

Fuel cells and hydrogen

Joint undertaking

Program Review Days FCH JU 2013

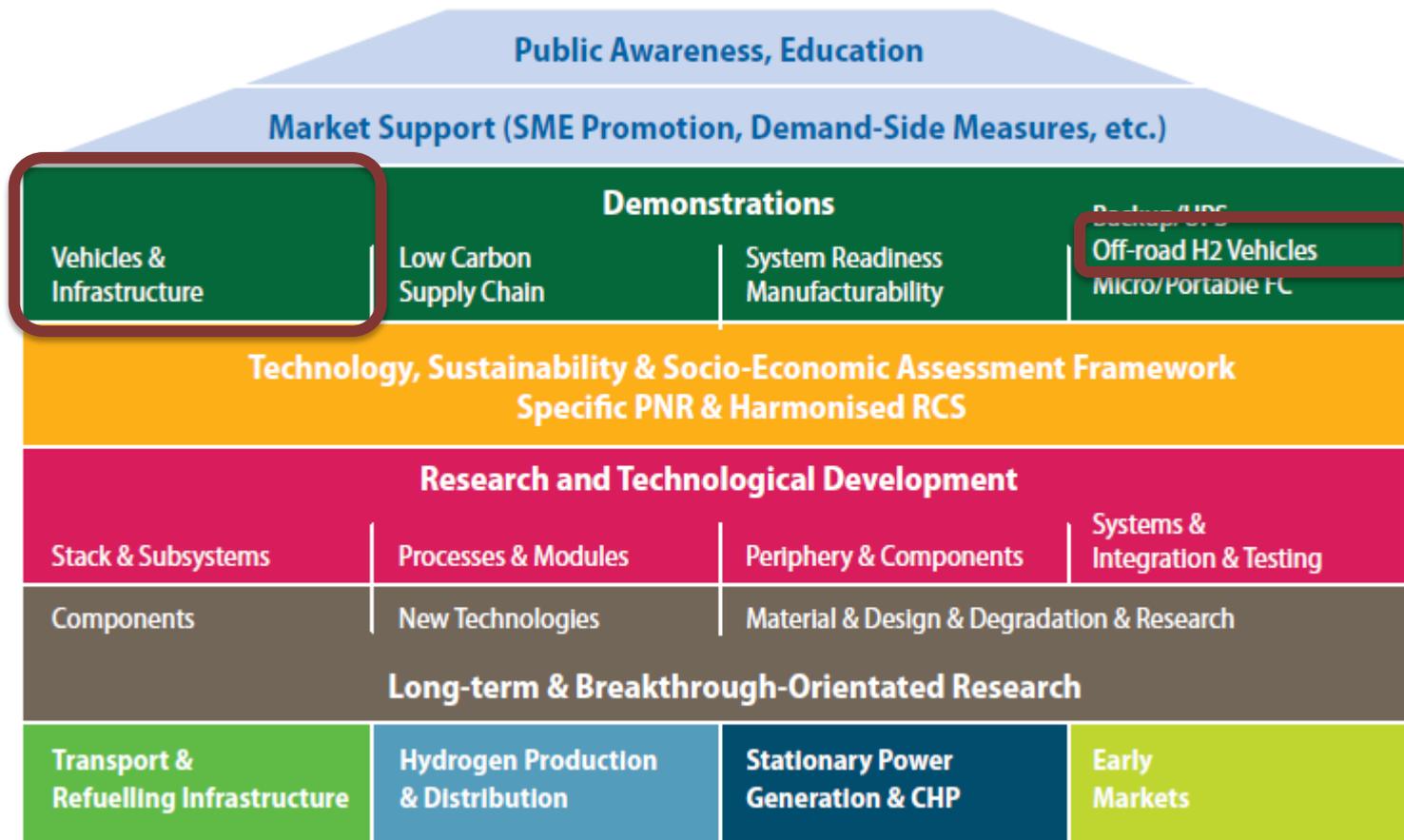
Portfolio Transport Demonstration Projects



