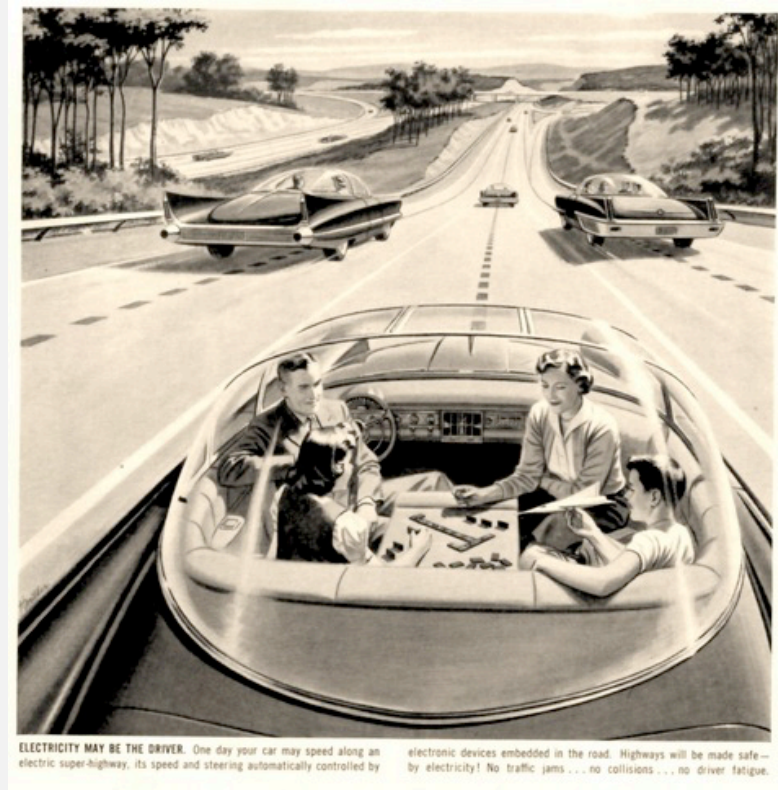


Introduction to electric vehicle mobility business

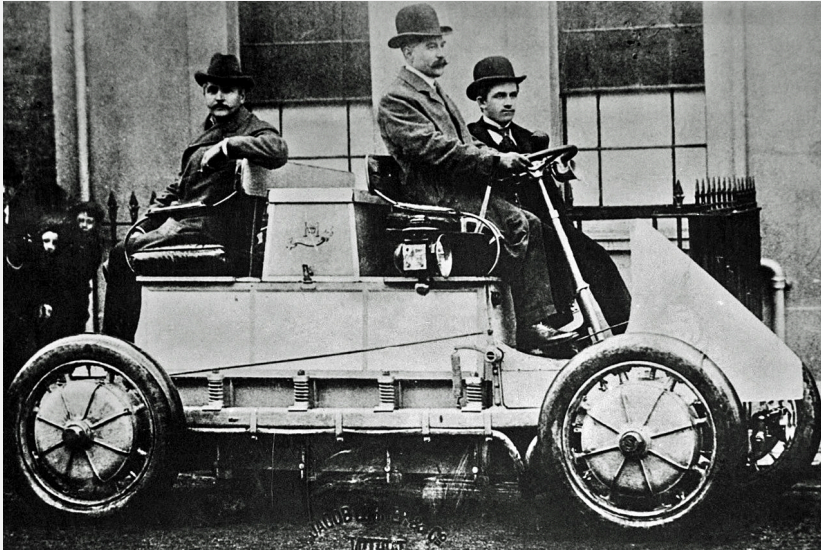
Frank G. Rieck MSc, Applied Research Professor, Future Mobility



Learn from the past, work on the future



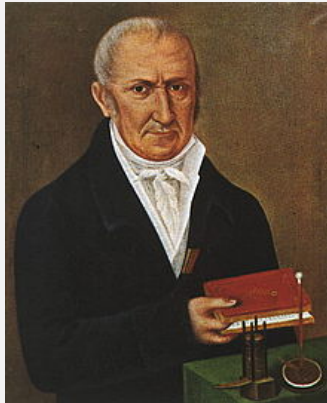
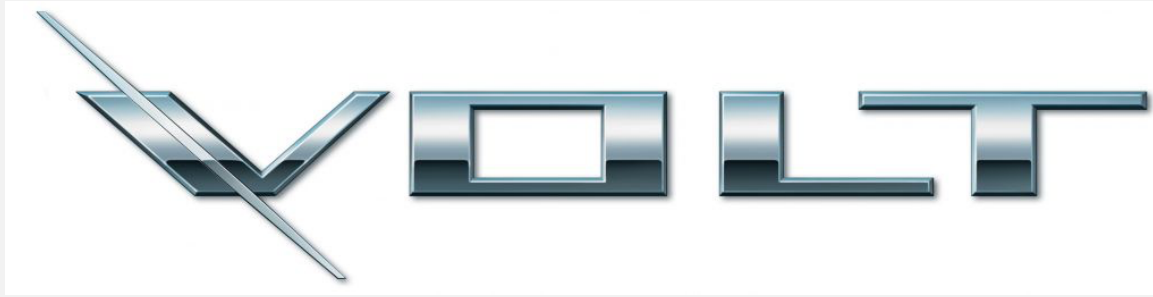
Ludwig Lohner and Ferdinand Porsche (1858 & 1875)



