Technology Infrastructures for the Chips Act – the foundation for the road from applied research to industrial applications

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Technology Infrastructures – RTO Pilot Lines
Closing the GAP between Research and Commercial Production

Proven strengths of German RTO based on technology infrastructure

Research Fab Microelectronics Germany (FMD):
- **> 2,500 scientists**
- **20,000 m² clean room**
- **350 € Mio Capex investment 2017-2020**
- **Assets of ca. 1.5 € Bn**

Targets for European Technology Infrastructures

Technology Sovereignty
- Mission critical technology capabilities
- Access for research, academia, industry

Innovation Accelerator

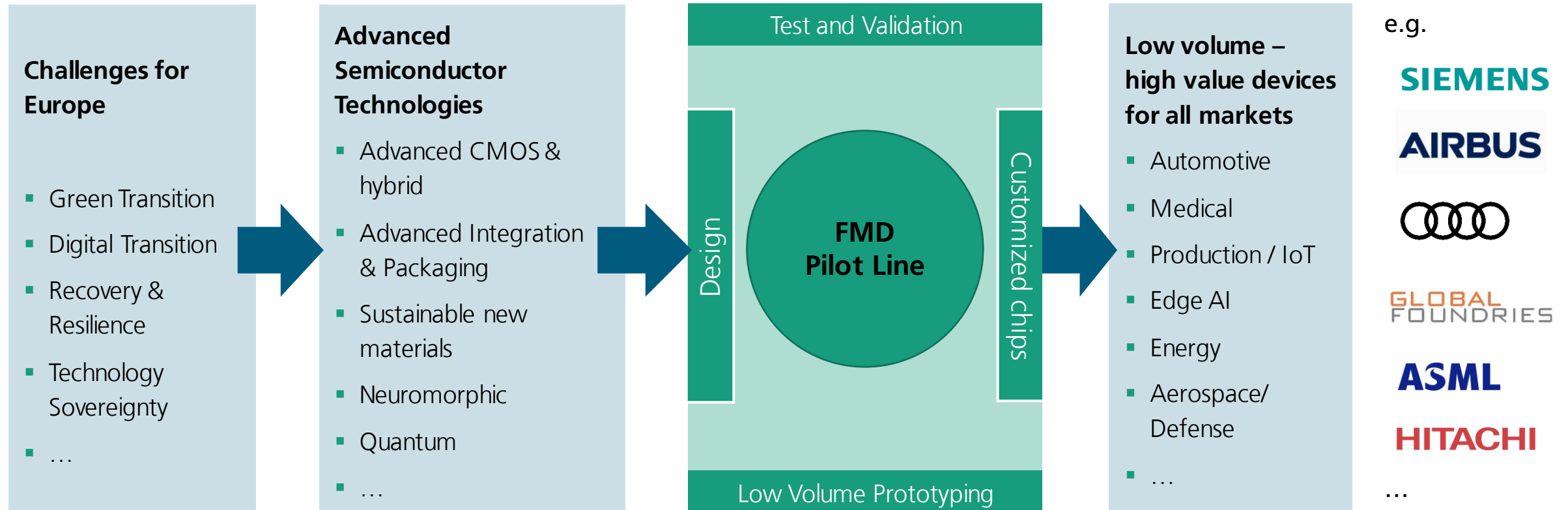"Lab-to-fab"-fast-track across the "valley of death"

Complementarity

Provide capabilities in advanced- / niche-technologies

Scalability

Fast & easy transfer to semiconductor industry

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FMD Pilot line – Advanced Heterogenous System Integration
Applied Research from Challenges to Customized Devices

Challenges for Europe

- Green Transition
- Digital Transition
- Recovery & Resilience
- Technology Sovereignty
- …

Advanced Semiconductor Technologies

- Advanced CMOS & hybrid
- Advanced Integration & Packaging
- Sustainable new materials
- Neuromorphic
- Quantum
- …

Test and Validation

Design

FMD Pilot Line

Customized chips

Low Volume Prototyping

Low volume – high value devices for all markets

- Automotive
- Medical
- Production / IoT
- Edge AI
- Energy
- Aerospace/ Defense
- …

e.g.

SIEMENS

AIRBUS

GLOBAL FOUNDRIES

ASML

HITACHI

…

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FMD Pilot Line – Advanced Heterogenous System Integration
Synergies and Complementarities in European Technology Landscape

FMD - Chip-Design

- Analog Design
- Digital Design, also for advanced CMOS nodes
- Design for System Integration
- Methods, Tools, Designs

Available Commercial Technologies e.g. from US / Asia

CEA-Leti-Pilot Line: Advanced Nodes
10nm SOI, 5nm GAA

Imec-Pilot Line: Advanced Nodes
FinFET, GAA < 2nm

FMD - Next Generation Power
FMD - Advanced Silicon Solutions
FMD - RF / Optoelectronics

FMD - Hetero-Integration

- Multiple materials / components / subsystems
- High precision assembly
- High density substrates

FMD - Characterization, Test & Reliability

Markets, Customers, Application Industry

- Automotive
- Aerospace
- IDMs and Foundries
- Health
- Energy
- Consumer
- …

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