<http://www.fch-ju.eu/>

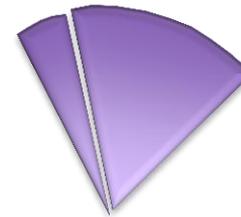
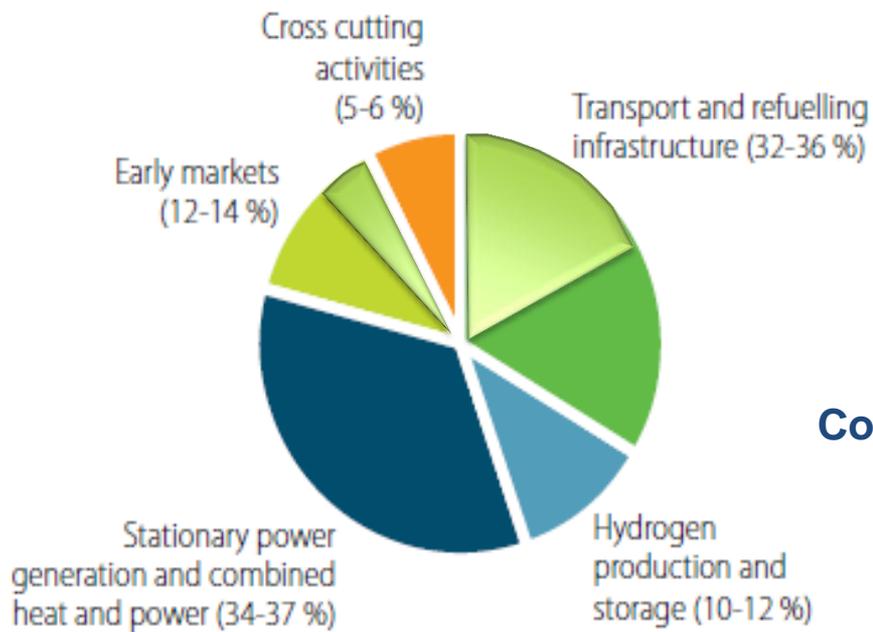
Enrique Girón, Project Manager

