

VOLVO

Volvo Cars materials Opportunities



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Chemistry – Göteborg University

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Attribute leader environmental impact – Volvo Cars

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Technical Expert, Occupant health effects – Volvo Cars

Research strategist materials – Volvo cars



Why Sustainability?

1

CLIMATE CHANGE
- WE MUST ACT

2

MEET GROWING
REGULATORY
DEMANDS

3

MEET CONSUMER
EXPECTATIONS

4

ATTRACT EMPLOYEES
AND BUSINESS
PARTNERS

5

INCREASE
PROFITABILITY

6

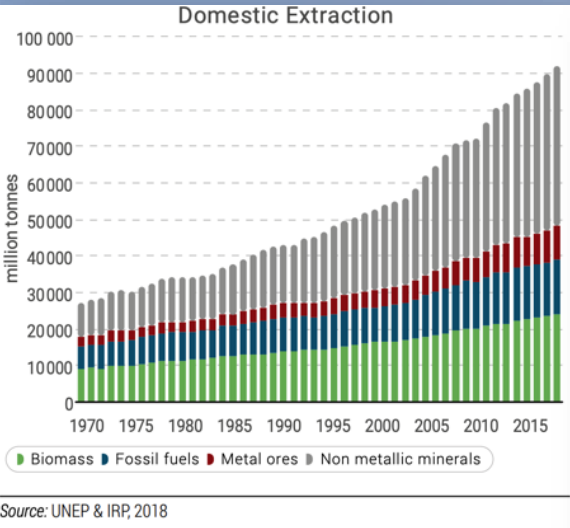
CREATE LONG
TERM FINANCIAL
MARKET VALUE



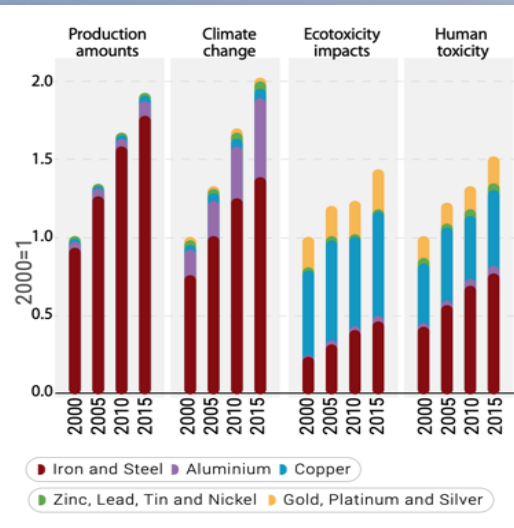


CIRCULAR BUSINESS

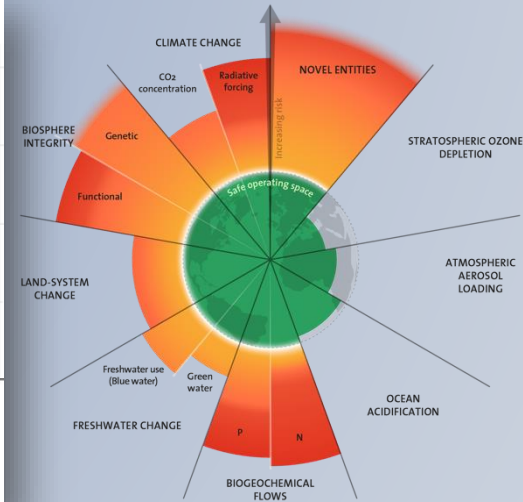
We aim towards becoming a circular business by 2040



