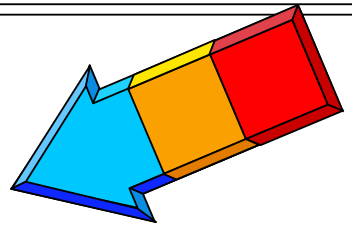
STU

D_BROADCASTING_V4
18.-19.2.2015
B. BYSTRICA

Ján Lešinský

IMPACT of the AUDIO BROADCASTING DIGITISATION on the CAR (INDUSTRY)

- STRATEGY OF CAR INDUSTRY
- INNOVATIONS & CUSTOMERS
  - ... CHANGES, RISKS
  - ... DIGITAL AGENDA (DAB, DMB,...)
  - ... CYBER SAFETY
- CONCLUSIONS

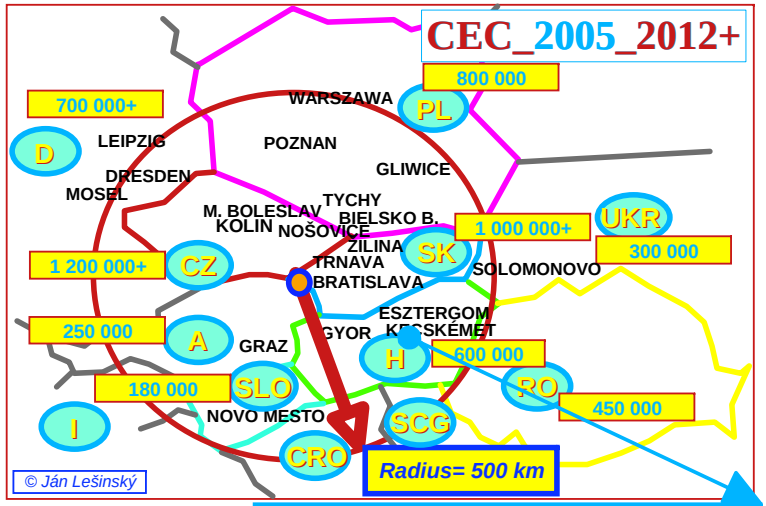


MEng. Ján Lešinský, PhD.
Assoc. Prof.
FME STU Bratislava
Nám.slobody 17
812 31 Bratislava

