



SMART MARITIME



PILOT-E FREECO₂AST + SFI SMART MARITIME

ACCELERATED PROBLEM SOLVING

Torstein I. BØ, SINTEF Ocean

June 20, 2023 - Trondheim

sfi = Centre for
Research-based
Innovation

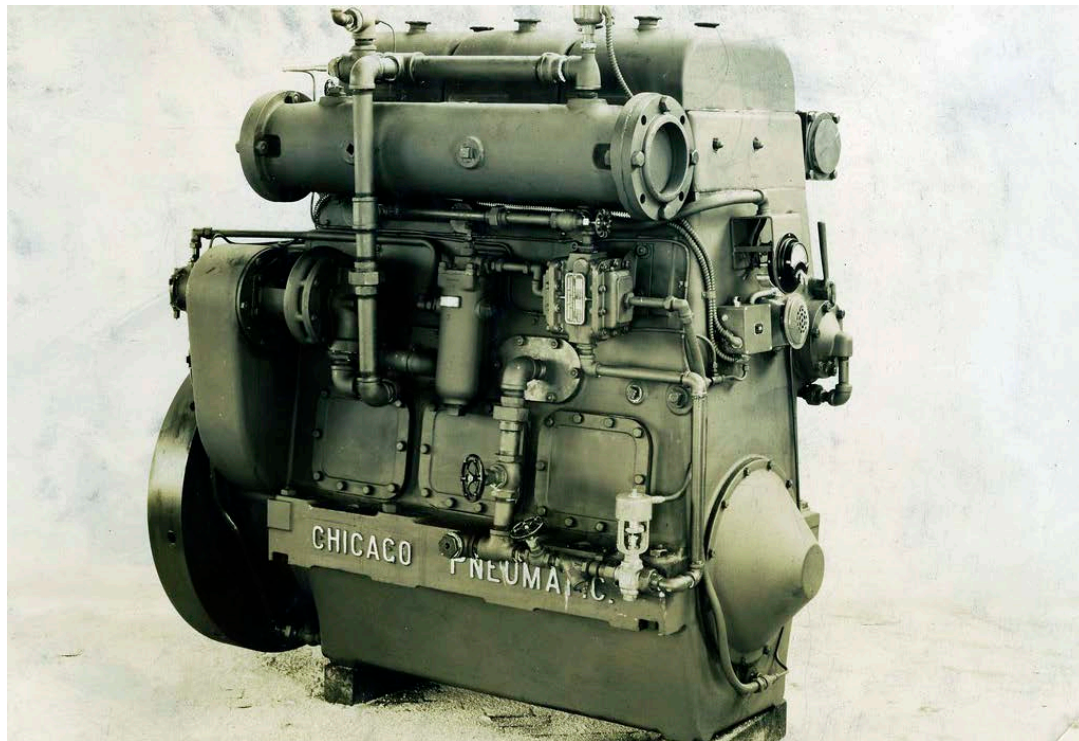
The Research Council of Norway

**SFI Smart
Maritime**

**Pilot-e
FreeCO₂ast**

HAV

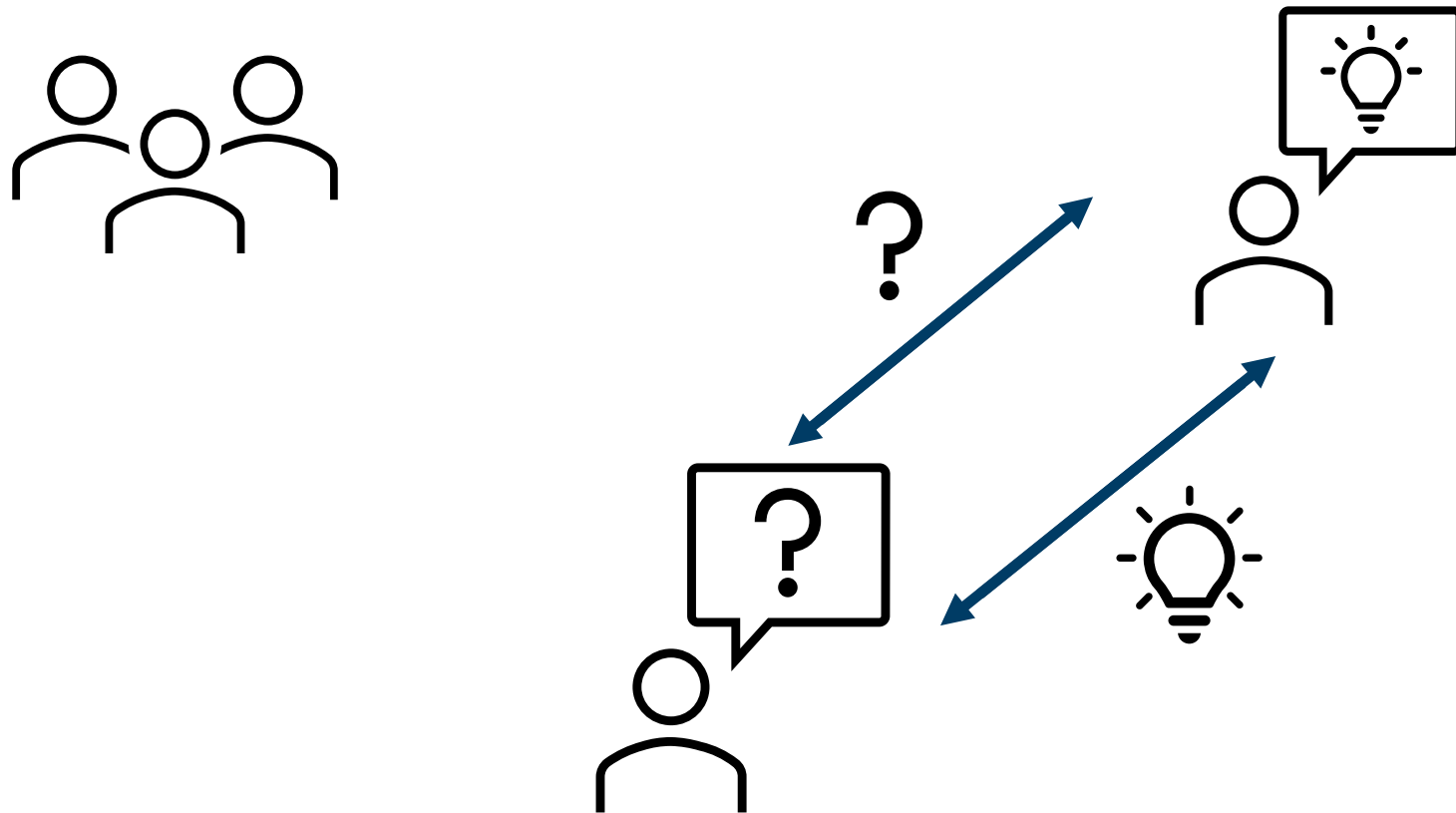
Before: Components

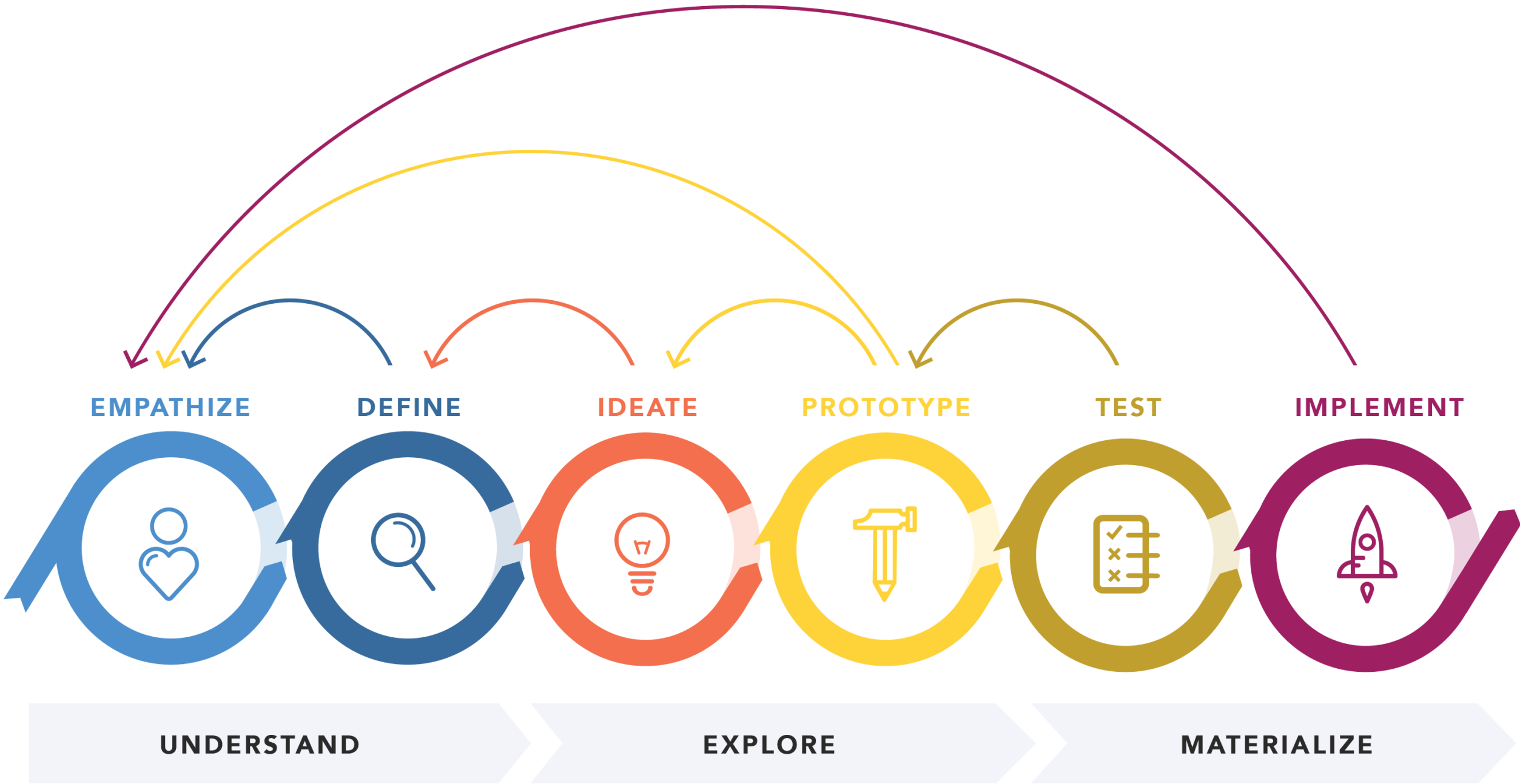