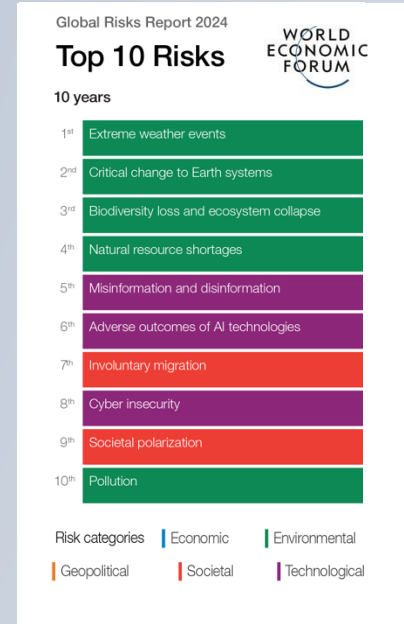
Increasing resource use



Impact from resource extraction and processing is increasing



Planetary limits are exceeded



Corporate risks are increasing

WHY ARE MATERIALS SO IMPORTANT?

- To engineer great vehicles, our value and fundamental competencies lie in 3 areas: Energy, Matter, and Code.
- The rapid and efficient implementation of sustainable materials is a crucial enabler for legislative compliance, as well our wider ambitions.

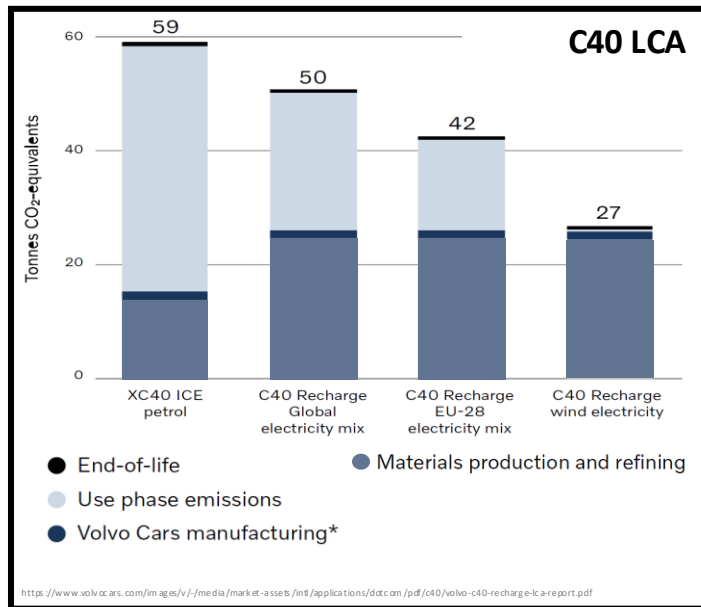
COST

Cost as % of revenue



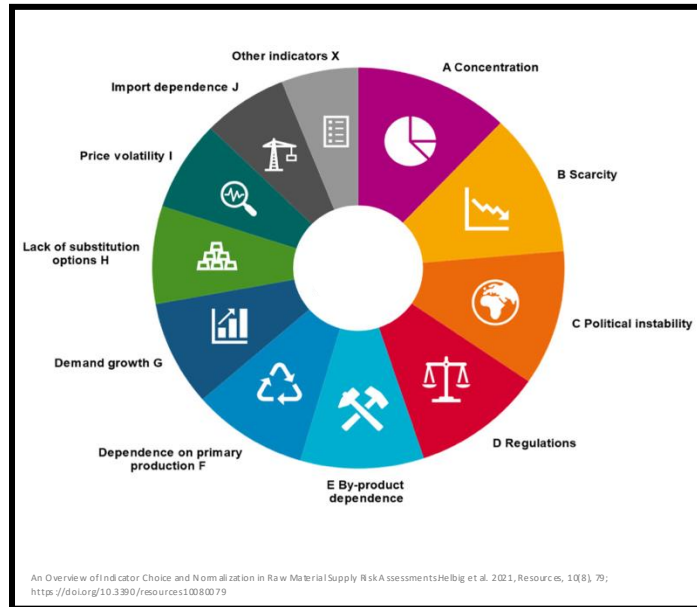
SUSTAINABILITY

Up to 90% of vehicle lifecycle CO₂ footprint

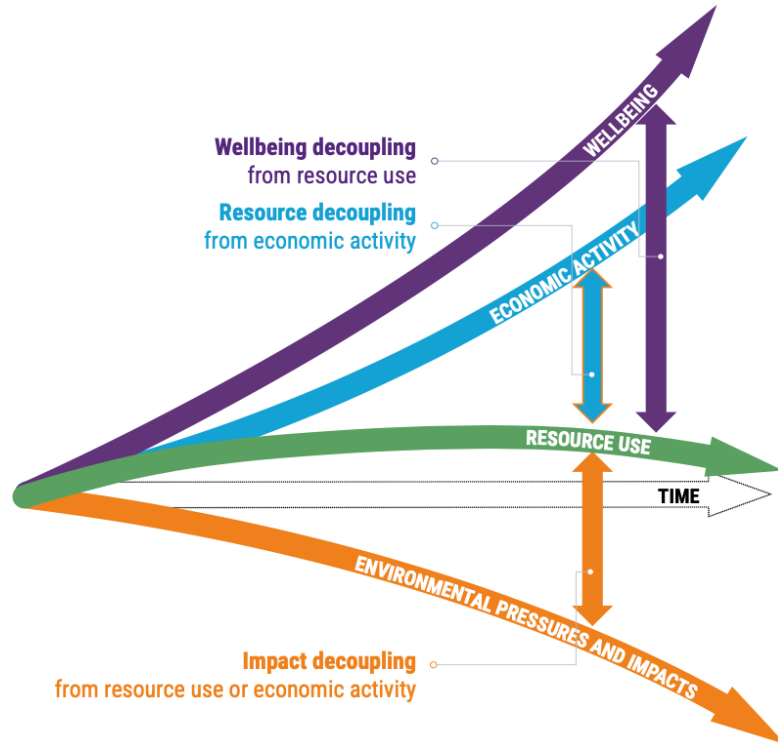


RISK

Affects all hardware



”Decoupling is needed for a sustainable future”



Decoupling natural resource use and environmental impacts from human well-being is essential and necessary for the transition to a sustainable future

Decoupling will not happen spontaneously and will require systemic transformation



Key Aspects of a Sustainable Material

- Durable and resilient
 - Properties maintained throughout the lifespan of the vehicle.
- Fulfil the requirements of our three sustainability pillars
- Responsibly sourced
- Non-hazardous
- Lower environmental impact than its primary reference
- Recyclable
- Produced at high volumes without adversely affecting the environment or local communities
- Enhances business resilience



The 9Rs for circularity

Smarter product use and manufacture	R0	Refuse	Make product redundant by abandoning its function or by offering the same function with a radically different product
	R1	Rethink	Make product use more intensive (e.g. through sharing products or by putting multi-functional products on market).
	R2	Reduce	Increase efficiency in product manufacture or use by consuming fewer natural resources
Extend lifespan of product and its parts	R3	Reuse	Re-use by another consumer of discarded product which is still in good condition and fulfils its original function
	R4	Repair	Repair and maintenance of defective product so it can be used with its original function
	R5	Refurbish	Restore an old product and bring it up to date
	R6	Remanufacture	Use parts of discarded product in a new product with the same function
	R7	Repurpose	Use discarded products or its part in a new product with a different function
Useful application of materials	R8	Recycle	Process materials to obtain the same (high grade) or lower (low grade) quality
	R9	Recovery	Incineration of material with energy recovery

Common Opportunities

MATERIAL INFORMATION

- Transparency increasing
- Possibility for AI generation of material suggestions

CO2 REDUCING

- New technology reducing CO₂ intensity of materials

CIRCULARITY GROWING

- Decoupling
- Recycled content increasing (PIR & PCR)
- Closed-Loops
- New business models for dismantlers, recycling companies and compounders

