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WBG Wide Band Gap
future power electronics

The European Chips Act

WBG-Pilot Line:

Pilot line on advanced semiconductor devices based on wide bandgap materials

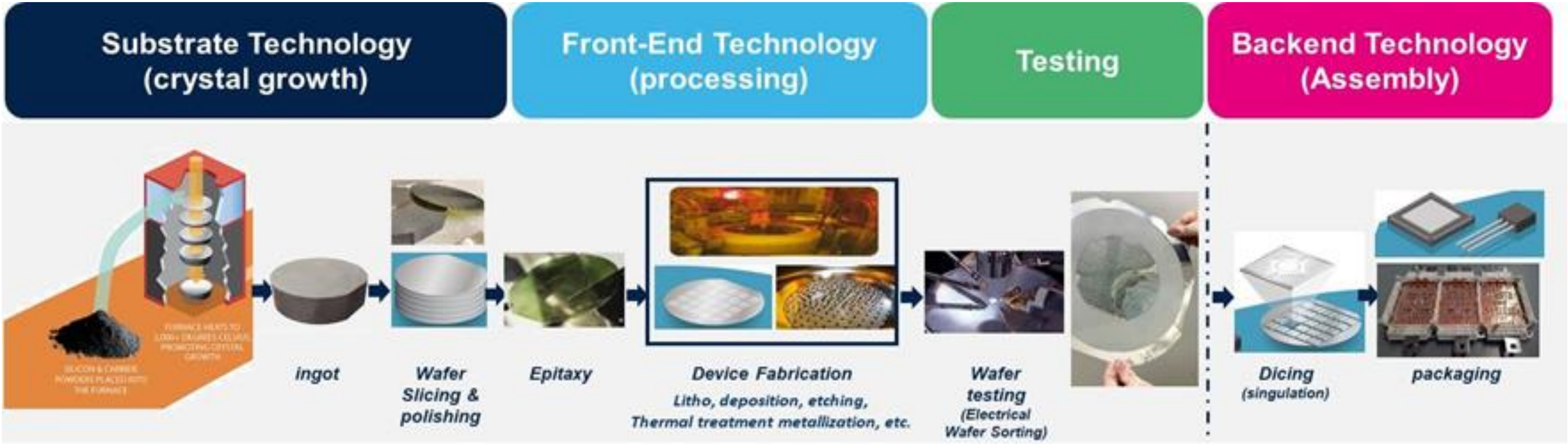
Boosting Europe’s innovation & competitiveness in power electronics

Jörg Schulze,
Fraunhofer Institut für Integrierte Systeme und Bauelementetechnologie - IISB, Erlangen, Germany

Vision of the WBG-Pilot line

The R&D activities aim to:

- improve the **efficiency** and **power density** of **WBG-based** power devices
- cover the entire value chain, from crystal growth, front-end & testing, back-end technology



