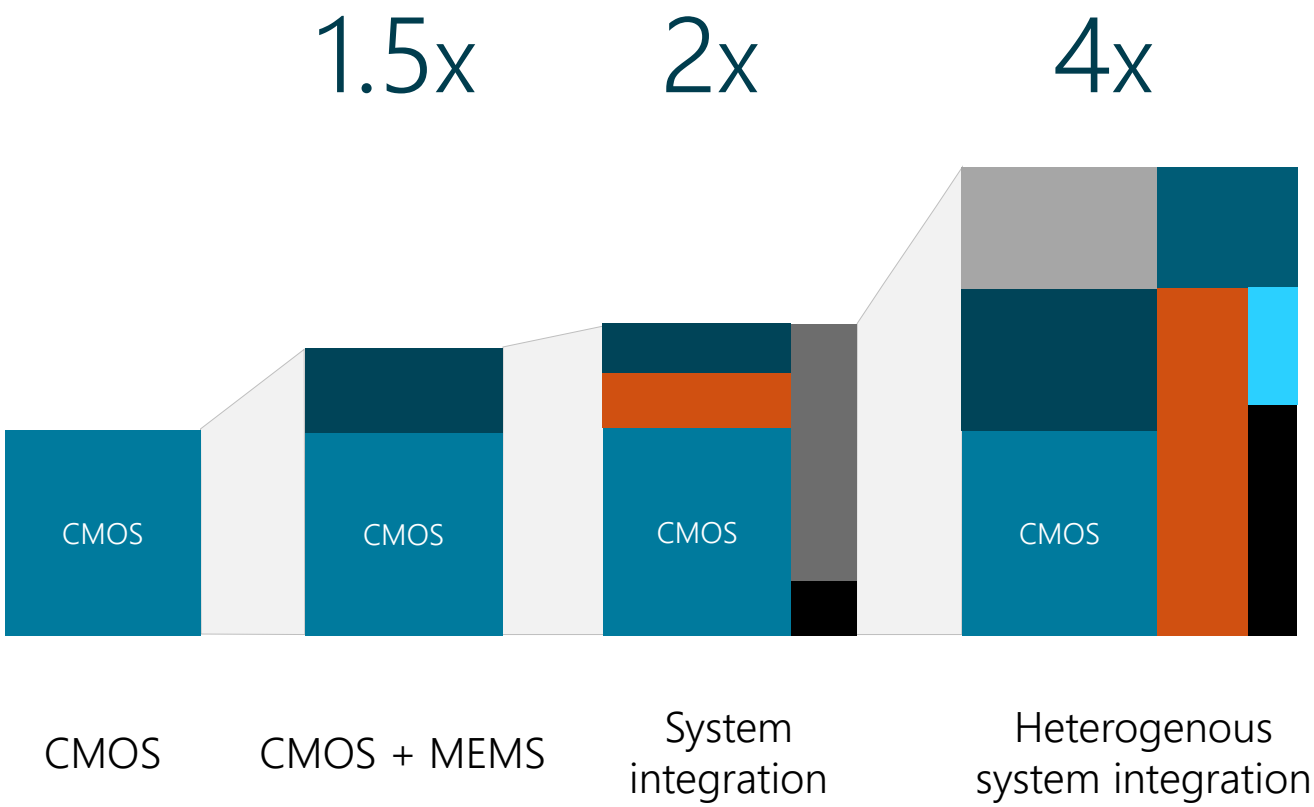
Strong revenue growth in microsystems

20% CAGR anticipated for next five years



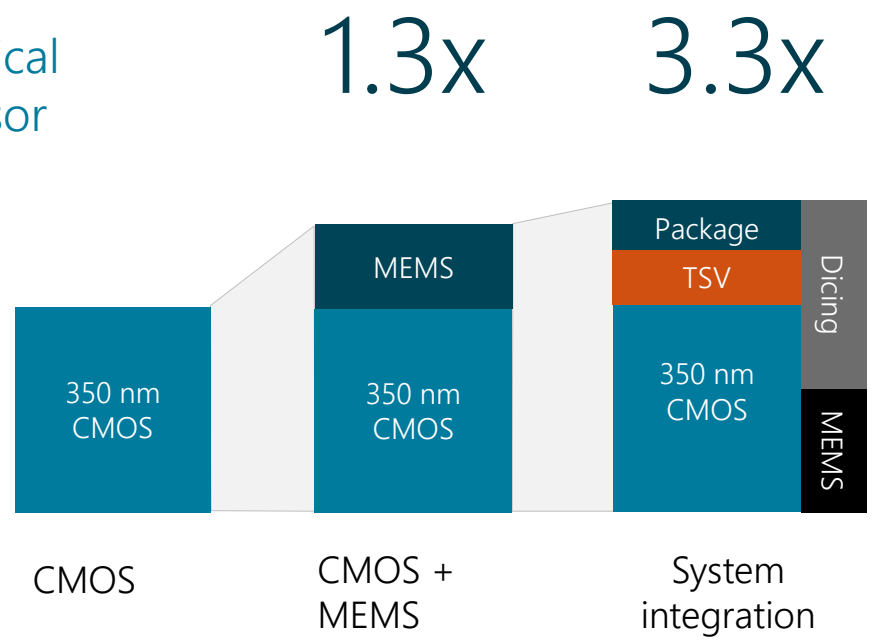
- USD +100 million in 2025
- Strong pipeline to maintain 20% CAGR until 2030 and beyond
- Catalyst for further X-FAB growth

