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ALMA

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

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INTRODUCCIÓN

- Introducción de CTAG
- Proyecto ALMA
- Impactos importantes para el sector

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1.

Quienes Somos?

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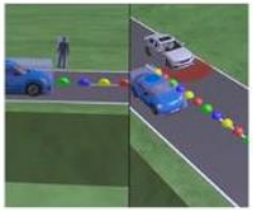

APPLIED RESEARCH

CONCEPT DEVELOPMENT

PRODUCT DEVELOPMENT

DEVELOPMENT TESTS

INDUSTRIAL PROCESS DEVELOPMENT

PRODUCT & PROCCES VALIDATION

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CTAG

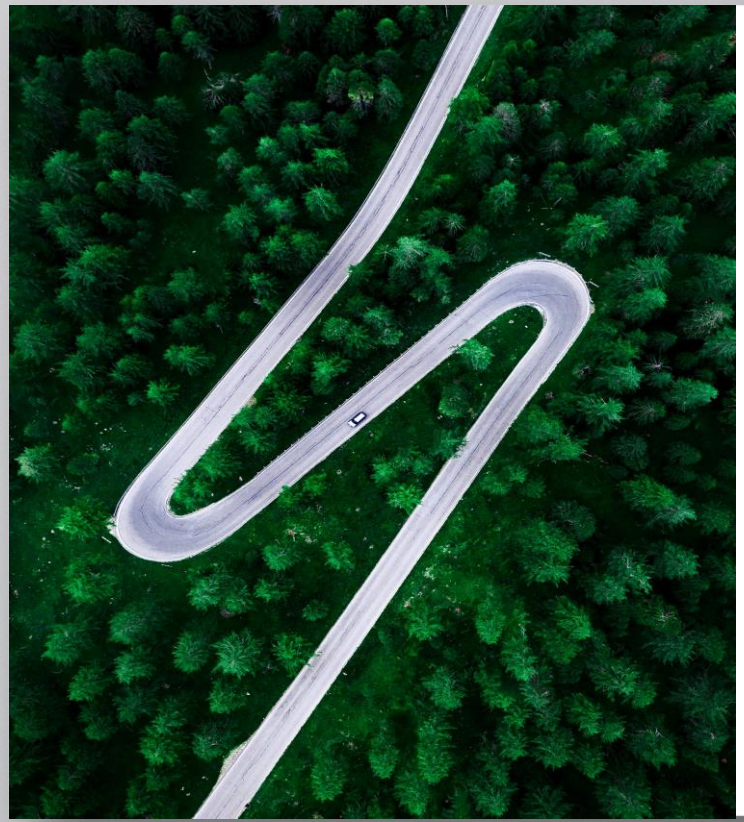
+800
75% university education

70M
Total investments

52M
T.O. 2020

65%
International activity

50%
OEMs



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Proyecto ALMA

CTAG

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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

www.almaproject.eu

hello@almaproject.eu

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

ADVANCED LIGHT MATERIALS

CTAG

Ford

ArcelorMittal

BATZ

Fraunhofer ITWM

TNO innovation for life

RESCOLL Société de Recherche

Innerspec High-performance NDT solutions

ISWA International Solid Waste Association

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ADVANCED LIGHT MATERIALS

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.

