Connectivity makes auto-mobility cost efficient

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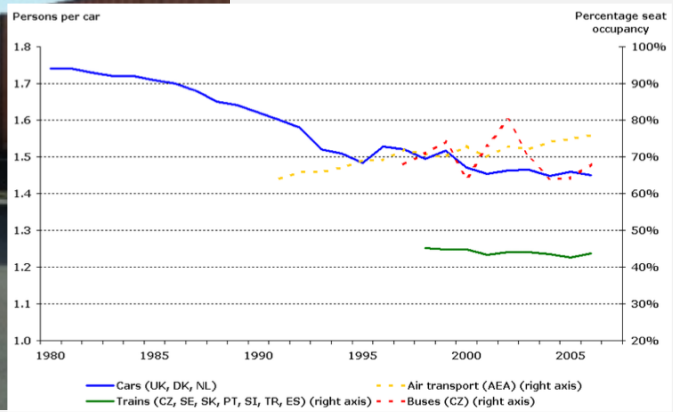
Mission question: Can one earn money with empty vehicles?



Source : Photo Frank Rieck, European Enrolment Agency, EVS30: Frank Rieck, Paper 10310638, Automotive, the Future of Mobility, October 10th 2017, Stuttgart

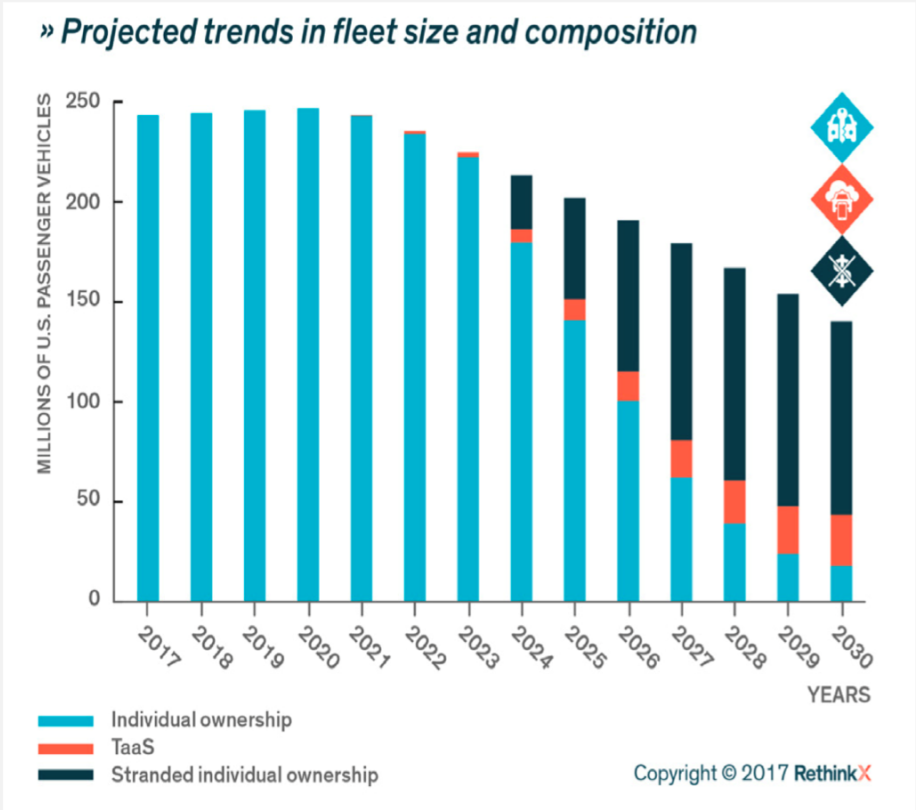
Private & public sharing can do the job

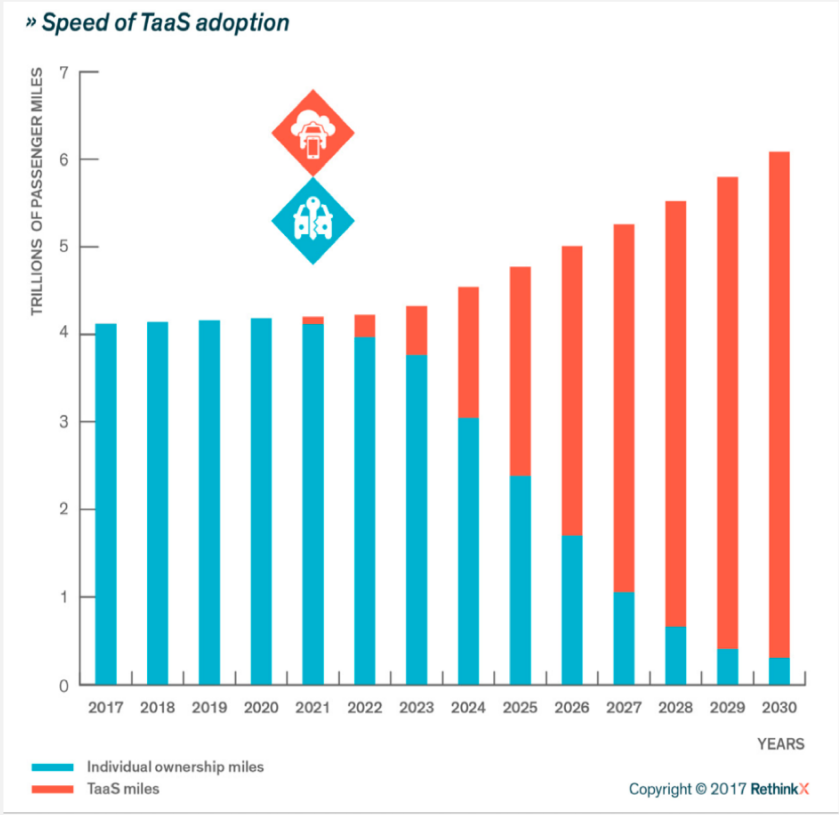
UBER

Bla Bla Car

Source : Uber, Bla Bla car, Car2Go, Schipol, PIcNIC

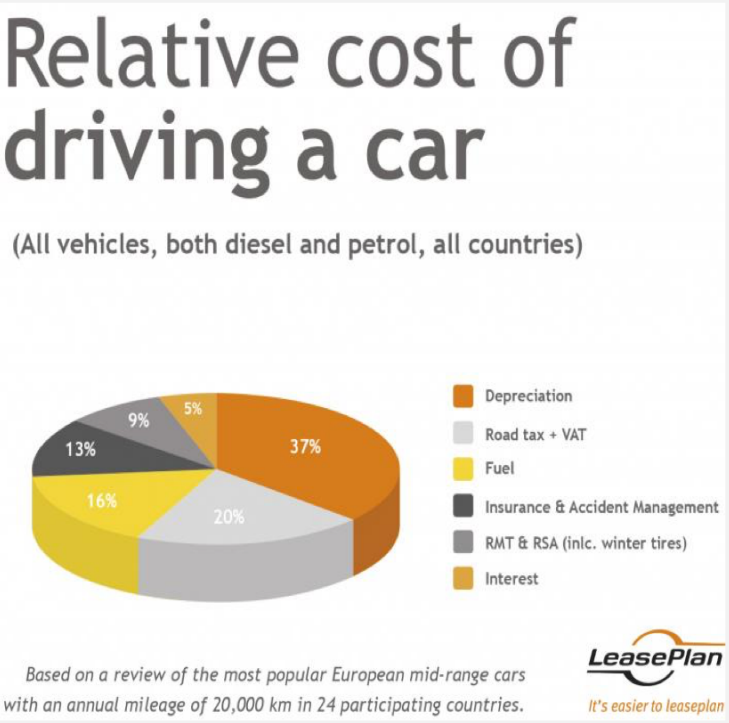
Less Vehicles will drive more passenger Miles





Source : Tony Seba RetinkX 2017

Mission question: Should car ownership cost as much as a house?



