

ALMA

Advanced Light Materials And Processes For The Eco-design Of Electric Vehicles

**Webinar Life Cycle Assessment (LCA) and its
application to the automotive sector**

February 2023



Facts and Figures

ALMA involves a diverse group of nine partners from four different EU countries: France, Germany, Netherlands and Spain.

The partners include five market-oriented companies, three RTOs, and one international association.

Budget

» 4.355.786,38 €

Timeline

» FEBRUARY 2021 – FEBRUARY 2024



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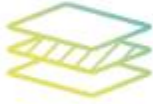
hello@almaproject.eu



MAIN GOALS



Decrease the environmental impact of electric vehicles by applying circular economy principles from the early stages of and throughout the project duration.



Develop a new, multi-material platform with the highest possible performance.



Reduce the weight of the vehicle structure, saving both energy and materials.



Incorporate eco-design to enable effective recycling, recovery, and efficient end-of-life solutions using a reversible bonding technology to facilitate the separation of components for repair and re-use.



Integrate a revolutionary health monitoring system to detect and locate damage while in-service.



Ensure affordability and effective market uptake.



Promote public awareness on sustainability and the circular economy.

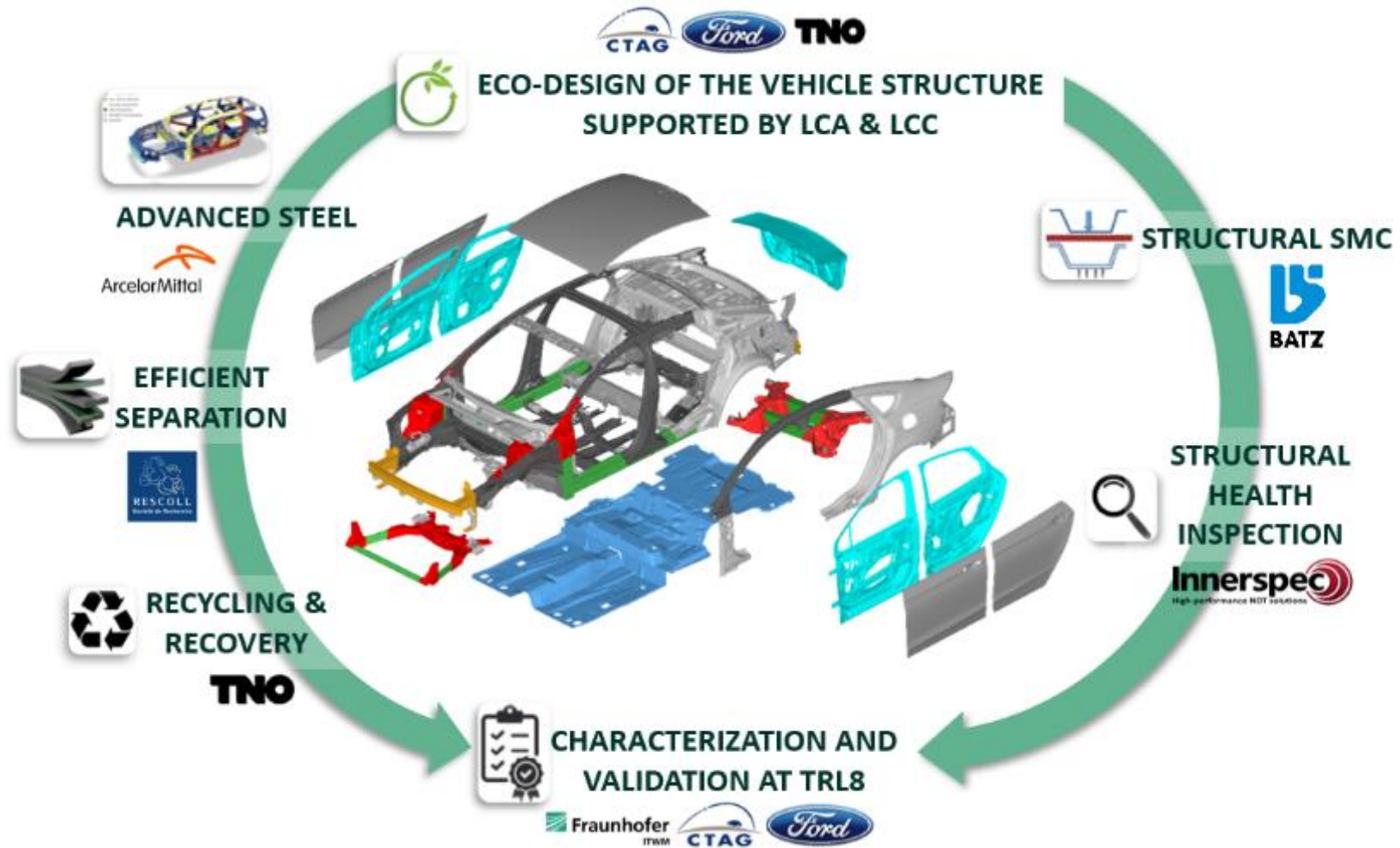


Revolutionize the automotive and transportation sector.

CONSORTIUM



CONCEPT



INNOVATIONS

Structure
CTAG redesign

Fraunhofer ITWM Modelling

Ford Validation

TNO innovation for life
IGA/LCC
BEVSIM
tool

Structural
BATZ SMC

Advanced
steels
ArcelorMittal

Health monitoring
Innerspec using US

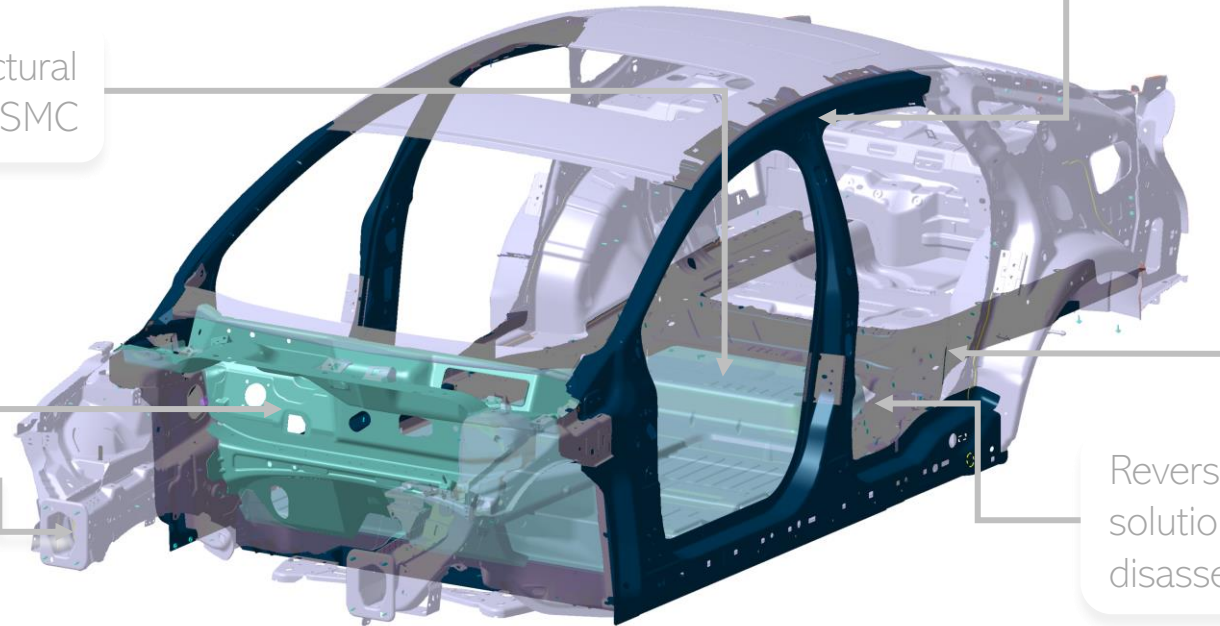
Reversible bonding
solutions for
disassembly



