

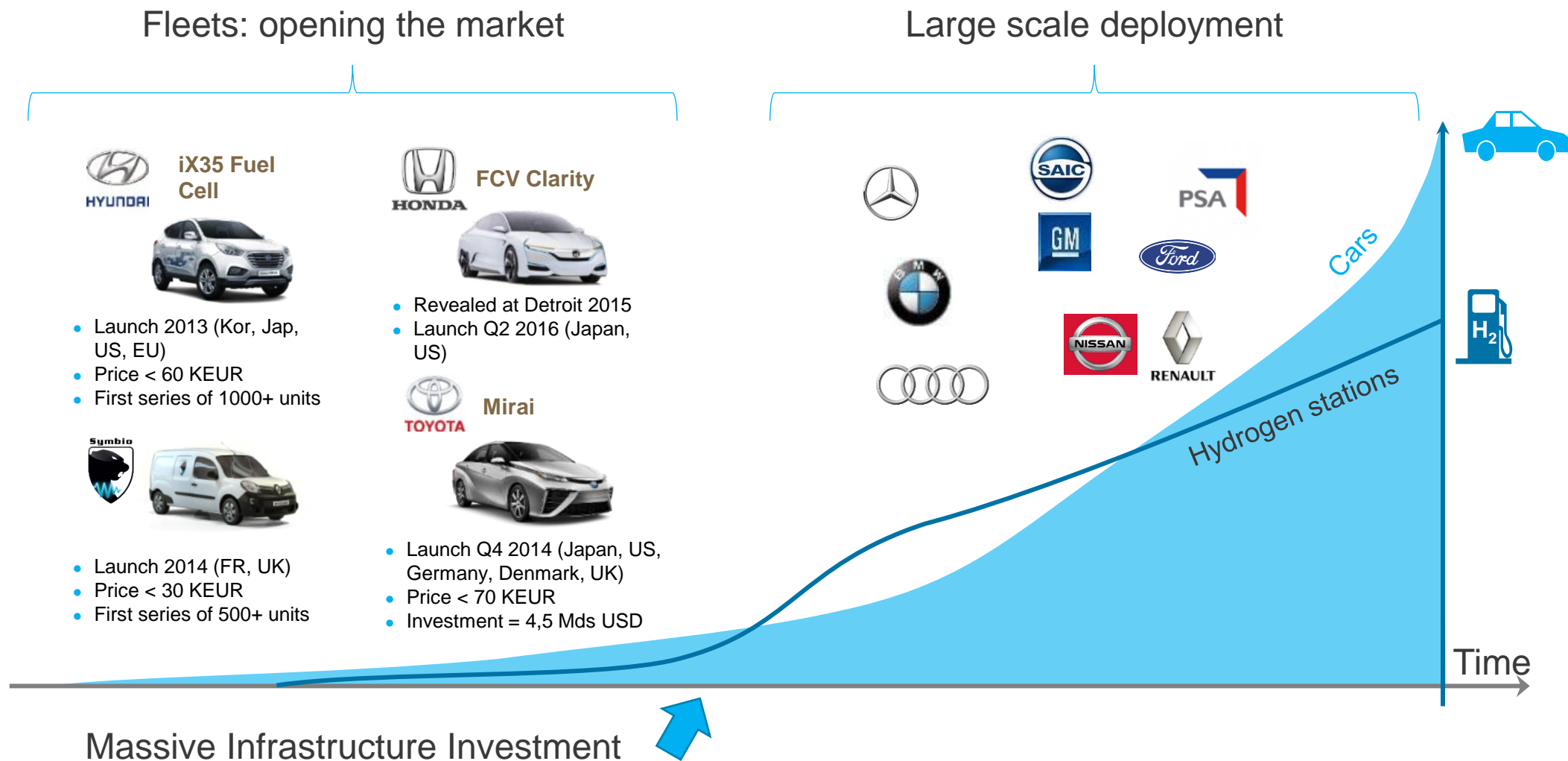


Deploying Hydrogen Vehicles

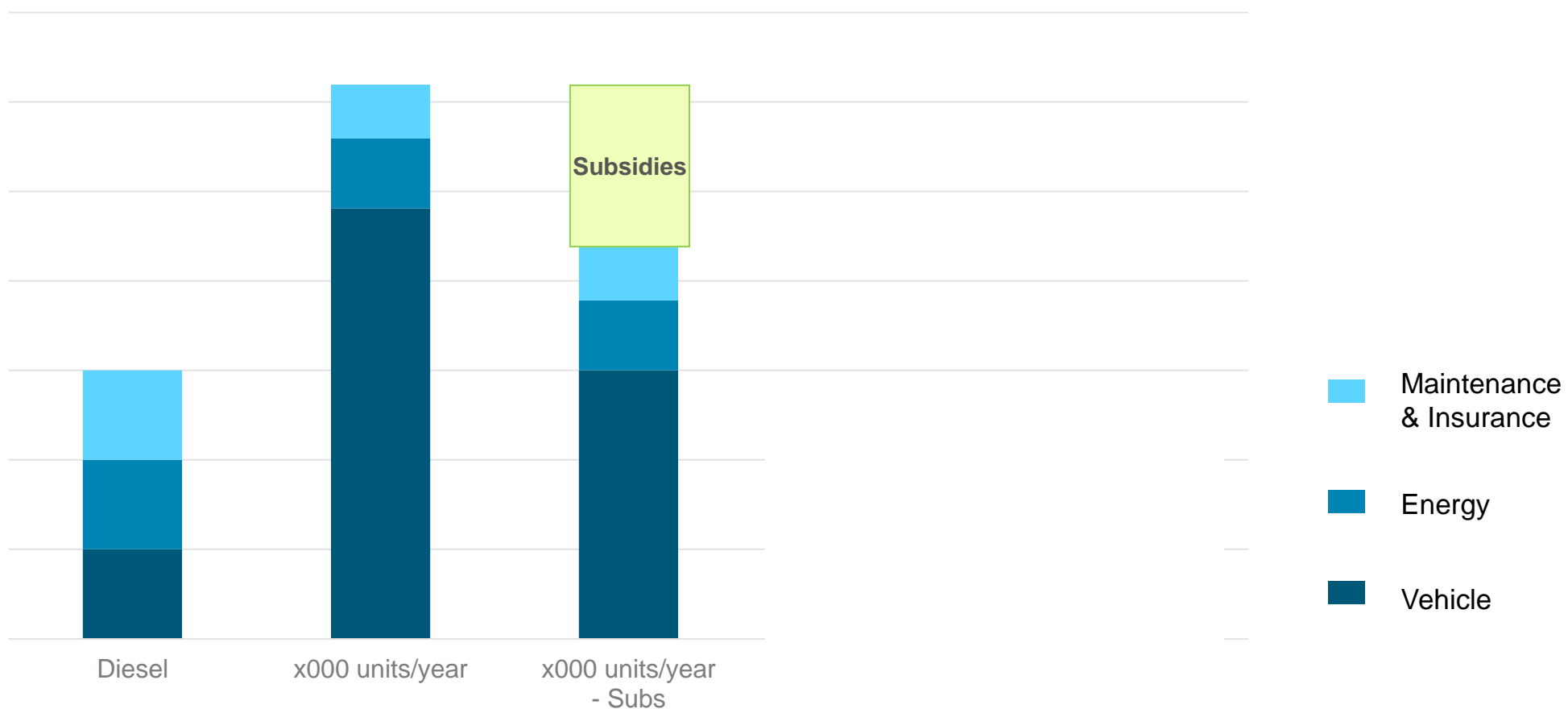
Fabio Ferrari – CEO

Session “How did the FCH-JU Contribution impact the sector”