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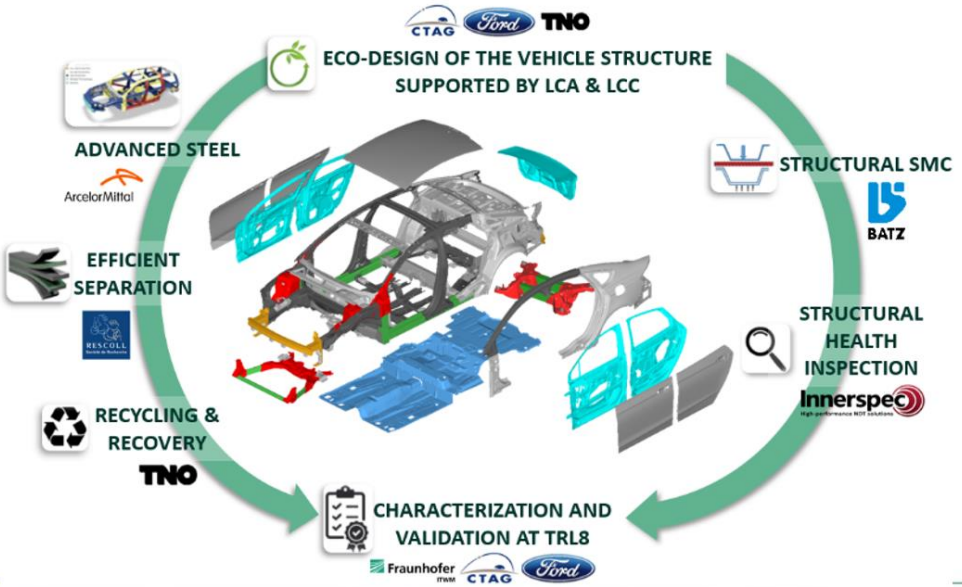

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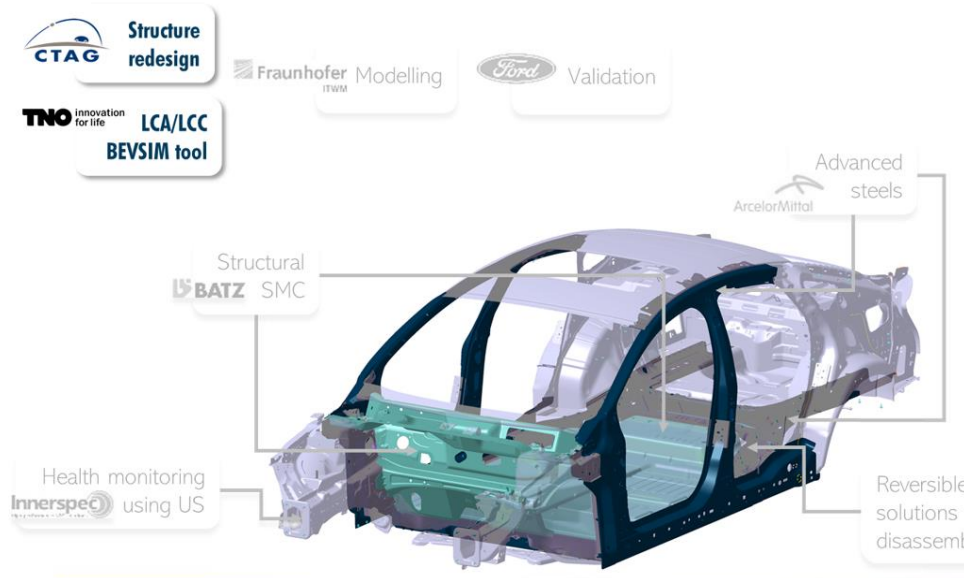

Adaptación del modelo ICE al modelo BEV

Optimización del diseño:

- El mejor material en la mejor ubicación
- Integración de funciones
- Diseñado para ser ligero y reciclable