© Ján Lešinský

12 COUNTRIES - 20 POSTS

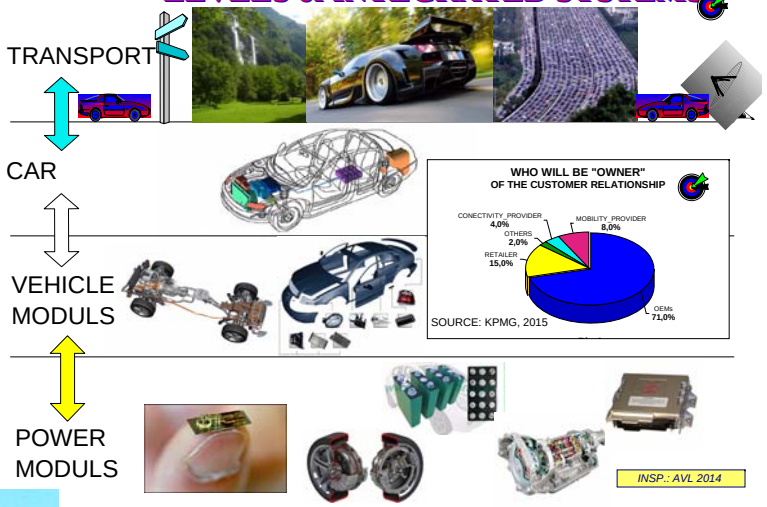
AREA 1,9 --> 5,5 mil. PsCs / year



2012 MB - B class, +CLA,
~ 100 000 /year, 3 000 empl.

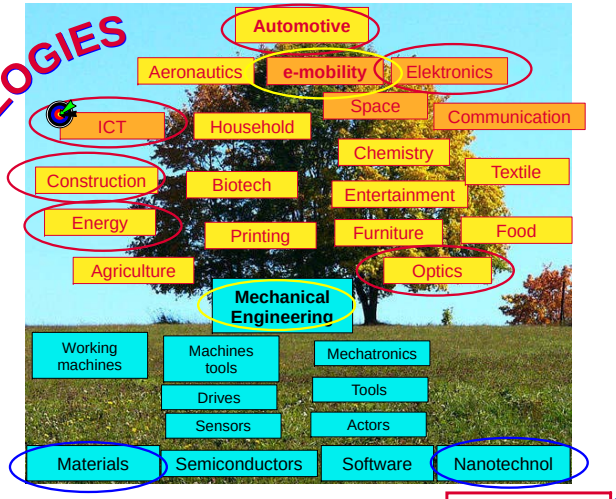
TOP

LEVELS of INTEGRATED SYSTEMS

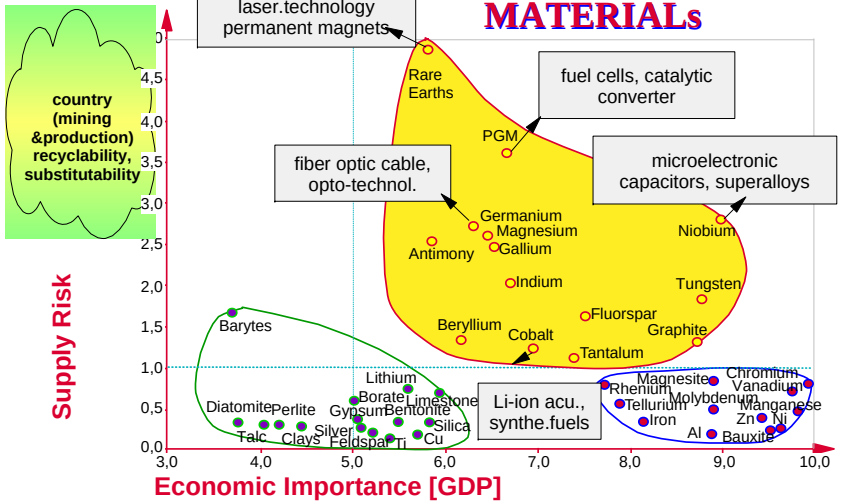


TOPICS

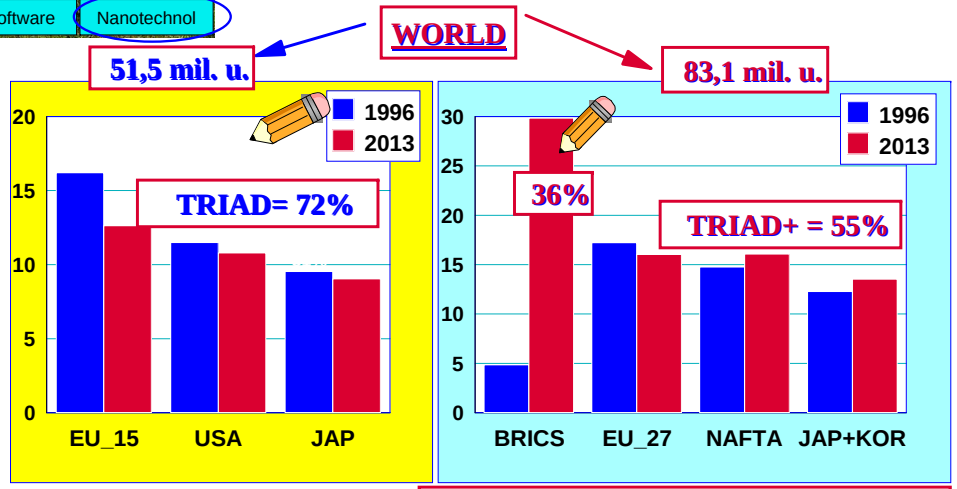
KEY TECHNOLOGIES



RISKY MATERIALs



WORLD



TRIAD+ = NAFTA (USA, MEX, CND)

TOP - BRICS - TRIAD - V4

2013	NO. of INH_2013	PLACE	Ind. Share Inh./GDP[%]	ECON. PLACE	GDP/cap. [USD]	EXP [bill.USD]	IMP [bill.USD]
BRAZIL	201,0	**6.**	**13 / 26**	**8.**	**12 100**	**245**	**241**
RUSSIA	142,5	**10.**	**28 / 37**	**7.**	**18 100**	**515**	**341**
INDIA	1220,8	**2.**	**19/26**	**4.**	**4 000**	**318**	**515**
CHINA	1349,6	**1.**	**30/ 45**	**3.**	**9 800**	**2 210**	**1 772**
SOUTH AFR.	48,4	**28.**	**26/29**	**26.**	**11 500**	**91**	**100**
EU	509,4	3.	23/25	2.	34 500	2 173	2 312
USA	316,7	4.	20/19	1.	52 800	1 575	2 273
JAP	127,3	11.	26/26	5.	37 100	697	767
SLOVAK REP.	5,49	114.	27/ 31	66.	24 700	82,7	78,0
CZECH REP.	10,6	82.	39/ 40	45.	27 200	136,9	128,0
POLAND	38,4	34.	30/ 33	22.	21 100	202,3	207,4
HUNGARY	9,94	88.	30/ 28	57.	19 800	93,0	89,5

SOURCE: CIA_USA_2014

WORLD: GWPppp - 87 180 bill. USD / 2013
WORLD: GWP - 73 870 bill. USD / 2013
WORLD INDUSTRY: 22,8% INH./30,5%GWP

GWP-Gross World Product
GDP-Gross Domestic Product
ppp - purchasing power parity

© Ján Lešinský

NEW IS ... CHANGE !!!

- Everything is **interconnected**
- Uncertainty **is the new normal**
- **Complexity is increasing**
- **The marketplace is global**
- **The speed of change is increasing**
- **Resources are getting scarce**

© Ján Lešinský

EUROPE - CARS 2020

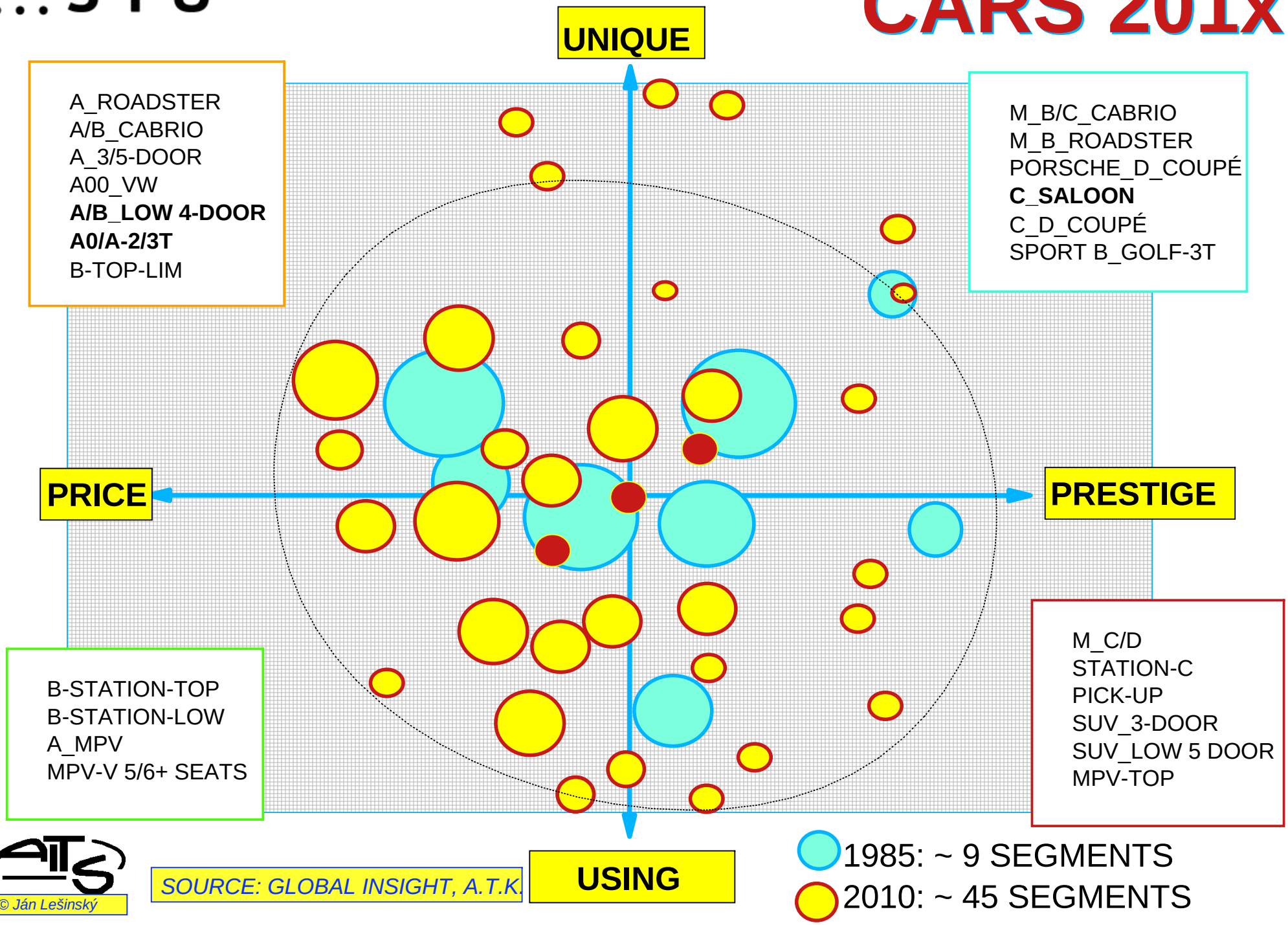
Action Plan for a competitive and sustainable automotive industry in Europe - four pillar