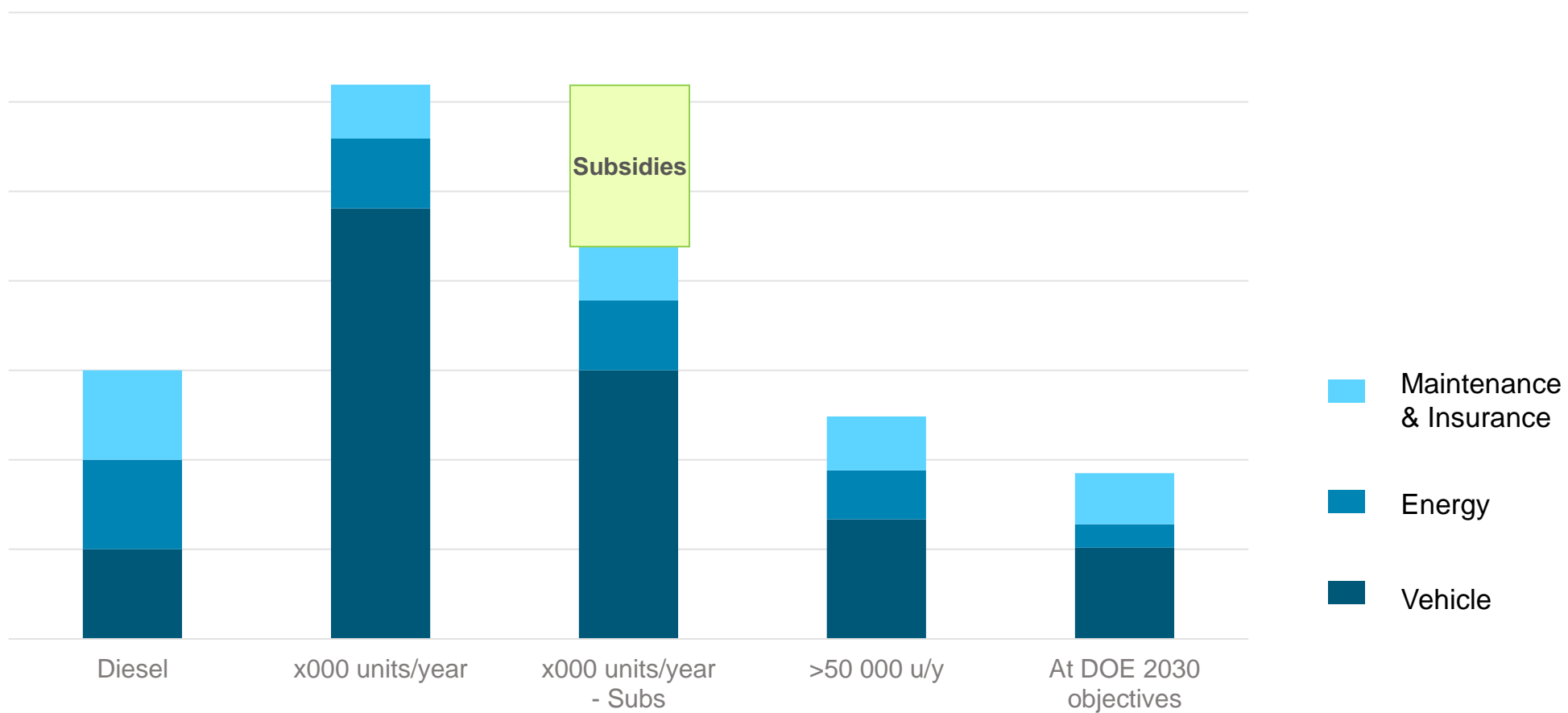
WHAT ARE THE TRIGGERS FOR MASSIVE INFRASTRUCTURE INVESTMENT ?



