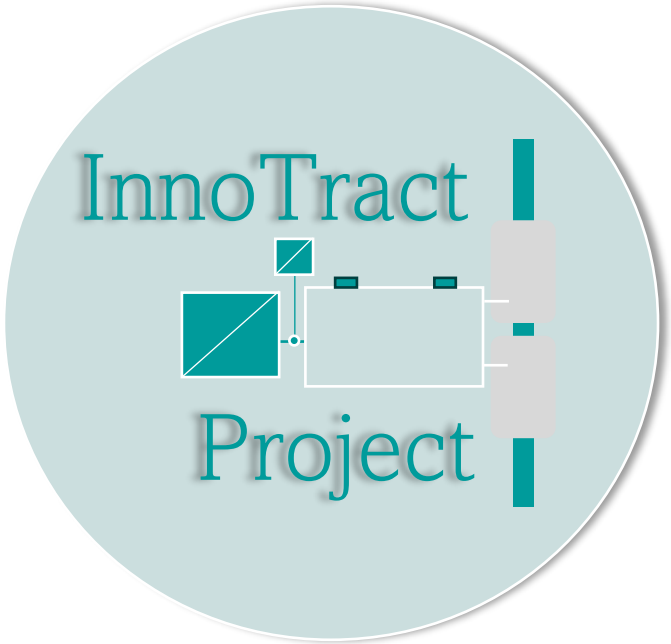
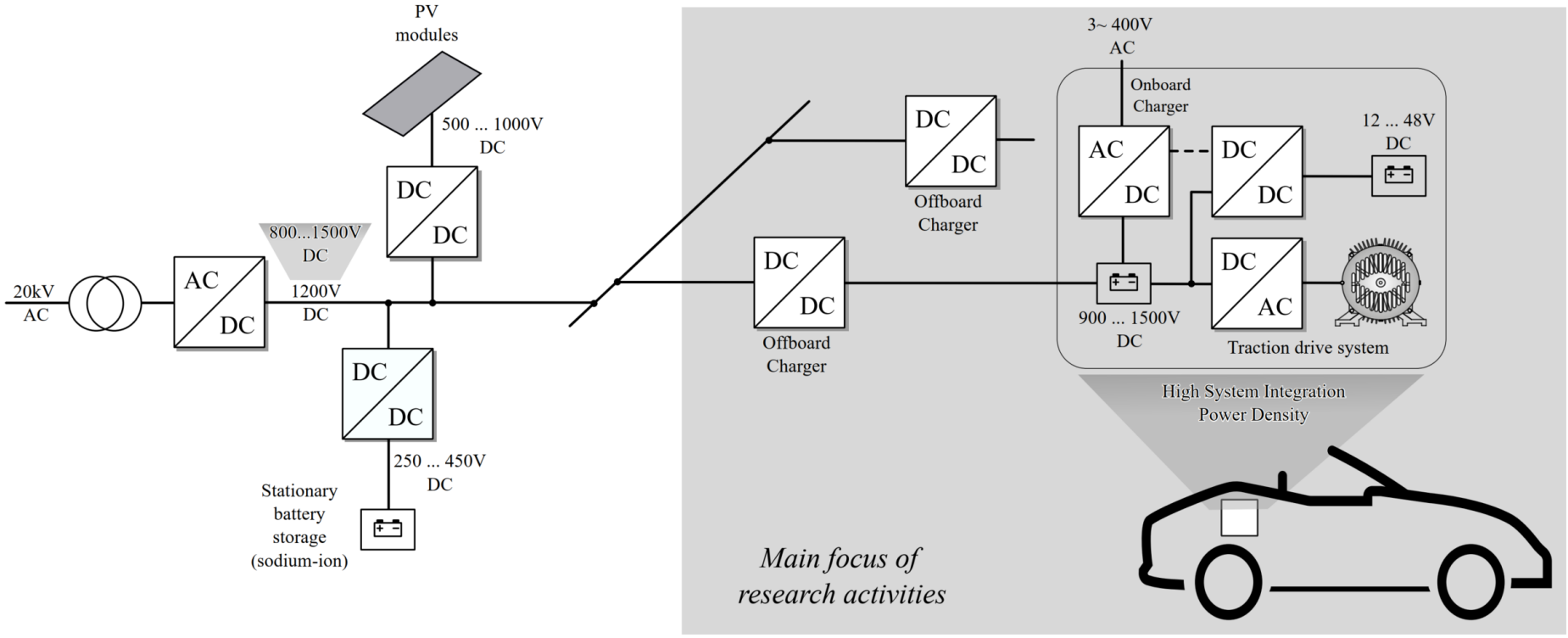


