



# OSCAR

## Open Source Car Architecture Research

Information sheet

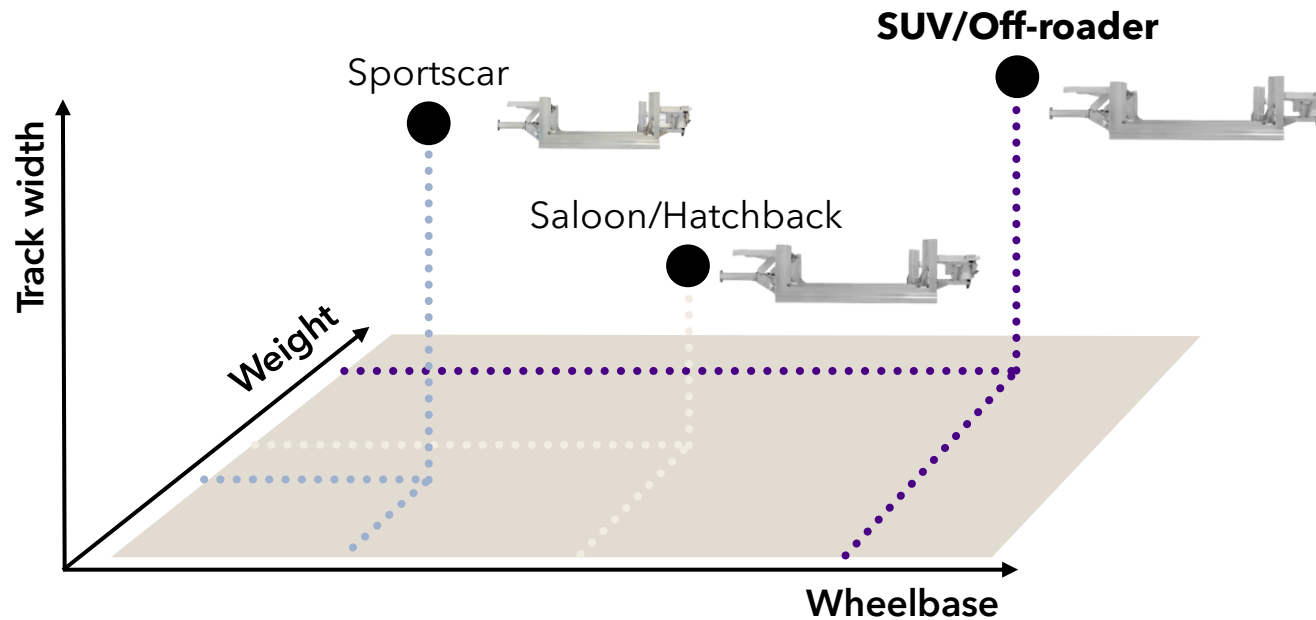


# Our Hypothesis

Generic chassis are the game  
changer for truly sustainable  
mobility

# Starting with three standardized chassis, OSCAR enables truly sustainable mobility

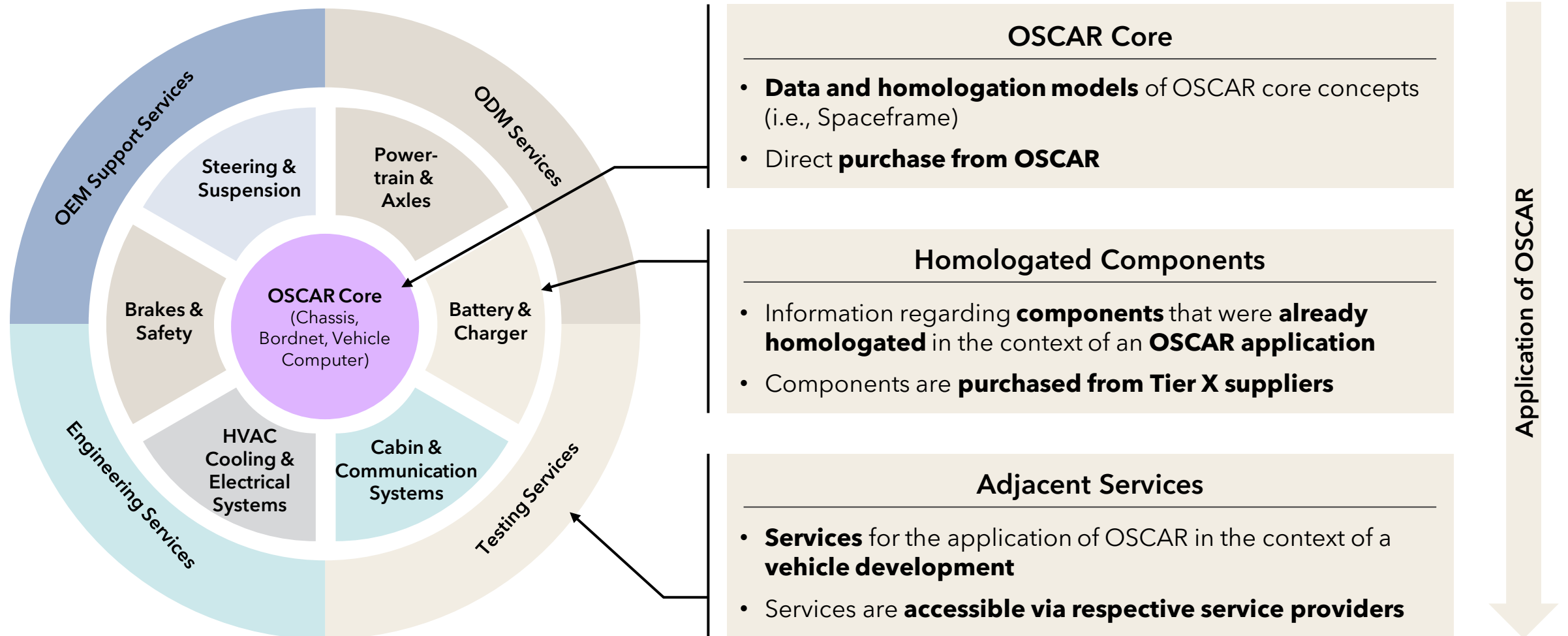
## Chassis Classification



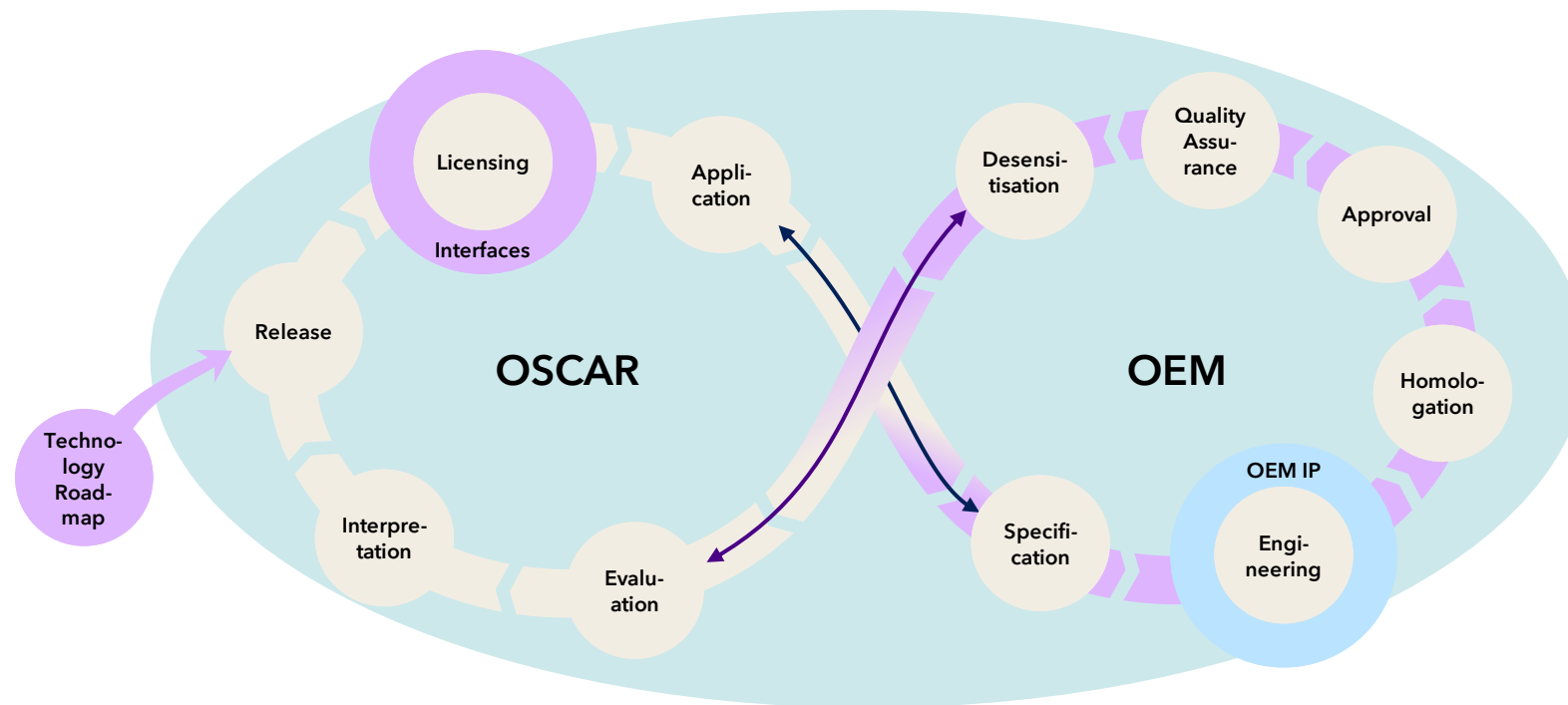
## OSCAR chassis

- **Differential chassis design** opens a renaissance of vehicle manufacturing and significantly reduces tooling costs for small series vehicles
- **Track width, weight** and **wheelbase** serve as the **basis for possible derivations** of the generic OSCAR chassis
- Possible **car length** ranges from **3,500mm to 5,500mm**
- Possible **wheelbase** ranges from **2,500mm to 3,800mm**
- OSCAR **enables numerous adaptations** on a generic chassis basis