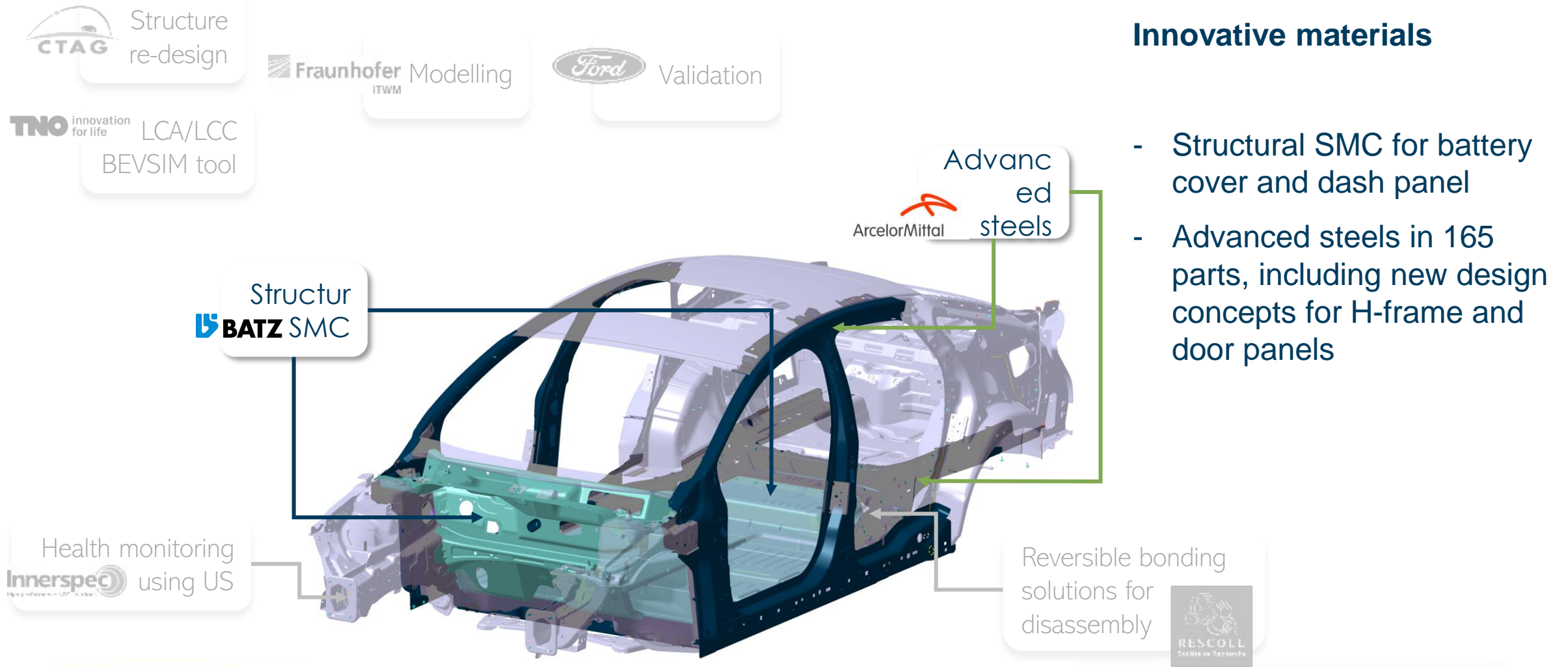
Adaptation of ICE model to
BEV model

Optimisation of design:

- Best material in the best location!
- Integration of functions
- Designed for lightweighting and recyclability



INNOVATIONS



INNOVATIONS



Structure re-design



Modelling



Validation



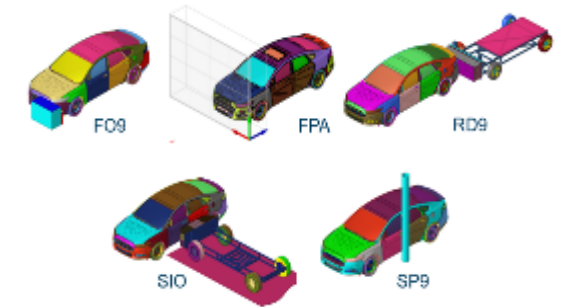
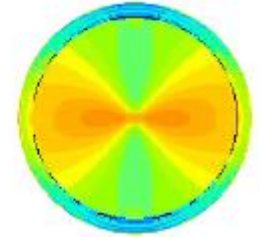
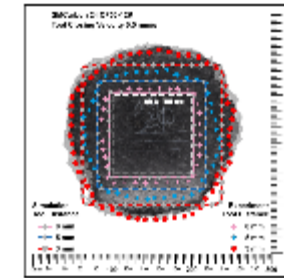
LCA/LCC
BEVSIM tool

