



# Colibri

## Reshaping mobility

Oct. 7<sup>th</sup>, 2021

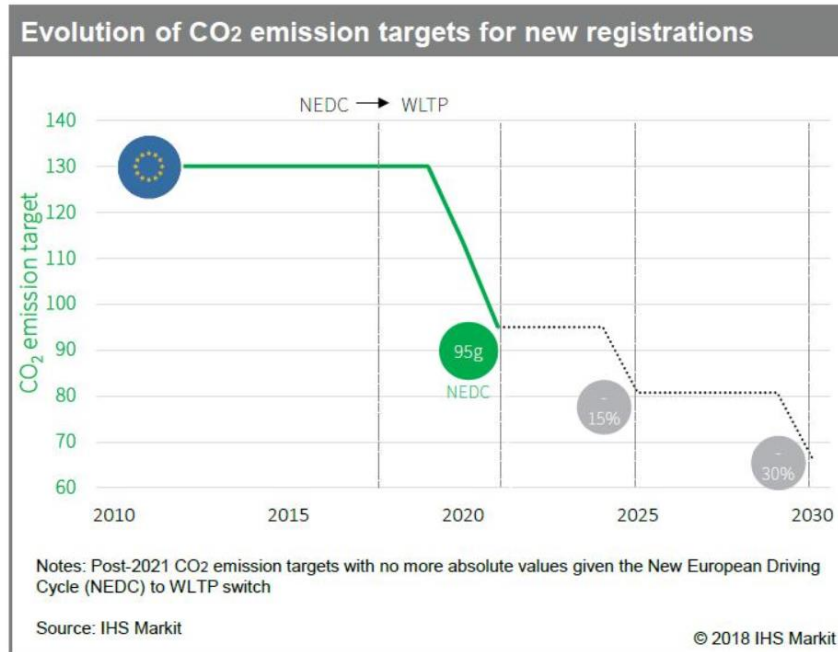
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# Executive summary



- Background
  - Passenger car cost will drastically increase due to CO2 regulation and market will shrink
  - New mobility like electric scooters or car sharing appears showing a customer mindset change
  - Narrow cars can be part of the panorama and had many attempts (GM, BMW, Toyota, PSA...)
    - For customer : traffic independence, easy to park, fun to drive, low total cost of ownership
    - For the society : limited footprint, road congestion and CO2
  - To cope with limited width (~800 mm, motorcycle like) tilting body is mandatory to keep stability in curve
  - Up to now, tilting systems are active and lead to high cost : 30 k€ (Carver, Lumeneo)
- Key point
  - Colibri is using a purely passive mechanical self stable tilting system, affordable, safe and fail safe
  - Cost price will be similar to small cars or big scooter (6.5k€ to 8.5k€ vs volume)
  - High value saving 1h traffic jam a day vs cars / bringing safety & comfort vs motorcycles (pricing 9 to 11k€ vs targeted market)
  - Colibri can address at least 2 seaters cars, big scooter and part of 2<sup>nd</sup> car market
  - Additional market can be found in new mobility services
  - Market base is estimated 200ku/y to > 1 Mu/y in Europe, depending on customer adoption
- Expectation
  - Expression of interest for experiment
  - Discussion about potential next steps

# CO2 regulation will result in increase of car prices and shrink market



- CAFE (Corporate Average Fuel Economy) more & more stringent
- Huge tax in case of exceeding : 95€/gr/car
- High technical cost for CO2 reduction
  - EV (+30% vs conventional)
  - P HEV (+30%)
  - HEV (+15%)

**Passenger car prices will increase dramatically due to CO2 constraints**

**Car market is expected to shrink**

**Mobility will remain a requirement**

# New mobility emerges



Customer mindset regarding passenger car is changing  
Rising demand for alternative means of transportation

