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Fédération belge
de l'Industrie de
l'Automobile et du Cycle

Belgische Federatie
van de Automobiel- en
Tweewielerindustrie

Future mobility
Where do we go from here?

Joost Kaesemans

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The machine that changed the world

(…but even more so…)

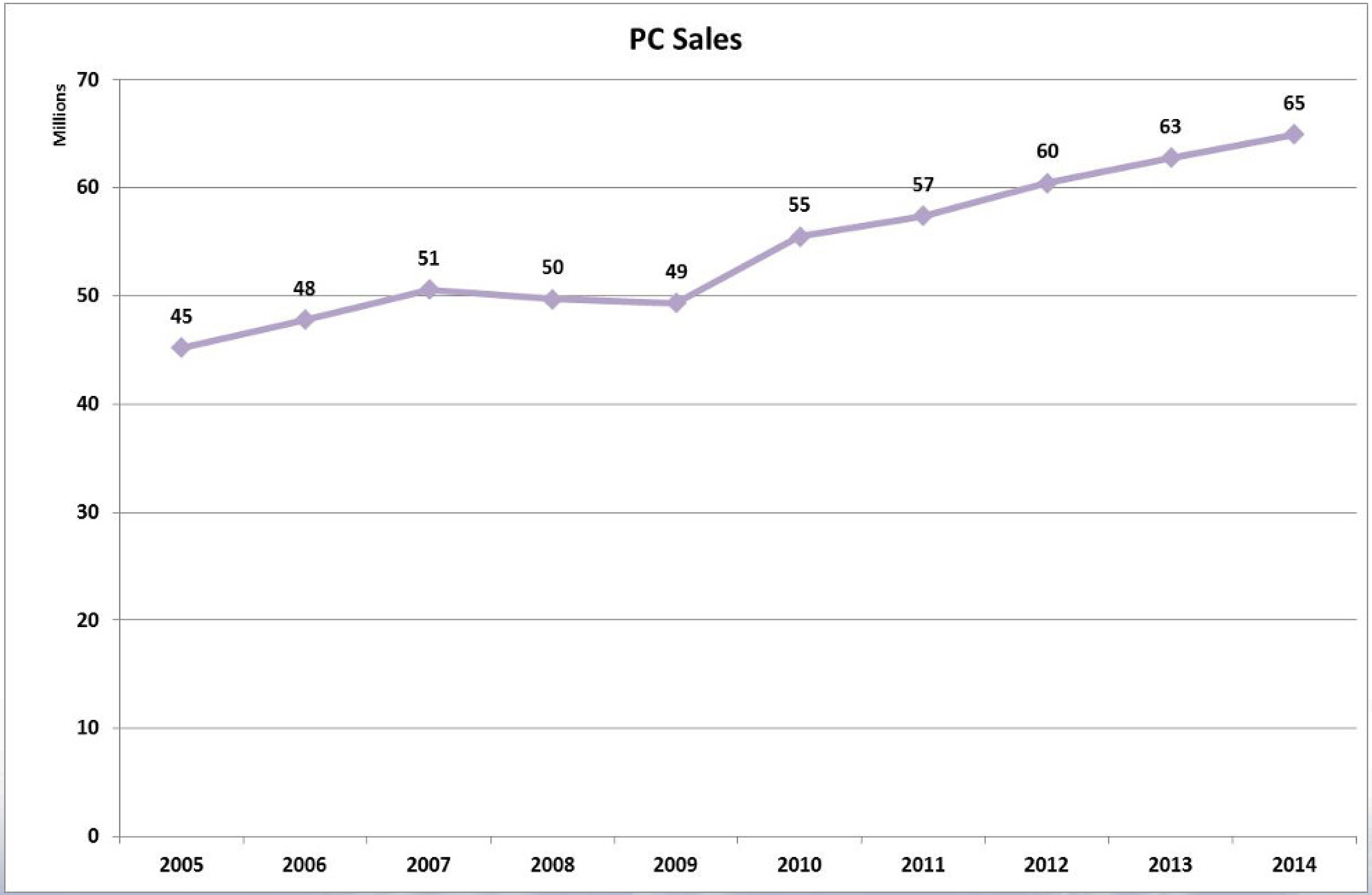
The (changing) world that changes the machine

There's something going on !!

The automotive industry is doing its part of the job

- Safety: from 1 to 5 Euro NCAP stars in 10 years time
- Vehicle – driver interface
- V2V and V2I : safety and mobility
- New fuels, such as natural gas, biofuels, synthetic fuels, … and of course…
- Electrification
- New vehicle concepts: small, flexible, light, energy efficient, urban proof,..

AUTOMOTIVE MARKET



Key figures

PRODUCTION	Total motor vehicles (World)	2013		87.3	m units	
	Total motor vehicles (EU27)	2013		16.2	m units	= 19% of worldwide MV production
	Total passenger cars (World)	2013		65.4	m units	
	Total passenger cars (EU27)	2013		14.6	m units	= 22% of worldwide PC production
	Production value	2012	€	681.5	bn	
NEW REGISTRATIONS	Total motor vehicles (World)	2013		85.6	m units	
	Total motor vehicles (EU27)	2013		13.6	m units	= 16% of worldwide MV registrations/sales
	Total passenger cars (World)	2013		73.1	m units	
	Total passenger cars (EU27)	2013		11.9	m units	= 16% of worldwide PC registrations/sales
	Diesel (Western Europe)	2013		53	%	
EMPLOYMENT	Manufacture of motor vehicles (EU27)	2011		2.2	m people	= 7.4% of EU manufacturing
	Total (including indirect, EU27)	2011		12.7	m people	= 5.8% of EU employed population
TURNOVER	Manufacture of motor vehicles (EU27)	2012	€	843.4	bn	= 6.6% of EU GDP
R&D INVESTMENT	ACEA members	2012	€	32.3	bn	= 3.8% of turnover
VALUE ADDED	EU27	2011	€	154.3	bn	= 9% of manufacturing sector
EXPORTS	Extra-EU27	2013	€	123.1	bn	
IMPORTS	Extra-EU27	2013	€	27.9	bn	
TRADE BALANCE		2013	€	95.1	bn	
MV IN USE (PARC)	Total motor vehicles	2012		281.4	m units	
(EU27)	Passenger cars	2012		246.3	m units	
	Motorisation rate (cars)	2011		487	per 1,000 inhab.	
TAX REVENUE FROM MOTOR VEHICLES (EU15)		2013	€	388.8	bn	