Structural
BATZ SMC

Advanced steels
ArcelorMittal

Health monitoring
Innerspec using US

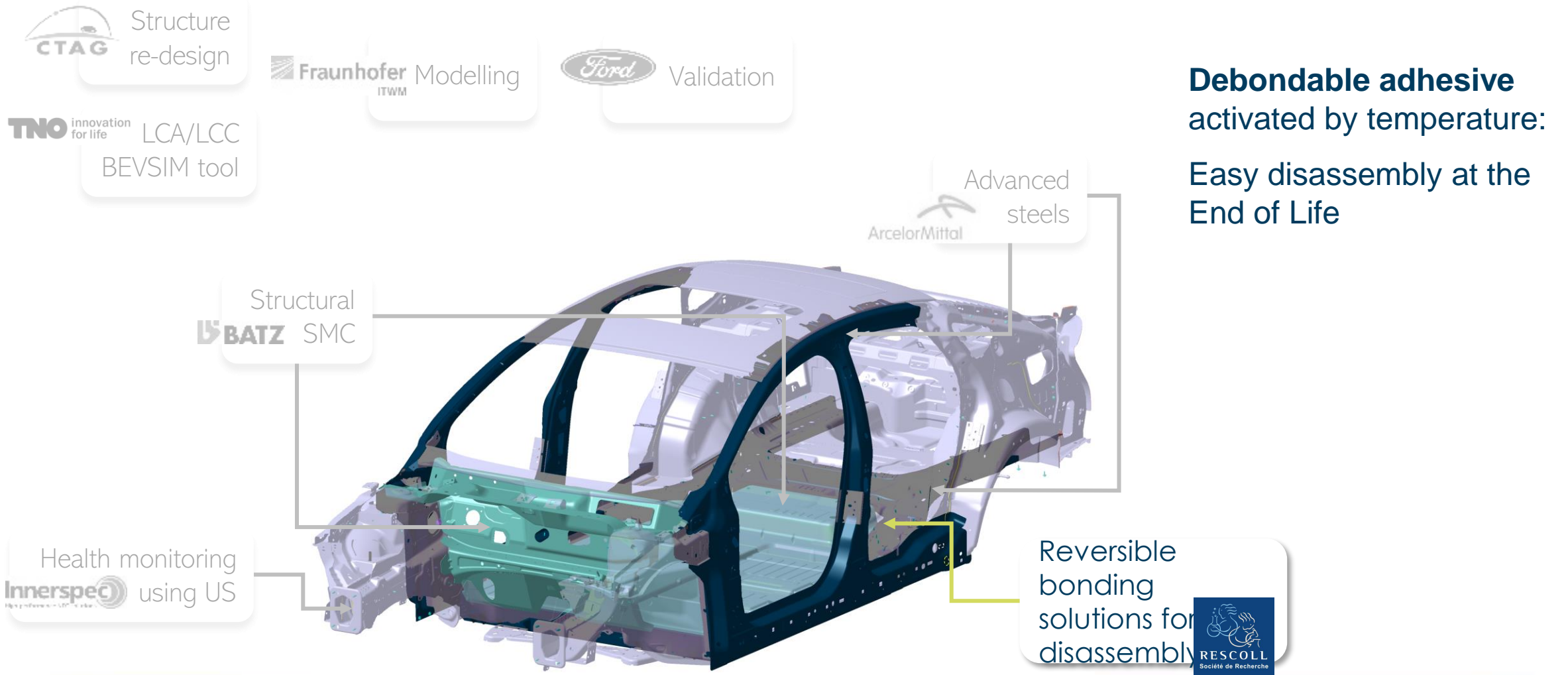
Virtual characterisation and validation



Reversible bonding solutions for disassembly



INNOVATIONS



INNOVATIONS



Structure re-design



Fraunhofer Modelling