TCO HAS TO BE ACCEPTABLE FOR THE END CUSTOMER



AT 50 000U/YEAR, TCO EQUIVALENT TO DIESEL IS REACHABLE



SECOND GENERATION OF FCEV ARE NEEDED, WITH A PRODUCTION OF MORE THAN 10 000 UNITS PER YEAR



Honda: 2017



Hunday: 2018



Symbio: 2018

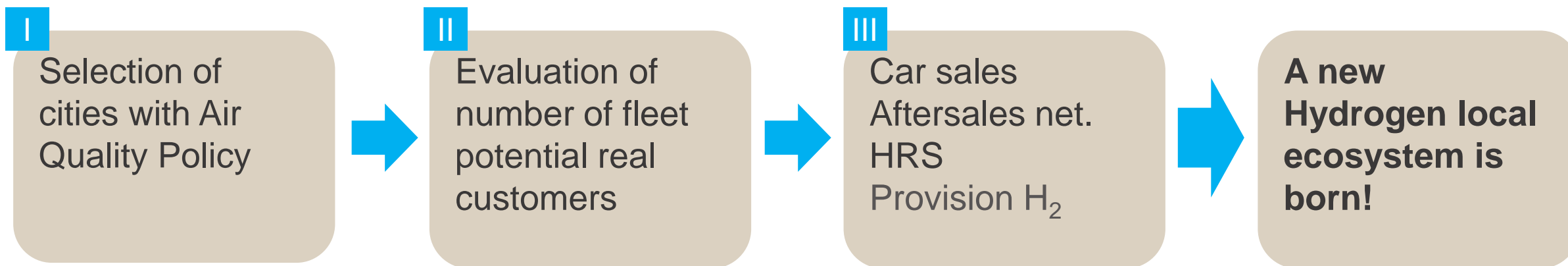


Toyota: 2019?

Innovation +
Industrial Scale



CLUSTER APPROACH: REACH MORE RAPIDLY THE RIGHT TCO








Local Hydrogen Ecosystems...
« Chicken & egg » problem is solved !



CLUSTER APPROACH IS A SUCCESS IN FRANCE

French Targets:

- Today:
 - 130 vehicles
 - 14 HRS
- 2018-2019:
 - 1000 vehicles
 - 100 HRS
- 2030:
 - 800 000 vehicles
 - 600 HRS