Now: Systems



Problem understanding is hard for complex systems





EMPATHIZE

DEFINE

IDEATE

PROTOTYPE

TEST

IMPLEMENT

UNDERSTAND

EXPLORE

MATERIALIZE

**SFI Smart
Maritime**

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HAV

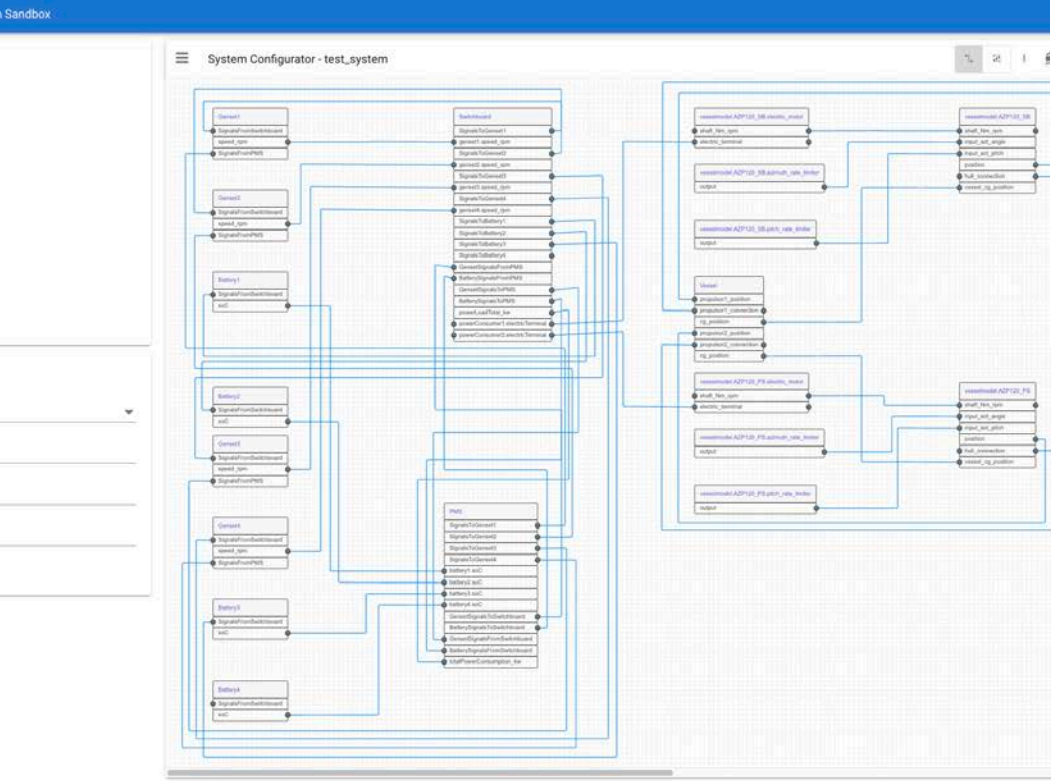
SFI Smart Maritime



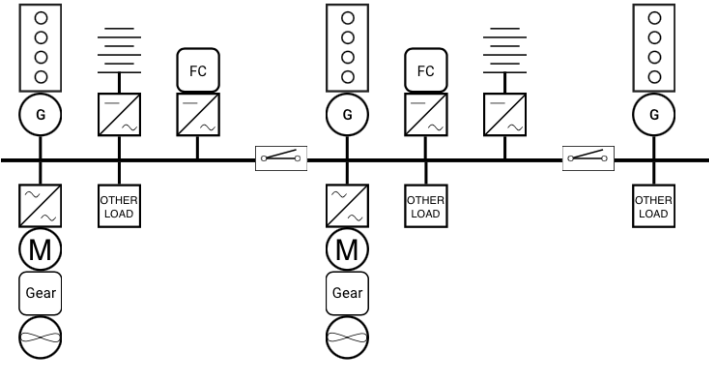
Pilot-e FreeCO₂ast

Integrated Simulation sandBox