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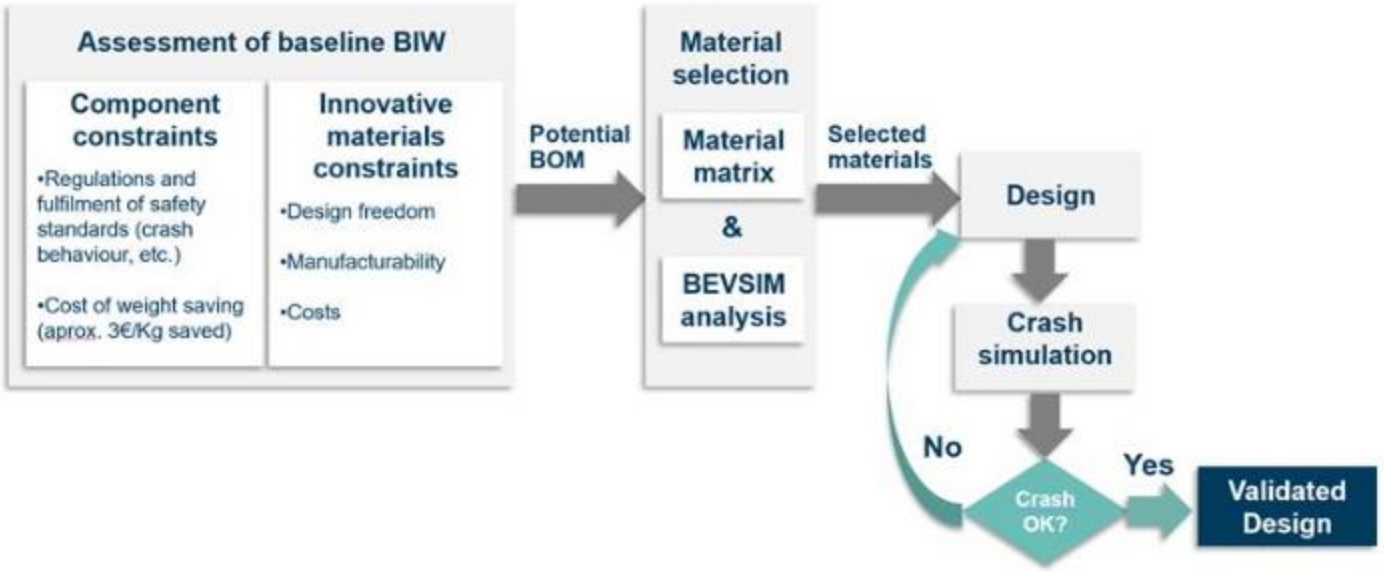
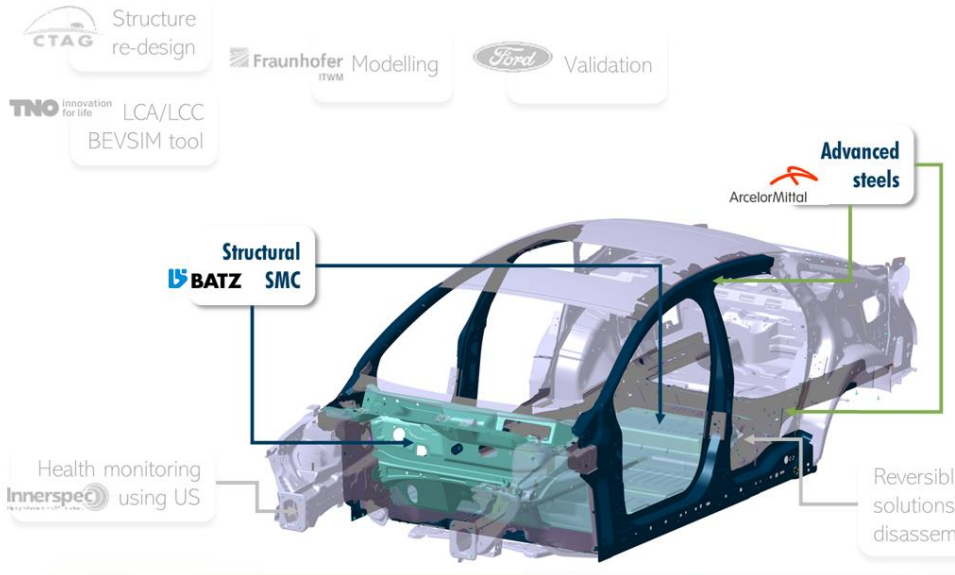

Assessment of baseline BIW
Component constraints
•Regulations and fulfilment of safety standards (crash behaviour, etc.)
•Cost of weight saving (aprox. 3€/Kg saved)
Innovative materials constraints
•Design freedom
•Manufacturability
•Costs
Potential BOM
Material selection
Material matrix
&
BEVSIM analysis
Selected materials
Design
Crash simulation
Crash OK?
No
Yes
Validated Design