* investment into advanced technologies and financing
* improving market conditions (taxes, FTAs...)
* enhancing competitiveness on global markets (harmonisation, norms) and
* anticipating of adaptation (re - training)

--> investment to the worker from closed plants

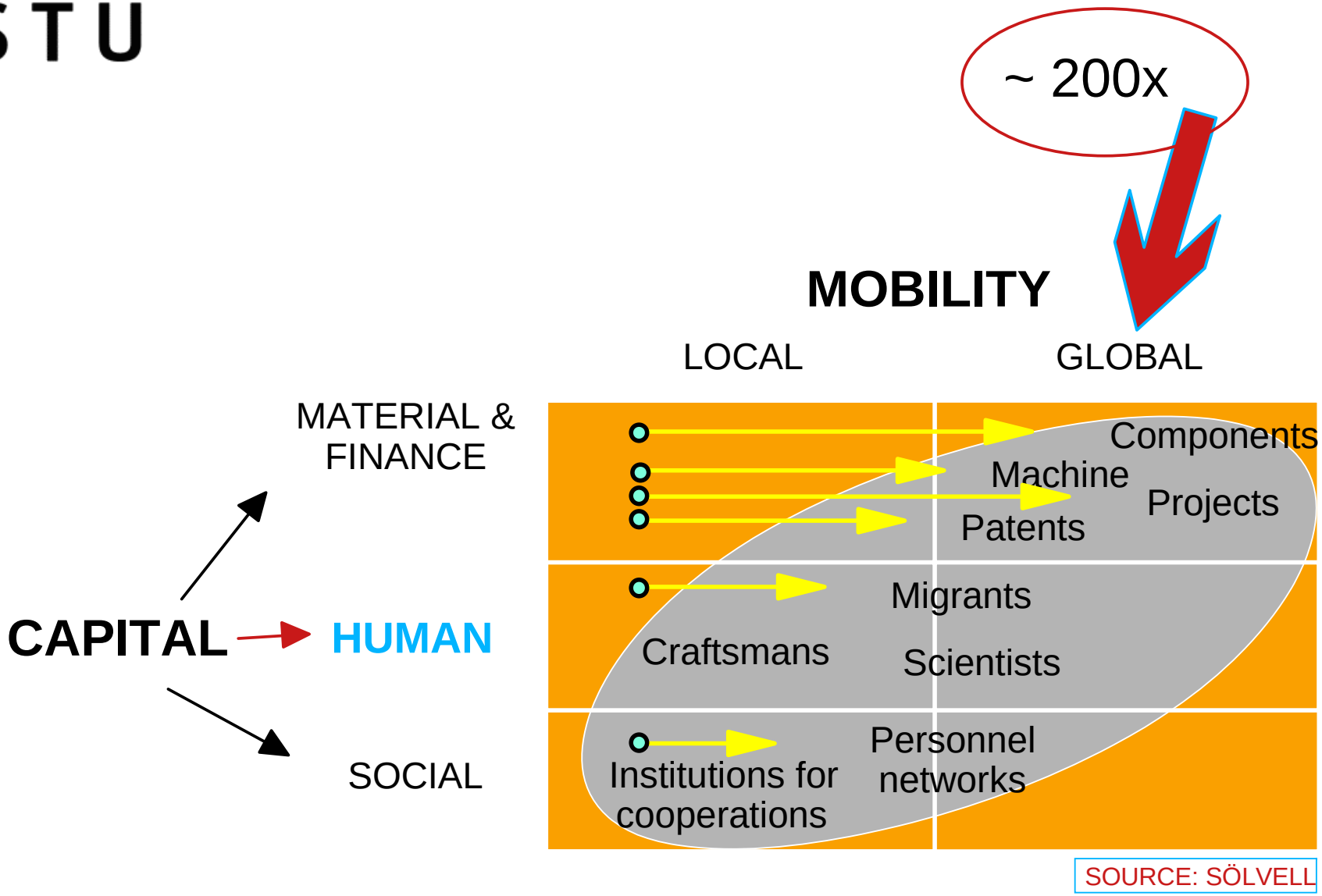
© Ján Lešinský

CARS 201x



SOURCE: GLOBAL INSIGHT, A.T.K.