Beyond Today's Roads: The Future Automotive Systems Unveiled

BEYOND TODAY'S ROADS:

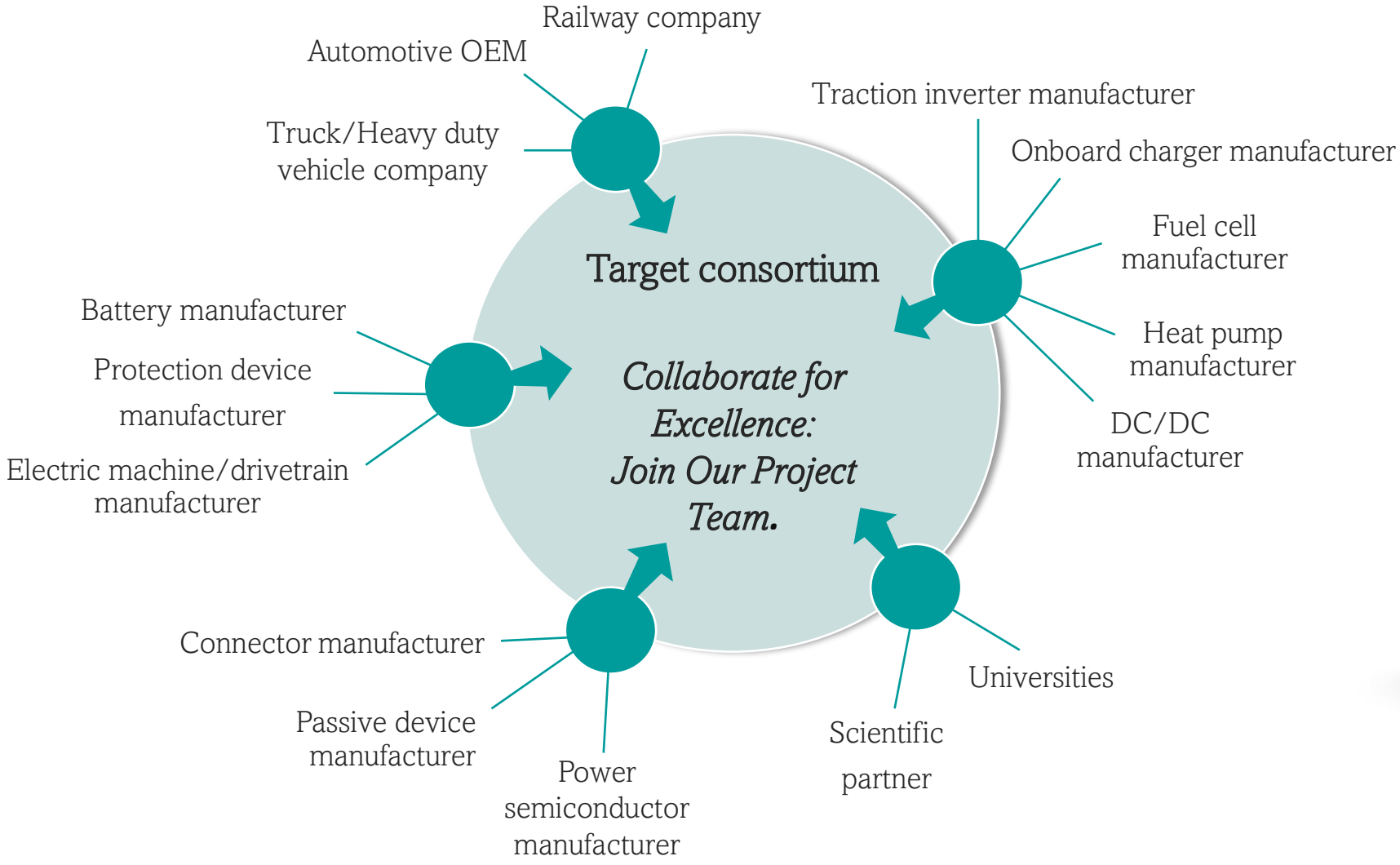
THE FUTURE AUTOMOTIVE SYSTEMS UNVEILED

Scope: The project centers on high-efficiency energy traction drive systems, encompassing inverters and machinery tailored for high-voltage (HV) batteries up to 1500V and introducing innovative onboard networks and concepts.