Validation



LCA/LCC

BEVSIM tool



Structural SMC

ArcelorMittal

Advanced steels

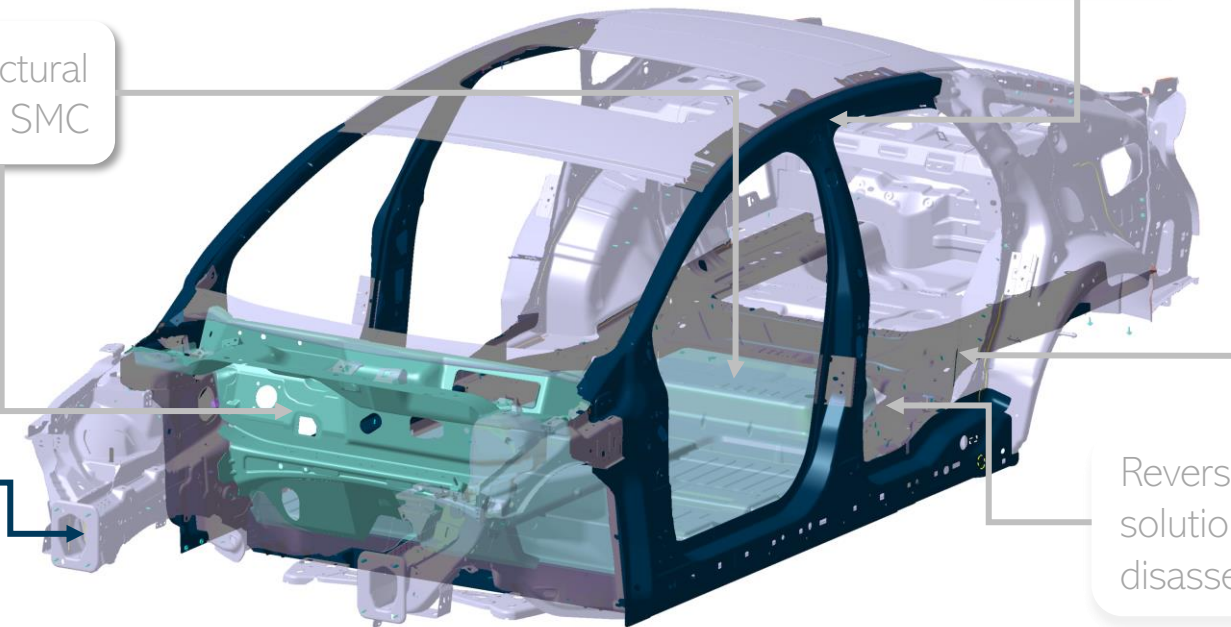


Health monitoring using US

Reversible bonding solutions for disassembly



Health monitoring of the structure, to decide the best EoL option and promote circularity