# OSCAR's Open Source approach builds upon a standardized core and modularized components to optimize small series vehicle development



# Vehicle development process is simplified through the standardization of OSCAR's chassis and iteratively upgraded in collaboration with OEMs



## OSCAR process

- In the vehicle development process, **OSCAR licenses** the standardized chassis and required data sets for homologation to a vehicle manufacturer
- OEM can use OSCAR's modular chassis and its data sets in the development, homologation and approval phase to **reduce development costs and time**
- After homologation, the OEM will **desensitize OSCAR's data sets** and return them to OSCAR
- OSCAR auditors will evaluate and interpret the returned data and derive **potential upgrading and standardization options**
- Including input from technology roadmaps, the **OSCAR community** will **develop and release new standards**



# Bringing OSCAR into development, we offer standardized data sets, an IT system landscape and prototyping services

## Standardized data sets and simulations

- **Geometry data:** CAD and technical model of chassis in the concept phase
- **Manufacturing data:** Crash-relevant forming and casting simulations
- **FEM simulation data:** Structural calculations and validated simulation models
- **Complete vehicle data:** Multi-body system data for dynamic simulations
- **Homologation data:** Mathematical methods and validated simulation models
- **Service data:** Complementary data to improve chassis lifetime



Accelerate engineering and homologation by using standardized data models and validated data

## IT system landscape

### Configuration of PDM and PLM systems

- Seamless suite of Engineering software for PLM and PDM
- Harmonized APIs for OSCAR standard
- Platform of CAE and CAD data to enable Simultaneous Engineering

### Configuration of production systems

- Configuration of production system suite
- Harmonized APIs for OSCAR standard



Reduce inefficiencies by seamless IT system landscapes and harmonized APIs

## Prototyping

### Prototyping engineering

- ODM-Services for prototyping
- Focus on small series prototypes

### Prototyping building

- Ordering rolling prototype chassis from OSCAR
- Small series prototypes without own facilities

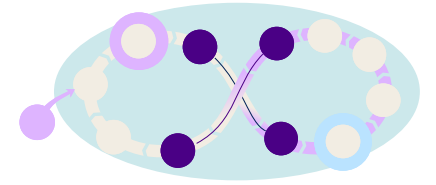
### Production engineering

- Factory Layout and Assembly Design
- Upgrade Re-Assembly Factory



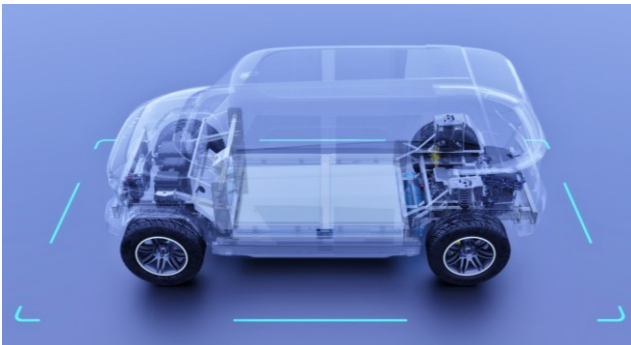
Quickly test vehicle concepts with OSCAR prototyping opportunities

# OSCAR aims at facilitating the homologation process with proven virtual development methods



## Hardware development

*Along with mere hardware development, the main objective of OSCAR is the **standardization and development of data sets and simulations** that have already been successfully used as virtual models in homologation*



## Virtual development

### Geometry data sets

- CAD model for the chassis
- Complementary data sets for recommended components

### FEM simulation

- Rigidity/stiffness data sets
- Strength data sets
- Plastics and composite materials data sets
- Crash structure simulation data sets

### Manufacturing data sets

- Forming data sets and simulations
- Casting data sets and simulations
- Joining and welding data sets and simulations

### Complete vehicle data

- Multi-body system vehicle data sets for dynamic simulations
- Crash simulations using multi-body systems