BEYOND TODAY'S ROADS:

THE FUTURE AUTOMOTIVE SYSTEMS UNVEILED



We are looking for innovative and ambitious companies

all over the world.

BEYOND TODAY'S ROADS:

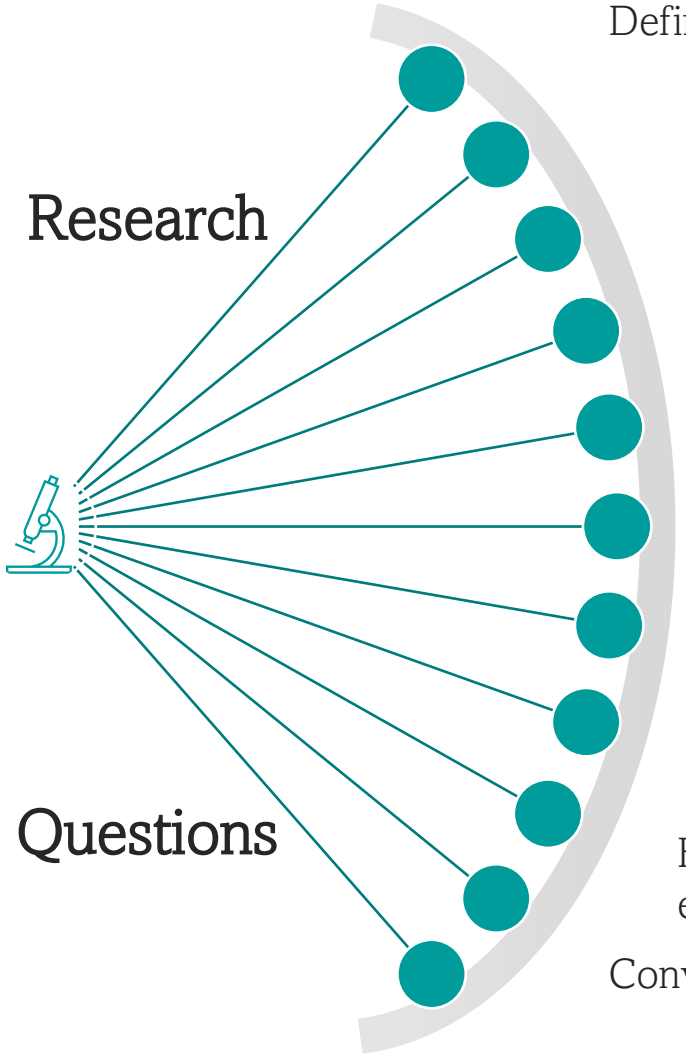
THE FUTURE AUTOMOTIVE SYSTEMS UNVEILED

Name	Use Cases	AC/DC converter	DC/DC converters	DC/AC inverter	Power conversion module
Description	Definition of use cases and demonstrators	Highly efficient bidirectional energy conversion for a varying DC voltage up to 1500V	High performance and energy efficient DC/DC conversion for varying DC port DC voltage; redundant converter design	Highly efficient Isolated, modular and scalable DC/AC inverter with high system integration and high current capabilities	Innovative highly integrated packaging solutions, intelligent high-power modules, protection and condition monitoring
Output	Specification document	Non-isolated/isolated OBC	Isolated 1500V-to-48/12V converter	Traction inverter integration in machine and drive	Power module with highly integrated package concepts

Example draft. Use cases, structure and possible outputs will be detailed during consortium build.