LEGISLATION



VOLVO

Examples

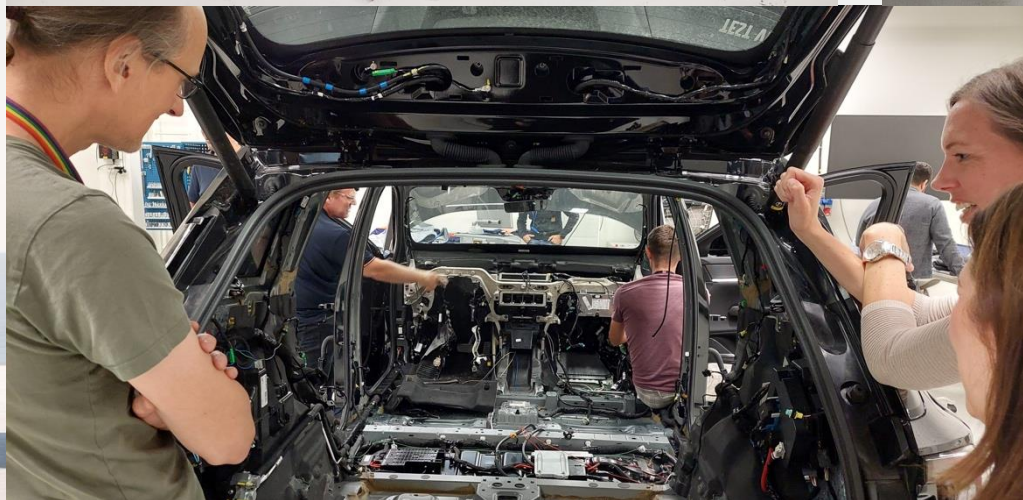


V O L V O

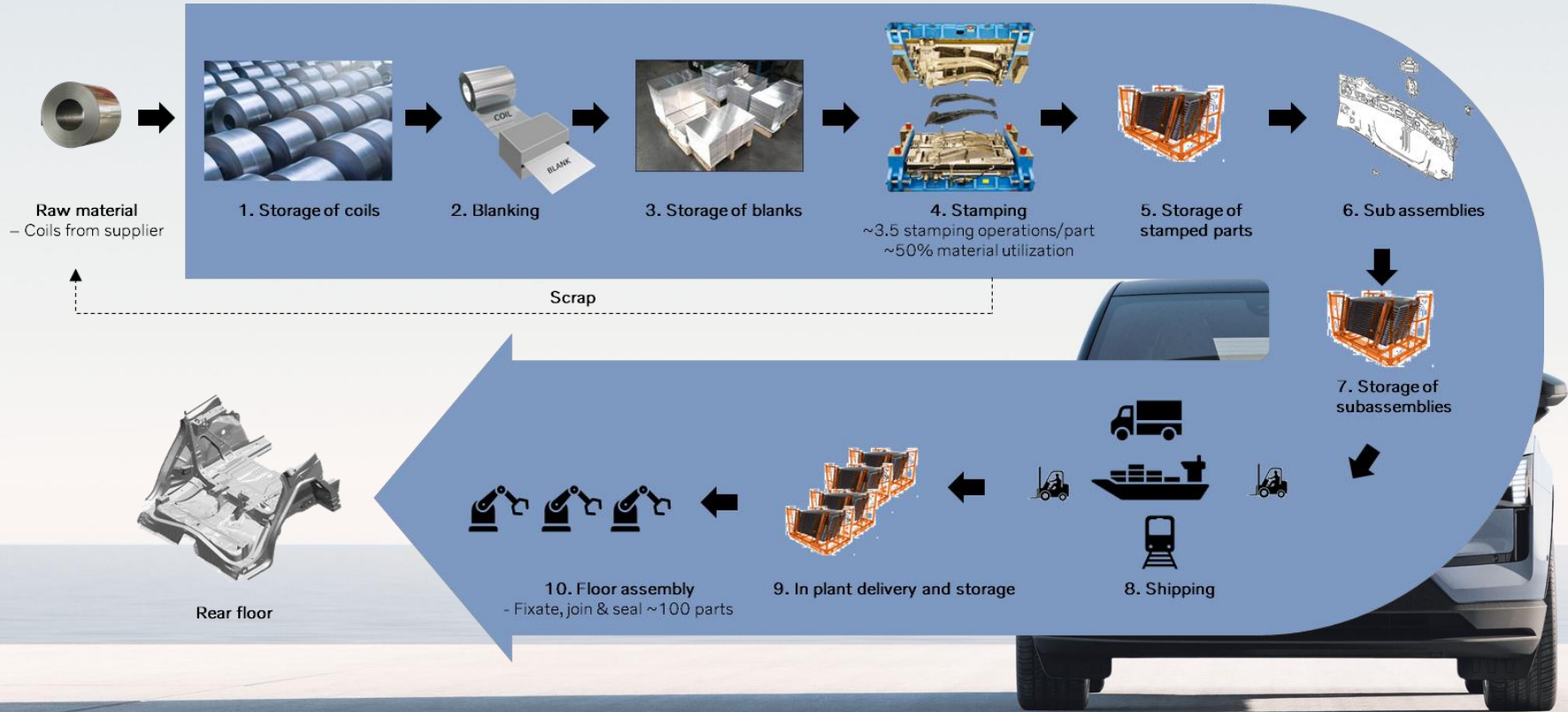
Dismantling EX90



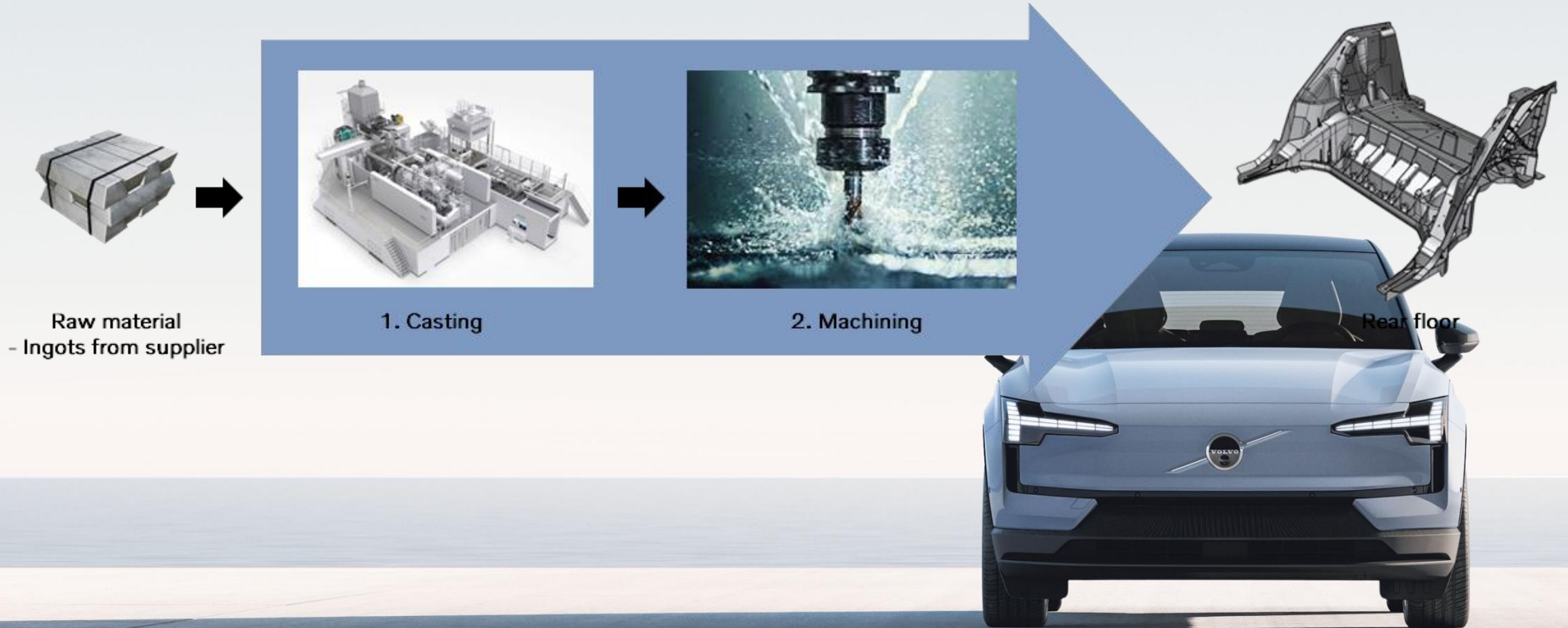