W.EUROPE = EU15 + EFTA

SOURCE: ACEA, VDA, AAA, IHS GLOBAL INSIGHT, EUROSTAT

AUTOMOTIVE MARKET

REGIONS/COUNTRIES	2005	2006	2007	2008	2009	2010	2011	2012	2013 *Estimated figures*	2014
EUROPE	17,906,455	18,685,556	19,618,588	18,821,599	16,608,761	16,499,863	17,167,600	16,191,359	15,941,854	16,060,143
EU 28 countries + EFTA	15,622,035	15,961,138	16,147,274	14,911,880	14,533,115	13,830,694	13,642,659	12,567,993	12,343,996	13,013,515
EU 15 countries + EFTA	14,565,695	14,820,182	14,842,186	13,602,038	13,668,808	12,984,549	12,815,435	11,773,371	11,554,834	12,113,882
AUSTRIA	307,915	308,594	298,182	293,697	319,403	328,563	356,145	336,010	319,035	303,318
BELGIUM	480,088	526,141	524,795	535,947	476,194	547,340	572,211	486,737	486,065	482,939
DENMARK	148,819	156,936	162,686	150,199	112,454	153,858	170,036	170,763	182,086	189,051
FINLAND	148,161	145,700	125,608	139,669	90,574	111,968	126,123	111,251	103,455	106,236
FRANCE	2,118,042	2,045,745	2,109,672	2,091,369	2,302,398	2,251,669	2,204,229	1,898,760	1,790,456	1,795,885
GERMANY	3,319,259	3,467,961	3,148,163	3,090,040	3,807,175	2,916,259	3,173,634	3,082,504	2,952,431	3,036,773
GREECE	269,728	267,669	279,745	267,295	219,730	141,501	97,680	58,482	58,694	71,218
ICELAND	18,060	17,129	15,942	9,033	2,113	3,106	5,038	7,902	7,274	9,536
IRELAND	171,742	178,484	186,325	151,607	57,453	88,446	89,911	79,498	74,367	96,344
ITALY	2,244,108	2,335,462	2,494,115	2,161,359	2,159,465	1,961,580	1,749,740	1,403,010	1,304,648	1,360,293
LUXEMBOURG	48,517	50,837	51,332	52,359	47,265	49,726	49,881	50,398	46,624	49,793
NETHERLANDS	465,196	483,999	504,300	499,980	387,699	482,531	555,812	502,544	416,717	387,835
NORWAY	109,907	109,164	129,195	110,617	98,675	127,754	138,345	137,967	142,151	144,202
PORTUGAL	206,488	194,702	201,816	213,389	161,013	223,464	153,404	95,309	105,921	142,826
SPAIN	1,528,877	1,634,608	1,614,835	1,161,176	952,772	982,015	808,051	699,589	722,689	855,308
SWEDEN	274,301	282,766	306,794	253,982	213,408	289,684	304,984	279,899	269,599	303,948
SWITZERLAND (+FL)	266,770	269,421	284,674	288,525	266,018	294,239	318,958	328,139	307,885	301,942
UNITED KINGDOM	2,439,717	2,344,864	2,404,007	2,131,795	1,994,999	2,030,846	1,941,253	2,044,609	2,264,737	2,476,435

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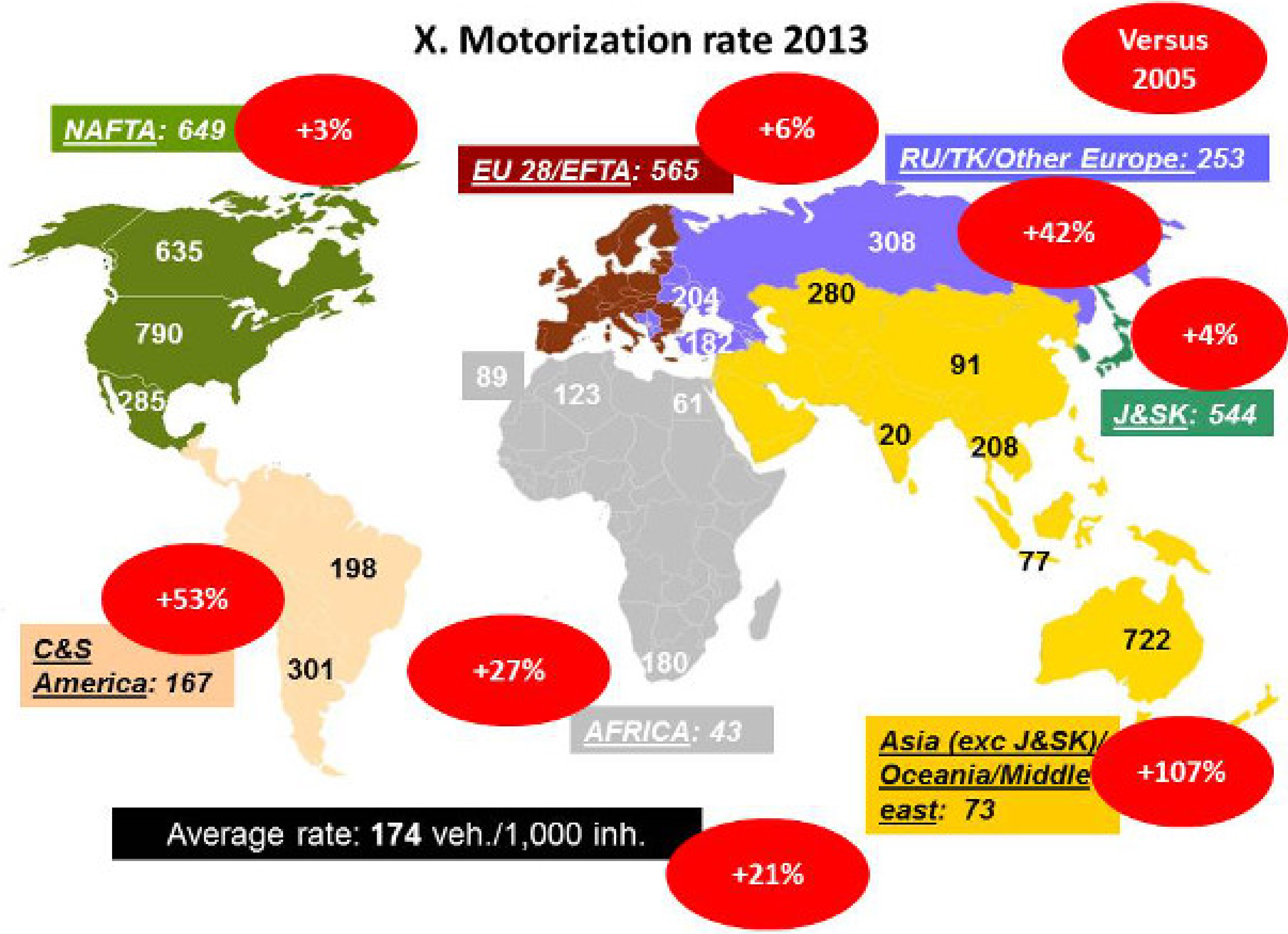
X. Motorization rate 2013



