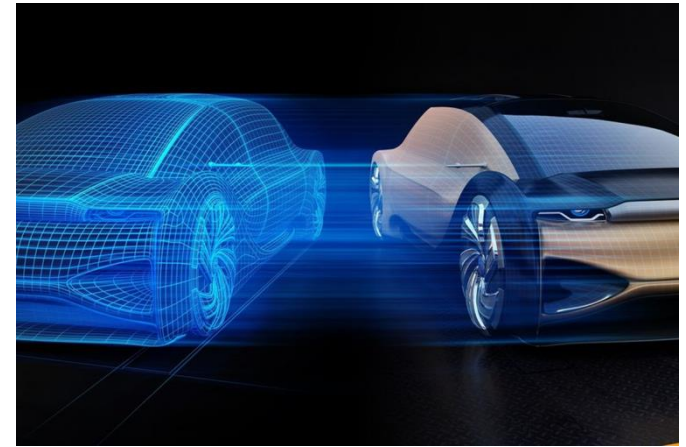


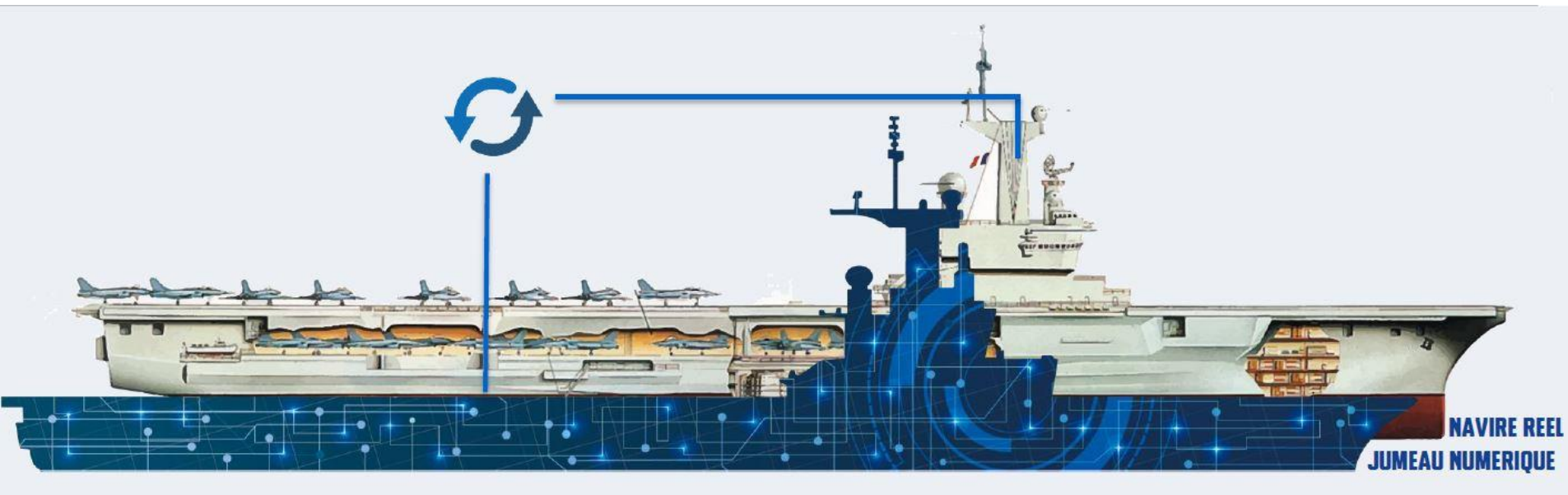
What's a Digital twin?



No longer science fiction but projects on different topics like health, industry, defence, policies design

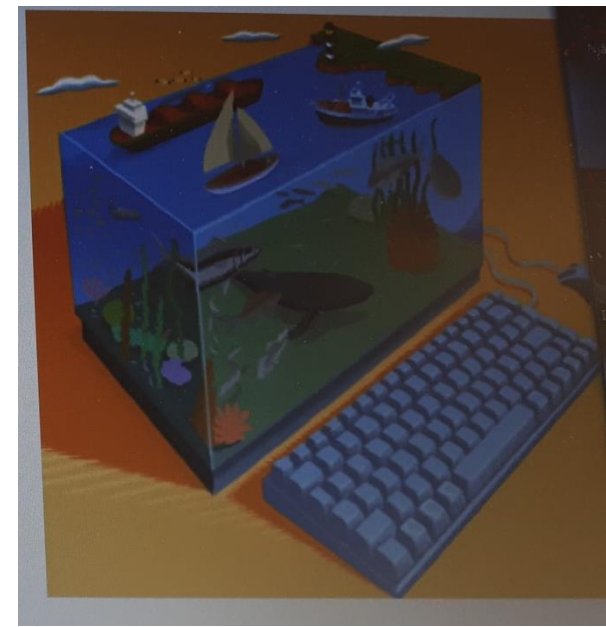
Example of a Digital twin of a ship:

- The real model
- The virtual model receiving sensors information
- Virtual passerel between them for interpretation and actions to suggest to the operators and test risks and modifications



Digital twin of the Ocean

Why, How?



-Paradigm Shift:

- Cross modeling of the ocean and no more modelization topic by topic
- Modeling interactions among hydrography, oceanography, physics, chemistry, biology, *human activities, governance, evolution of maritime policies..*
- Work in common for all the EU ocean networks, specially EMODNET and COPERNICUS
- Modeling cross impacts for better evaluate climate change, risks for marine biodiversity
- Evaluate the impact of new policies for human activities on climate change, marine biodiversity ..

On the way to EOOS! (European Ocean Observing System)

First call opened

***A new way of management of marine data
for next generation
Hydrography included***



- Needs of qualified data from all Member states and links with global ocean data production
- Needs of recurrent production of data
- Needs of open data
- Hydrography: one of the marine data for twin's food..

One of the objectives of the EU strategy for Marine data

Transparent & Accessible Seas and Oceans Towards a Digital Twin of the Ocean

DTO concept : consistent high-resolution, multi-dimensional & (nearly) real-time description of the ocean

- Contribution to the very high precision model of the Earth (Destination Earth initiative)
- Simulator to test scenarios with different evolutions of the ocean environment



Digital Twin of the Ocean call : requirements

- Compatible with Destination Earth infrastructure and built on existing infra/projects (CMEMS, EMODnet,...)
- Simulation environment providing a multi-variable description of the ocean
- Integration of data from existing or new automated sensors and delivered through EMODnet/Copernicus
- Data and model outputs in state-of-art standards and formats (INSPIRE, FAIR, ...)
- Development of what-if scenarios to validate the representativeness of the DTO simulator

Digital Twin of the Ocean call : objectives

- Complemente Copernicus to support science-driven policies implementation
- Move towards a European Ocean Observing System fully integrated and promoting data sharing
- Support science-driven approaches to policies implementation, improve management of marine areas and safeguard marine ecosystems
- Increase citizen engagement
- Support industry to develop new business models and opportunities
- Facilitate the operationalising of long term observing systems (UN Decade of Ocean Science for Sustainable Development objective)