Materiales innovadores

Aceros avanzados en 165 piezas, incluidos nuevos conceptos de diseño para el bastidor en H y los paneles de las puertas

SMC estructural para la tapa de la batería y el salpicadero

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CTAG Structure re-design

Fraunhofer ITWM Modelling

Ford Validation

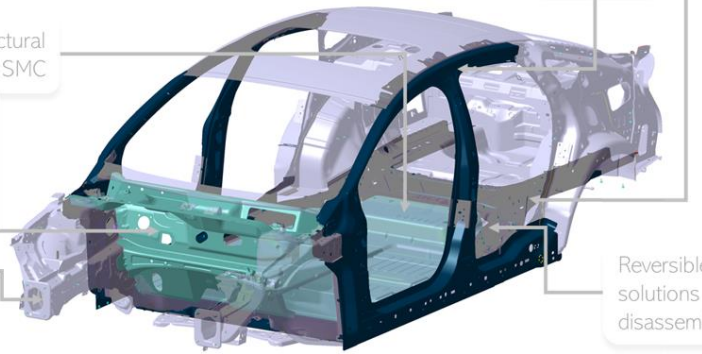
TNO innovation for life LCA/LCC BEVSIM tool

ArcelorMittal Advanced steels

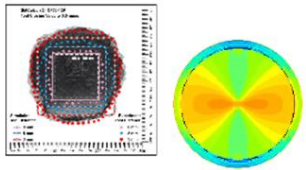
BATZ Structural SMC

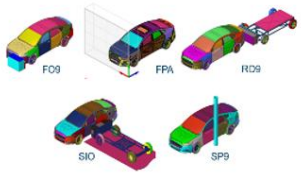
Innerspec Health monitoring using US

RESCOLL Reversible bonding solutions for disassembly



Caracterización y validación virtuales





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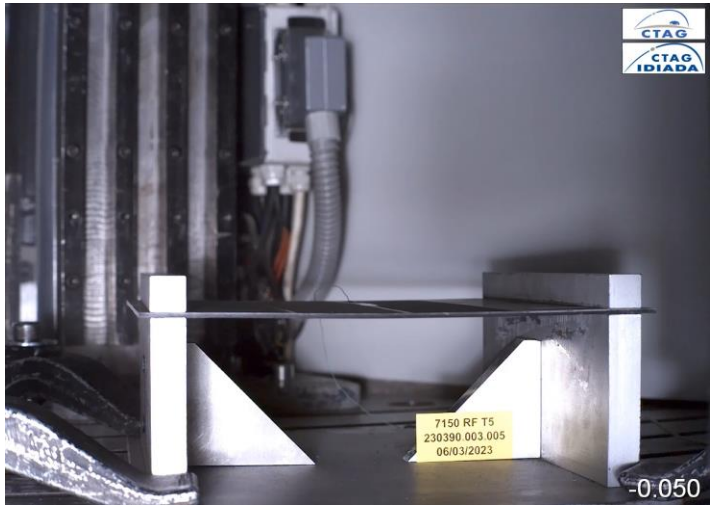
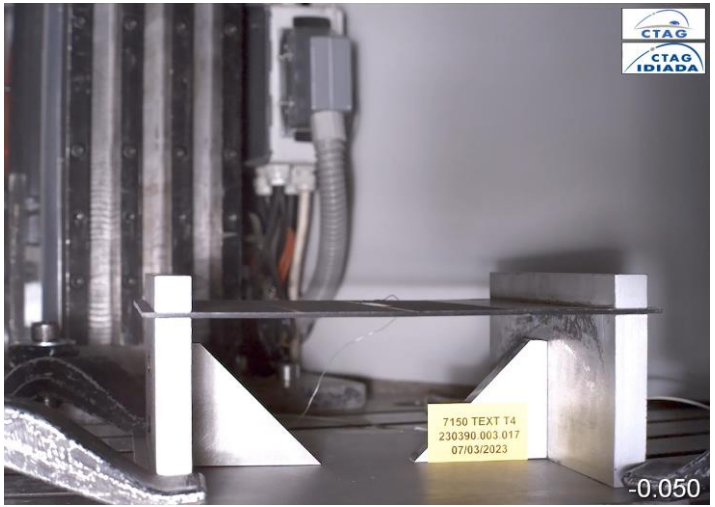