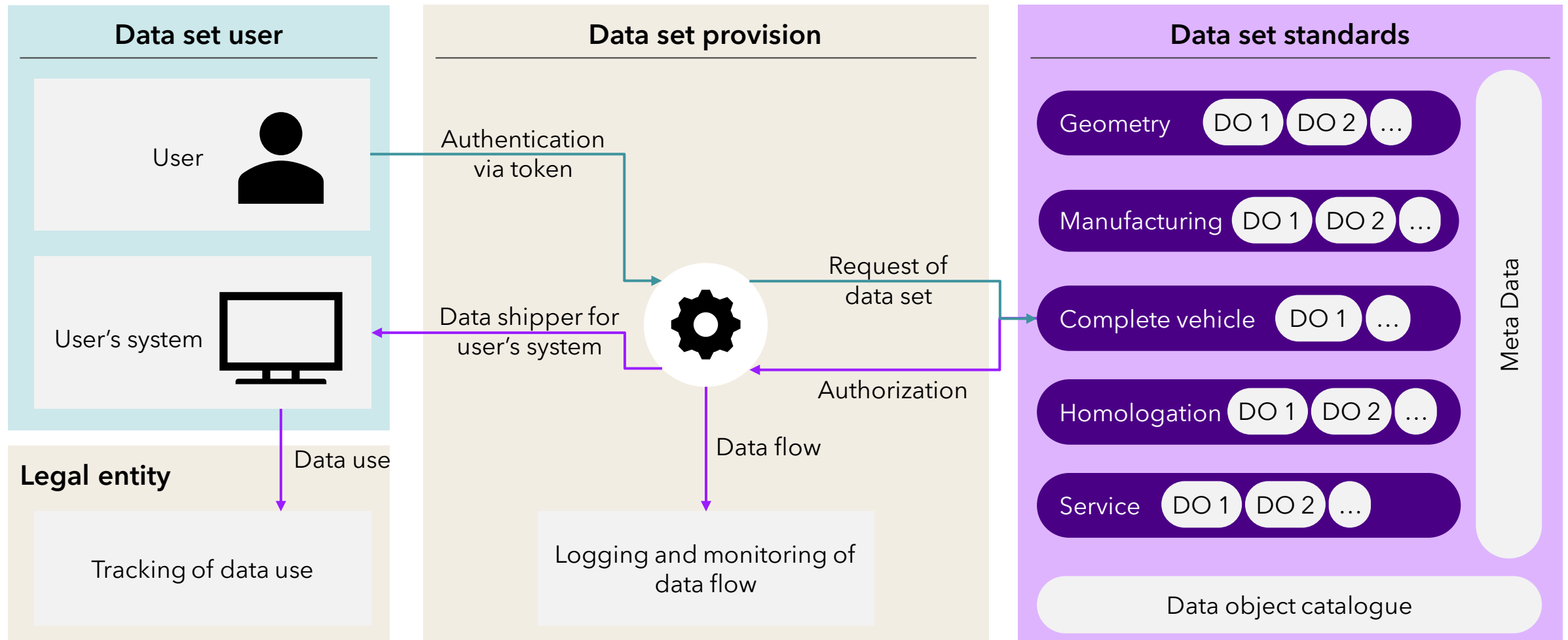
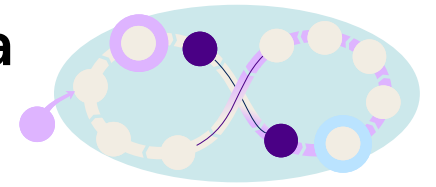
### Homologation and approval data

- Mathematical methods behind the simulation models
- Validating documentation of the applied simulation models
- Homologation documentation of the chassis and transferred components