INNOVATIONS



Structure re-design



Fraunhofer Modelling
ITWM



Validation

TNO innovation for life

LCA/LCC
BEVSIM tool

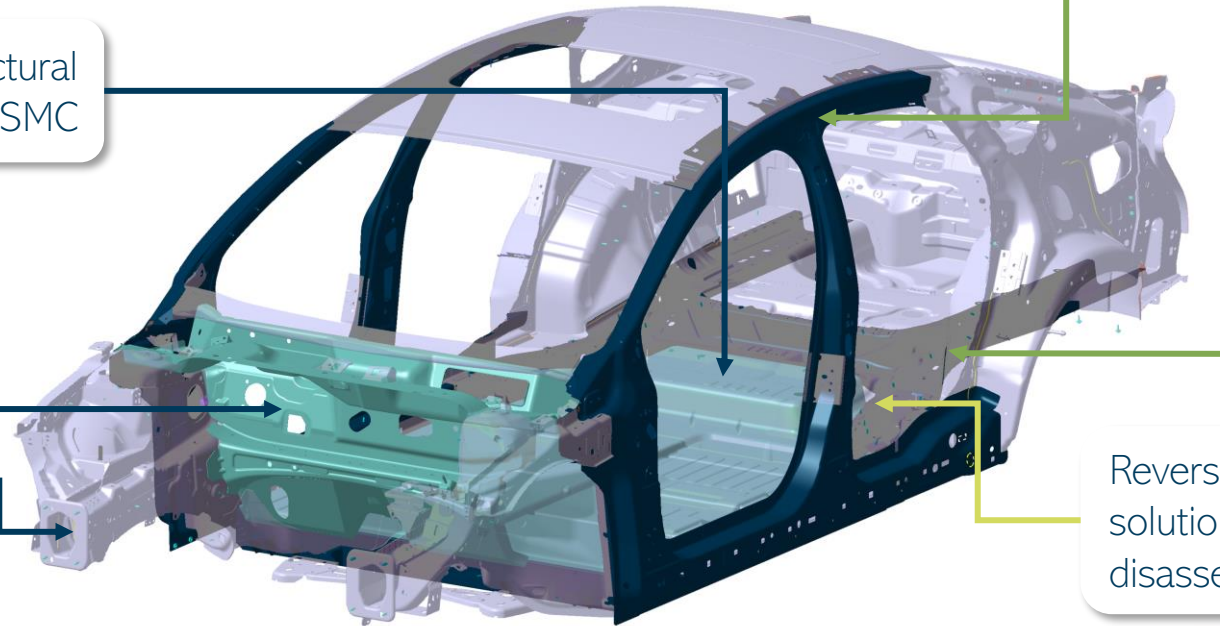
Structural
BATZ SMC

Advanced steels
ArcelorMittal

Health monitoring using US
Innerspec

Reversible bonding solutions for disassembly
RESCOLL
Société de Recherche

Potential lightweighting:
≈23% compared to the
baseline



BEVSIM: LCA/LCC tool for BEV

TNO innovation
for life

Presentation of BEVSIM tool
already available on youtube!

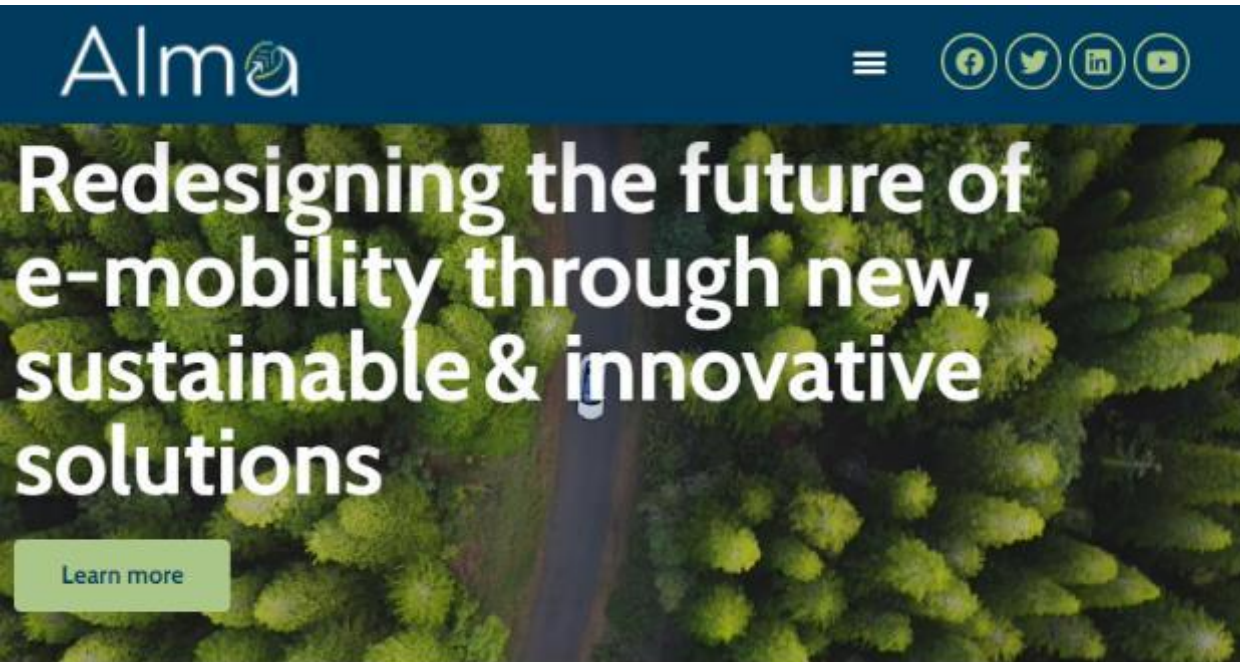
SIMULATION WORKFLOW
STEP 6: COMPARE "USER DESIGN" WITH "REFERENCE DESIGN(S)"







SubSystem	demo [kg]	initial_size [kg]
Body	~400	~380
Chassis	~350	~320
Chassis	~100	~100
Interior	~200	~180
Power-train	~150	~420
Top-structure	~600	~100
Drivetrain	~50	~10

<https://www.youtube.com/watch?v=nqtjmGI33-Q>

STAY TUNED!!

