IPCEI on Microelectronics
The Austrian Contribution to Sustainability

The Austrian IPCEI ME Consortium

19 October 2022

IPCEI on Microelectronics

Infineon Austria in IPCEI Microelectronics

R&D&I

- Technology Development and First Industrial Deployment in Chips for
  - Energy Efficiency (Si, SiC, GaN)
  - Electro Mobility (Charging, Sensing)

Spillover Activities

- Dissemination of R&D&I
- New collaborations with universities, STEM Talents and industry
- Focus on Eastern and Southeastern European countries

Bringing innovative technologies
„Made in Europe“
FAST
to volume production
&
to market

Collaboration Projects

With 12 Companies across Europe

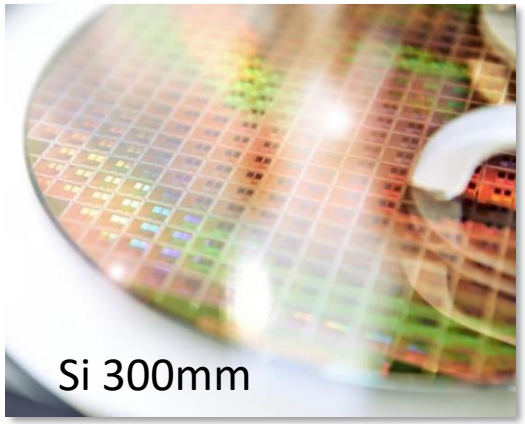
- Raw Wafer Engineering
- Equipment & Process Innovation
- Chip Embedding & Assembly Packaging

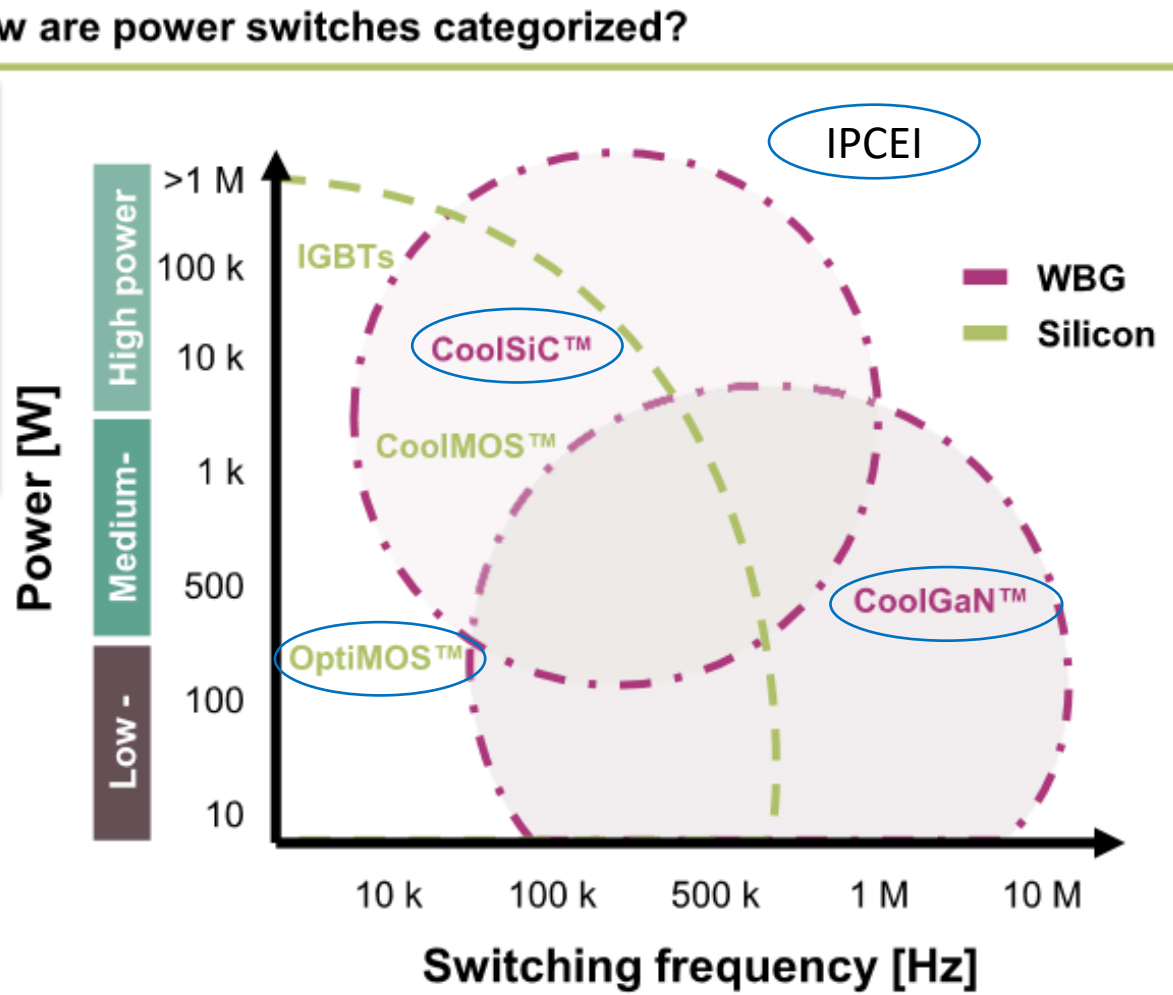
Strengthening cooperation
Industry/Industry
&
Industry/Academia