AUTOMOTIVE MARKET

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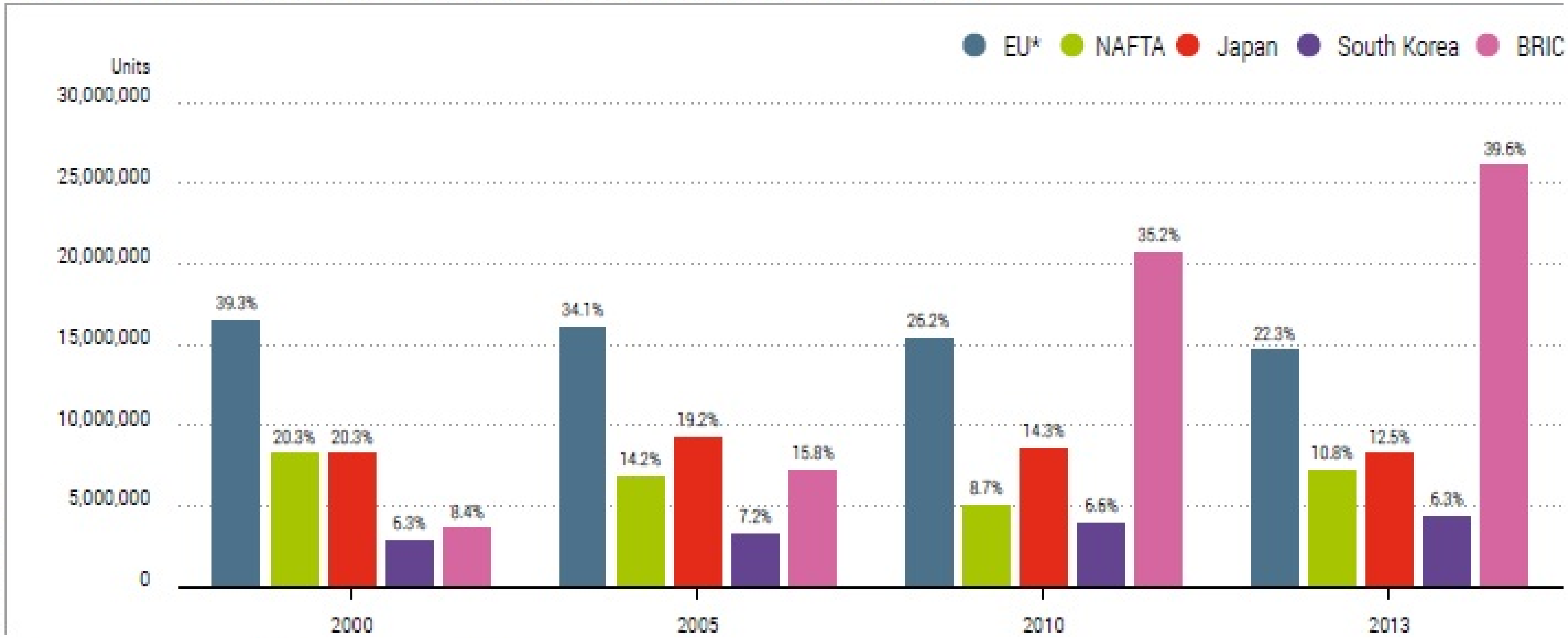
PRODUCTION

22.3% of the world's cars are produced in the EU

Passenger car production — **international comparison, % share** | **2000 – 2013**