General idea, vision and topical coverage of the WBG Pilot Line

WBG Pilot Line

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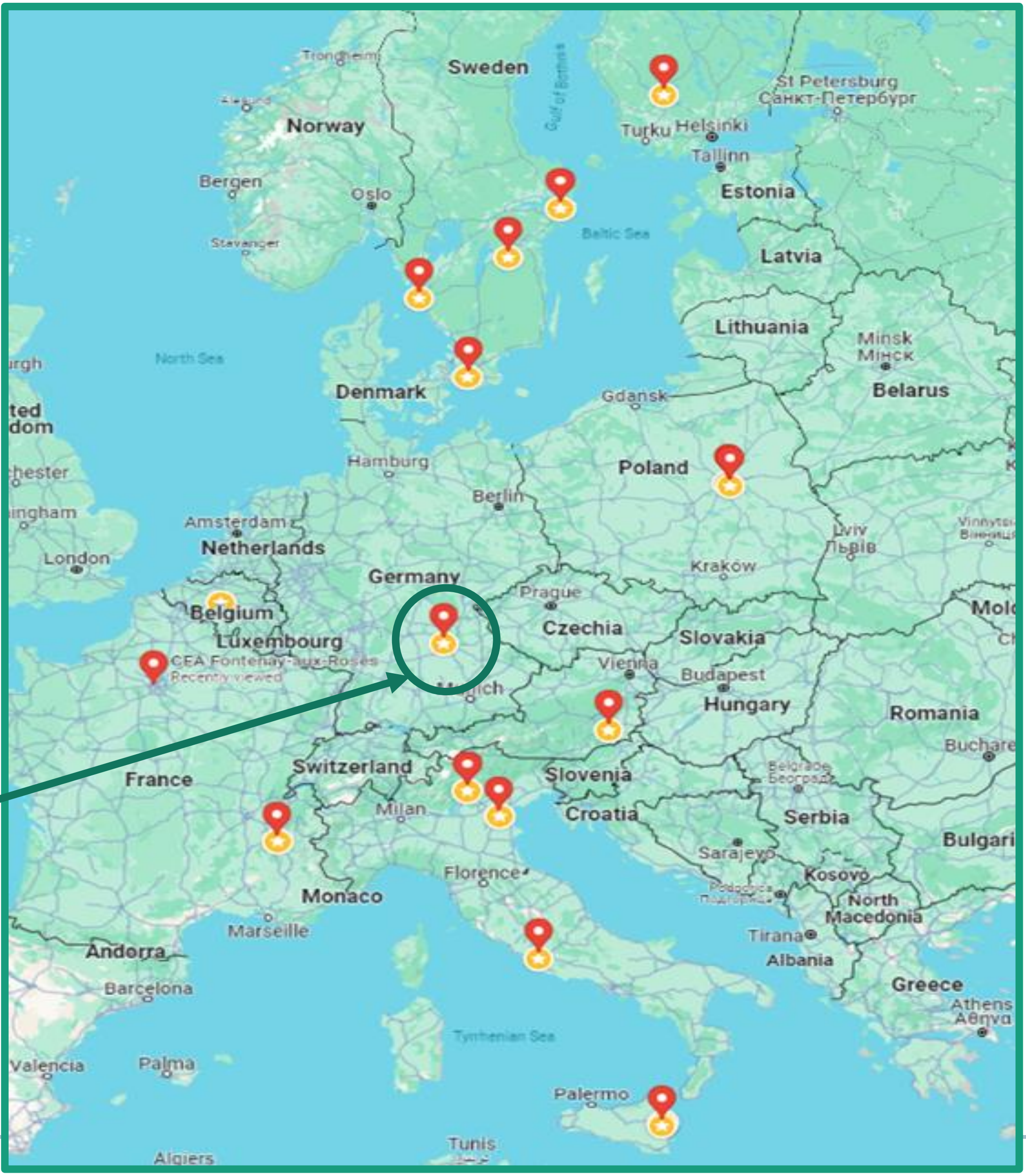
Participant No. *	Participant organisation name	Country
1 (Coordinator)	CNR	Italy
2	FBK	Italy
3	IU.NET	Italy
4	CHIPS-IT	Italy
5	KTH	Sweden
6	LIU	Sweden
7	ULUND	Sweden
8	CHALMERS	Sweden
9	Łukasiewicz - IMiF	Poland
10	IHPP PAS	Poland
11	TAU	Finland
12	SAL Austria	Austria
13	CEA LETI	France
14	Fraunhofer-IISB	Germany