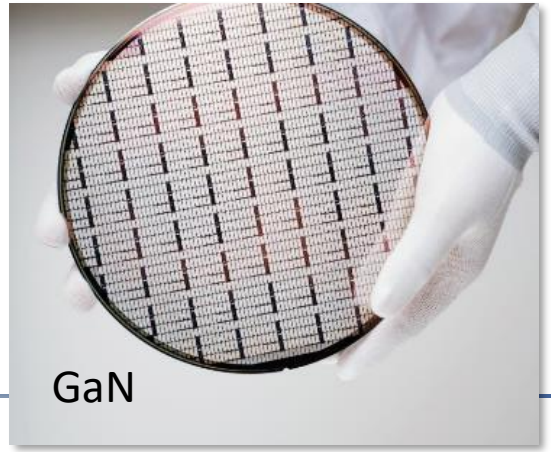
IPCEI@IFAT supports development and ramp-up of energy efficient power devices in Si/SiC/GaN

Features

- Reducing Switching Losses
- Increased Energy Efficiency
- Less Cooling effort
- Max. Switching Frequency (GaN)
- Smaller Die Size
- Reduce Package Size
- Higher Reliability







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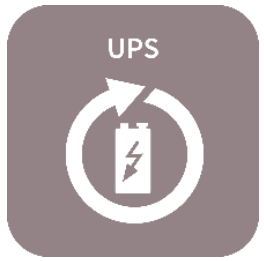
IPCEI brings energy efficiency in your daily life: OptiMOS 6™ 100V

OLED TV
Makes watching your favorite TV show more energy efficient.

Wireless Charging
Cutting cables necessary for charging everything from smartphones and laptops to kitchen appliances and cars.

IPCEI brings energy efficiency in your daily life: CoolSiC™



Traction
Highly efficient components that reduce energy losses in trains…

eCars
…as well as in electric cars.

So you get more comfortable and greener to your destination!

IPCEI on Microelectronics

IPCEI brings energy efficiency in your daily life: CoolGaN™

Data and server center

CoolGaN™ products lead to:

- lower power consumption
- lower temperature while operation
  → reducing cooling affords of servers
- environmental friendly digitalization
  Global Internet data traffic grew more than 40% in 2020 alone, while the energy consumption remains almost the same due to power electronics.