-  Existing HRS
-  FCH-JU 2014
-  FCH-JU 2015
-  TEN-T
-  Planned



Symbio



SYMBIO FCELL SOLUTION

SYMBIO EXTENDS THE POSSIBILITIES OF BATTERY VEHICLES

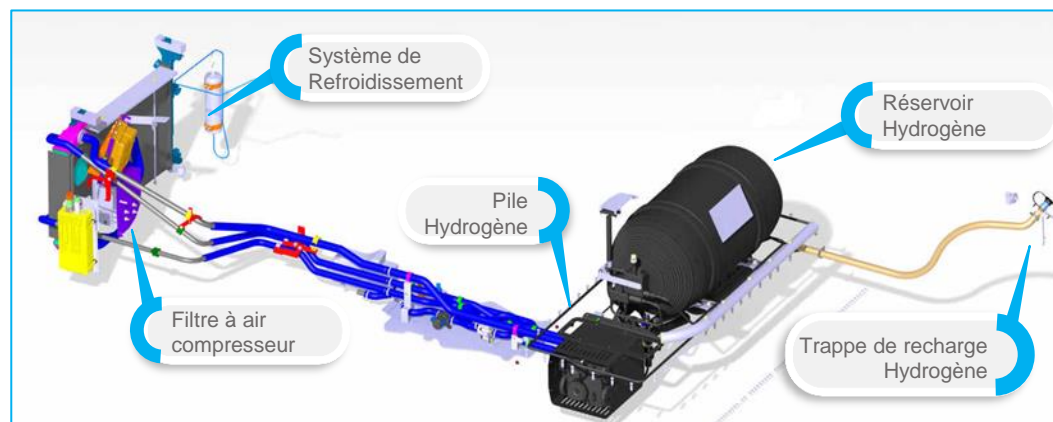
Renault Battery
Light Duty Vehicle



Kangoo ZE



Fuel Cell Range Extender Kit



Symbio Fuel Cell
Light Duty Vehicle



30 FLEETS HAVE PURCHASED 120 KANGOO H₂

Transport



Public Services



Services & Bank



Industry & Construction

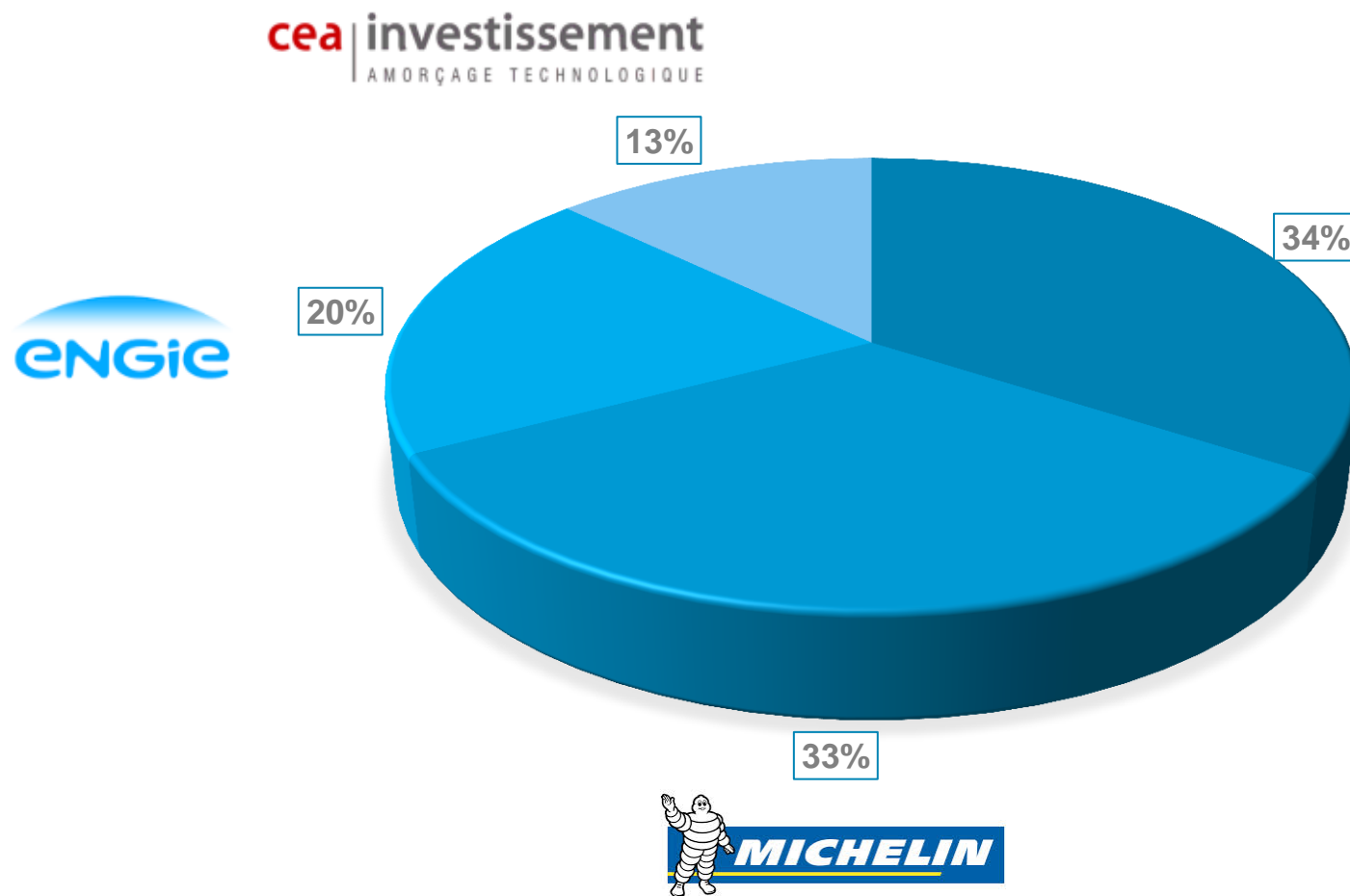


Leasing Companies





SHAREHOLDERS

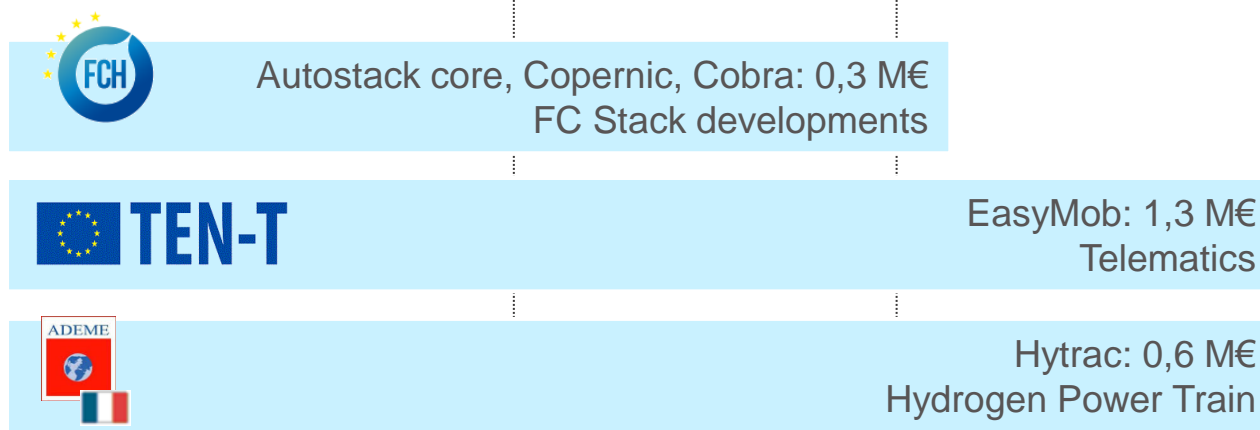