First in-wheel motor electric & hybrid
car in the World (1900)



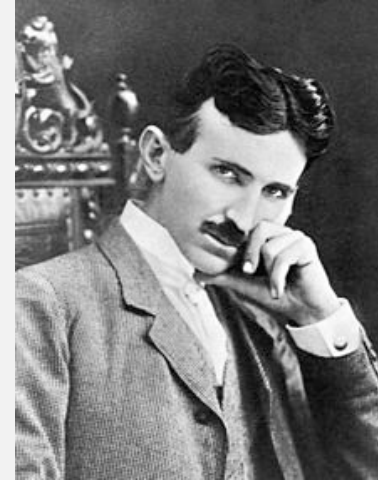
Business essential 1: The battery - Alessandro Volta (1745)



Business essential 2: The Motor - Nicola Tesla (1856)

„Es schmerzt mich es zu sagen, aber **Tesla** hat bisher strategisch leider alles richtig gemacht. Wer einmal elektrisch gefahren ist, der ist für alle Zeiten für den Verbrenner verloren. Wir brauchen geile Autos - und eine nahtlose Infrastruktur!“

Dr. Stefan Niemand, Leiter Modellreihe Battery Electric Vehicles, **Audi** auf dem 18. Technischen Kongress des Verbandes der Automobilindustrie (VDA) in Ludwigsburg 2016



Nicola prototype (2016) is coming



2018 will be the year of the introduction of electric semi's for the long haul
In the EU with respect to the driving time and rest period regulation No 561/2006

The new king of the road



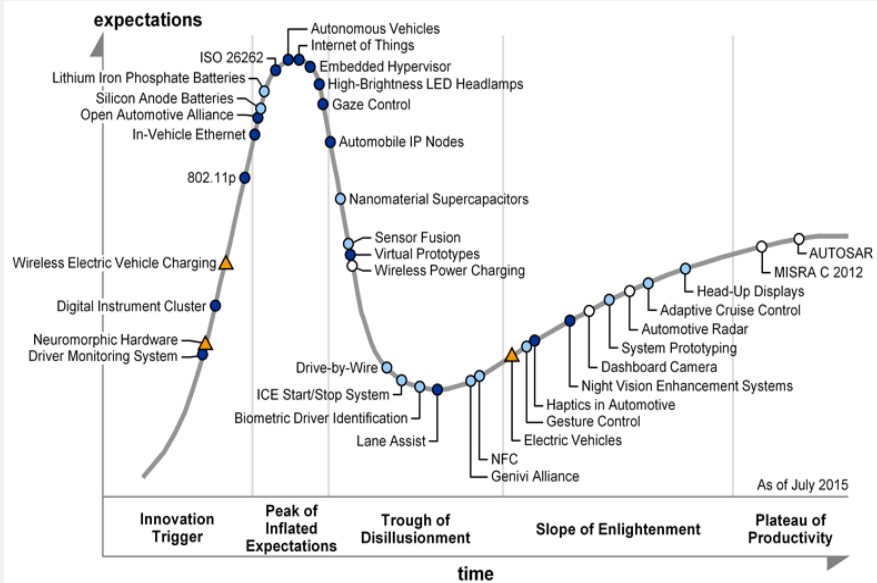
The first operational long haul range extender e-truck



Will Automotive be the future of mobility?