SOURCE: OICA | 2014

Passenger car production — **world** | **2013**

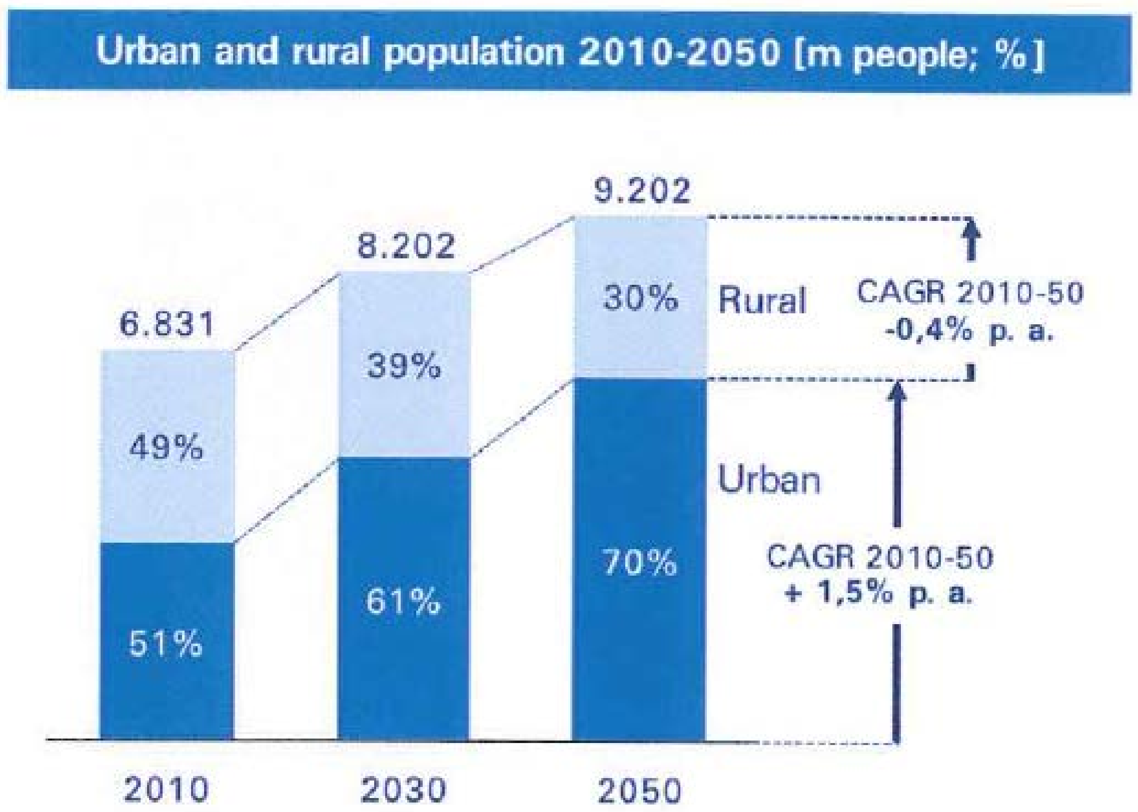
	VOLUME	% SHARE
EU*	14,616,202	22.3%
NAFTA	7,084,136	10.8%
Japan	8,189,323	12.5%
South Korea	4,122,604	6.3%
BRIC	25,886,146	39.6%
Others	5,534,876	8.5%
Total World	**65.433.287**	**100%**

SOURCE: OICA | 2014

* constant EU27 perimeter throughout the period

OUR MOBILITY

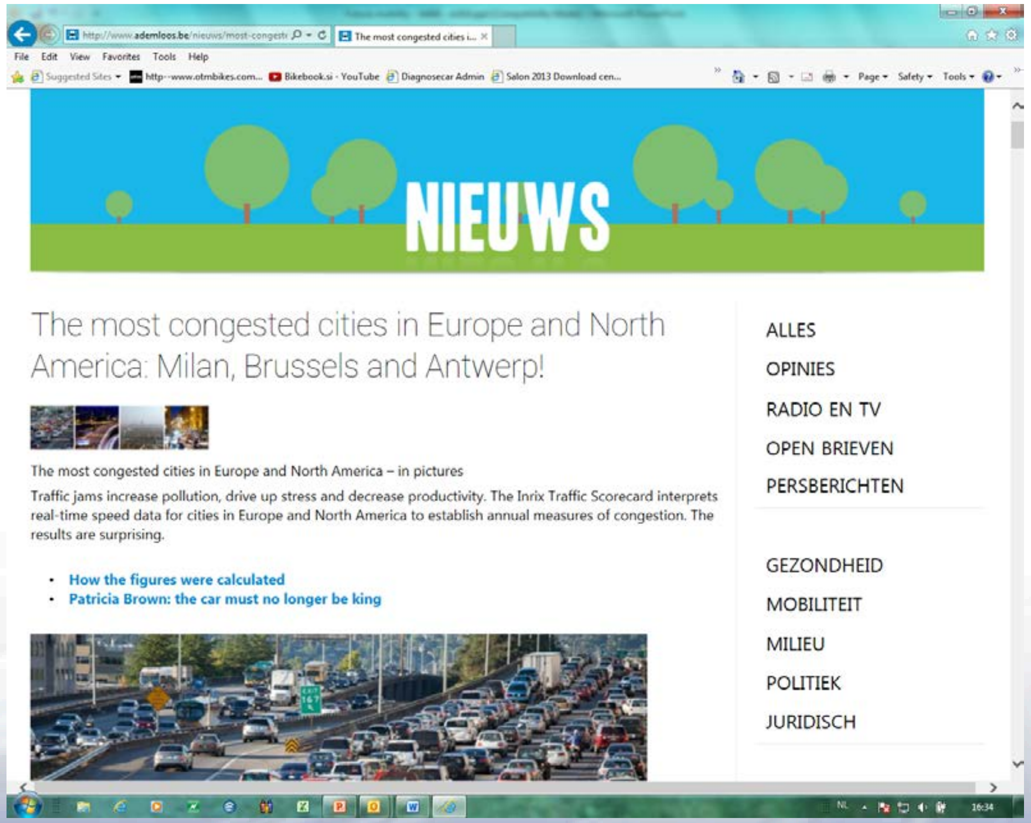
What does our SOCIETY looks like? Demographic evolution + urban living



Source: UN Population Division, Arthur D. Little Lab

Today: 3,5 bn people living in cities

2050: 6,3 bn people living in megacities



Individuality, freedom, choice, personal development, … they are and will remain our human core values. Also in mobility !

Future mobility challenges:

Today: 64% of all travel km made are urban. The amount of travel within urban areas is expected to triple by 2050.

Existing mobility systems are close to breakdown.

In 2050, urban mobility will use 17,3% of the planet's biocapacities. Five times more than in 1990.

In 2050 urban mobility will cost €829 bn per year, four times more than in 1990.

Future mobility challenges:

COLLABORATIVE ECONOMY IN THE MAKING ?

cambio
AUTODELEN
Een auto wanneer ik wil.

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Future mobility challenges:

COLLABORATIVE ECONOMY IN THE MAKING ?