Multi-Annual Implementation Plan 2008 - 2013



MAIP objectives

Budget distribution



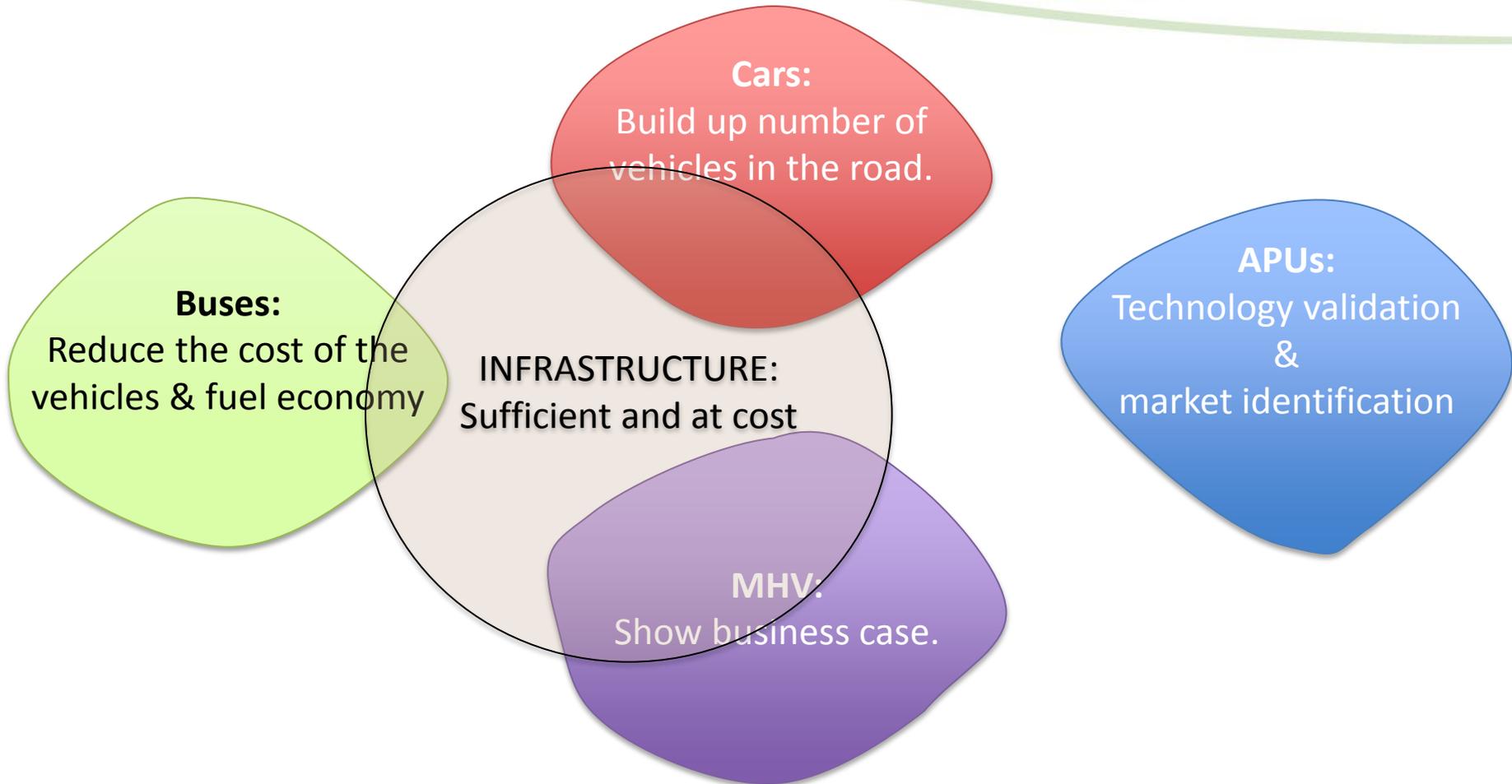
Combined expected budget of 120M€

MAIP objectives

Technical objectives

| Market application | | 2010 baseline | 2015 mid-term | 2020 long-term |
|---------------------------------------|---------------------------------------|--|---|---|
| Cars: | Vehicle PEM-FC System | >100 / 0.5M€ >1,000€/kW | >5,000 / <50k€ 100€/kW | 500,000 / <30k€ 50€/kW |
| Busses: | Vehicle PEM-FC System | >10 / 2M€ >3,500€/kW | 500 / <1M€ <3,500€/kW | 1,000 / <500k€ <400€/kW |
| Hydrogen refuelling stations | | <75 / 1 - 3 M€ (depending on size of filling station) | <300 / 0.6 - 2.5 M€ (depending on size of filling station) | >2000 / 0.6 - 1.6M€ (depending on size of filling station) |