VeSim Model



Single line diagram



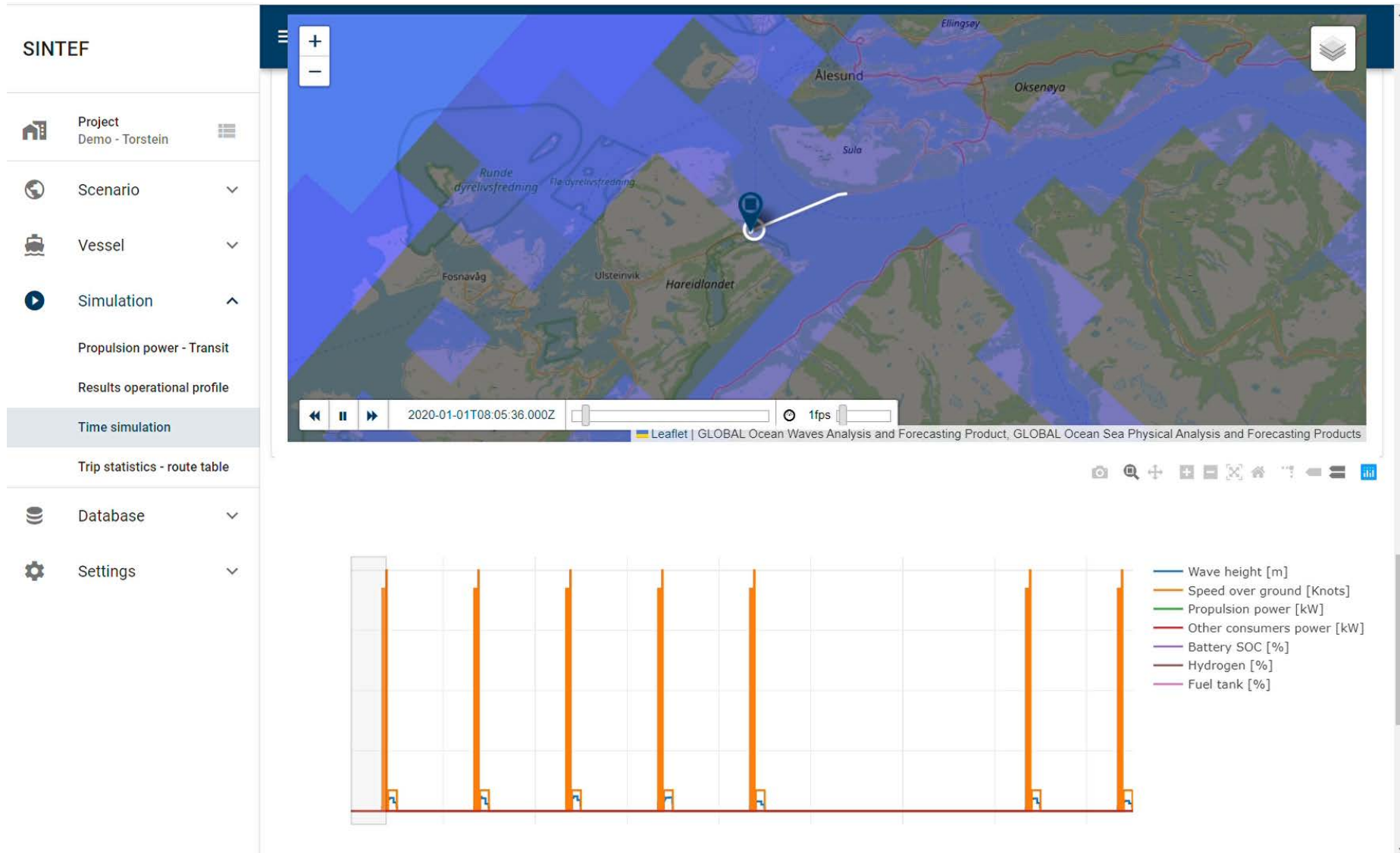
FMU 

FMU 

Control System 

Control System 

Vessel configurator



Pilot-e FreeCO₂ast

ISB

Open
Simulation
Platform

Hybrid