What's the *REAL* potential of shared mobility ?!

The only way forward: an integrated approach

- Vehicle technology has a large impact, but is *not* capable of tackling these challenges alone !

- Network the system

- Rethink the system

- Establish a sustainable core

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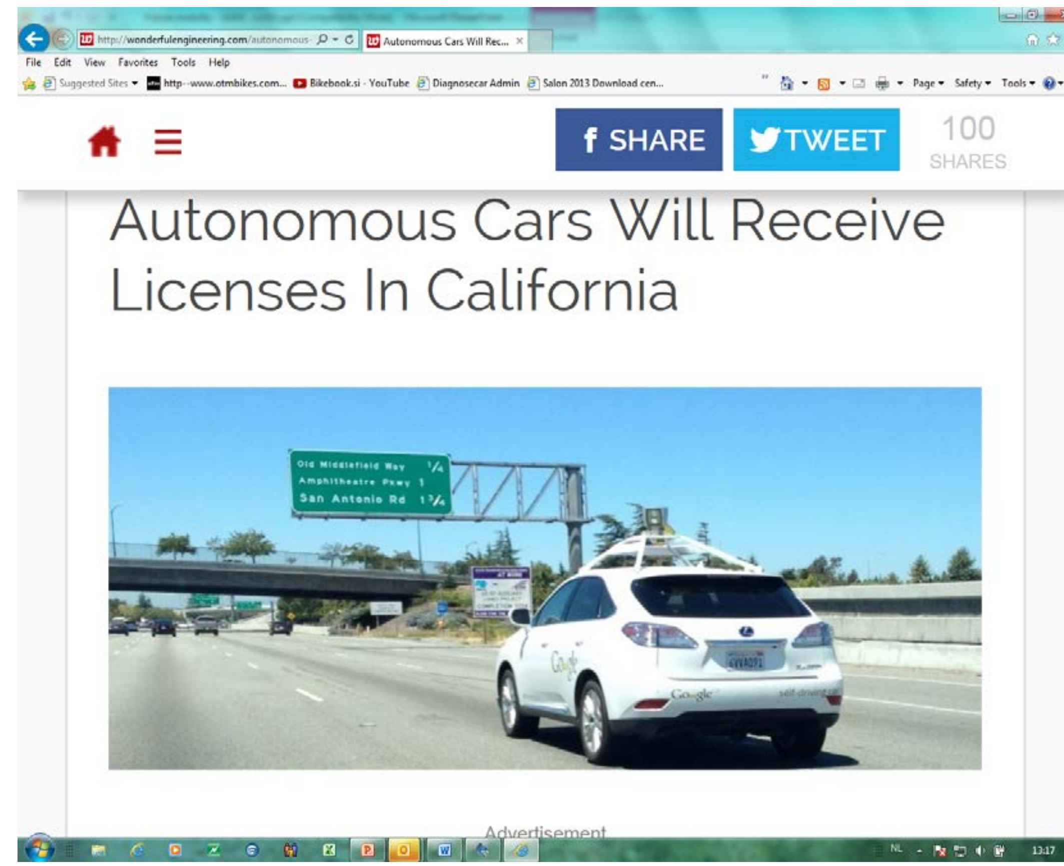
Mobility
+8 y: autonomous driving



Reglementation & responsibilities

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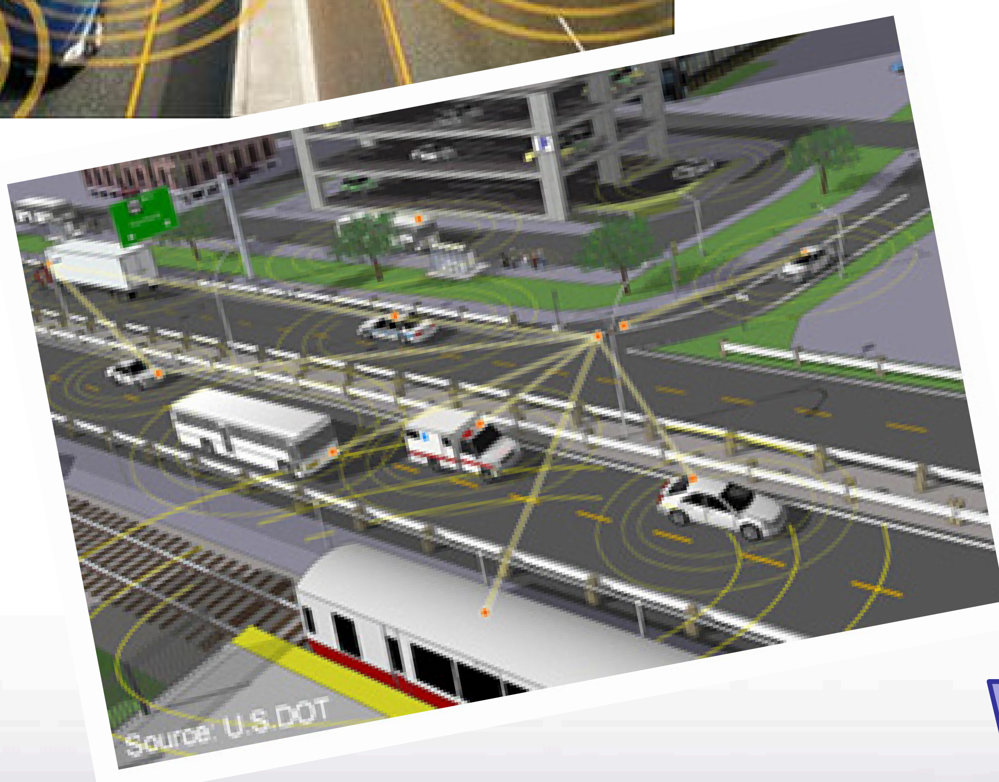
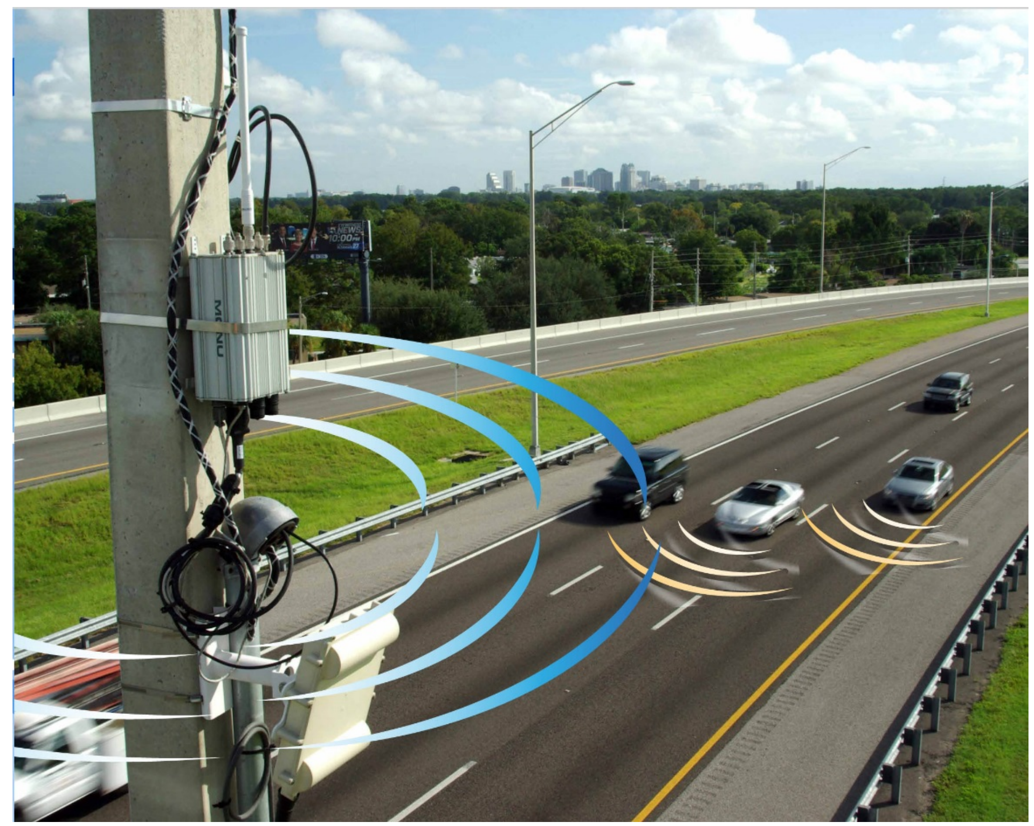
Mobility
connected vehicles