| APU's | for truck applications (5kW) | 3,000€ | 1,000€ | 500€ |
| | for aircraft applications (20-120kW) | Lab test units only | flight validation supply | early operation (hundreds) / 500 €/kW |
| | for maritime applications (50-500 kW) | single demonstrations | some tens / 3000-4000 €/kW | hundreds / <2000 €/kW |
| Heavy duty material handling vehicles | | <50 units <3,500€/kW <i>fuel cell system</i> | >1,500 units <1,500€/kW <i>fuel cell system</i> <i>Anticipating supported deployment from 2013+</i> | >20,000 units <1,000€/kW <i>fuel cell system</i> <i>Anticipating commercial introduction beyond 2015+</i> |

MAIP objectives

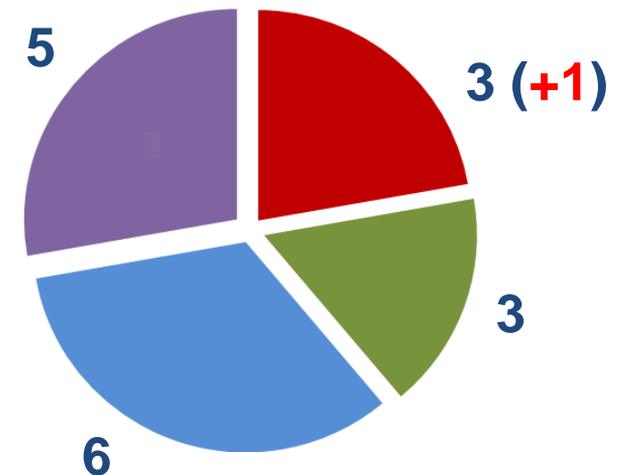
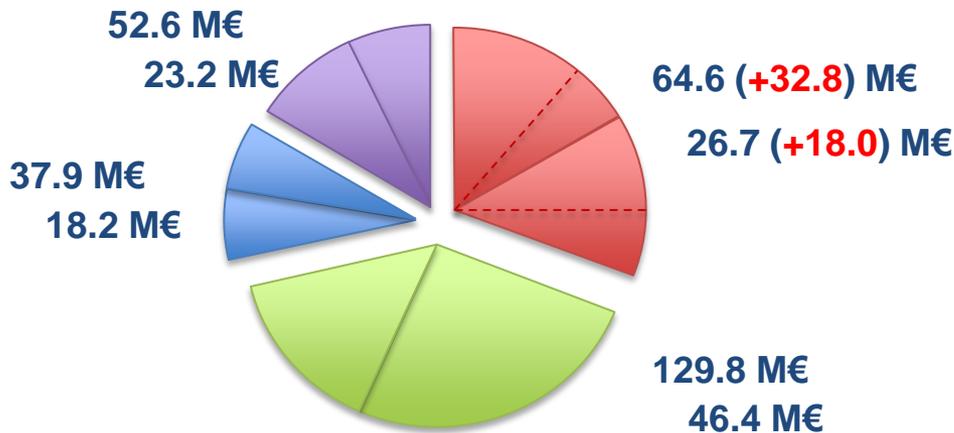