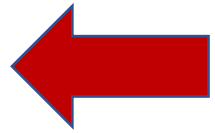
NXP Semiconductors - ESG Mission Statement

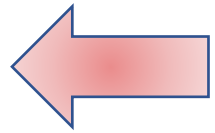
ESG Mission

Enabling a smarter, safer, more secure and sustainable world through innovation

	STRATEGY	GUIDING PRINCIPLES
INNOVATION	Innovate advancements that enable a smarter, safer, more secure and sustainable world	Push boundaries and explore new approaches to develop innovative and sustainable products and solutions
ENVIRONMENTAL	Optimize our use of resources and the beneficial social impacts associated with our operations	Respect human rights, promote an ethical, safe, and healthy work environment, and pursue continual improvements to protect our planet
SOCIAL	Leverage our global and increasingly diverse team to actively drive our sustainability mission	Foster an environment of trust and respect, where team members collaborate to drive innovation, and are able to contribute to their full potential
GOVERNANCE	Collaborate with our stakeholders on global sustainability initiatives. Ensure accountability and build trust through transparency in our business practices and operations	Proactively assess risk and build resilience through robust governance systems, including appropriate goals and processes

IPCEI ME Scope





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NXP

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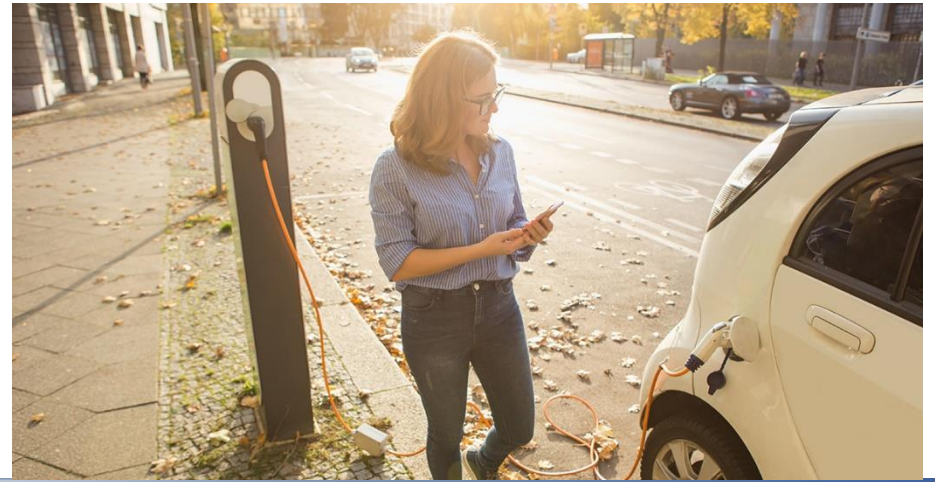
NXP Austria Contribution