Value-add is increasing CMOS ASP up to 4x



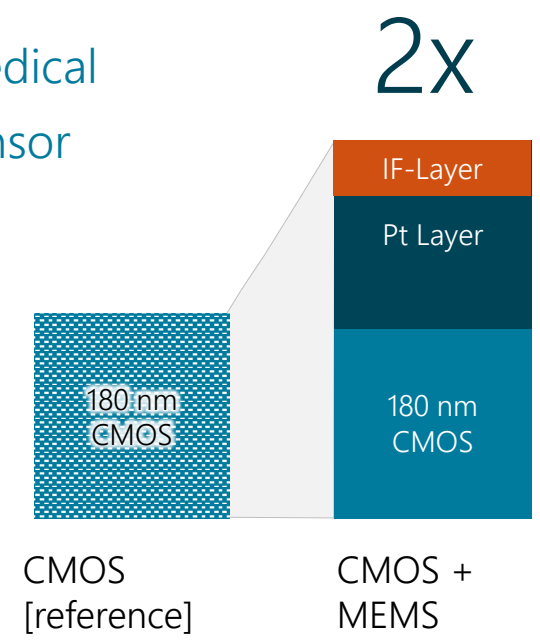
Real-life examples of ASP increase

Optical sensor



- Lower total bill of material cost
- Higher performance
- Smaller form factor

Medical sensor



- Smaller systems
- Higher performance

Significant growth opportunities

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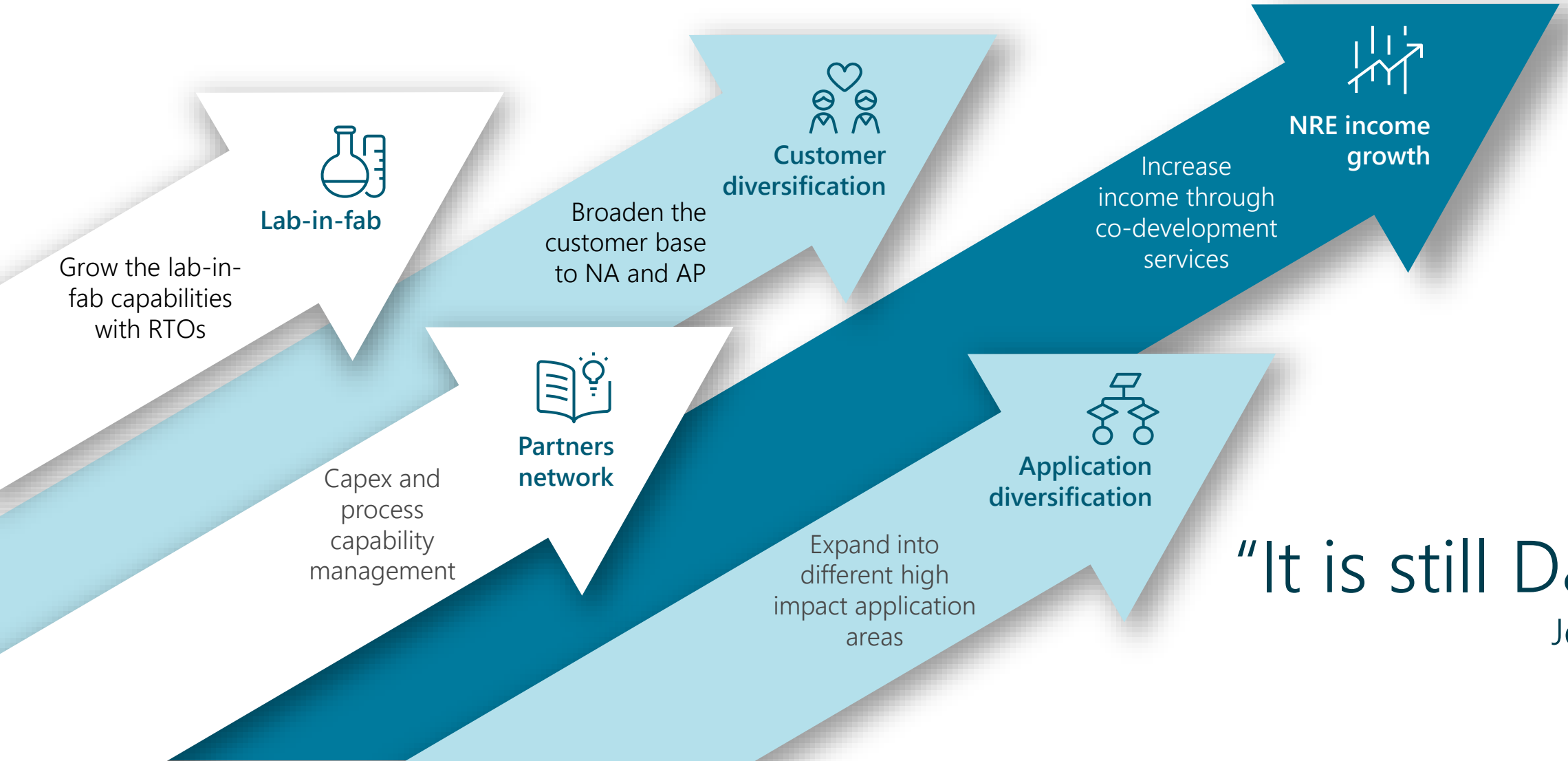


"It is still Day 1"