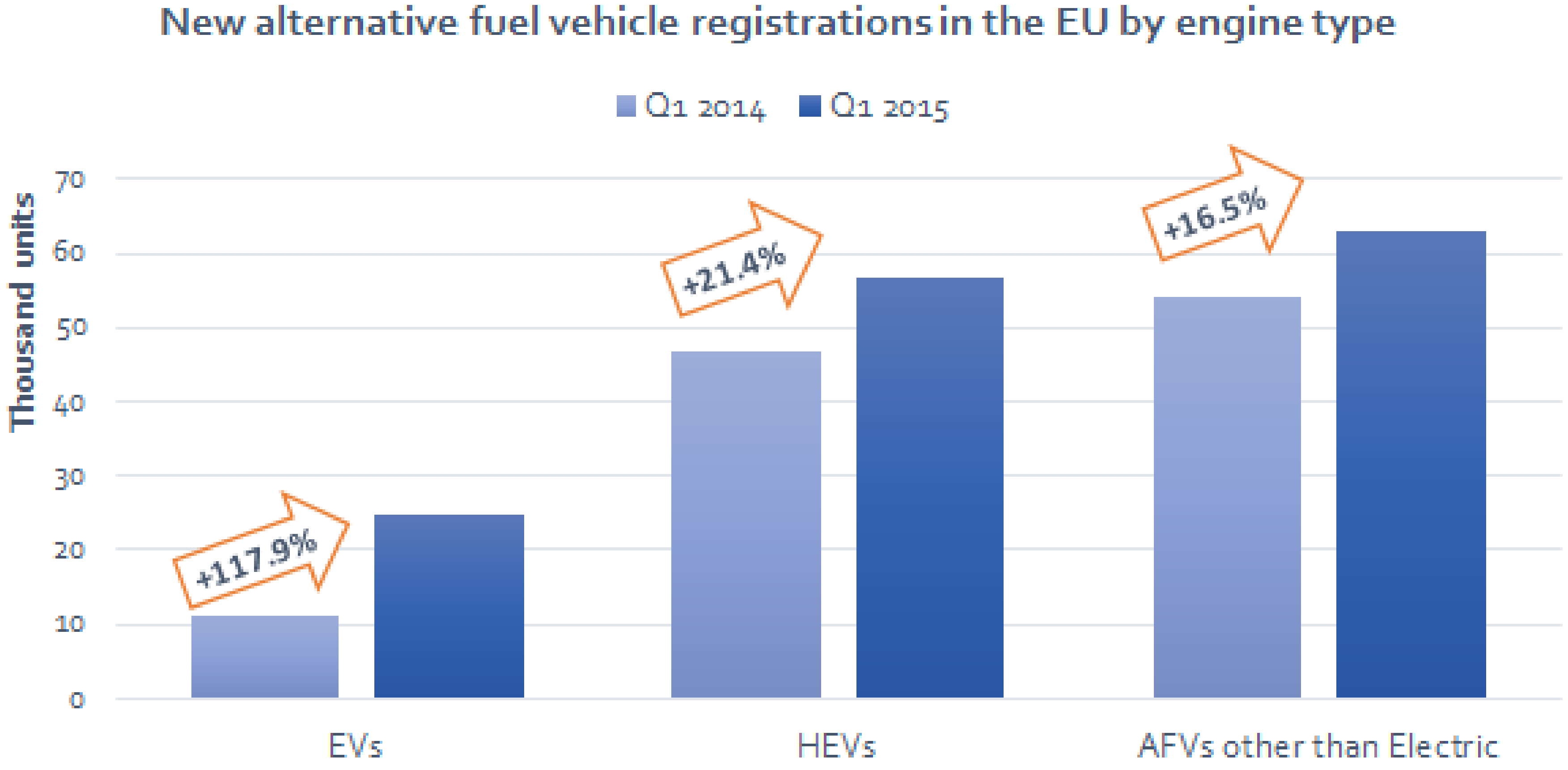




Who owns the data?