BEYOND TODAY'S ROADS:

THE FUTURE AUTOMOTIVE SYSTEMS UNVEILED



Definition of challenging specifications beyond state-of-the-art

New highly efficient DC/DC converter concepts for 12V and/or 48V onboard network

New connector technologies for enabling HV DC-bus up to 1500V

New passive device technologies and integration techniques and magnetics integration topics

Overall cooling concept for OBC, DC/DC and traction inverters for enabling a high system integration and power density

Improvement of protection measures/devices against arc, overcurrent and short circuits

Advanced EMI related PCB and system design to go towards higher switching frequencies enabling higher power densities

New traction inverter technologies and packaging approaches for optimal WBG utilization, novel highly integrated packaging solutions, new substrate materials with integrated cooling, intelligent high-power modules, protection, safety and condition monitoring

Redundant onboard network for avoiding 12V LV battery

Hybrid vehicles non-isolated DC/DC converter for connecting fuel-cell and battery with highest efficiency and power density

Converters for hybrid battery solutions e.g., combined sodium-ion and lithium-ion

BEYOND TODAY'S ROADS:
THE FUTURE AUTOMOTIVE SYSTEMS UNVEILED

SAL SILICON AUSTRIA LABS

Ambition:

- International consortium comprising industrial partners along the value chain
- Target: ~ 8 Partners in the program
- 4 years project duration
- Universities and academic partners are eligible to participate (special contribution model applies)
- PhD students within project possible - supervised by academic partners

Expected economical contribution of industrial partners:

- Average cash contribution of 80k€ per year
- Minimum cash contribution of 50k€ per year

Advantages for the industry:

- Competitive advantage
  easier and quicker exploitation of upcoming products, by utilization of generated IP
- Risk mitigation
  early targeting of technical problems for an upcoming market
- Innovation
  future technologies and exploration of emerging trends
- Partnership
  cooperation in a pioneering and efficient eco-system
- Performance
  meeting the power and performance demand of future electrified vehicles
- Charging time
  enable even faster charging times and increase user comfort and flexibility

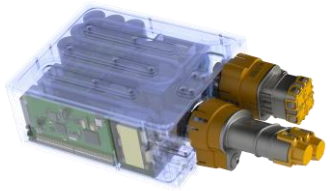
BEYOND TODAY'S ROADS:
THE FUTURE AUTOMOTIVE SYSTEMS UNVEILED

SAL SILICON AUSTRIA LABS

OUR business model - SAL Cooperative Research

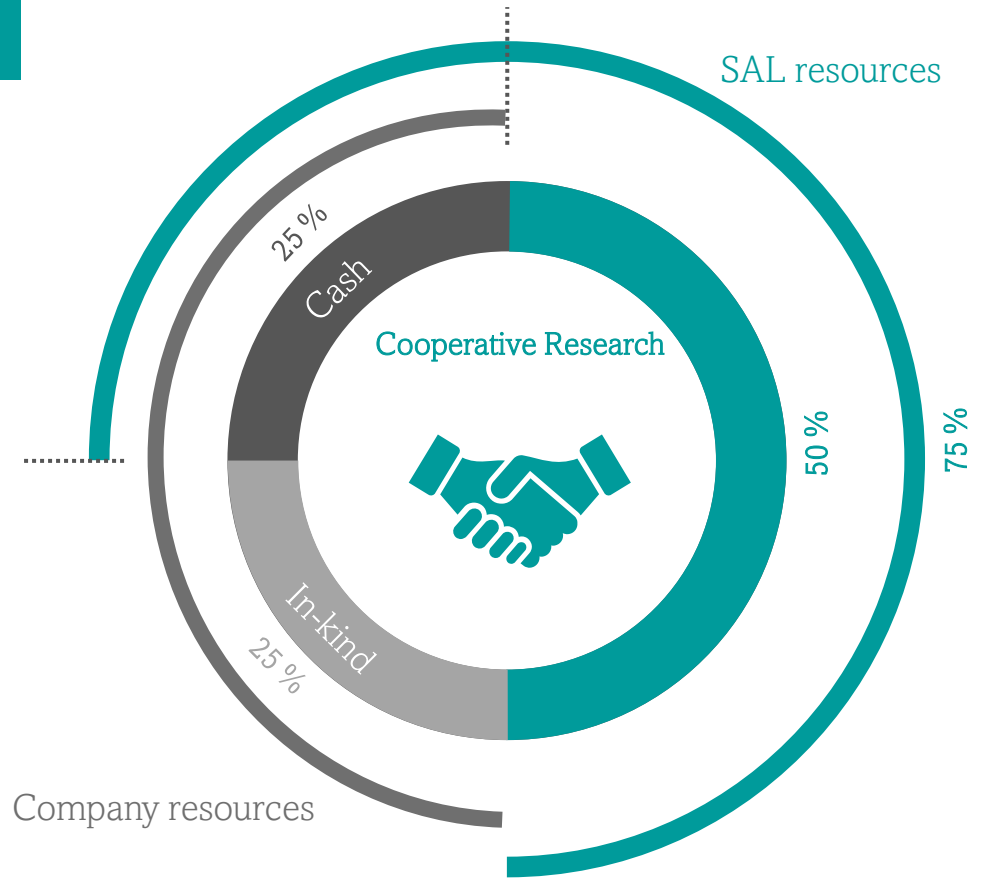
- Applied Research (TRL 3 - 6)
- Projects customized to company needs
- Optional participations of universities as scientific partners
- 50/50 co-financing
- No funding application needed, no waiting time
- IPR rules compliant to state-aid-laws