# Introducing a new vehicle concept

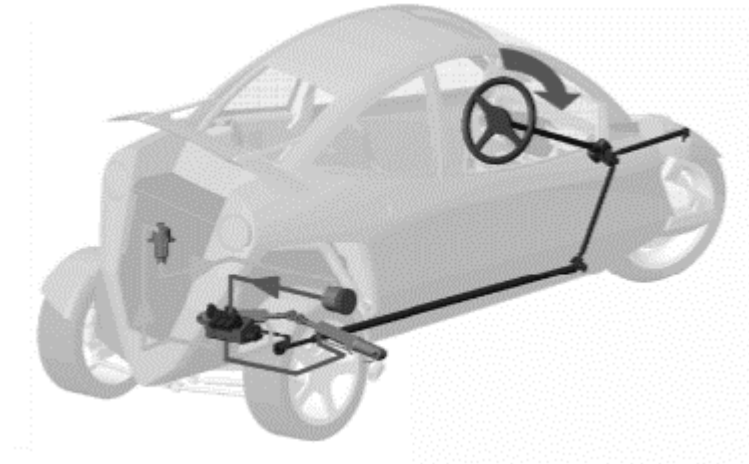
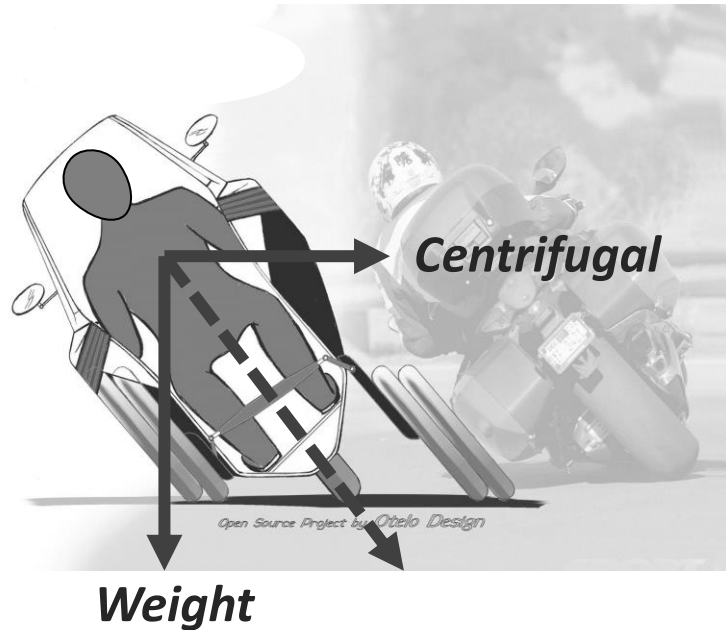


**Car advantages in a bike size**  
**Safe, comfortable, easy to drive in traffic & park, small footprint (CO2, infrastructure)**

# Technical roadblock and cost issue



To keep stability in a curve, a tilting body is mandatory to balance centrifugal force & weight



Active actuation has been the only solution driving total structural cost

# Colibri : a technical breakthrough



[Click here for video](#)






**Self stability through a fully passive mechanical system**  
**No actuator, no sensor**  
**Patents N° FR2109546 (Sept. 2021) & WO 2014041210 A2 (Apr. 2014)**

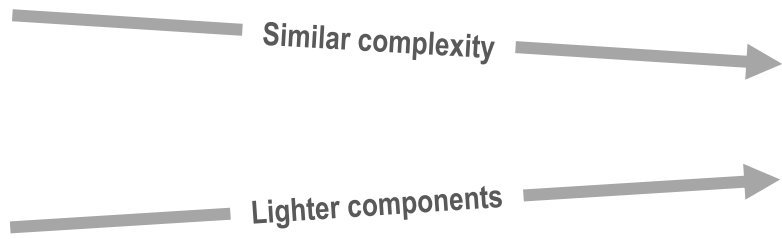


# Simple mechanism : an affordable solution



**Small volume (~10ku/y)**

	<u>Average price</u>
Quads 	5,5k€
Maxi scooters 	10k€
No licence cars 	10,3k€




## Colibri cost price estimate

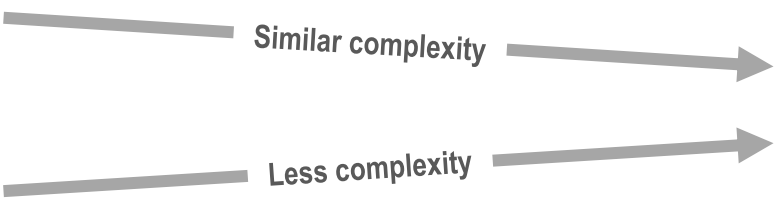
Small volume (~10ku/y)

**8,5k€**

(with amort., overhead, VAT, w/o margin)

**Medium volume (~50ku/y)**

AMI Citroen 	6,9k€
Small cars 	9,8k€



Medium volume (~50ku/y)

**6,5 k€**

(with amort., overhead, VAT, w/o margin)

Small volume price cost estimate (10ku/y): ~ 8,5k€  
Medium volume (50ku/y) : ~6,5k€\*