CTAG
CTAG IDIADA
7150 RF T5
230390.003.005
06/03/2023
-0.050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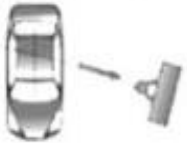
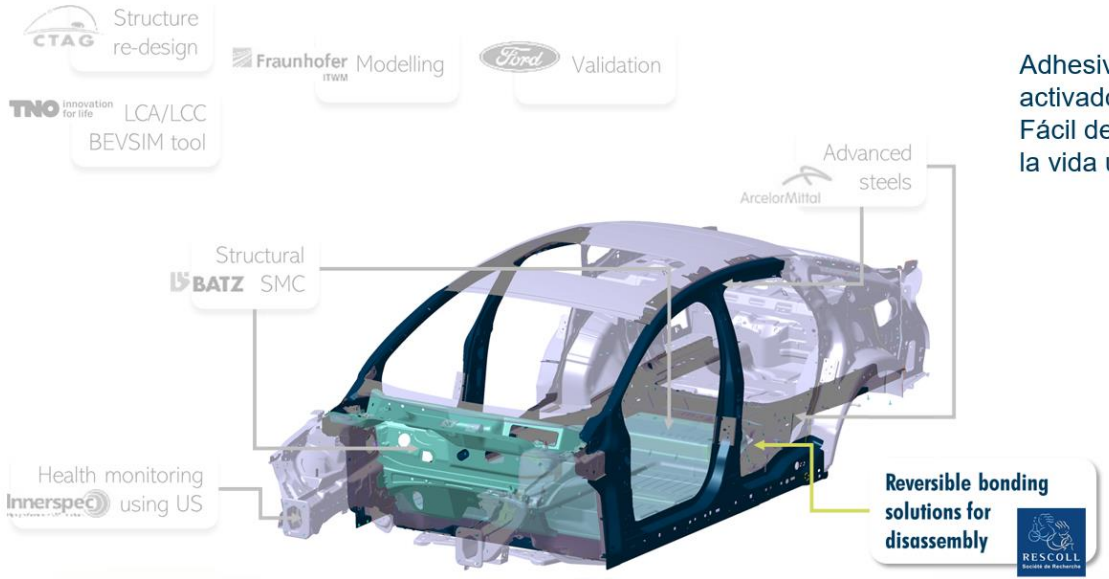
Impact Mode	**Offset Frontal Impact** onto deformable barrier with 40%	**Full Frontal Impact** onto rigid wall	**Side Barrier Impact** with movable and deformable barrier	**Oblique Side Pole Impact** vehicle onto rigid pole	**Rear Barrier Impact** with movable and rigid barrier
					
Test Speed **Impact Angle**	64 km/h 0°	50 km/h 0°	60 km/h 90°	32 km/h 75°	50 km/h 0°
Barrier	ODB 40% offset	rigid wall full overlap	AE-MDB 1400 kg	D= 254 mm rigid pole along length of HV battery	ECE R34 full overlap

EL NUEVO PASAJERO



Adhesivo despegable activado por temperatura: Fácil desmontaje al final de la vida útil