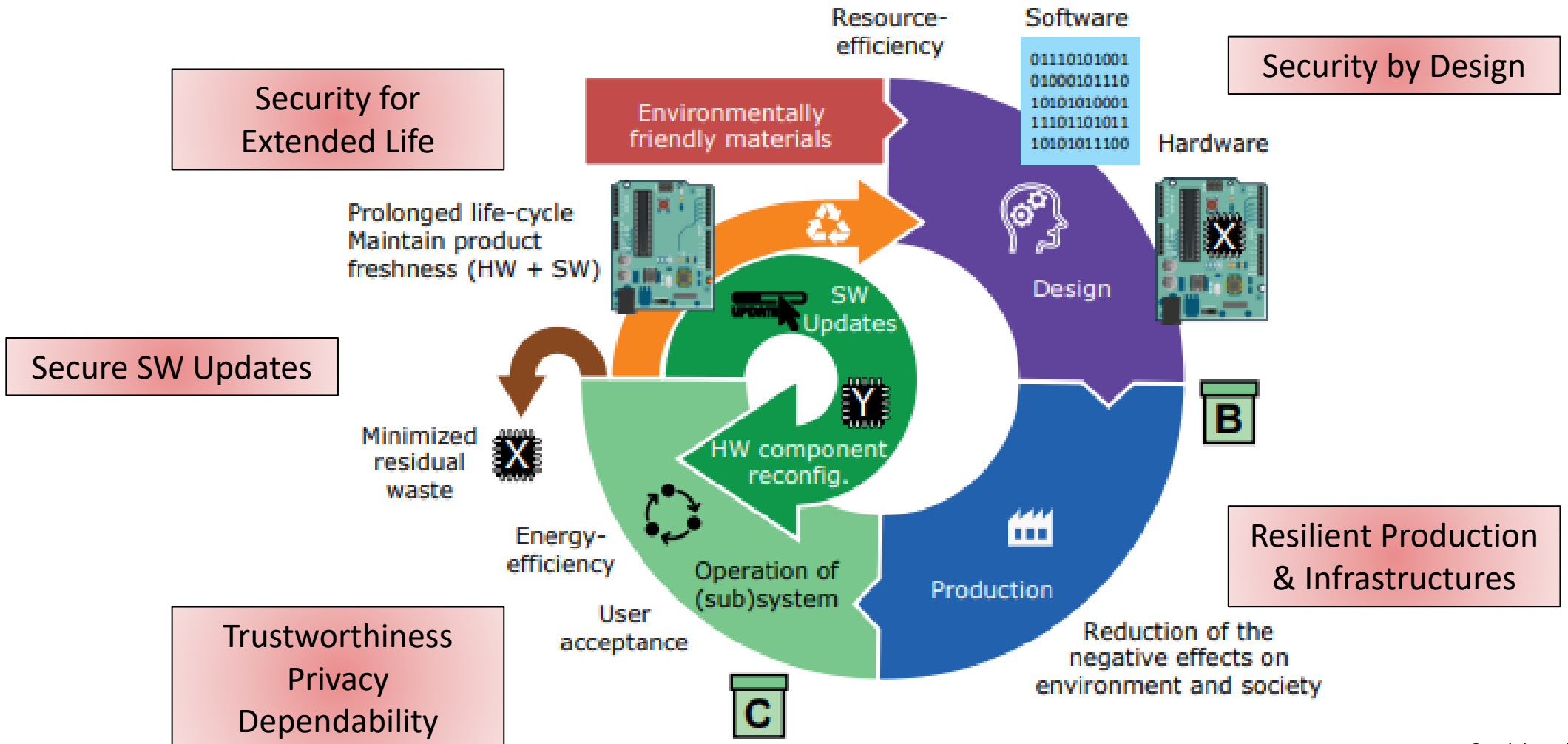
Scope

- Hardware-based security for energy efficient and trustworthy EBS solutions
- Advances in analog virtual testing concepts

Benefits