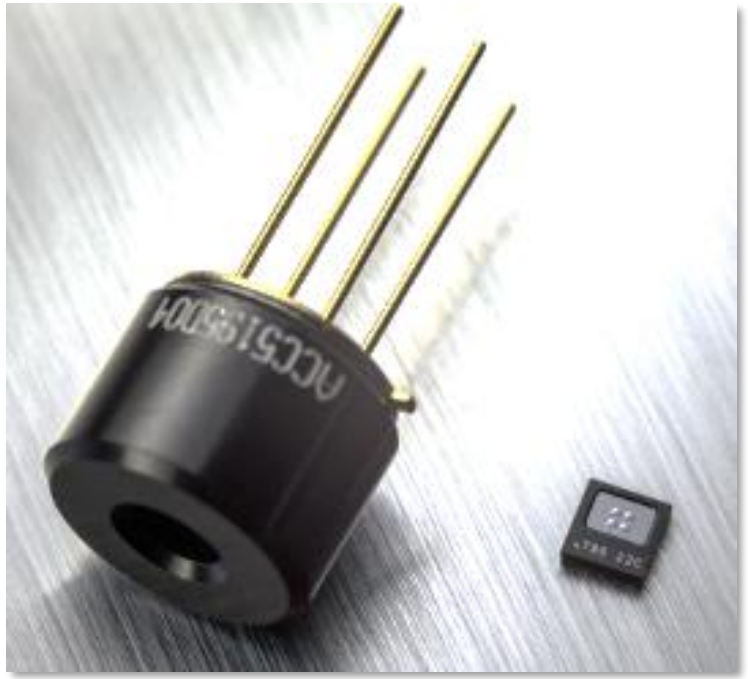
Jeff Bezos

Applications

Pushing the performance envelope


DEUTSCHER
ZUKUNFTSPREIS
WOB TG 571
H NV 270

Wafer-level chip scale microsystem for infrared sensors



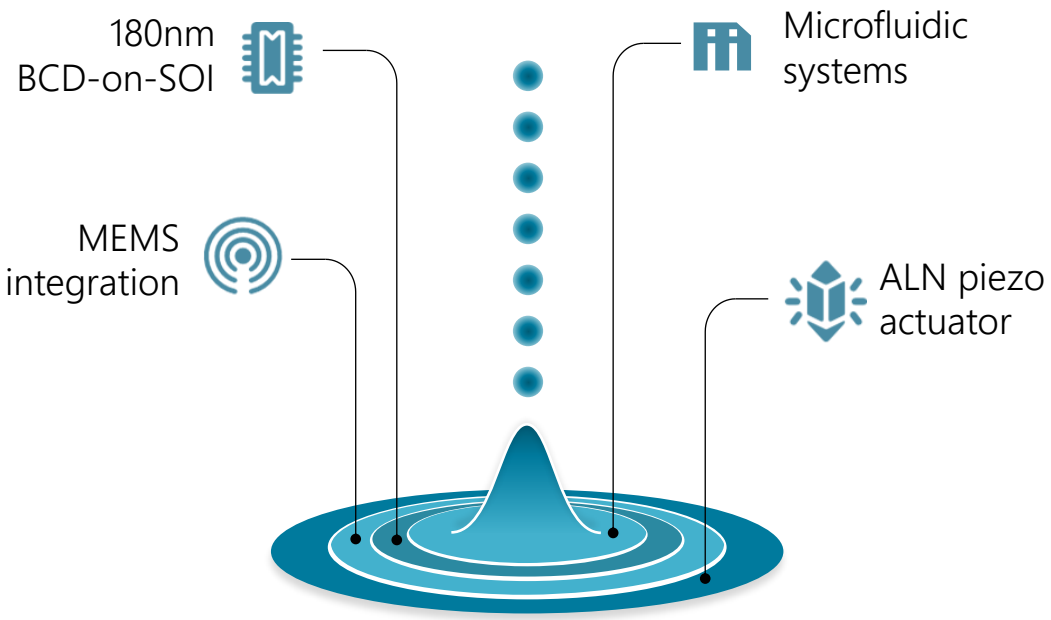
Discrete **Integrated Gen1**

Product	Resolution	Volume mm3	Package	Power Consumption	Cost	Application
IR Sensor Discrete	medical	350	TO Can	good	expensive	Industrial
IR sensor Integrated Gen1	medical	10	QFN (WLSCP)	better	good	personal health
IR sensor Integrated Gen2	medical	4	QFN (WLSCP)	better	better	personal health

- Over the past 10 years, collaboration with our customer has led to breakthrough performance for contactless body temperature measurement.
- Why it matters:
  - Enhanced performance with medical-grade resolution
  - Lowered system cost despite higher ASP
  - Significant reduction in size
  - Market expansion – addressing the large, untapped market of personal health on mobile devices