Who owns the maps?

Alternative fuels evolution in Europe



Alternative fuels evolution in Belgium

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	*2014-%*	
129.310	131.863	119.256	112.055	116.206	127.621	134.521	146.934	164.220	173.228	*35,9%*	Benzine
348.943	392.557	404.303	422.683	358.411	415.742	431.055	334.198	315.217	299.182	*62,0%*	Diesel
0	0	0	0	0	49	264	518	500	1.167	*0,2%*	100% elektrisch
0	1	4	33	29	37	36	76	145	917	*0,2%*	CNG
0	0	0	9	756	3.331	6.041	4.356	4.912	7.545	*1,6%*	Hybride benzine
0	0	0	0	0	0	0	347	912	765	*0,2%*	Hybride diesel
2.163	1.951	1.235	1.167	792	567	294	308	159	135	*0,0%*	LPG
480.416	526.372	524.798	535.947	476.194	547.347	572.211	486.737	486.065	482.939	*100%*	Totaal

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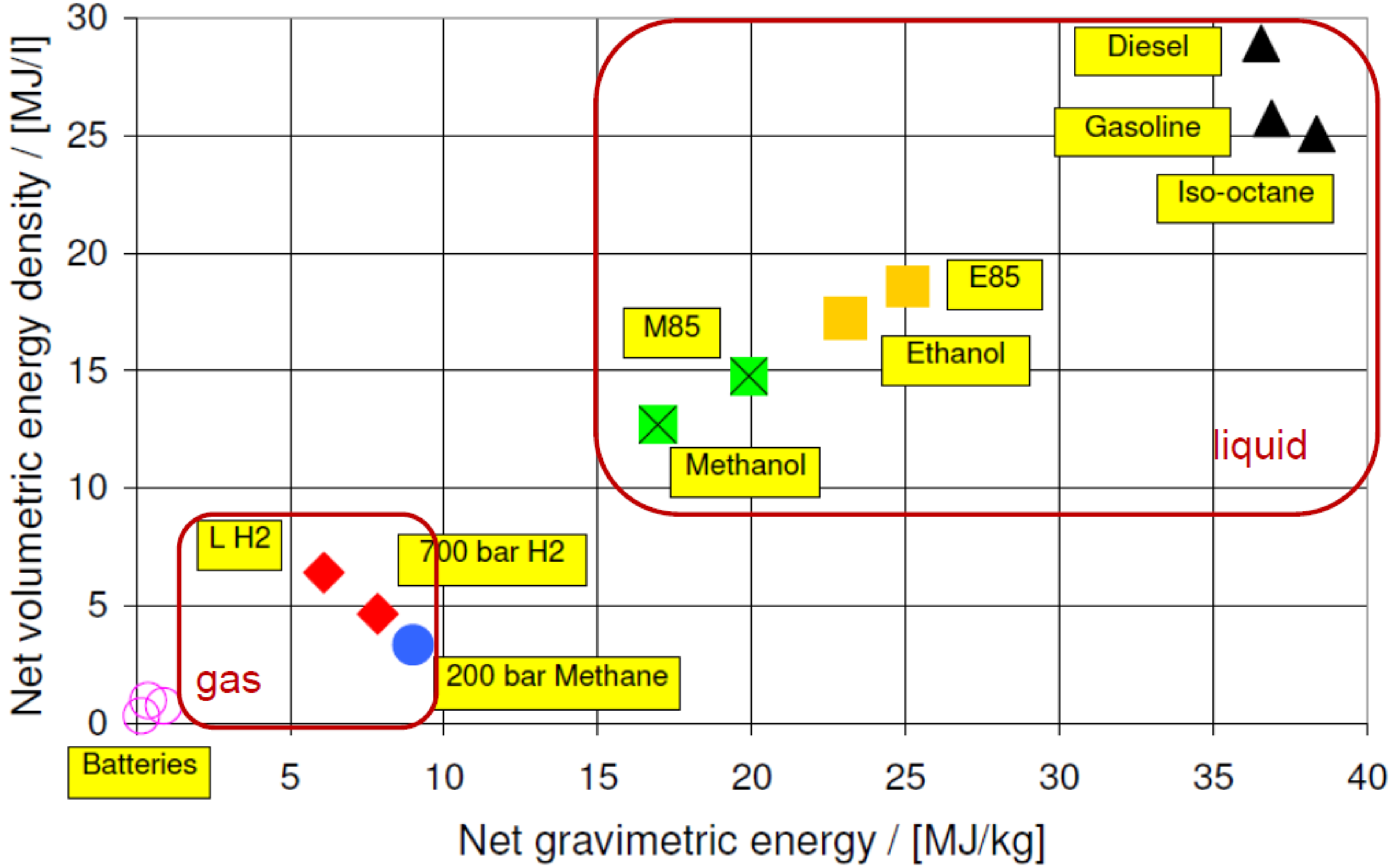
Alternative fuels – making it happen

1. Coordinated policy – incentives.
2. Integration of energy production and consumption with vehicles & mobility services
3. Fighting range anxienty – prominent charging facilities
4. Sensibilisation of local authorities
5. Eco-fiscality
6. Smart grids

+ SIMPLE SEXY EASY MEASURES
- Free parking in the city
- Free public transport
- Use of bus lanes
- …

Make no mistake: electrification is not the only way, and certainly not the easiest way