### Service data

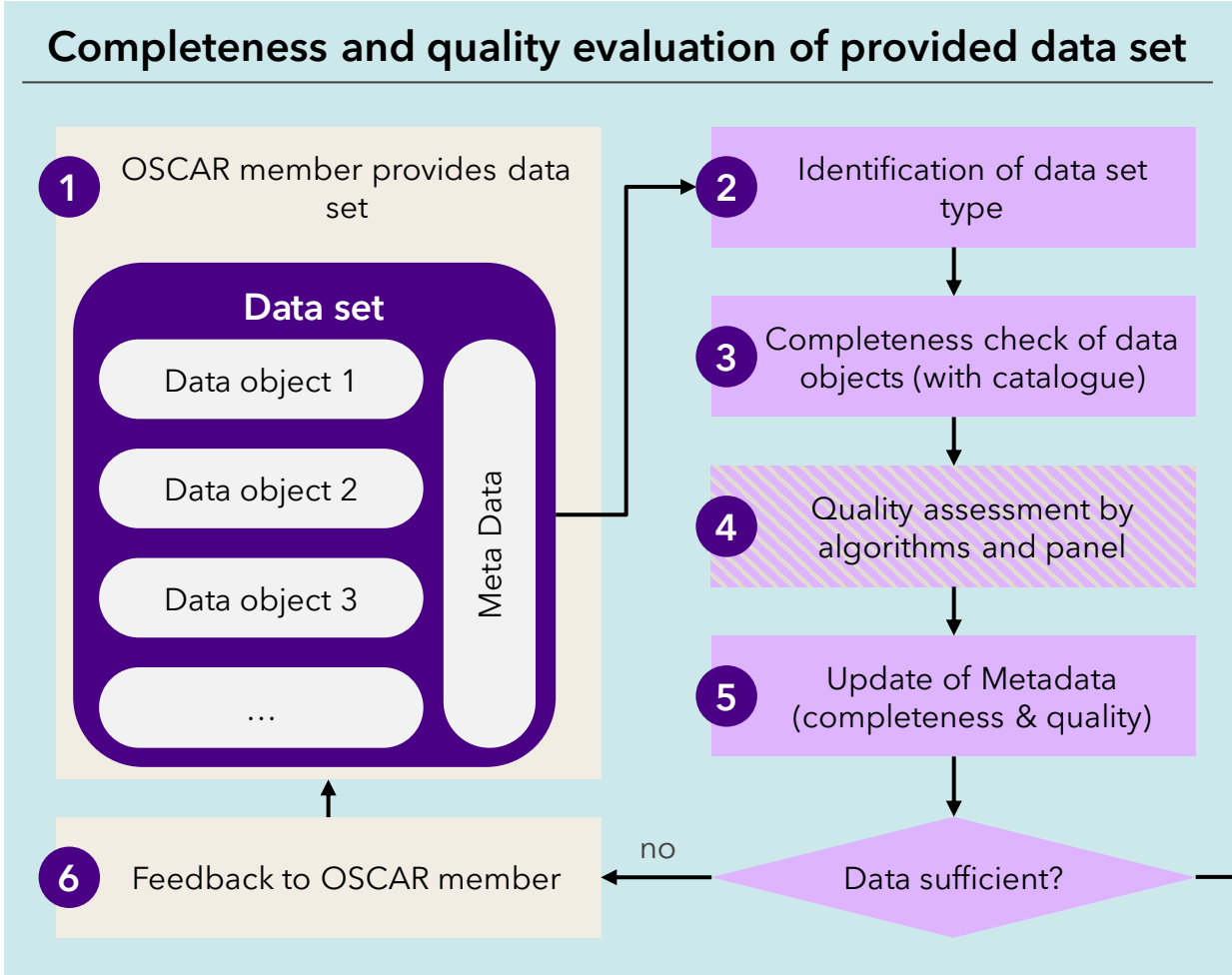
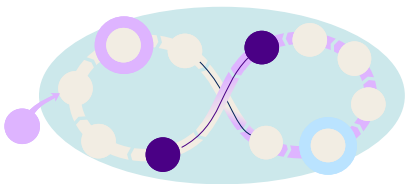
- Service-oriented, complementary data sets to improve OSCAR's usability

# To protect data sets, access is only enabled through traceable data shippers and an authentication process





# OSCAR will evaluate content and value of desensitized data from OSCAR members



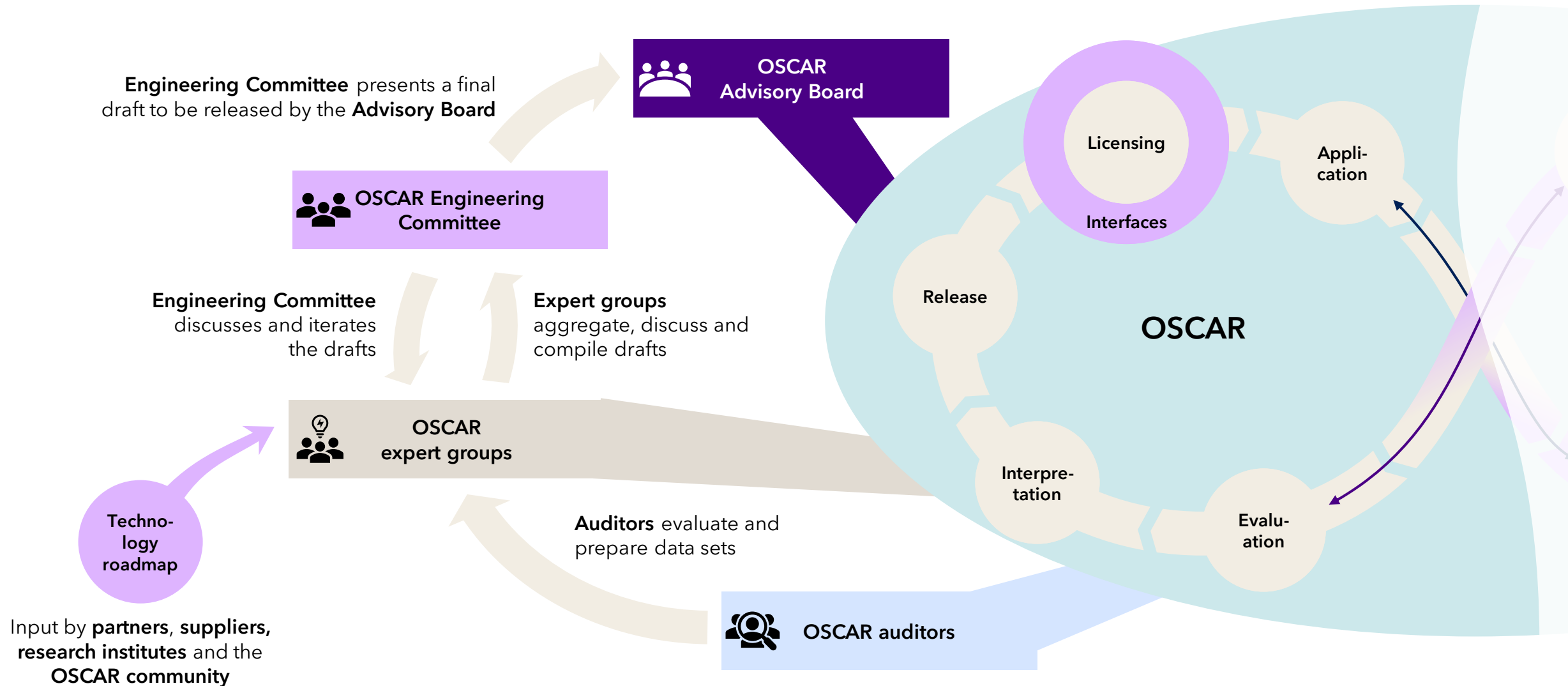
### Value-based monetary evaluation of the data sets