© Ján Lešinský

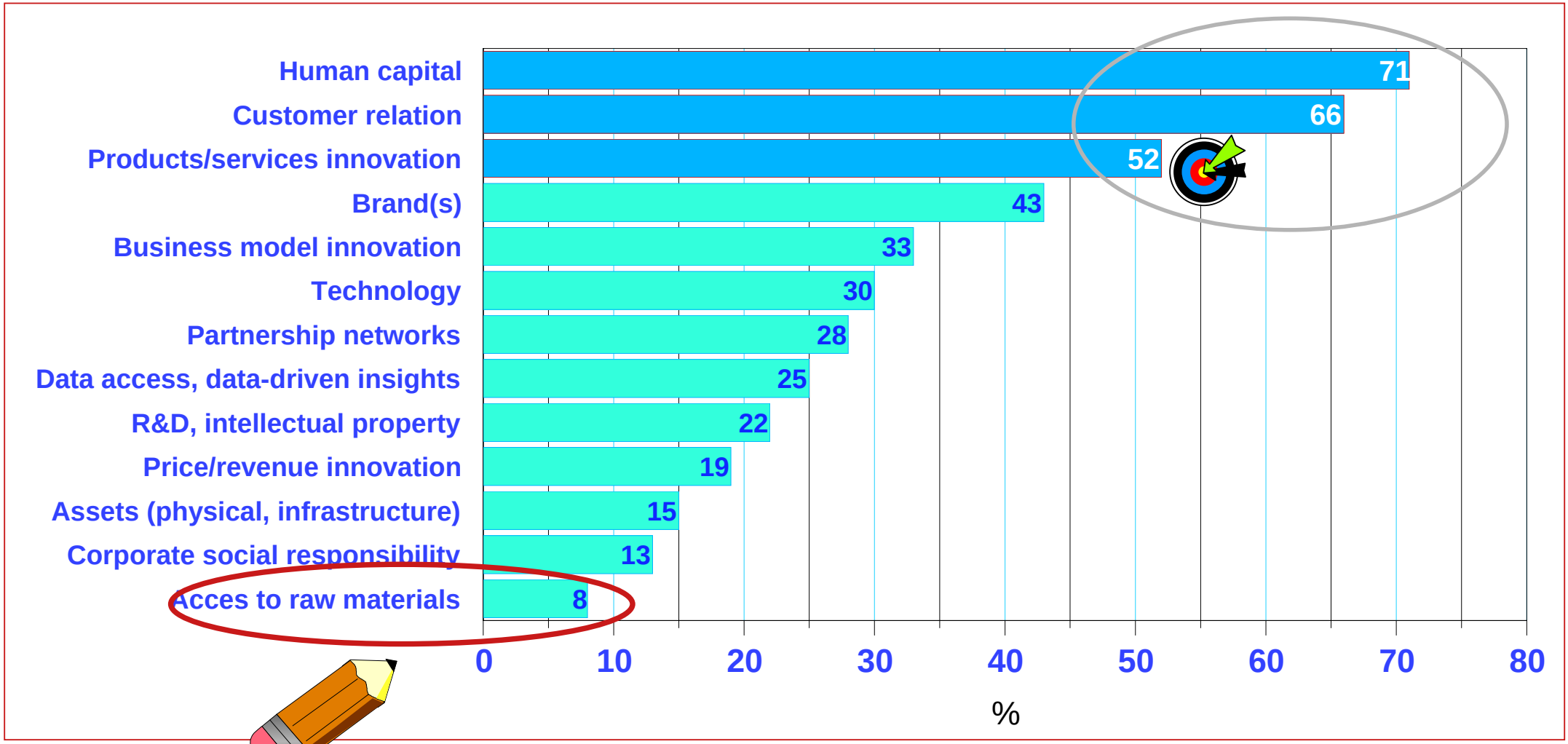


COOPERATION_WITH ...

© Ján Lešinský

CUSTOMERISATION

Question: Which factors do You consider as most important for competitive advantage