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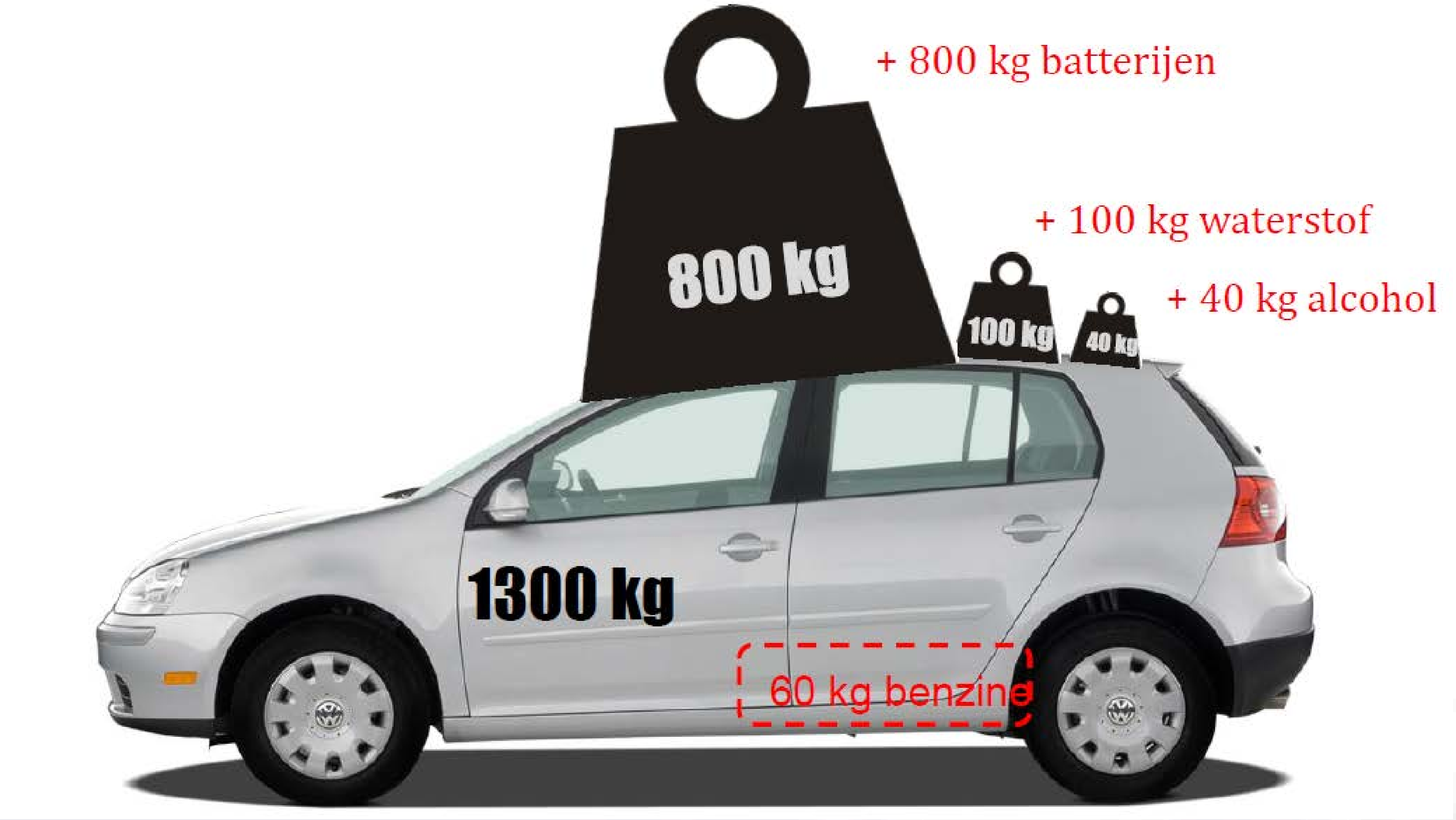

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Electrification calls for action now !

Making EV’s a success will require a clear and common future vision.

New relations need to be built quickly. For instance: mobility and energy supply need to get connected.

Make electric vehicles a part of the solution, not a part of the problem!

But what about the automotive industry itself???

Zero Emission vehicles, and EV's in particular, will profoundly change the automotive industry:

- they will allow the industry to (re)position itself as innovative, highly technological and driven by durability

- our approach of using and owning vehicles will change dramatically

- they will completely change the way of selling and servicing vehicles

Driving electric: not the easiest choice

Buying an EV today is not the easiest option:
- high price
- uncertainty about battery longevity
- uncertainty about residual value
- limited use of battery electric vehicles (limited range, charging downtime)

Car manufacturers are ready to develop and to invest in **mobility services** as an alternative for buying a car.

Mobility services:

- “car sharing” - ‘pay as you go’
- comparable to short term hire (but without the offices)
- typical scheme: annual fee / make a reservation of a vehicle to be picked up at given locations / bringing it back to a defined location / fixed price, aiming at short journeys
- average use: 30 minutes, 5 km or less
- average client: young, urban, well educated, trendy

Mobility services:

Every car in a car sharing project replaces 12 to 20 privately owned cars!

So why whould car manufacturers want to invest in these projects???

- world evolution & urgencies

- possibility to test vehicles equipped with the latest technology in a well defined region

- collection information about the use of the vehicle (getting to know the clients and their needs)

- collection vehicle information

- possibility to service and update the vehicles easily without having to deal with the user of the vehicle

- creating a positive image of the brand that might reflect on the brand as a whole

For the automotive industry, offering a mobility service is fundamentally different from selling a ‘product’. This will change <u>the industry’s identity</u>.

Clients do not buy the vehicle

- the operator makes the investment and takes all the risks concerning operational cost and residual value
- impacts the cash flow

A lot of variable costs shift from the user to the operator

- fuel, maintenance and service, insurance...
- the operator becomes a ‘fleet manager’, driven by operational costs, up and downtime of the vehicles etc.

Low frequency - but high value - transactions are being replaced by high frequency – but low value - transactions

Offers the possibility of frequent and continuous contacts with the brand.

And finally: will future governments have the ambition of giving every citizen the opportunity to own an individual means of transport?

Or will they rather try to offer everyone the acces to a mobility service?

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