Click here for an example project:
Tiny Power Box 1



TO PUT IT IN NUMBERS*:

€	100 k	In-kind contributions by company
€	100 k	Cash by the company
€	200 k	Co-financing by SAL (in-kind contributions)
€	**400 k**	**Project Volume**



*400 k project volume as example

BEYOND TODAY'S ROADS:

THE FUTURE AUTOMOTIVE SYSTEMS UNVEILED

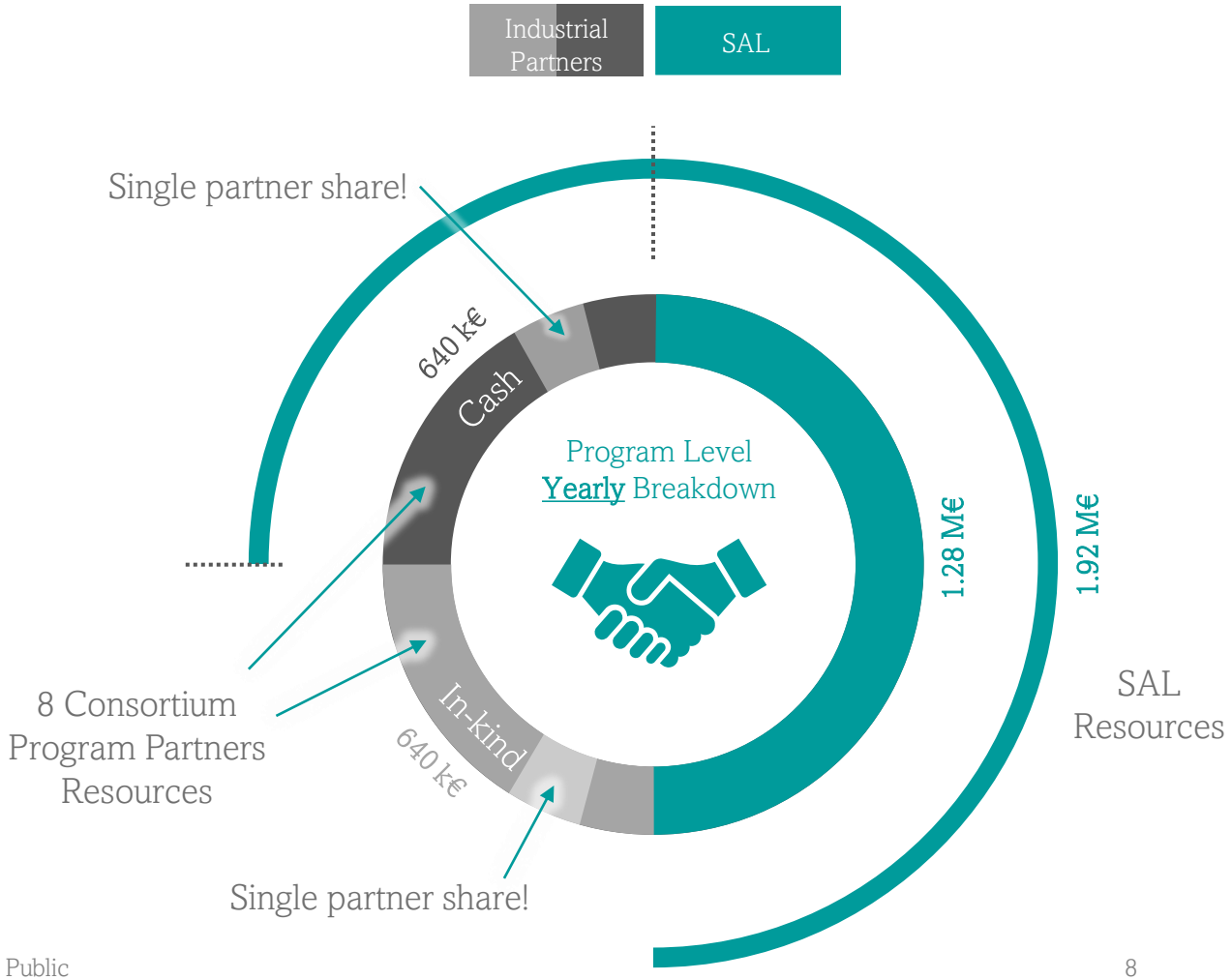
Example:

- Assumption: 8 industry partners joining the program
- Average cash contribution of 80k€ each, per year
- 4 years duration

Total Program volume:	**10.24 M€**
Total partner cash contributions:	2.56 M€
In-Kind partner contributions:	2.56 M€
Co-financing by SAL:	5.12 M€

High leveraging factor:
with 320k€ cash contribution in total - participation in 10.24M€ project

Consortium partners:



BEYOND TODAY'S ROADS:
THE FUTURE AUTOMOTIVE SYSTEMS UNVEILED

SAL SILICON AUSTRIA LABS

Intellectual Property Definitions

Background (BG)

- All pre-existing knowledge and IP a partner contributes to the project
- Necessary to perform the project
- Needs to be identified, substantiated and listed in the project description and consortium agreement

Foreground (FG)

- All results obtained during the execution of the project
- Foreground is to be reported to the steering committee (i.e., project deliverables)
- Types of IPR protection: patent, copy right, trademark, trade secret

Ownership

- Each partner is and remains sole owner of own Background and Foreground IP
- Exception: co-ownership when Foreground is created by two or more parties and when it is impossible to divide and unambiguously attribute parts of the results to each partner

Access Rights During project execution

- License to Background and Foreground free of charge

For valorization after project of a Party's own Results

- Access-Rights/License to SAL´s Background (on Fair and Reasonable terms) and Foreground granted free of charge in the area of interest upon fulfillment of balance project contributions regarding tasks and financial commitments (non-exclusive license)

BEYOND TODAY'S ROADS:

THE FUTURE AUTOMOTIVE SYSTEMS UNVEILED

SAL SILICON AUSTRIA LABS

Timeline

Steps towards new cooperative research project

03/2024	03/2024	28.05.2024 16:00 – 17:30	06/2024	10/2024	Q1/2025
Project Call	Interest Screening		Consortium build	Contracts	Project Start
Launching Call on SAL Website	Collect interests Bilateral discussions		Collect industrial partner interests & commitments	Preparation of project contracts	Signed contracts for project from 2025 to 2029
• Call documents available on website • Feedback from interested parties	• Bilateral discussions about participation, technical content of project and potential contribution • Commitment of industrial partners with LOIs		• Building up the consortium • Project definition • In-kind contributions	• Contract definition • Deliverables	• Project start • Kick-off meeting in January 2025
Information and updates posted on … SAL Website	Express your interest and contact us. We are happy to organize a meeting with you.	Online Program Information Event	Consortium meetings	Clarification on deliverables and project work packages.	Starting a collaborative success story

LOI … letter of intent

BEYOND TODAY'S ROADS:
THE FUTURE AUTOMOTIVE SYSTEMS UNVEILED

SAL SILICON AUSTRIA LABS

Interested? Please contact us.

Daniele Rossio, MSc

Manager
Business Development
Power Electronics

daniele.rossio@silicon-austria.com

DI Alfred Binder

Head of
Research Division
Power Electronics

alfred.binder@silicon-austria.com

DI Dr. Thomas Langbauer

Program Manager
Research Unit Architectures & Topologies
Power Electronics

thomas.langbauer@silicon-austria.com

silicon-austria-labs.com