Source : Pixabay, LeasePlan Fleet Europe

Total Cost of Ownership of some early commercial EV's are competitive

Kosten Binkie functionele eenheid bij batterijpakket**:		Batterij 1		Batterij 2
Levensduur van de betreffende batterij (ongeacht duur functionele eenheid)		4,8		9,6
Aantal jaar dat het batterijpakket wordt gebruikt		4,8		5,2
Afschrijvingskosten	€	99.760,00	€	99.320,00
Onderhoudskosten	€	54.240,00	€	58.760,00
Energiekosten inclusief afschrijving batterijcellen	€	43.440,00	€	26.260,00
Wegenbelasting	€	-	€	-
Verzekering	€	2.491,20	€	2.698,80
Financieringskosten	€	58.572,00	€	70.092,00
CO2-tax	€	-	€	-
Ecokosten	€	-	€	-
Subtotaal niet persoonelskosten	€	*258.503,20*	€	*257.130,80*
Personeelskosten	€	415.008,00	€	449.592,00
Kosten functionele eenheid bij batterijpakket:	€	**673.511,20**	€	**706.722,80**
Schade (kostenverschil in opbouw)	€	12.000,00	€	13.000,00
Totale kosten functionele eenheid bij batterijpakket:	€	**673.511,20**	€	**706.722,80**
Totale kosten functionele eenheid	€	**1.380.234,00**		

Kosten conventionele vuilniswagen functionele eenheid		
Functionele eenheid in jaren		**10**
Afschrijvingskosten	€	186.200,00
Onderhoudskosten	€	190.000,00
Brandstofkosten*	€	76.320,00
Wegenbelasting	€	22.320,00
Verzekering	€	5.190,00
Financieringskosten	€	95.000,00
CO2-tax	€	-
Ecokosten	€	2.625,00
Subtotaal niet persoonelskosten	€	*577.655,00*
Personeelskosten	€	910.000,00
Kosten functionele eenheid	€	**1.487.655,00**
Schade (kostenverschil in opbouw)	€	**100.000,00**
Totale kosten functionele eenheid	€	**1.587.655,00**
Totale kosten functionele eenheid		**1.587.655**

€200.000 cost advantage

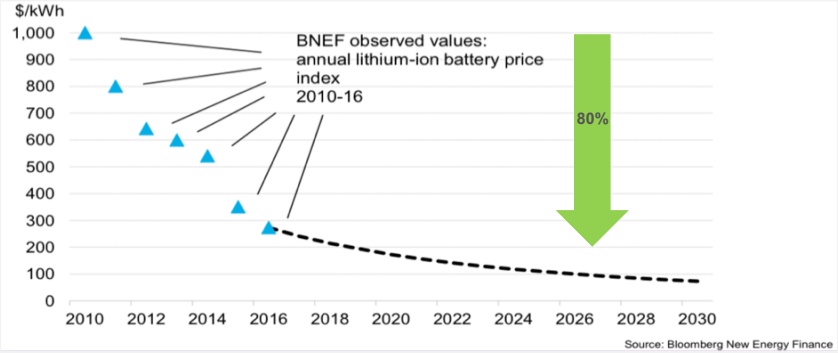
Source: EVS30 Frank Rieck, Paper 10310638, Automotive, the Future of Mobility, October 10th 2017, Stuttgart