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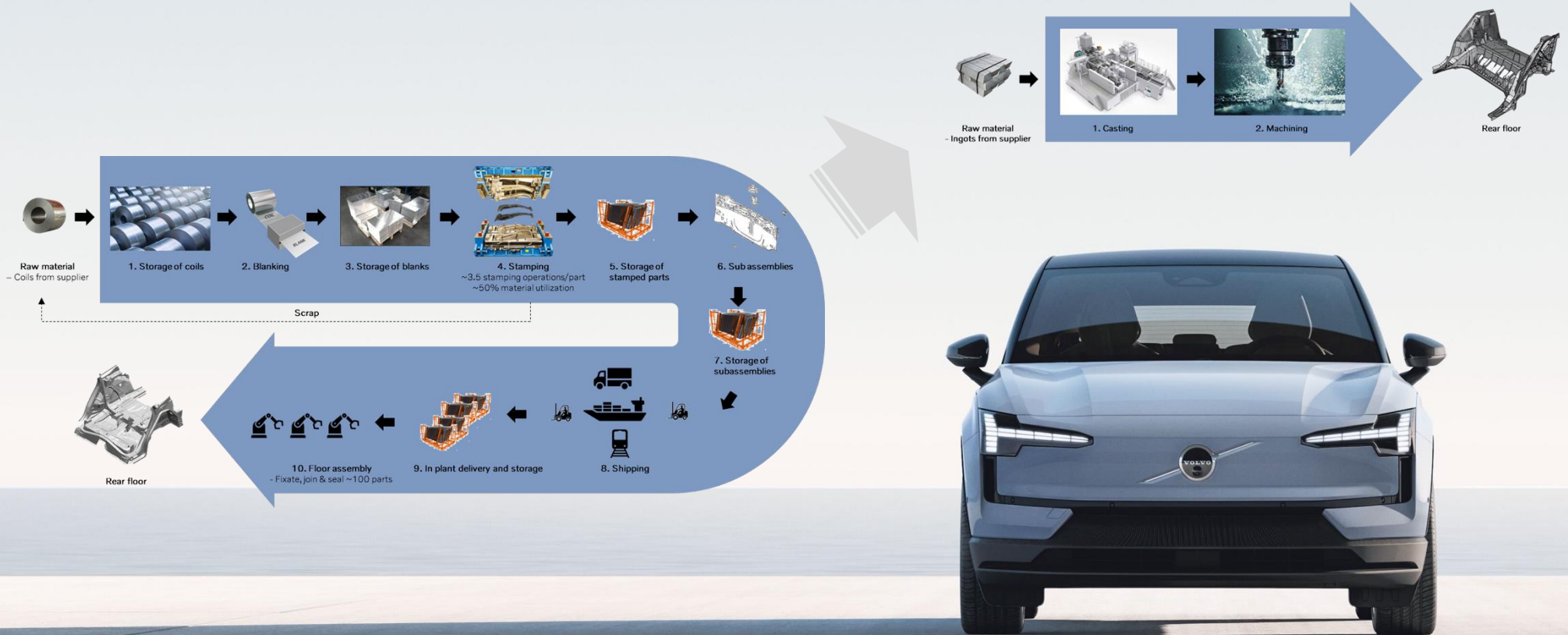
MegaCasting



MegaCasting



MegaCasting



VOLVO

Materials is a team
sport...

Collaboration
collaboration
collaboration



V O L V O

Volvo Cars want to accelerate sustainable innovations and materials.

From your point of view, what do we need to do to succeed together?



V O L V O