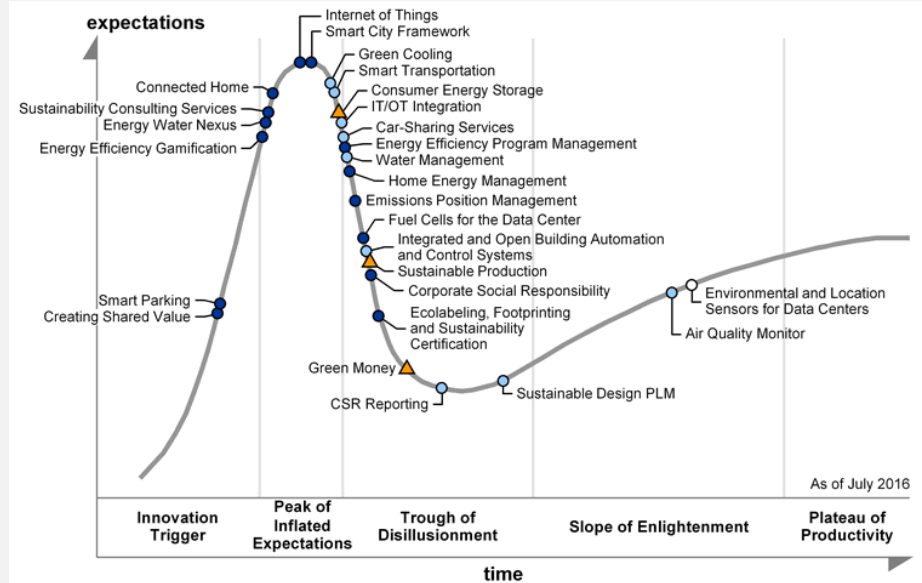
- Based on the 'traditional' values of individual freedom and maximum flexibility
- Major positive disruptive technologies will consolidate the automobile to be the preferred choice for mobility of persons and goods
 1. Electrification : Zero emission and Zero energy
 2. Automation : Zero congestion and Zero accidents
 3. Connectivity (IOT) : Zero empty and cost

Gartner Hype Cycles show that EV's are leading the innovation



Plateau will be reached in:

- less than 2 years
- 2 to 5 years
- 5 to 10 years
- ▲ more than 10 years
- ⊗ obsolete before plateau

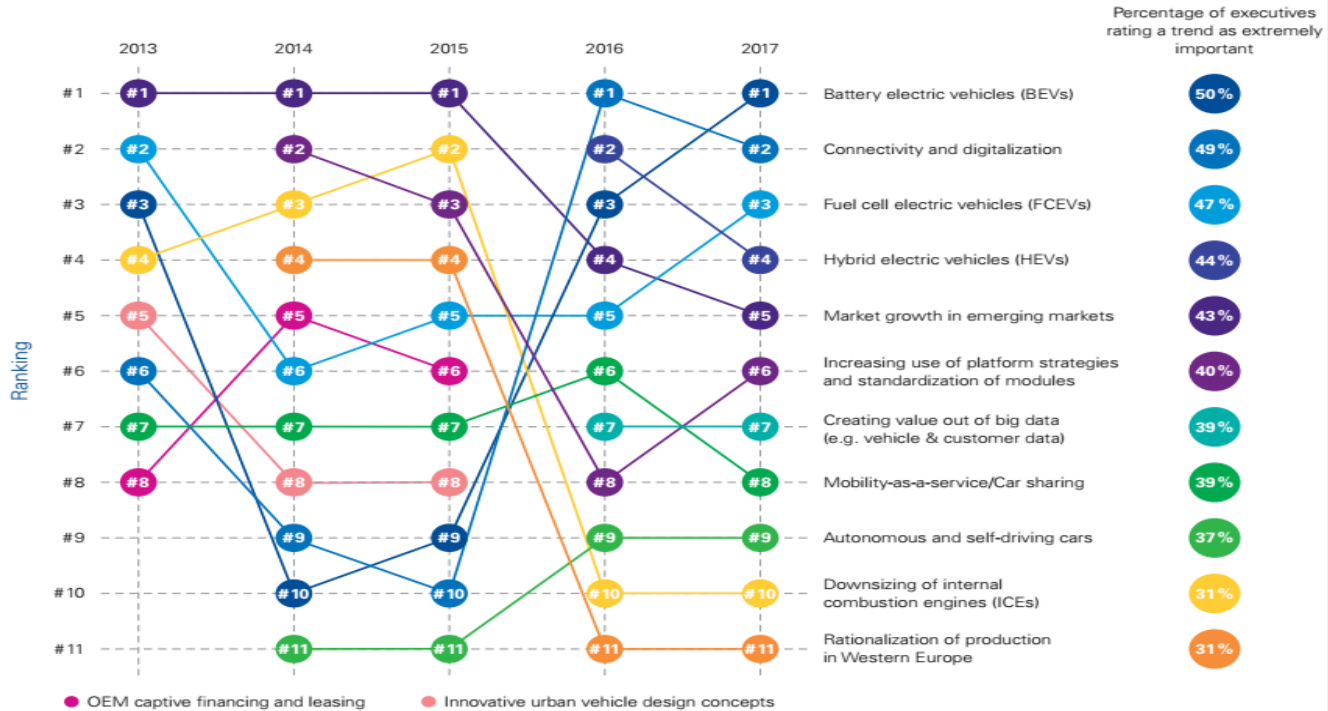


Years to mainstream adoption:

- less than 2 years
- 2 to 5 years
- 5 to 10 years
- ▲ more than 10 years
- ⊗ obsolete before plateau

Global Automotive Executive Survey KPMG 2017

Regulatory pressure pushes awareness for electrification: Battery electric vehicles are this year's #1 key trend.





Thank you!