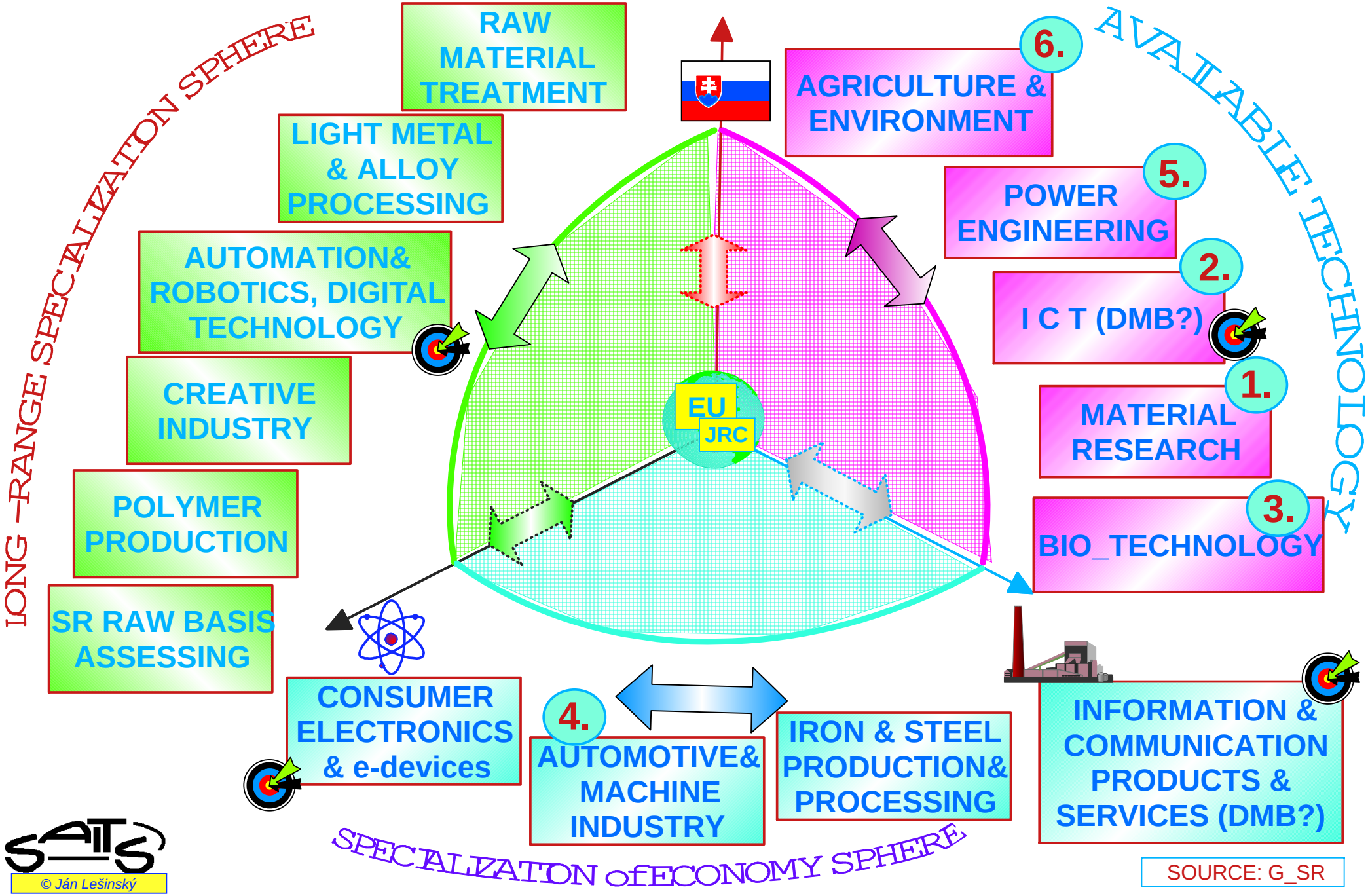


Sourcej: IBjournal, 2012

Notice: 1 700 OEM´s opinion

© Ján Lešinský

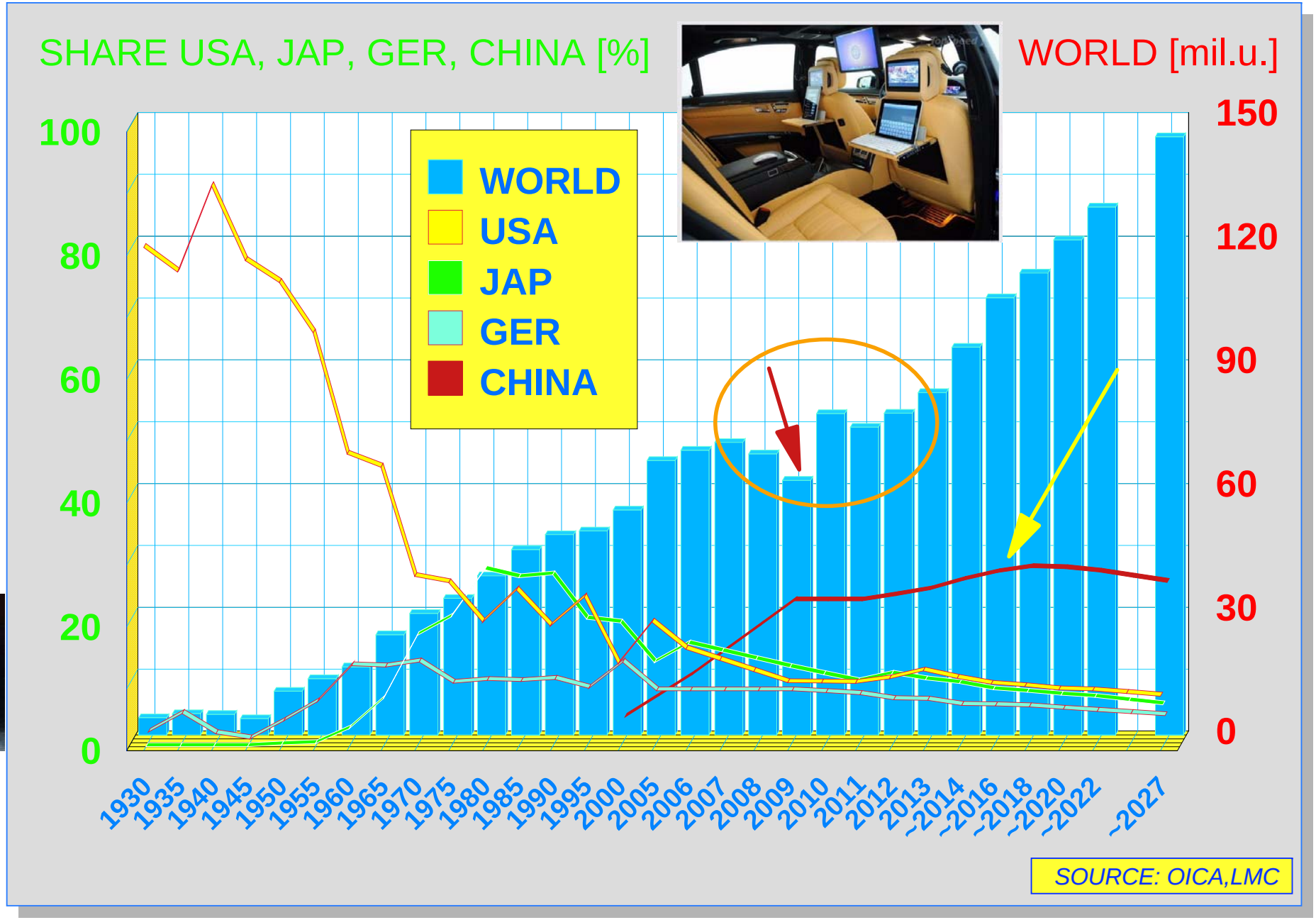
R&D AREA RELATIONSHIP & RIS3