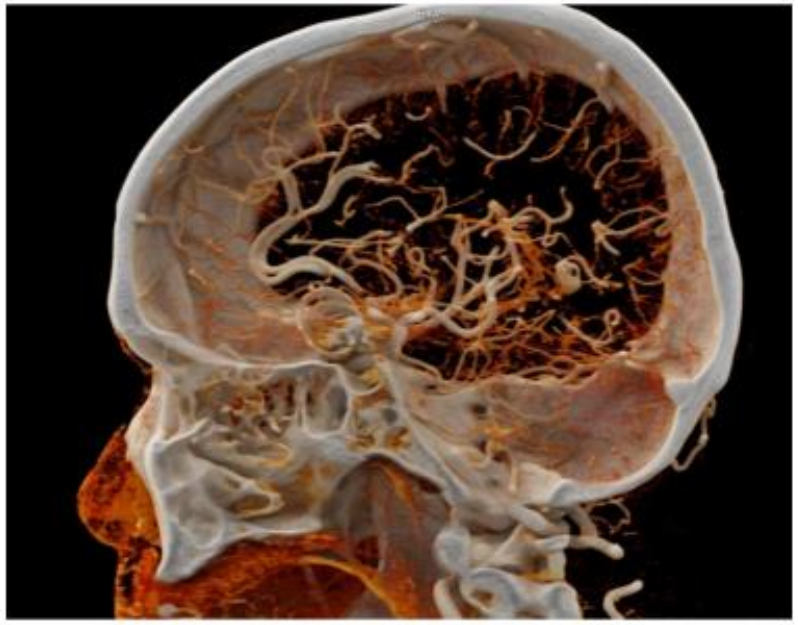
Wafer-level chip scale microsystem for inkjet printheads

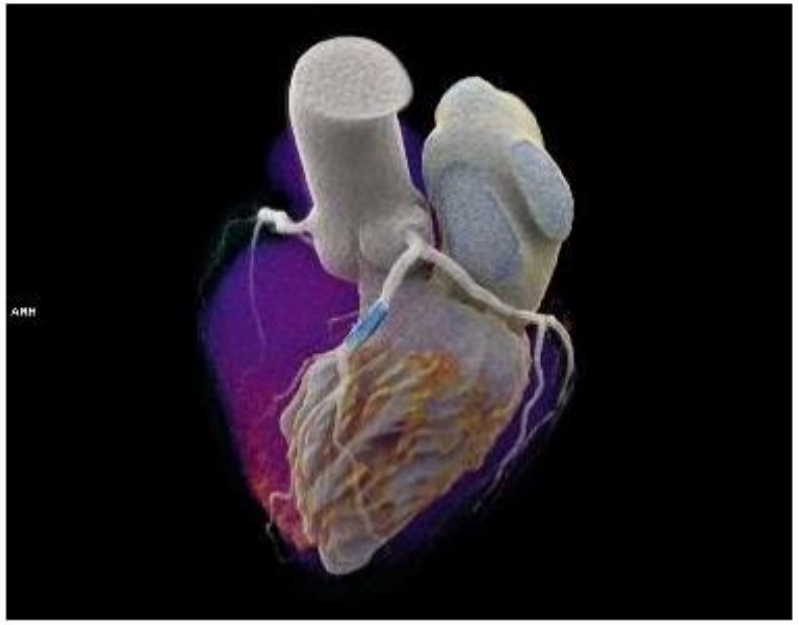
Convergence of innovations



- Integration of X-FAB's distinctive technologies (**BCD-on-SOI, MEMS, µFluidic, innovative piezo actuator**) to develop a wafer-level chip scale high-resolution inkjet print head is highly unique
- Why it matters:
  - Enhanced resolution
  - Capable of printing everything on anything
  - Reduced system cost
  - Market expansion – targeting an untapped market for X-FAB

Wafer-level chip scale microsystem for photon-counting computed tomography





DEUTSCHER ZUKUNFTSPREIS

Key takeaways

- Significant public investment in microsystems R&D across Europe creates business opportunities
- The addressable market is ten times larger than the 150mm MEMS market and has substantially higher average selling prices (ASPs).
- Projected compound annual growth rate (CAGR) of 20% over the next five years.
- X-FAB has an early mover advantage
- Robust profitability has been achieved.
- Serving purpose-generating applications

It is still Day 1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Thank you.
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