testing

Vessel Configurator

Gymir

Feems

HAV

ISB

Performance test of
fuel cells

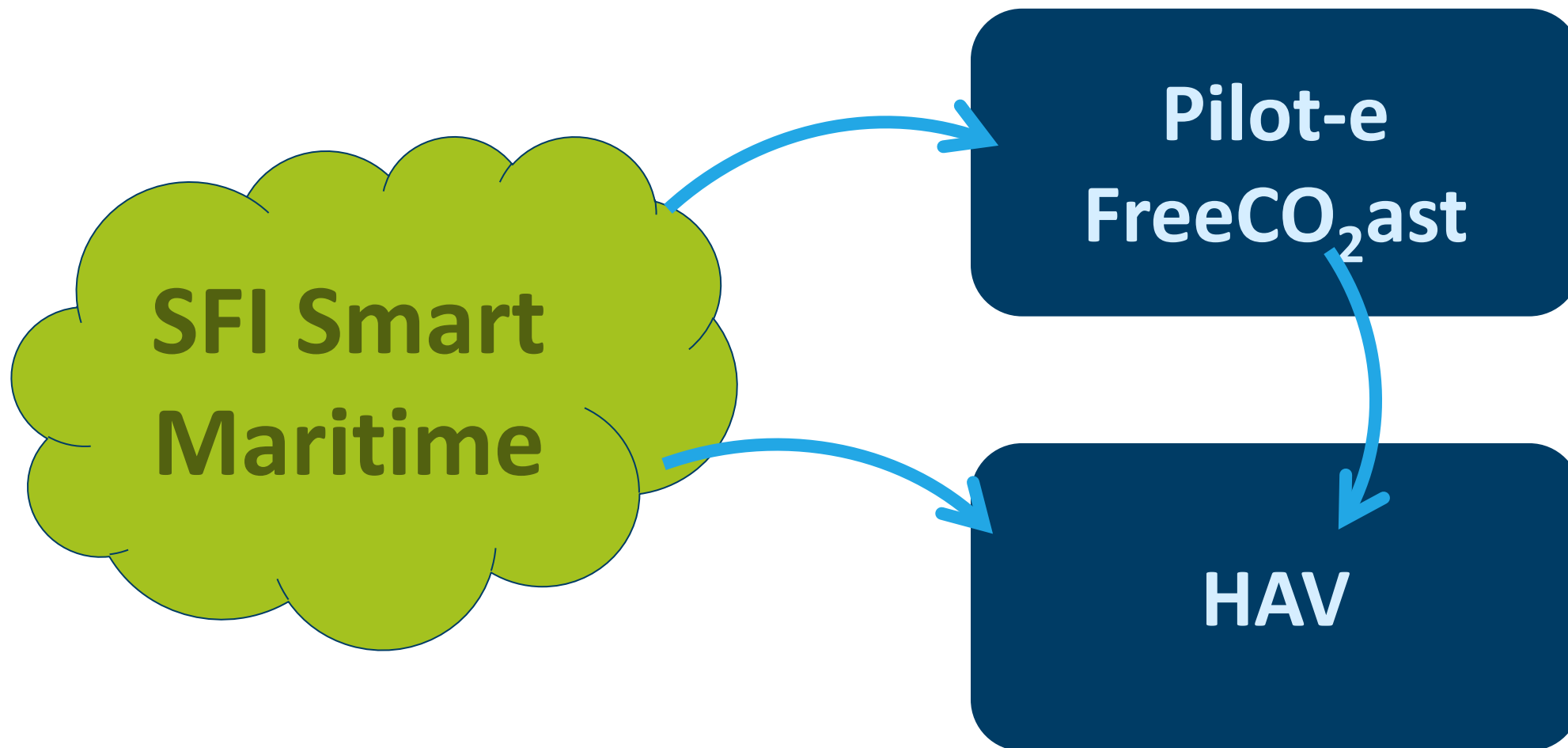
Development of
autopilot

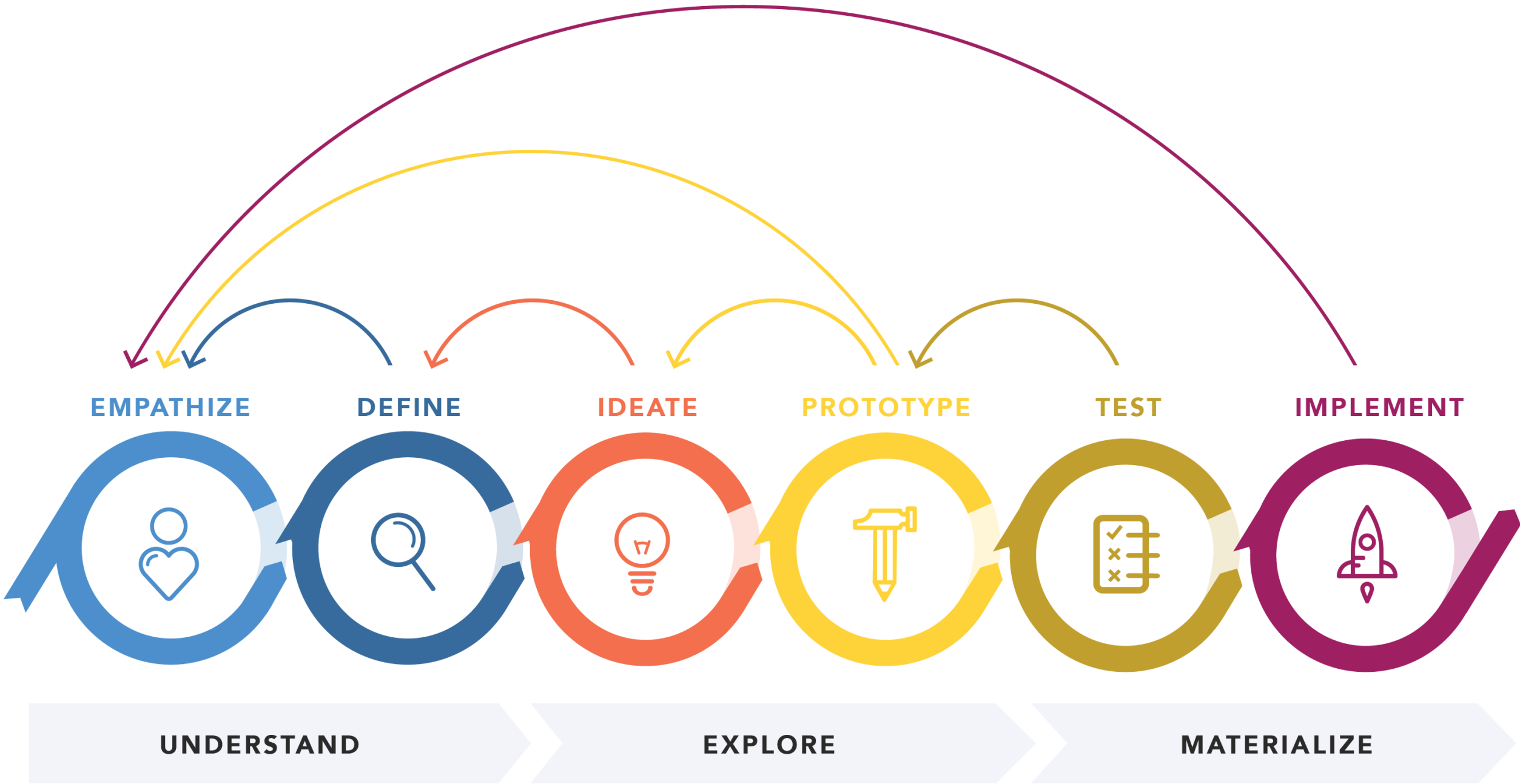
Vessel Configurator