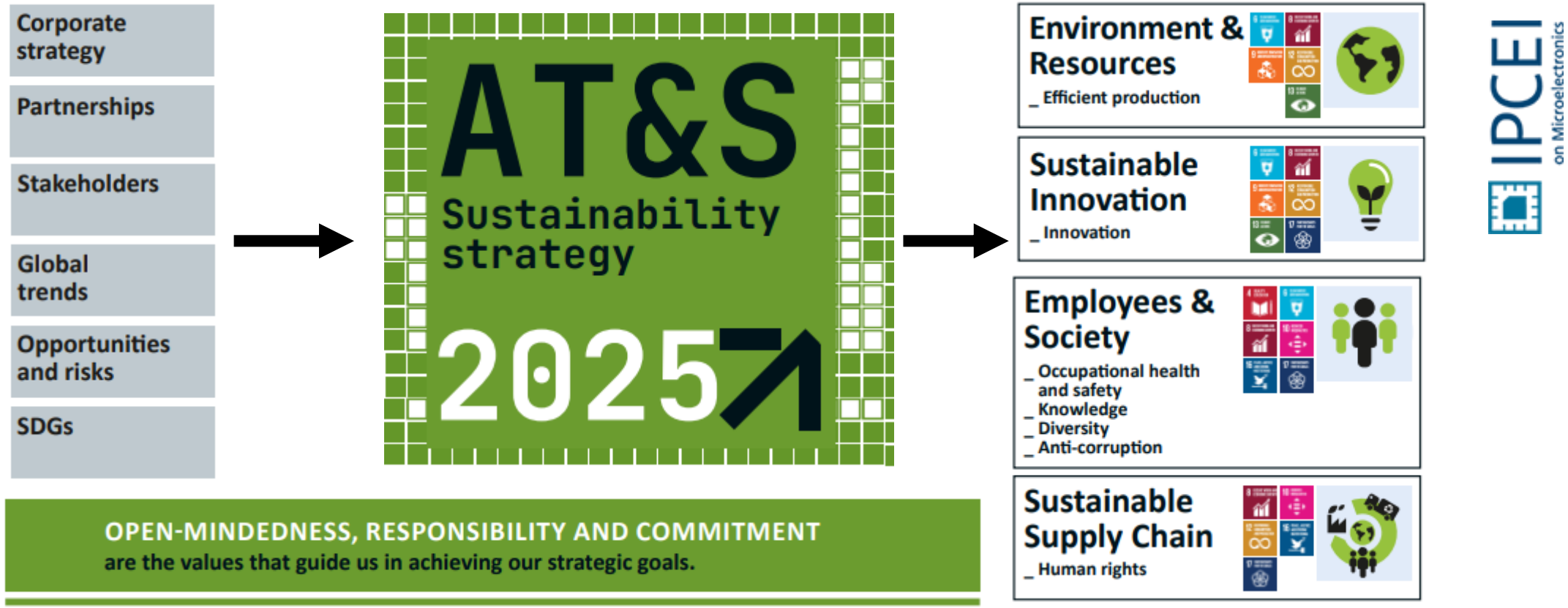
- Increased trustworthiness of systems and infrastructures (user & provider perspective)
- Contribution to resilience and digital sovereignty