Distributed pilot line across Europe

- 7 Nations
- 14 Partner institutions

WBG Pilot Line

Overview and general concept after workpackages

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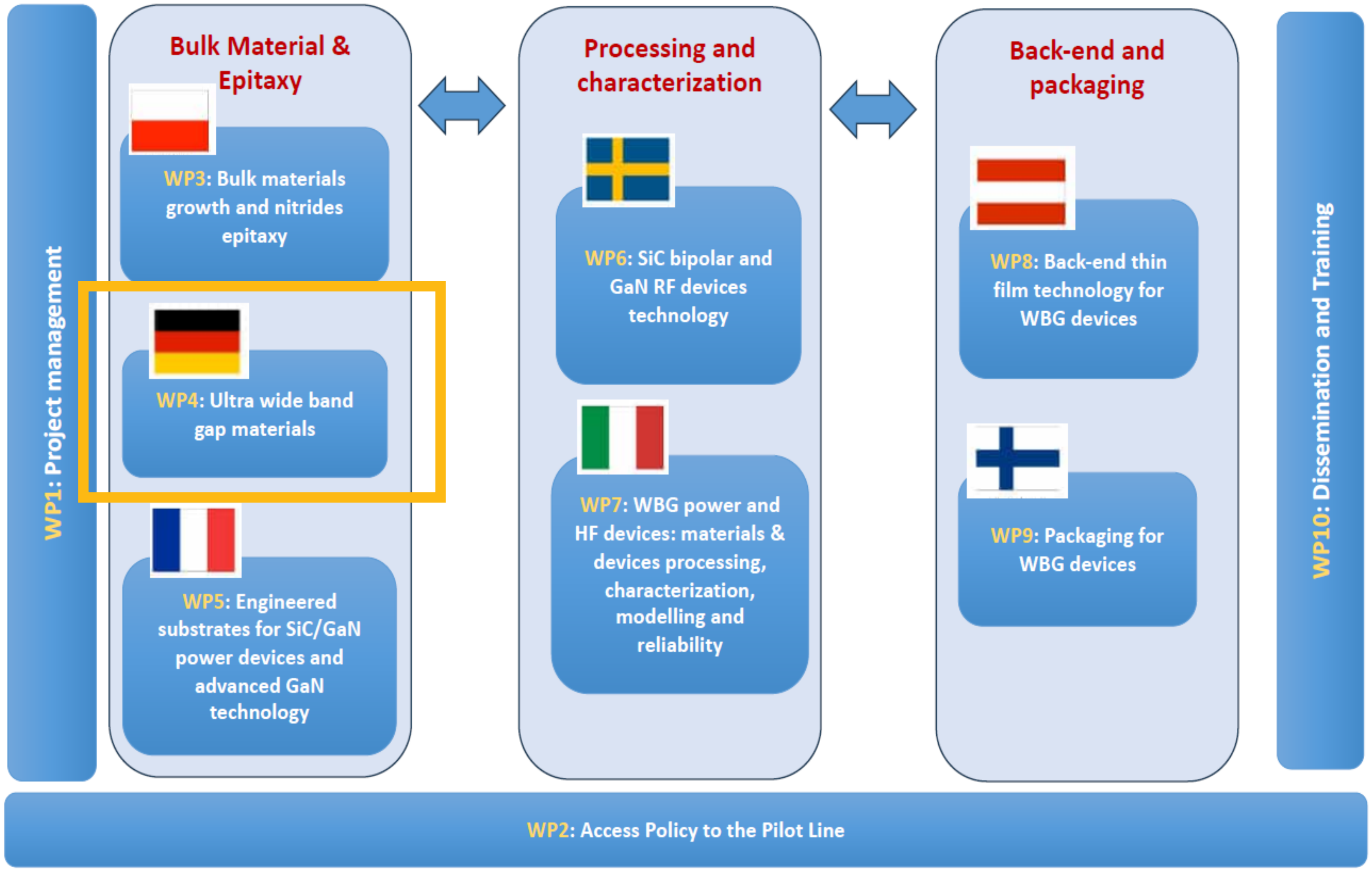

WP1: Project management

Bulk Material & Epitaxy

WP3: Bulk materials growth and nitrides epitaxy

WP4: Ultra wide band gap materials

WP5: Engineered substrates for SiC/GaN power devices and advanced GaN technology

Processing and characterization

WP6: SiC bipolar and GaN RF devices technology

WP7: WBG power and HF devices: materials & devices processing, characterization, modelling and reliability

Back-end and packaging

WP8: Back-end thin film technology for WBG devices

WP9: Packaging for WBG devices

WP10: Dissemination and Training

WP2: Access Policy to the Pilot Line

Coordinator:
Francesco La Via,
Consiglio Nazionale Delle Richerche (CNR), **Italy**

German node -> FhG-IISB:

- Exploration of process options for small or irregular-sized, novel UWBG wafers
- Offer UWBG expertize from crystal growth to technology in Europe
- Solidify UWBG expertise in Germany, explicitely AlN
- Excellerate Lab2Fab transition