MAIP Coverage

– Budget distribution

- Combined financial contribution: 114.3M€(+18.0M€)

– Projects and budget



– Main technical achievements

>150 cars

>45 buses

>400 MHV

4 APU applications

>20 filling points

Achievements

Cars

H2MOVES

19 cars / 1 station

HYTEC

40 cars / 2 stations

SWARM

90 cars / 3 stations

XXX

100 cars / 5 stations

2010

2013

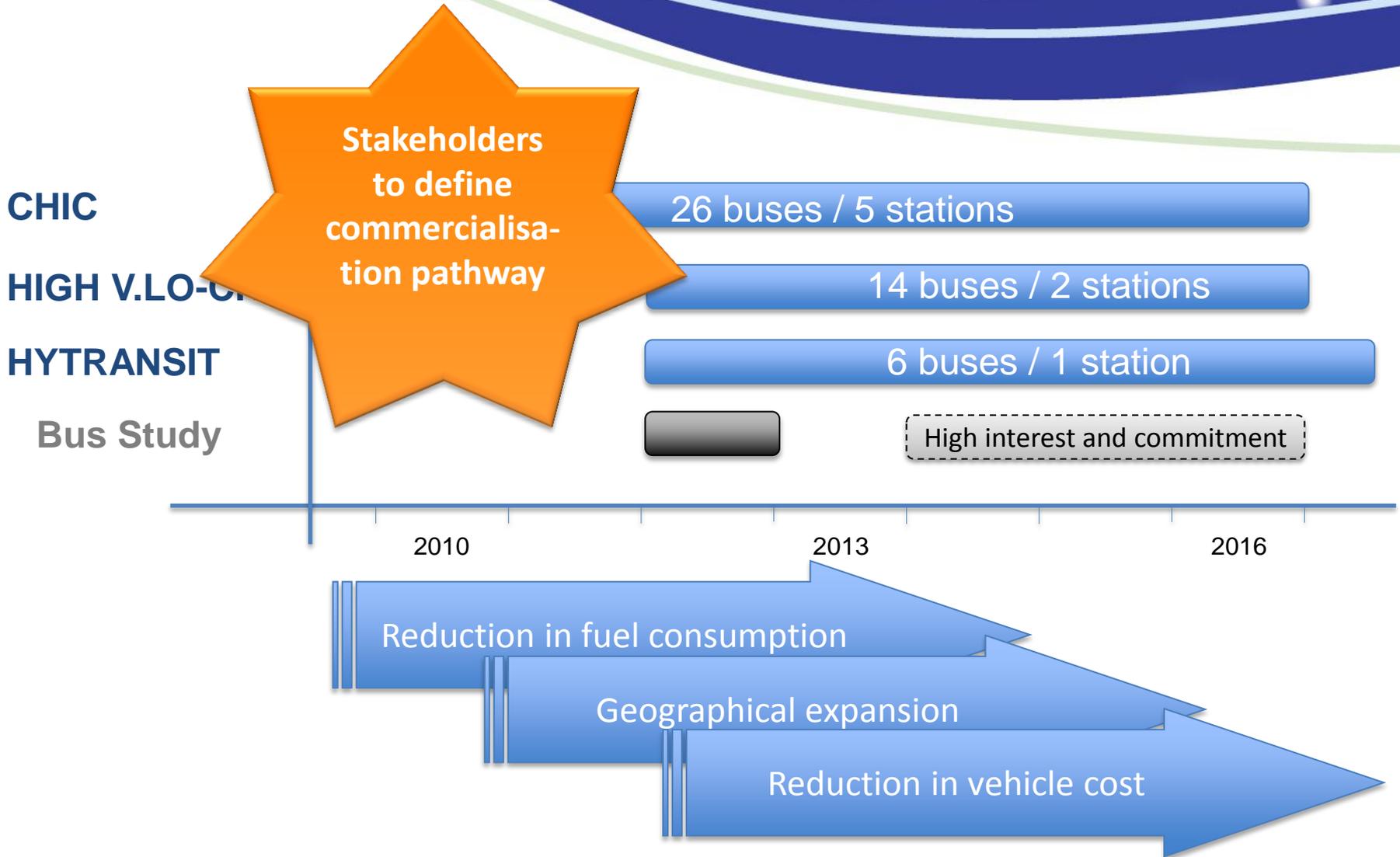
2016

Increased fleets

Extended infrastructure

Reduction in vehicle cost

Achievements Buses



Achievements APUs

FCGEN

Truck /PEM

DESTA

Truck /SOFC

SAPIENS

RV /SOFC