Complexity \ Quality	Complexity		
	low	medium	high
Tier 1	€€€	€€€€	€€€€€
Tier 2	€€	€€€	€€€€
Tier 3	€	€€	€€€
Tier 4	-	€	€€

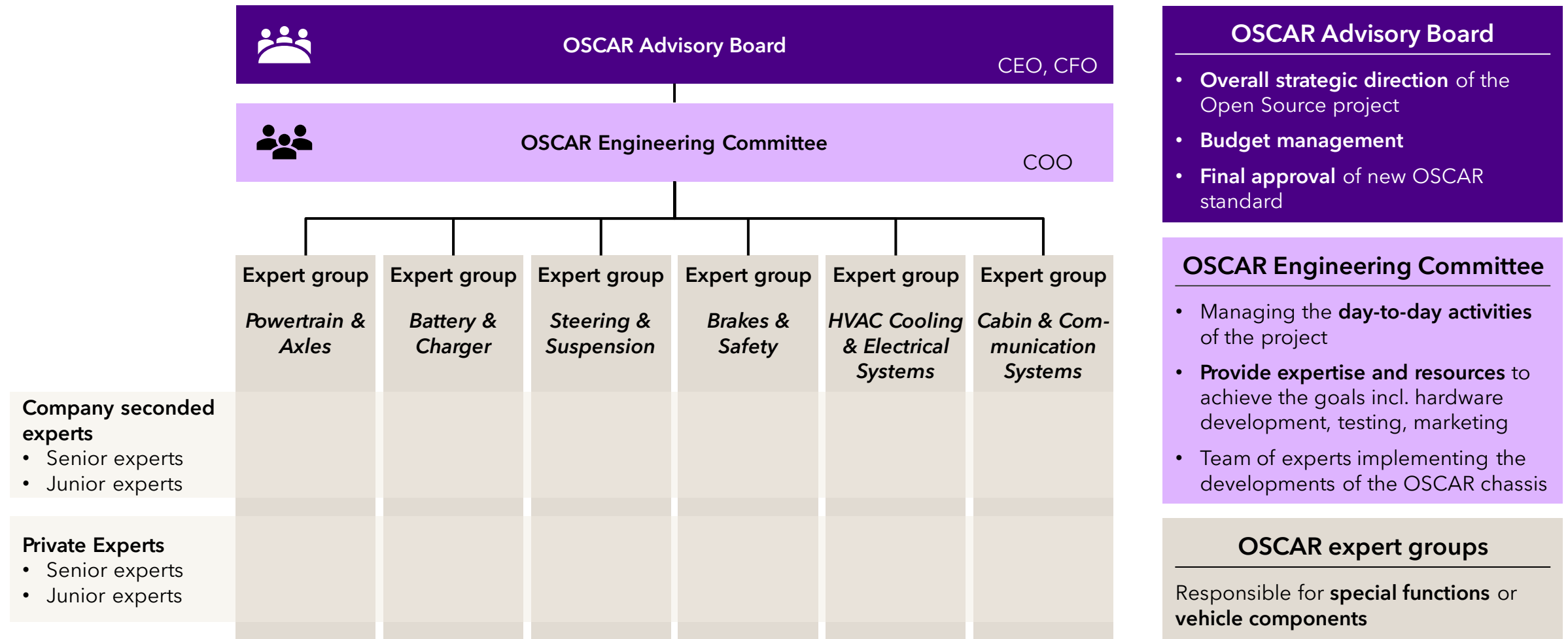
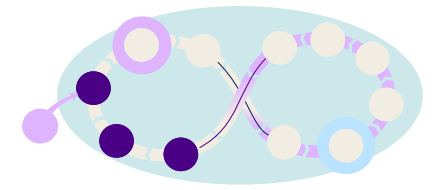
Pricing based on quality tier and complexity.