SUPPORT FROM FCH-JU PLAYS A KEY ROLE

Deployments



Innovation



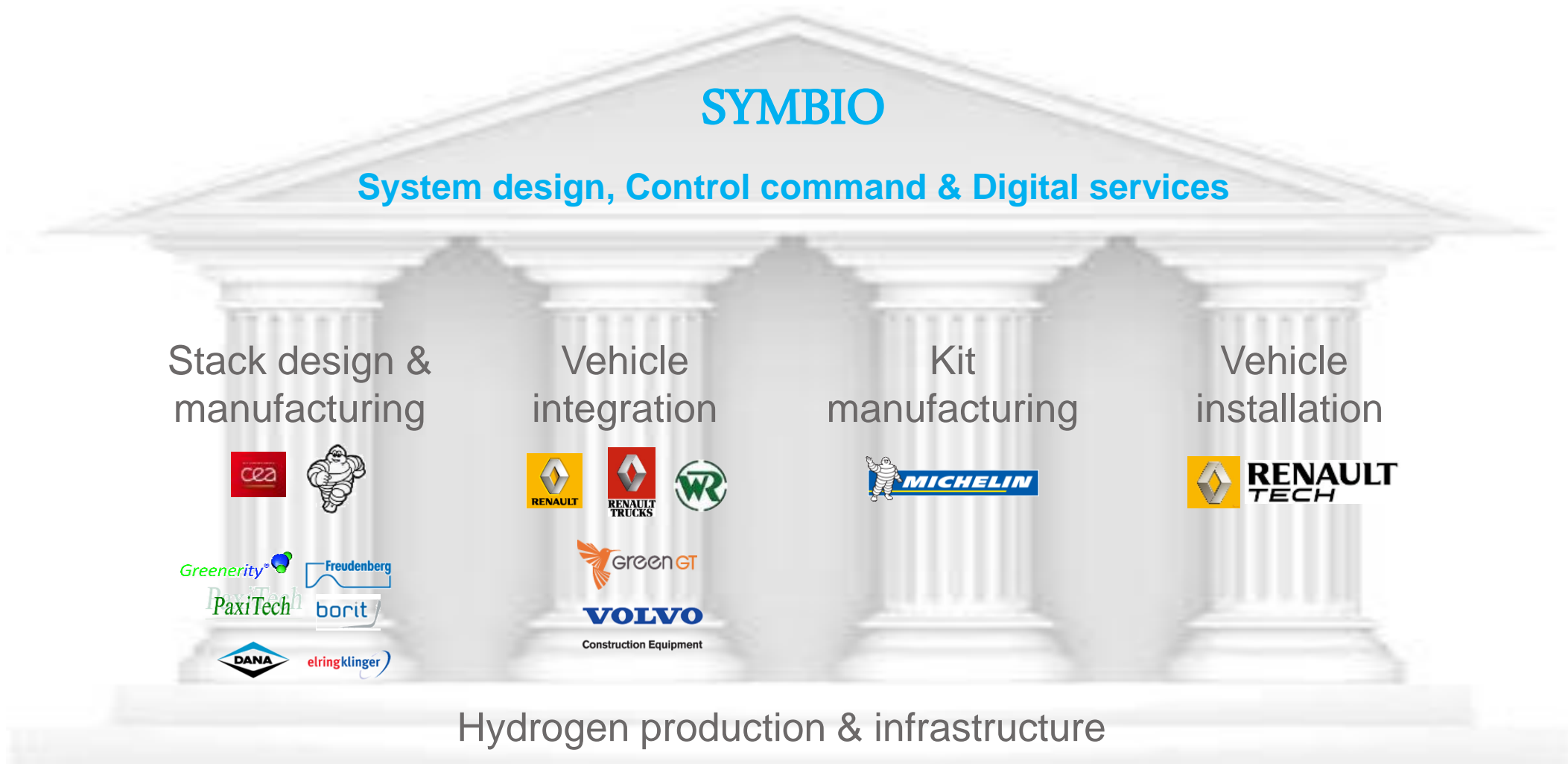
Symbio



























OUR PARTNERS



SYMBIO'S BUSINESS MODEL IS BASED ON 4 PILLARS, SUPPORTED BY STRONG INDUSTRIAL PARTNERS



INDUSTRIAL SCALE: INTERNATIONAL SUPPLIERS DECREASE COSTS

| | | |
|---|--|--|
| <p>Bipolar plates</p>  |      | <p>Automotive suppliers, pilot lines are ok</p> |
| <p>MEA</p>  |    | <p>Automotive suppliers, near from “printing” technologies Key element is the ink chemical formula, Pilot lines are ok</p> |
| <p>Compressor</p>  |   | <p>Designed for low cost manufacturing, Vairex is reselling through a license model No key issues: “turbo like” industrial process</p> |
| <p>H2 Storage</p>  |       | <p>Automotive suppliers of CNG tanks solutions Main issue is to secure carbon fiber access at the right cost</p> |
| <p>Car OEM</p>  |    | <p>Defines their products for at least 100k units per year</p> |



SYMBIO BELONGS TO THE CONSORTIUM H2 MOBILITY FRANCE

Vehicles



Electrolyser



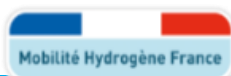
H₂ Prod.



HRS Supp.