SOURCE: G_SR

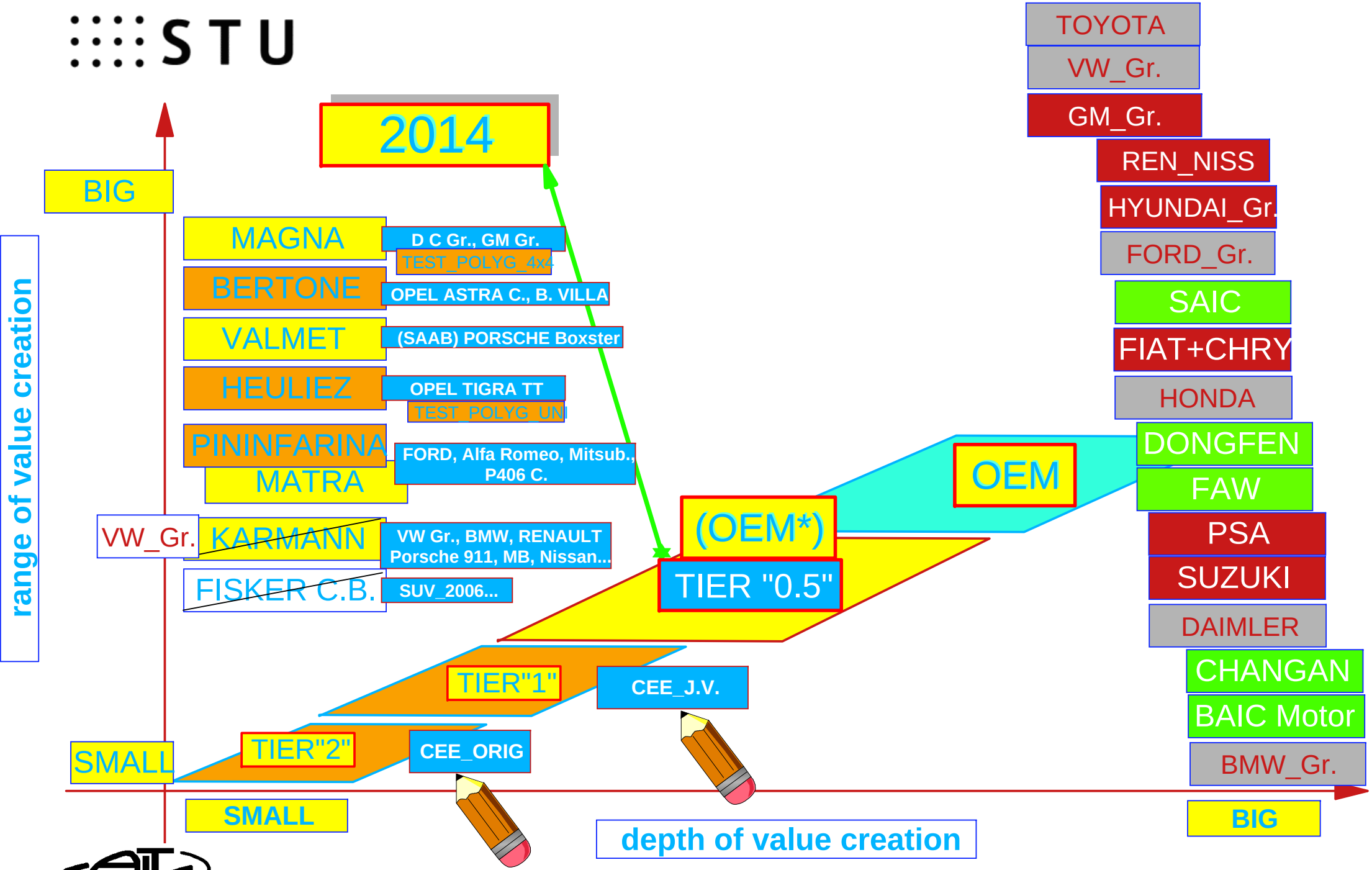
© Ján Lešinský

VEHICLES PRODUCTION NEW DIMENSION



© Ján Lešinský

STU



OEMs _ SUPPLIERs

SOURCE: DIFF.