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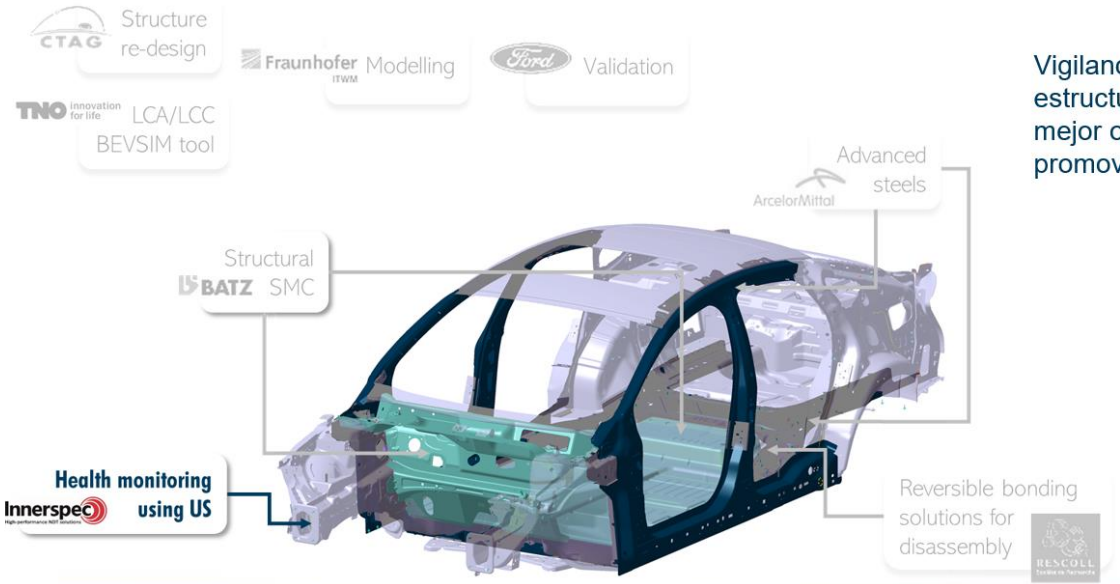

Vigilancia de la salud de la estructura, para decidir la mejor opción EoL y promover la circularidad.

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Structure re-design

Fraunhofer ITWM Modelling

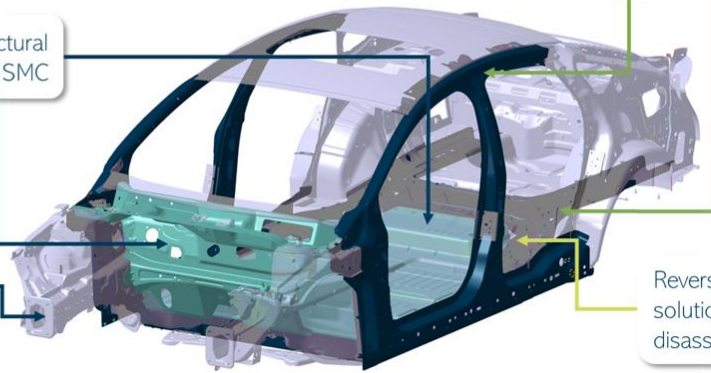
Ford Validation

TNO innovation for life LCA/LCC BEVSIM tool

Advanced steels

ArcelorMittal

Structural BATZ SMC



Health monitoring using US

Innerspec

Reversible bonding solutions for disassembly

RESCOLL

Aligeramiento potencial: ≈20% en comparación con la línea de base.