ASSUMPTION: the higher the complexity the bigger the value; The complexity is determined by the number of data points and the simulation duration.

# OSCAR standardization process enables transparent and open channels to develop new standards



# OSCAR's governance model ensures a thorough evaluation, expert-driven interpretation and transparent standardization process



# OSCAR community unifies relevant stakeholders and offers individual benefits



**System  
provider**

Access to usable data  
sets from real-world  
applications



**Software  
provider**

Integration into the  
vehicles' backbone  
and entry into the  
vehicle manufacturing  
ecosystem



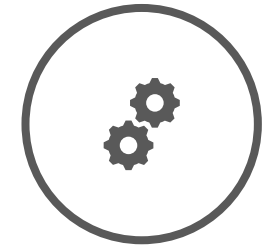
**Service  
provider**

Support and  
consulting activities  
for company-specific  
implementations of  
OSCAR



**OEM**

Cost and time savings  
through a novel  
vehicle development  
cycle and simplified  
homologation process



**Tier 1 and 2  
supplier**

Participation in  
complete vehicle  
development process  
and simplified  
distribution through  
OSCAR



# Five reasons to participate in OSCAR

- 1 **Community-based** approach driven by a shared purpose
- 2 **Cost reductions** in the **development process** for small series vehicles
- 3 **Truly sustainable** approach to **vehicle manufacturing** and design
- 4 **Easy entry** into the vehicle **manufacturing ecosystem**
- 5 **Standardization** of the fundamental, to date individualized, **component**

# Don't hesitate to contact us!

1

Download our **information material** with the QR-Code or from our website

2

Join the community by **signing up** for **OSCAR**

3

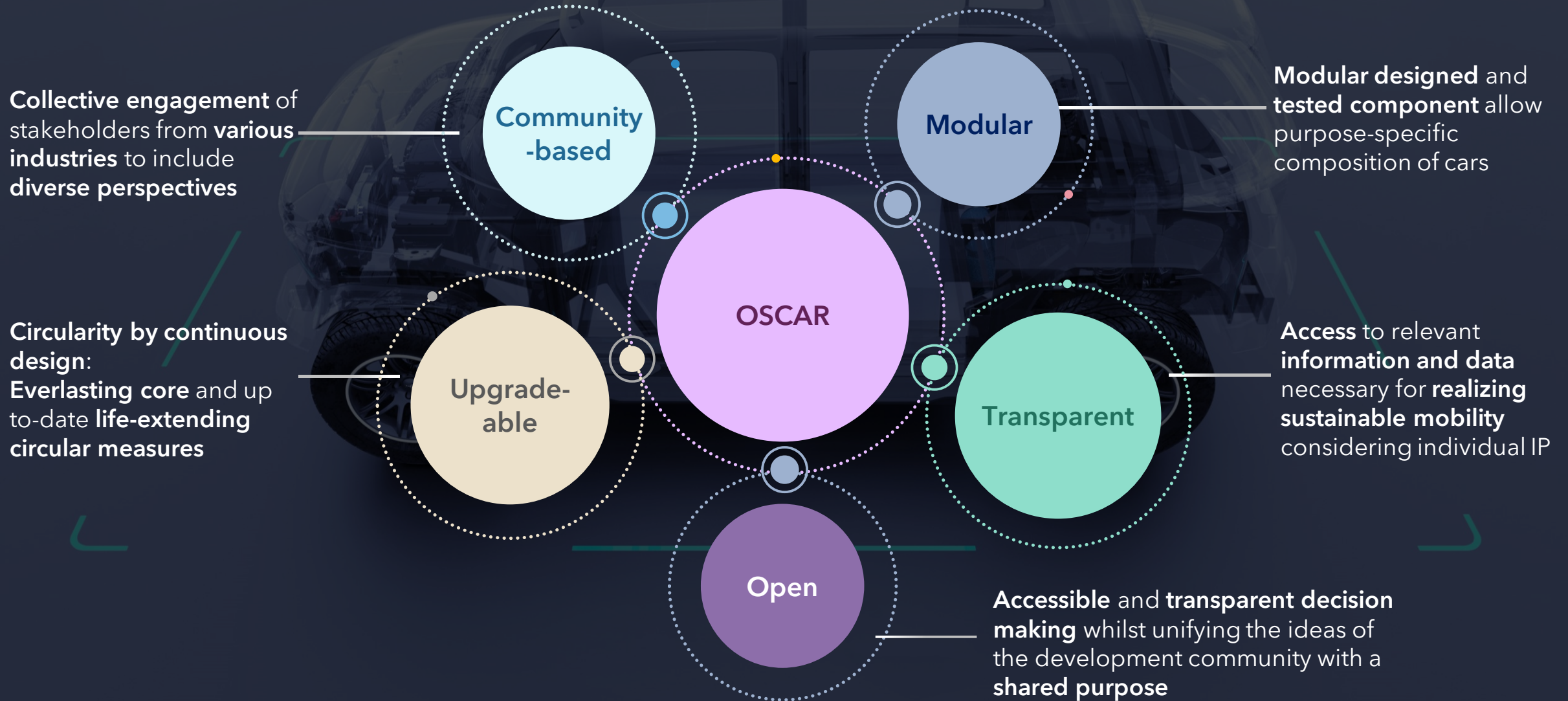
We will keep you in the loop contact to **become a part of OSCAR**