<https://almaproject.eu/>

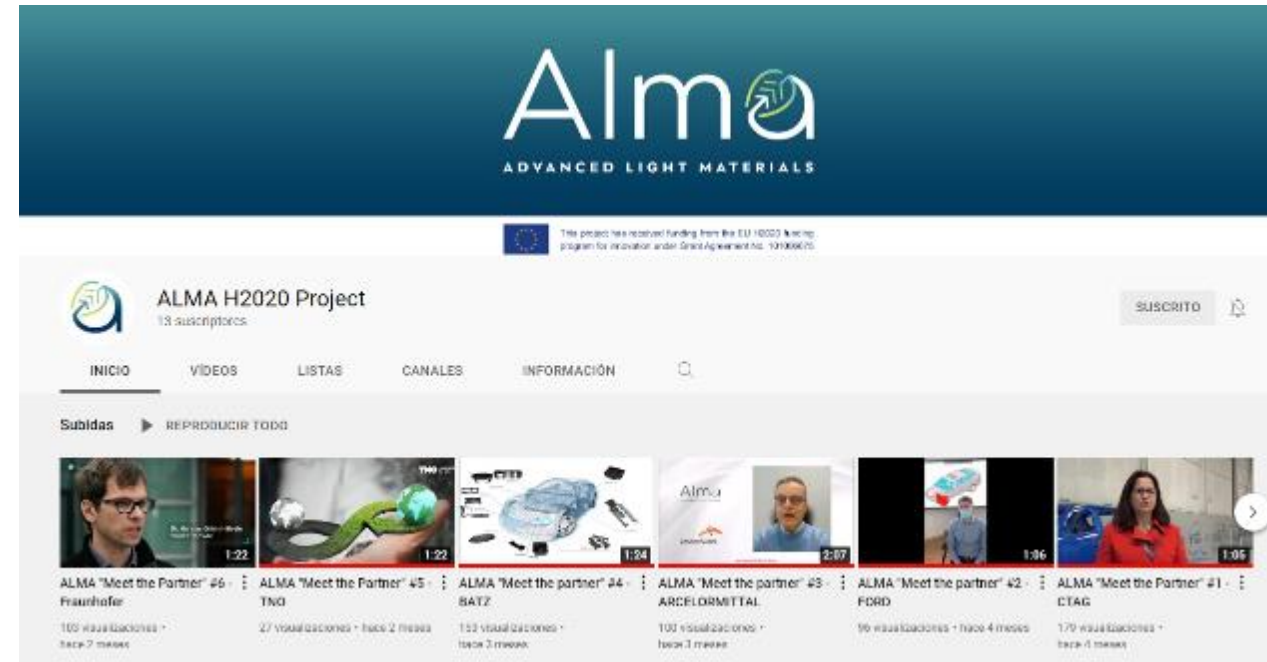



Alma      


Redesigning the future of e-mobility through new, sustainable & innovative solutions


[Learn more](#)


 **YouTube** channel:




 **Alma**
ADVANCED LIGHT MATERIALS







 This project has received funding from the EU H2020 funding program for innovation under Grant Agreement No. 101006675

 **ALMA H2020 Project**
13 subscribers

SUSCRITO 

INICIO VIDEOS LISTAS CANALES INFORMACIÓN 

Subidas ▶ REPRODUCIR TODO

-  ALMA "Meet the Partner" #6 - Fraunhofer
100 visualizaciones · hace 2 meses
-  ALMA "Meet the Partner" #5 - TNO
27 visualizaciones · hace 2 meses
-  ALMA "Meet the partner" #4 - BATZ
152 visualizaciones · hace 3 meses
-  ALMA "Meet the partner" #3 - ARCELORMITTAL
100 visualizaciones · hace 3 meses
-  ALMA "Meet the partner" #2 - FORD
56 visualizaciones · hace 4 meses
-  ALMA "Meet the Partner" #1 - CTAG
179 visualizaciones · hace 1 mes



Thank you!

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