Optimization of
energy system

Fuel logistics







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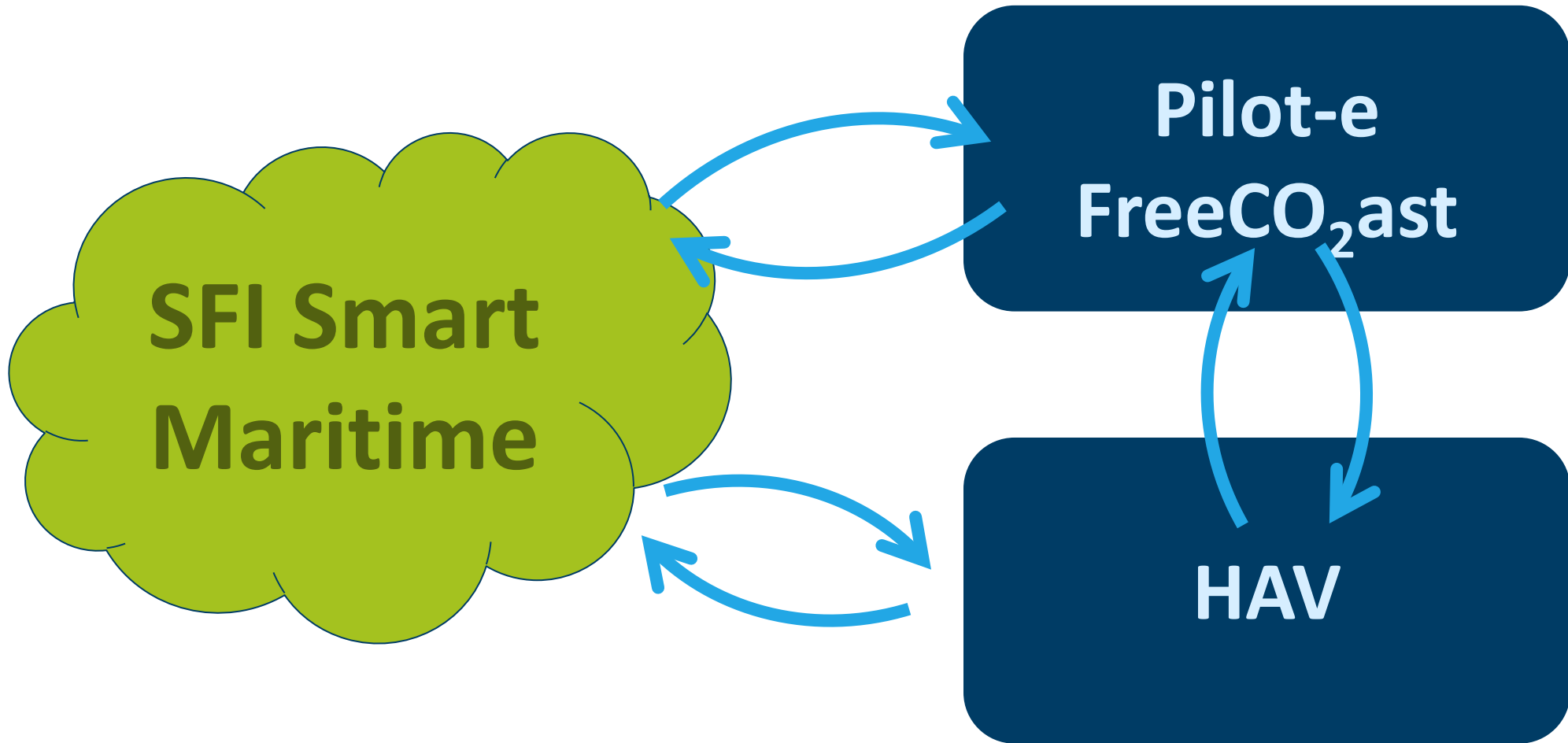
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