EUROPEAN CITIES AND REGIONS NETWORKING
FOR INNOVATIVE TRANSPORT SOLUTIONS

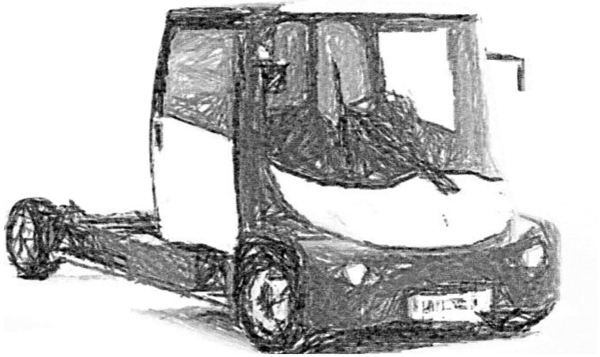
URBAN FREIGHT GOES ELECTRIC!

What do we learn from the Muses story ?

Patrick Souhait, ex General Manager of Muses

MOOVille
by Muses

Mooville : the only one eLCV N1 with motors in wheels



Boxes up to 8.5 cu.m

Reminder about MUSES

The European all-electric delivery van specialist for small parcels (last miles; -30kg)

- **French company ; 6 years old ; 26 empl. beginning of 2015**
- **Headquarter at “Paris” - Factory (Faurecia) in Vosges (France) Office at Brussels**

- **Focus on large group : 15 vehicles sold - 30 vehicles made (incl. proto, pilots, pre-prod.)**
- **Close to customers (from design to after sales)**
  - Chronopost, Dachser, Geodis for the first 4-9 cu.m (2009-12)
  - Chronopost, DPD Germany, Geopost, MRW, DHL Express, Bubblepost, TNT Italy for NEC14 (10-14 cu.m)

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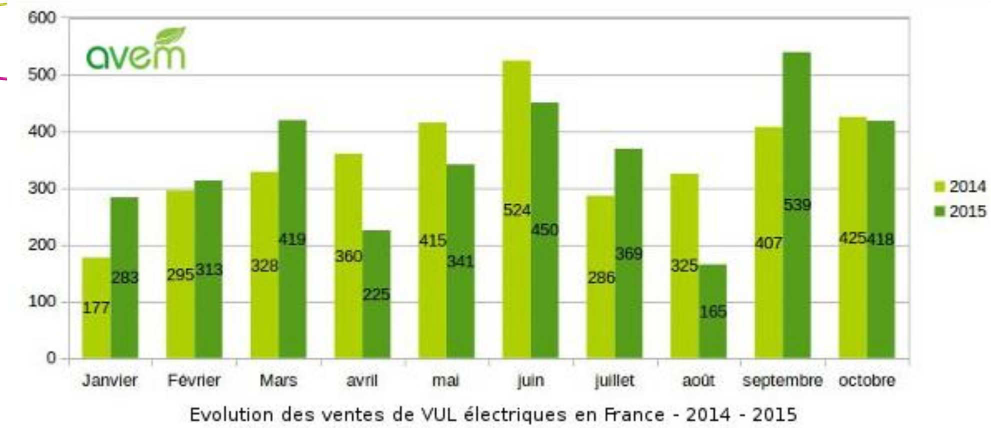
French figures for eLCV 2015



Market : no growth

	October 2015	2015
Kangoo ZE	237	1.941
Goupil *	45	351
Citroën Berlingo	45	101
Renault Zoé	30	184
Peugeot Partner	14	114
Nissan e-NV200	13	251
Total	418	3.522

Usable volume : around 4 cu.m

Too low for Express, Fresh, Drugs activities

What are current solutions in Europe

Designed for electricity

StreetScooter
DP DHL Group

Colibus
Univers VE Helem

Goupil G3
Polaris

For delivering in town
Main segment

$2\ m^3$ — $4\ m^3$ — $7\ m^3$ — $10\ m^3$ — $14\ m^3$

Nissan
eNV200

Kangoo ZE
Renault

Berlingo
Citroën

BD Trafic Van
BD Otomotiv

Daily
Iveco
Electric

Electron Gruau
France
(Fiat Ducato)