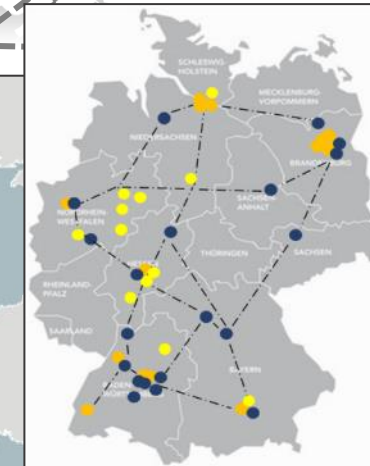
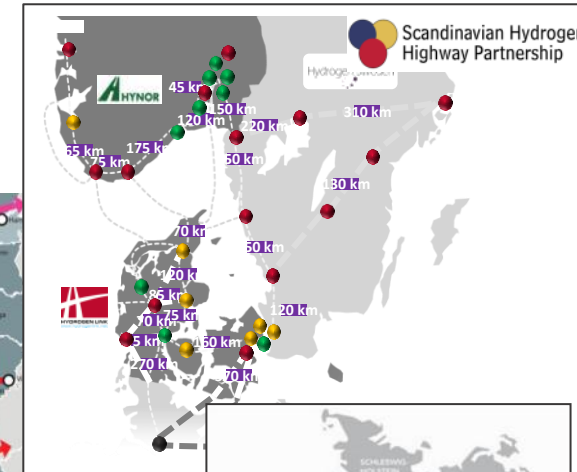
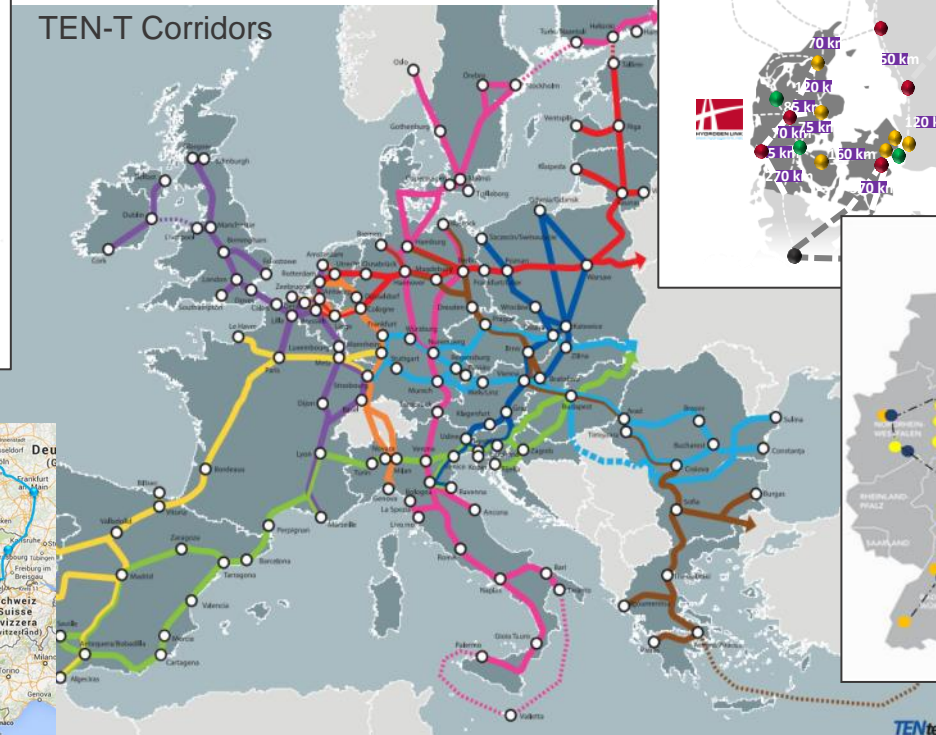


HRS Op.



Note : H₂ Mobility France is an industrial consortium part of AFHYPAC

H2 MOBILITY EUROPE: FIRST BUILDING BLOCKS OF A EUROPEAN HYDROGEN NETWORK





THANK YOU