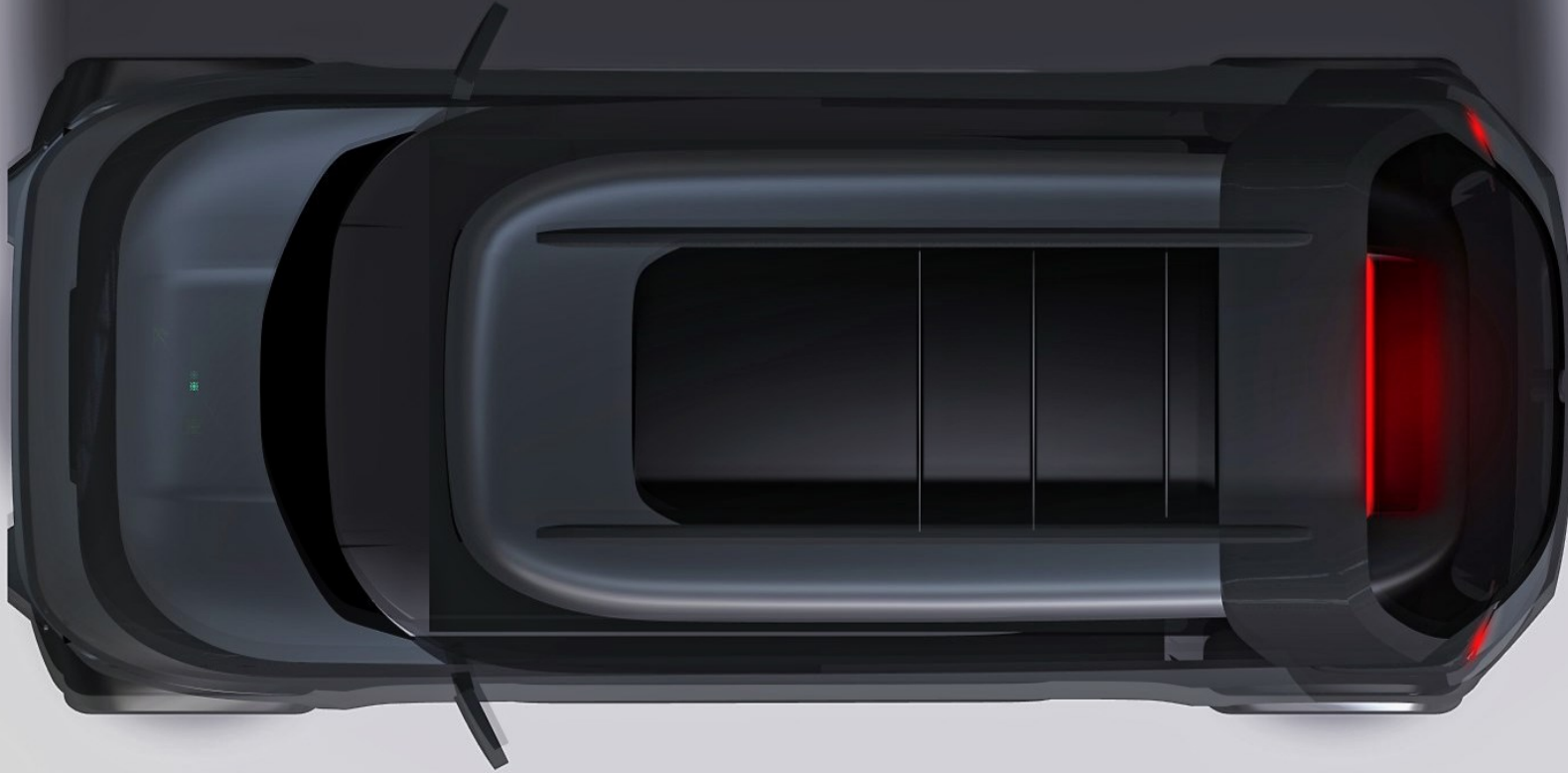


oscar.tech



# Rooted in the values of the Open Source community, OSCAR provides a unique ecosystem to revolutionize vehicle development





## Contact us...

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