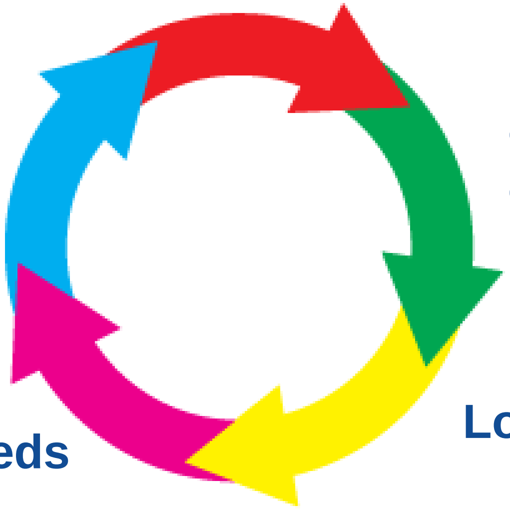
EVC
(Jumper PSA)

Adapted to electricity

Muses Learning 1 : Hard to break the vicious circle

Last mile covers a wide range of activities

beer is heavier than cell phone ; salad needs a temperature higher than ice cream ; delivery time in 2h does not need the same organization than 2d...



The proof of an existing market segment (eLCV do not do everything) is key

Learning 2 : eLCV users have to have a benefit

- Even if large customers specified with Muses and tested Mooville vehicles, they bought them according to their anticipation of regulation implementations in towns (many orders of one vehicle)
- FYI : Based on 80 km per day, a Mooville vehicle had the same TCO than a Boxer (rental model on 5 years)

- Excepted for implementing a global strategy or for demonstrating their political willpower, why should they invest in eLCV while competitors go on with heat engine vehicle ?
  - No benefits for anyone who invests
  - No penalties, no fines for the others

Regulations, balance benefits - penalties are key for getting fixed orders

Learning 3 : The right product without volume is frustrating

- **Product (what you see) is there :**
  - 10 vehicles deliver all days between 80 and 100 packages by round
  - 2 vehicles do 3 rounds by day (around 70 km)
  - 1 vehicle delivers fresh goods (+2 - + 8)
  - Internal height of bodies are different : 1m30 – 1m85 – 1m90 – 2m00
  - Availability rate : more than 90% from January to September

- **We needed 400 vehicles to earn money**
- **We needed around 8-10 m€ for ending industrialization**

Figures are related to the model of design, of production

Learning 4 : Towns (or regions) – Manufacturers do not understand each other

- **Muses won many awards, was supported by French pubic actors, was an EASME project, but when a French major thinks about some hundred vehicles, he thinks WW Manufacturers**
- **WW manufacturers consider that large towns is not the right scale for having the right production volume**
- **Customers do not think WW Manufacturer because they son not answer to the last mile characteristics**

- **To reconcile these three perspectives, it could be a concentration of efforts, e.g :**
  1. European large towns should define together a common frame to give rise to a huge volume market by a global WW market
  2. A large town (region) + large carriers (on its territory) should define common expectations to give rise a "big" local market

Conclusion (last mile)

- **Between 2009 (birth date of Muses) and 2015 (death of Muses) :**
  - A little new cities have implemented regulations for e-Last Mile (most of them without control)
  - Projects are still experimental and does not still allow consistent and sustainable profits
- **Learnings from Muses story :**
  - Together, we have still to prove that eLCV is a profitable market
  - Cities have to implement the right balance of “benefits – penalties”
  - Muses proved that a small manufacturer is able to introduce a right eLCV on the market
  - Is the right answer a global WW vehicle (European Cities network) or a local vehicle which could be deployed (Local city and carriers) ?

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(but do not slacken our efforts)

THANK YOU FOR YOUR ATTENTION

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