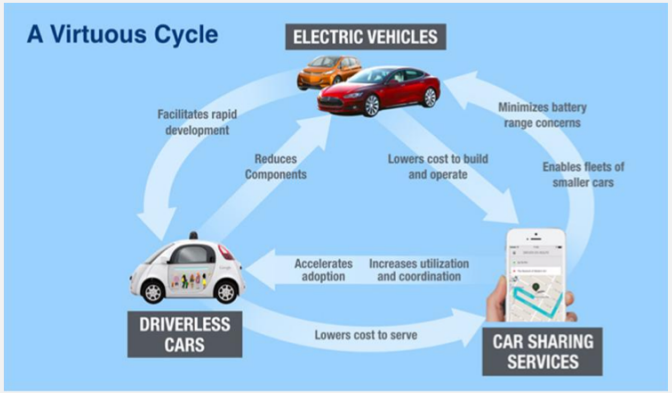
Maintenance and durability of EV- technology is from another league

TU/e Technische Universiteit Eindhoven University of Technology

Source: TU Eindhoven

EV's will break even soon, Sharing will make them earn money





JEDLIX

Source : Tesla, Jedlix, University of Melbourne, IBM Research, Bloomberg NEF, Breytner

Mobility as a Service (MAAS/TAAS) the way to zero marginal cost

Box 2: Cost of transport choices

Based on our model, these are the costs-per-mile of the choices that individual consumers will face as the TaaS disruption unfolds. Consumers will face these choices on day one (the disruption point):

Buy a new car

- *ICE: 65 cents (2021), rising to 78 cents[10] (2030)*
- *EV: 62 cents, falling to 61 cents*

Use paid-off existing ICE vehicles

- *Operating cost only of ICE: 34 cents, falling to 31 cents*

Use TaaS

- *TaaS: 16 cents, falling to 10 cents*
- *TaaS Pool: 5 cents,[11] falling to 3 cents*

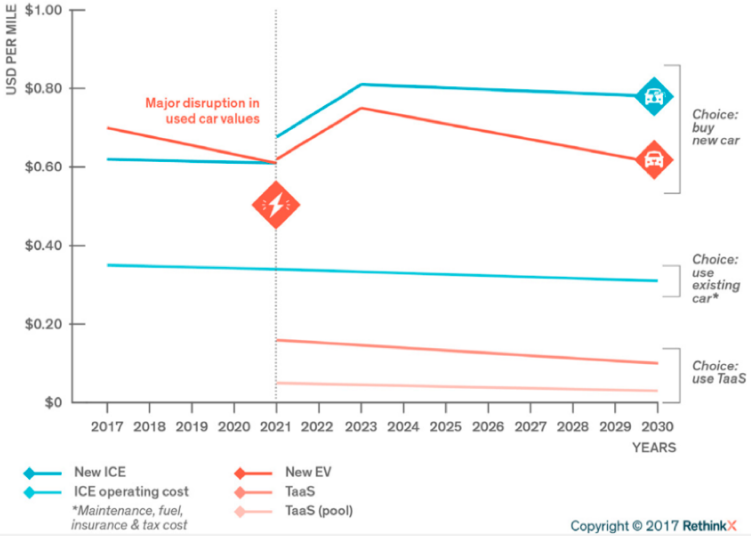
Annual savings per vehicle in 2021:

- *TaaS vs. driving paid-off existing ICE: $2,000*
- *TaaS vs. new ICE: $5,600*

Figure 2. Consumer Choices: cost-per-mile analysis[9]

Sources: Authors' calculations based on data from Edmunds, Kelley Blue Book, Your Mechanic, U.S. Department of Energy, U.S. Department of Transportation, U.S. Bureau of Labor Statistics and uSwitch. See Appendix A for further details on the methodology

» IO ICE, IO EV and TaaS costs



Source : Tony Seba RetinkX 2017

Summary 3D – 6Z

Electrification	Zero Emission
	Zero Energy
Automation	Zero Congestion
	Zero Accident
Connectivity	Zero Empty
	Zero Cost

Don’t forget the Dutch Sibrandus Stratingh (1785)

Probably the first electric powered vehicle in the World (1834)

Source : http://www.rug.nl/museum/geschiedenis/hoogleraren/stratingh

Thank you!