\* Reminder : KWID is ~ 4 200 € in India



# Potential pricing, based on existing products



		European market	
		< 30ku/y	> 30ku/y
New	Light cars (with or without licence)	~10 k€	
	3-wheeler maxi scooter	~10 k€	
	2 seaters car (SMART FORTWO)	11k€	
	Segment A cars		10 k€
	Segment B cars		12 k€
Second-hand	Second-hand car Europe (5 years, 34% sales )		~ 11 k€
	Second-hand car Europe (average i.e. 8 years )		~ 7,5k€

**Small volume : ~ 11k€**

**Larger volume : ~ 9k€**

**Max acceptable price, limited volume : ~ 11k€**  
**Bigger volume ~ 9k€**

# Market base estimate (Eu)



Existing mobility market	Current market (u/y)	Colibri adequacy Assumption*	Estimated market base (u/y)			
3-wheeler scooters new	190 k	full	Main market 190 k	Potential total 960 k		
SMART Fortwo new						
3-wheeler scooters used	380 k	large	Additional opportunities 770 k			
SMART Fortwo used						
2-wheeler new (> 125 cc)	3,9 M	med	<b>New businesses to be investigated</b>			
2-wheeler used (> 125 cc)						
Second family car, seg. A&B, new	2,7 M	limited				
Second family car, seg. A&B, used						
New car seg A&B as unique car	10,6 M	opportunity				
Used car seg A&B as unique car						
Public transports	?	opportunity				
Others (professional fleet, rental, last mile delivery, airport/station shuttle, car w/o license)						

\*Full : 100%    Large : ~50%    Med : 5-15%    Limited : 2-5%    Opportunity : 1-3%



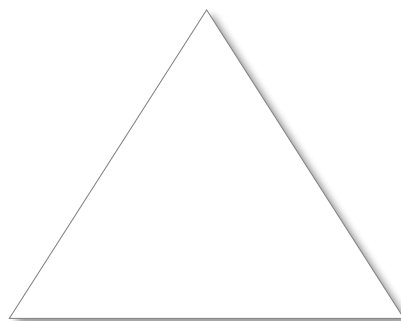
**Market base : 200 ku/y to 1 mu/y**  
**Potential with new mobility >> 1 Mu/y**

# As a summary



## Price cost : low

- 8,5k€ small volumes
- 6,5k€ big volumes



## Market base : big

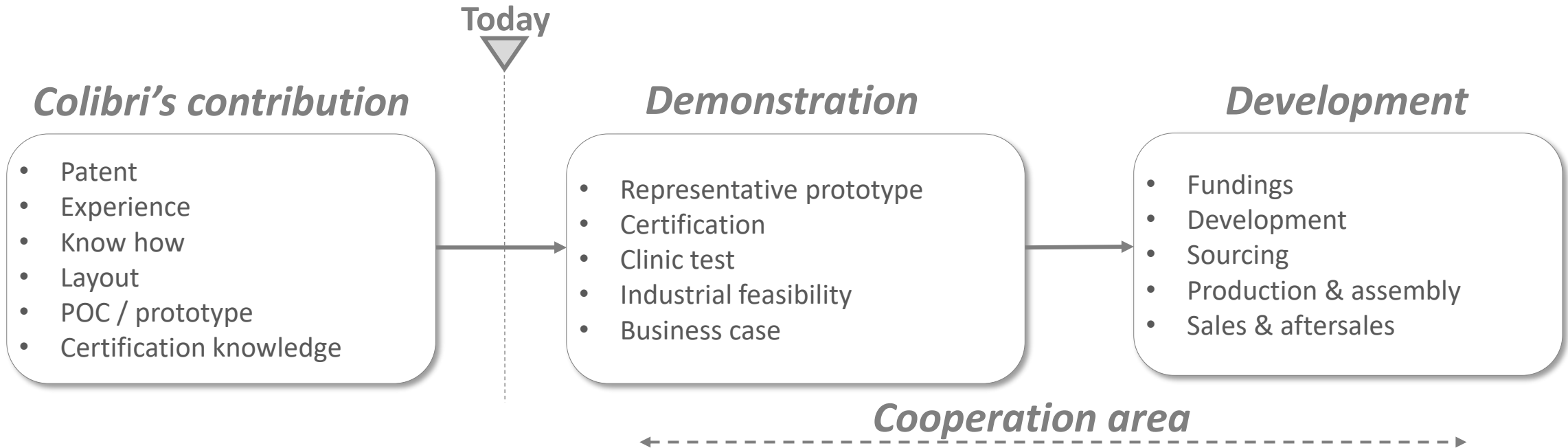
- 200ku to 1Mu/y
- + new mobility

## Price acceptance : high

- 11k€ small volumes
- 9 k€ big volumes

**Real experiment to confirm the business  
Risk mitigation through limited investments**

# Next potential steps



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