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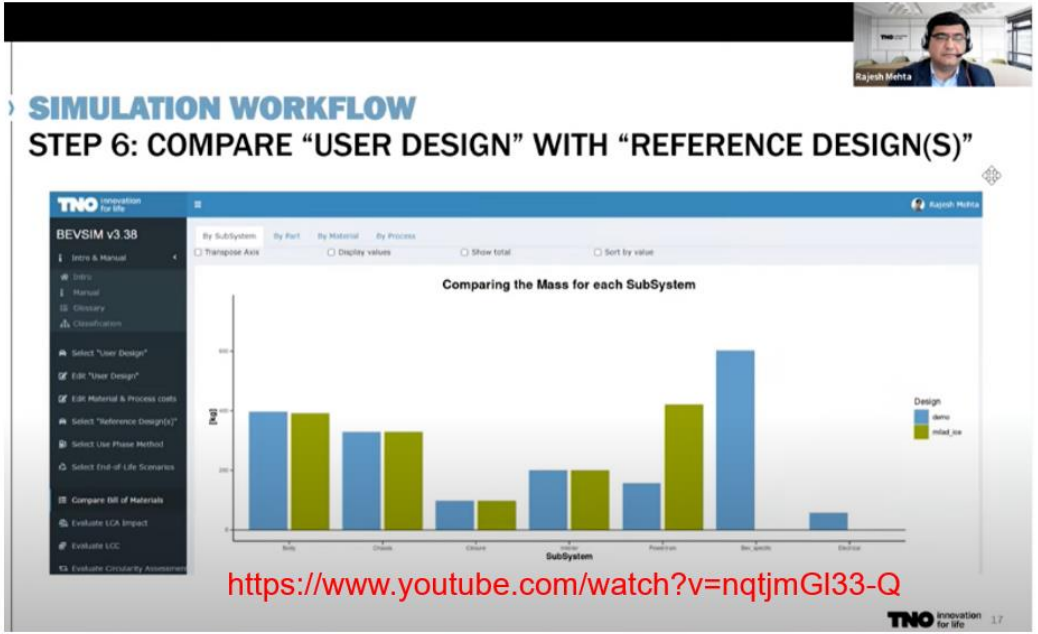
BEVSIM: LCA/LCC tool for BEV

TNO innovation for life

Presentación de la herramienta BEVSIM

ya disponible en youtube!



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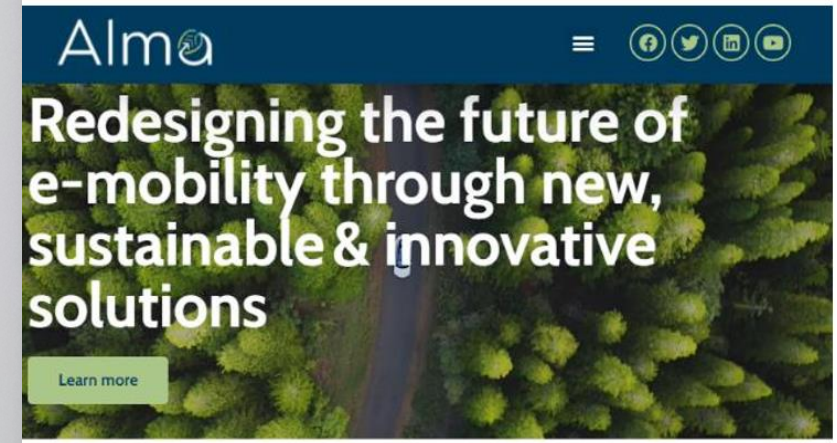
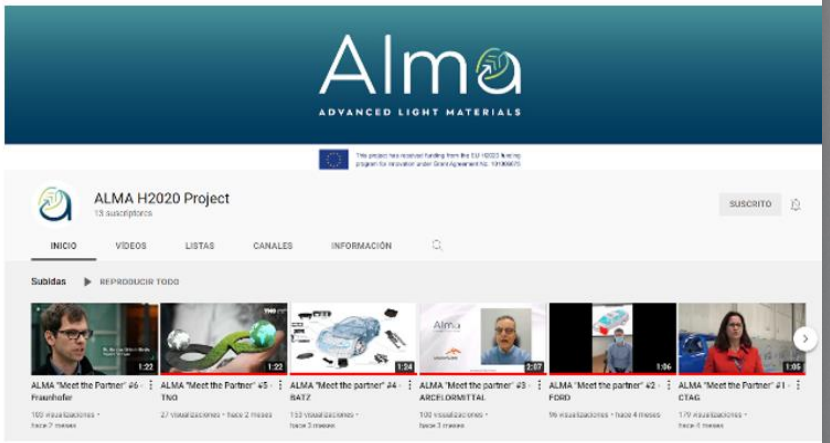
https://almaproject.eu/

YouTube channel:





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Muchas Gracias
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