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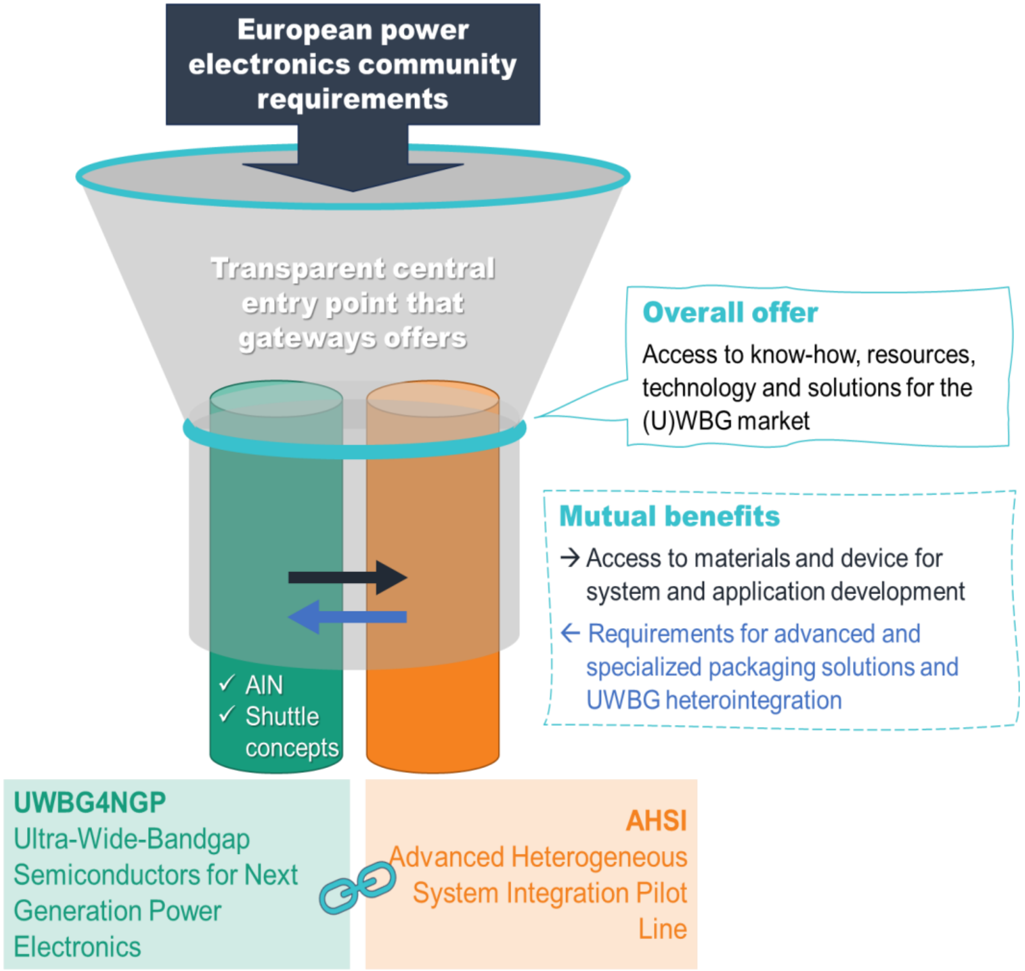
WBG Pilot Line

Concept for the German contribution by FhG-IISB

Ultrawide band gap semiconductors for next generation power devices

Lab2Fab initiative
for a faster bridging of the „valley of death“

The **goal of the WBG Pilot Line** is to significantly expand the **competitiveness** of the European semiconductors industry by **strengthening the entire value chain** and enabling a fast adoption of **advanced (U)WBG technologies** to high-value applications.



European power electronics community requirements

Transparent central entry point that gateways offers

Overall offer
Access to know-how, resources, technology and solutions for the (U)WBG market

Mutual benefits
→ Access to materials and device for system and application development
← Requirements for advanced and specialized packaging solutions and UWBG heterointegration

✓ AlN
✓ Shuttle concepts

UWBG4NGP
Ultra-Wide-Bandgap Semiconductors for Next Generation Power Electronics

AHSI
Advanced Heterogeneous System Integration Pilot Line

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Contact

Prof. Jörg Schulze
Fraunhofer IISB
Joerg.schuze@iisb.fraunhofer.de