Sustainability & Resilience – Why Security Matters



Graph based on SUSETT KDT Proposal

AT&S Sustainability in IPCEI Microelectronics

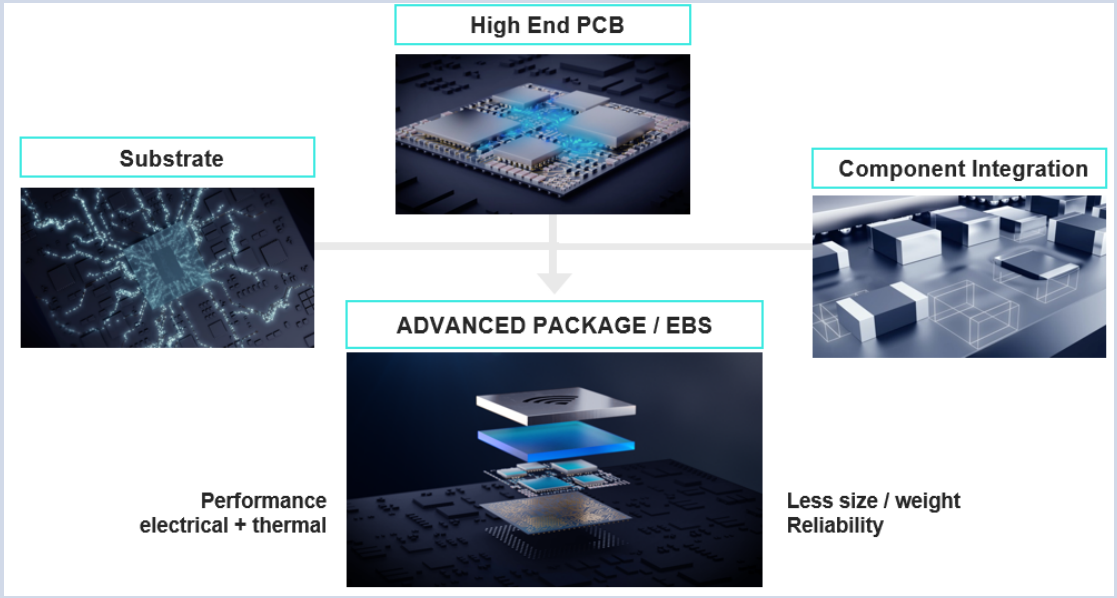


AT&S Key Topics in IPCEI Microelectronics

Industry 4.0 production capabilities and **resource recycling technologies**

New technology node test and reference boards

FID of organic substrate cores for processor packages

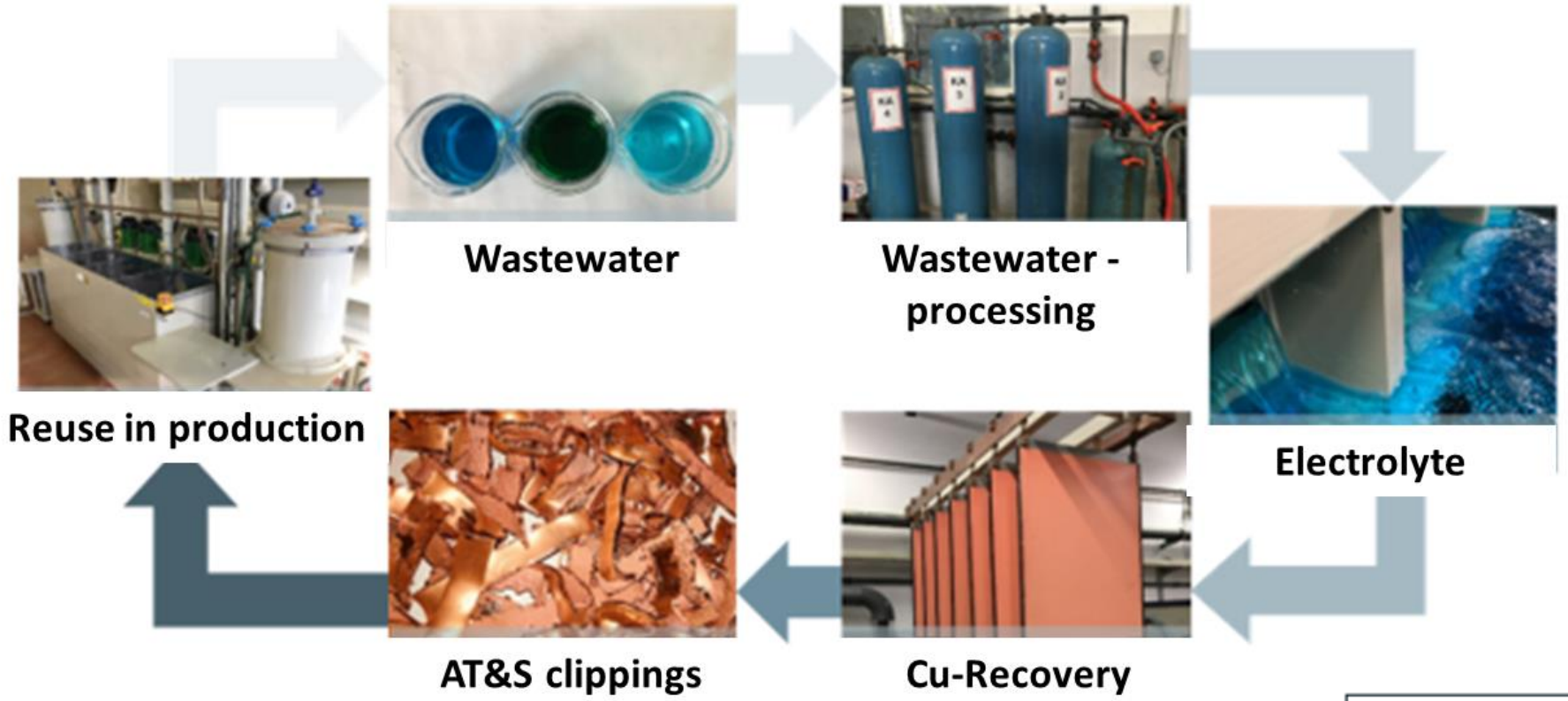


FID of organic substrate cores for **power packages**

Novel packaging concepts for high frequency

AT&S Cu recycling in IPCEI Microelectronics

Innovative solutions for circular use of materials



Environment & Resources
_ Efficient production

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AT&S Cu recycling in IPCEI Microelectronics

Circular reuse of materials without additional transport:

- 205.000 kg copper per year
- 75.000 kg HCl per year

Reduction…

- of dangerous waste
- usage of chemicals in the waste water treatment
- of CO_2-emmissions from transport
- of time needed for final wastewater treatment