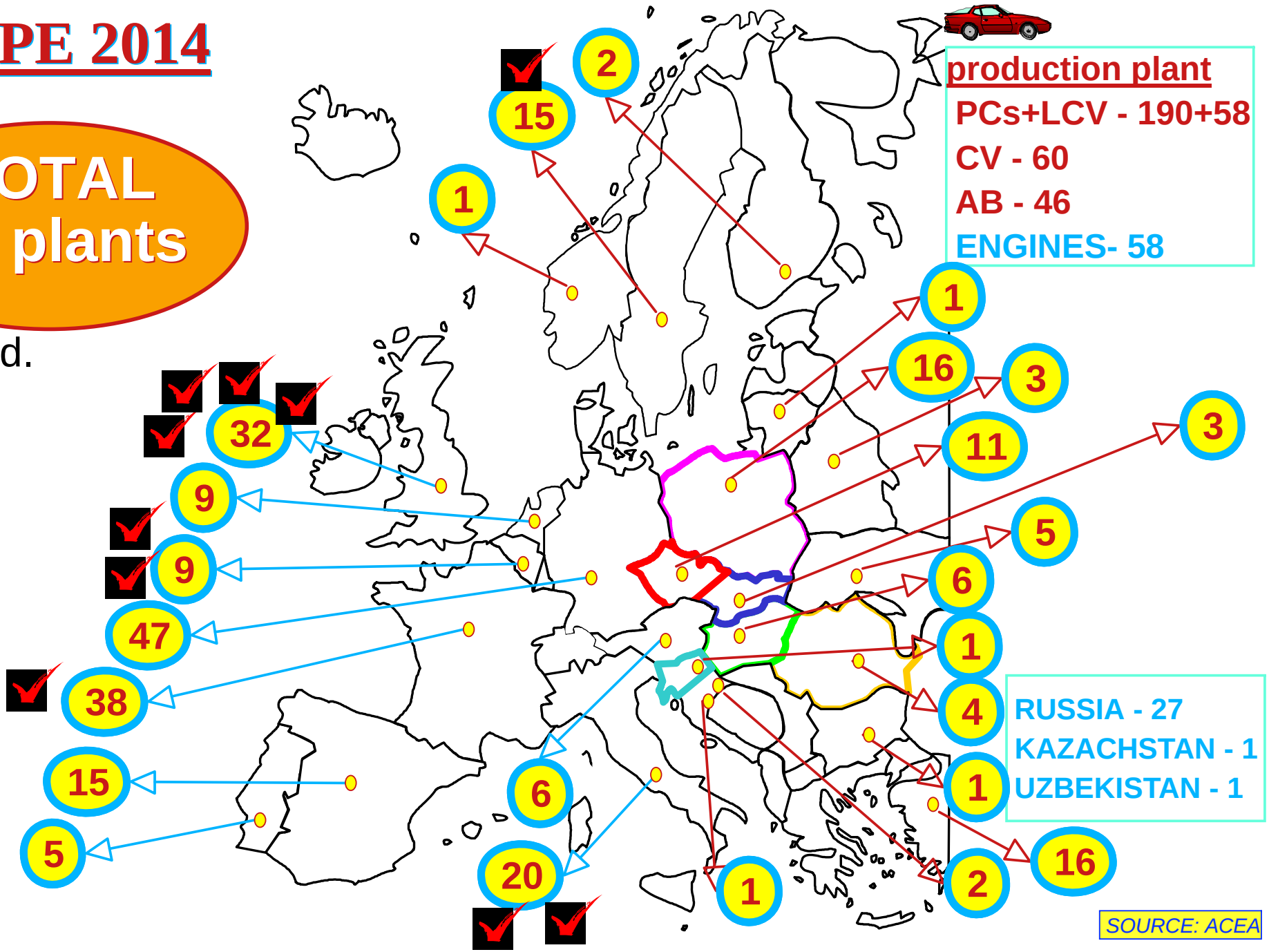
© Ján Lešinský

STU VEHICLES PRODUCTION PLANTS

EUROPE 2014

TOTAL 297 plants

✔ no prod.