PURE

Boat /PEM

HYCARUS

Airplane /PEM

SAFARI

Truck /SOFC

2010

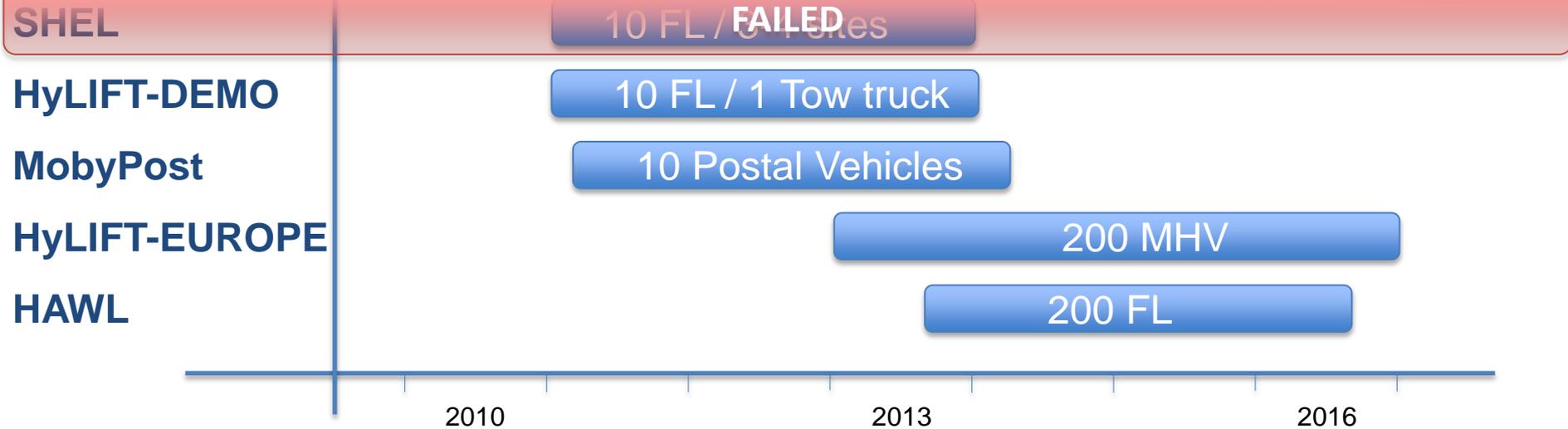
2013

2016

Technology readiness

Application identification

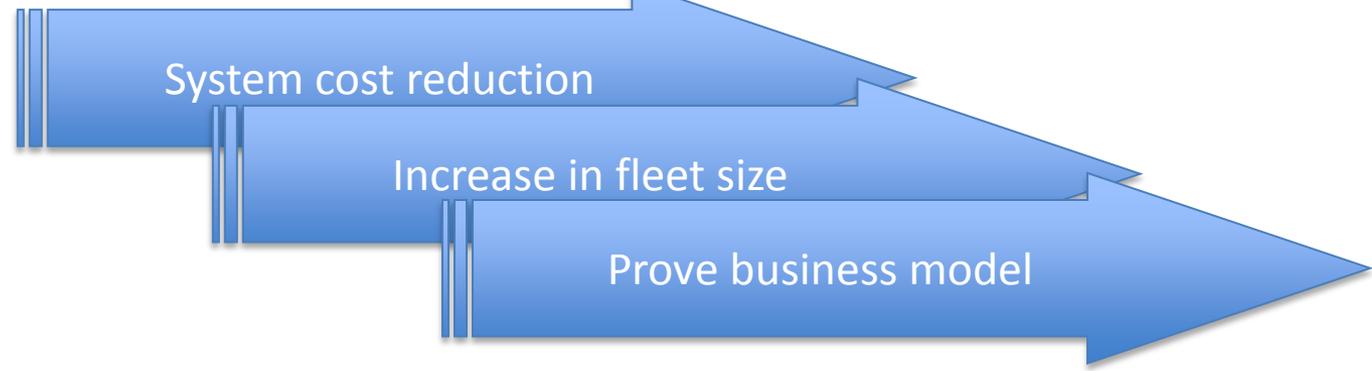
Achievements MHVs



2010

2013

2016



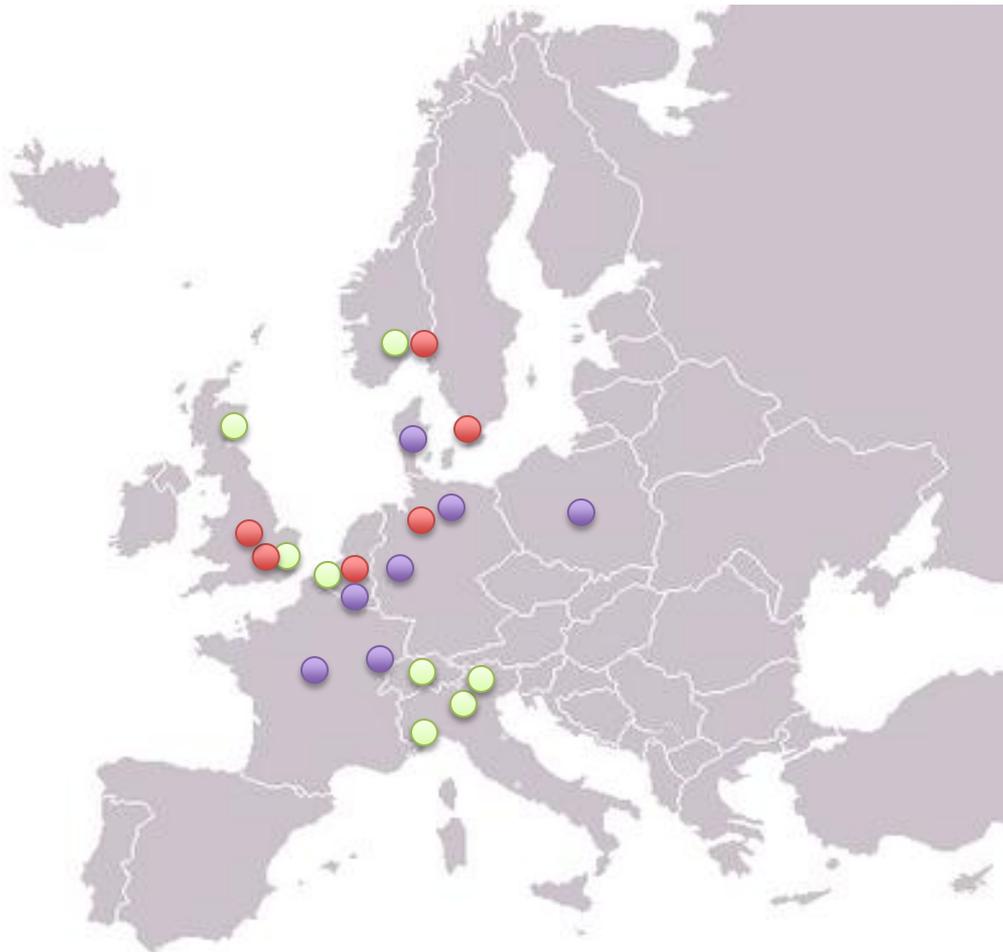
System cost reduction

Increase in fleet size

Prove business model

Achievements

Map of demonstration sites



- Cars
- Buses
- MHV



Thank you for your attention !

Further info :

- FCH JU : <http://fch-ju.eu>
- NEW-IG : <http://www.new-ig.eu>
- N.ERGHY : <http://www.nerghy.eu>