82,5 t annually reduction of CO_2-emmissions due to pilot project

56 tons CO_2

Due to savings from the in-house Cu-recycling

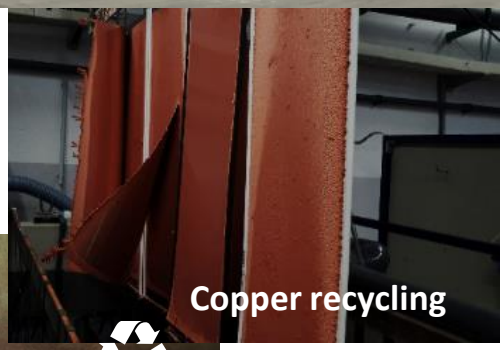
2,5 tons CO_2

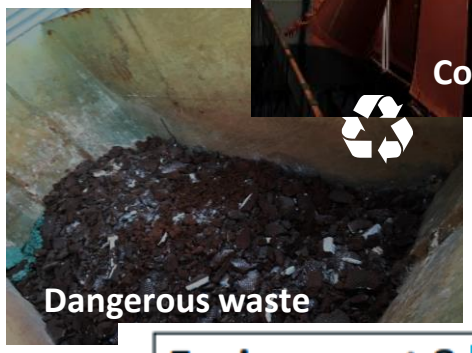
due to elimination of HCl-purchasing and the connected transport

24 tons CO_2

due to elimination of purchasing Cu and the connected transport.

New building: 1000m² for acid and Cu recycling





Environment & Resources
_ Efficient production

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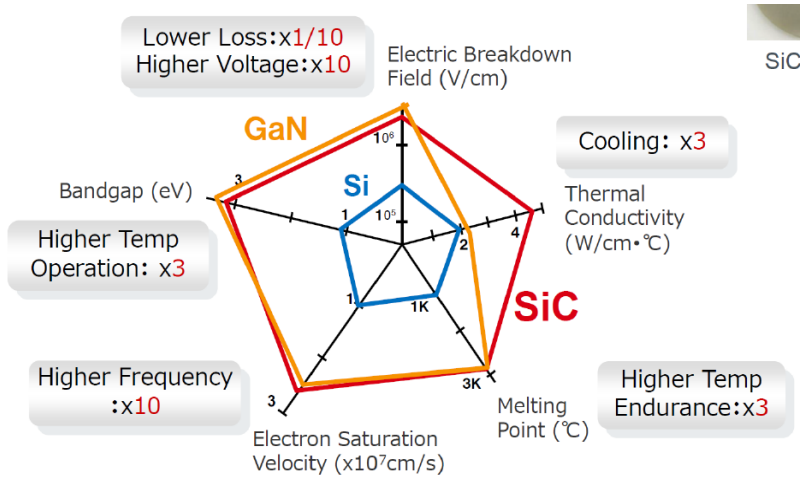
AT&S Power electronics in IPCEI Microelectronics

Power packages

Highly efficient modules and system concepts from AT&S research allow a reduction on electrical losses at the power conversion up to 50%.

This allows for a higher range of EV and an increased power output in wind turbines and photovoltaic modules!



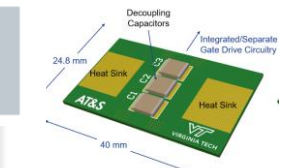
Pressemitteilung

08-06-2022 - 19:00
20220603IPR32129

Europäisches Parlament

Fit für 55: Abgeordnete unterstützen Ziel der Emissionsneutralität für neue Autos und Lieferwagen ab 2035

Partnerships



VIRGINIA TECH

Embedding SiC
OBC 22 kW

- lower inductance
- smaller volume
- lighter weight

Sustainable Innovation
_ Innovation

IPCEI on Microelectronics

AT&S

Acknowledgement

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Federal Ministry
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Climate Action, Environment,
Energy, Mobility,
Innovation and Technology

Federal Ministry
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Labour and Economy

aws austria wirtschaftsservice

FFG
Forschung wirkt.

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