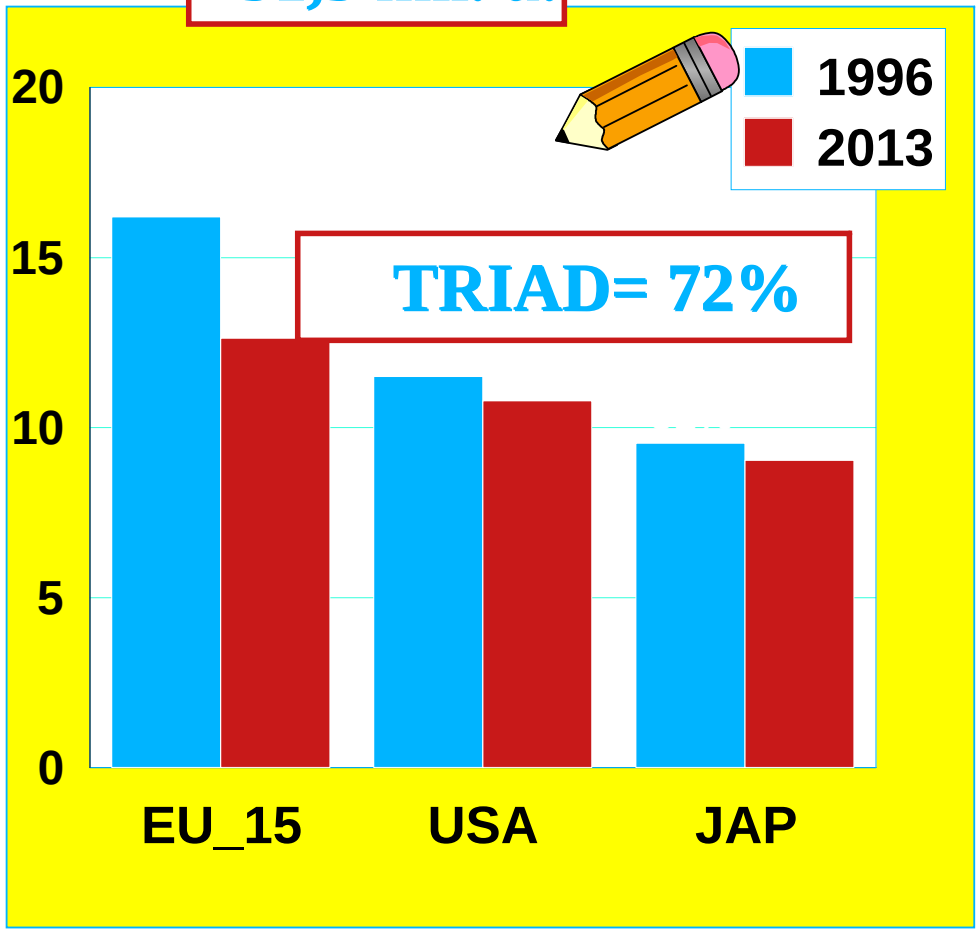
SOURCE: ACEA

© Ján Lešinský

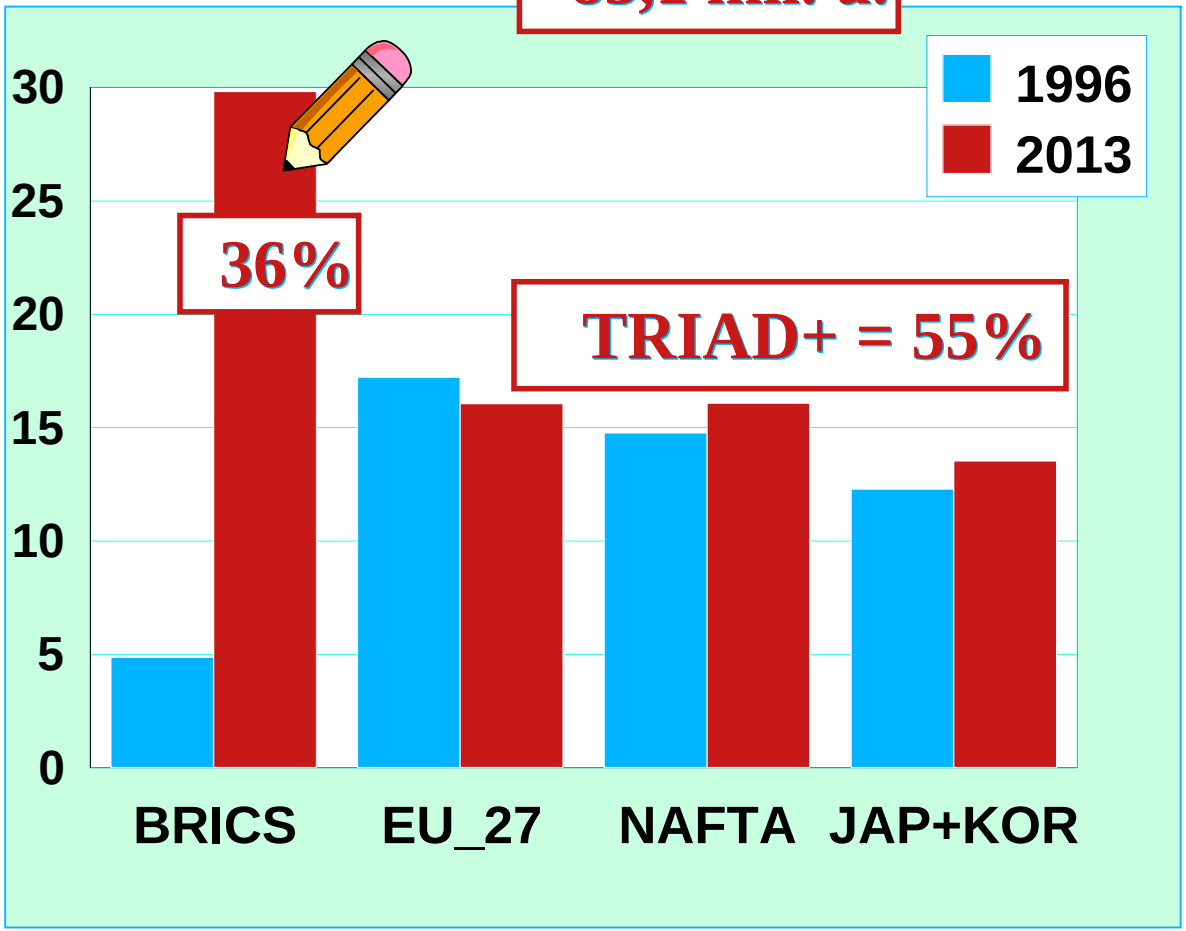
PRODUCTION of passenger cars& light comm. vehicles - TRIAD & BRIC [mil.u./year]

WORLD

51,5 mil. u.



83,1 mil. u.



TRIAD+ = NAFTA (USA, MEX, CND)

SOURCE: AR_2014

© Ján Lešinský

WHY SUPPLIERS ?

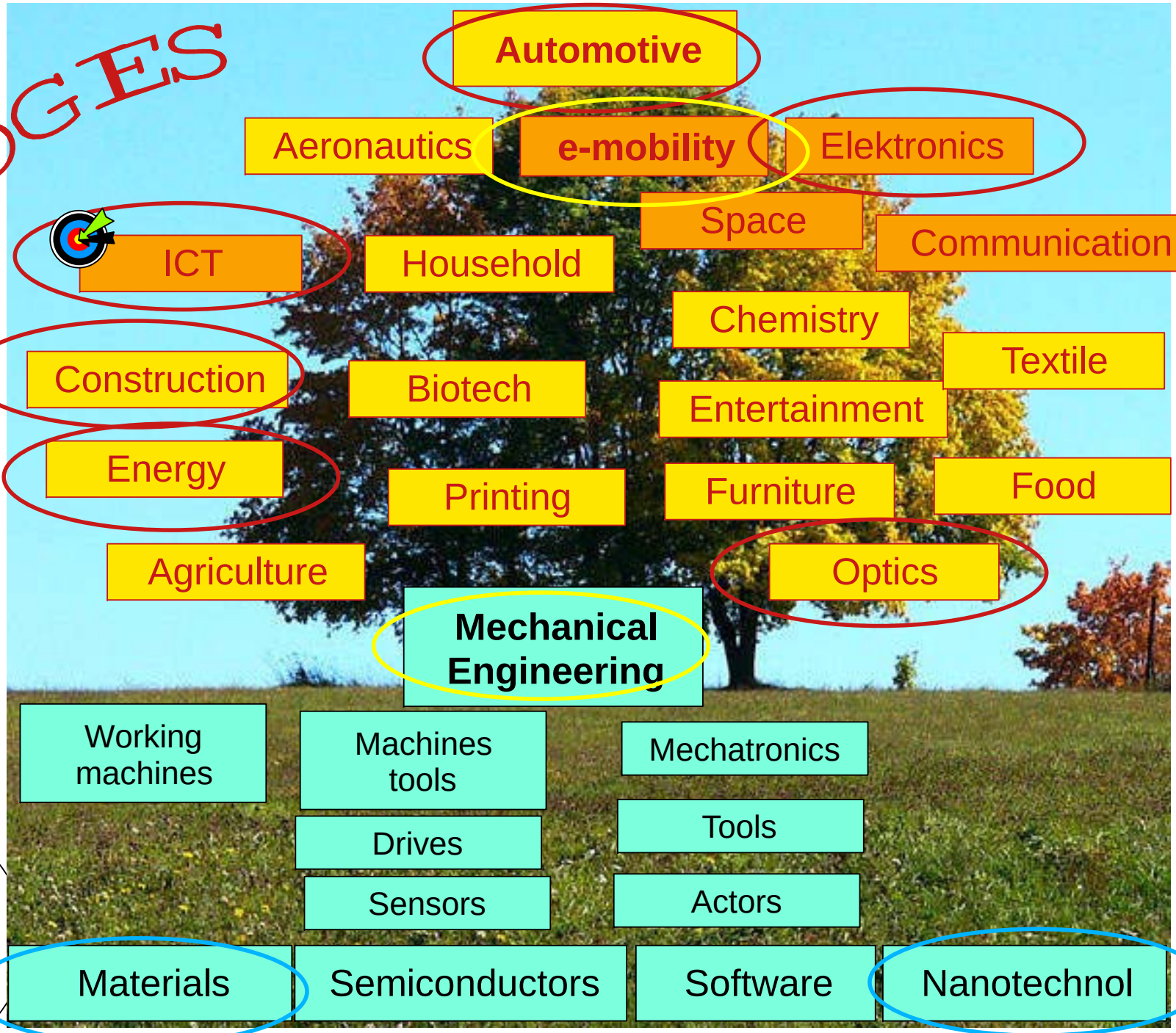
over 20 000 parts /car

SOURCE: VIAVISION, 2014

© Ján Lešinský

STU

KEY TECHNOLOGES

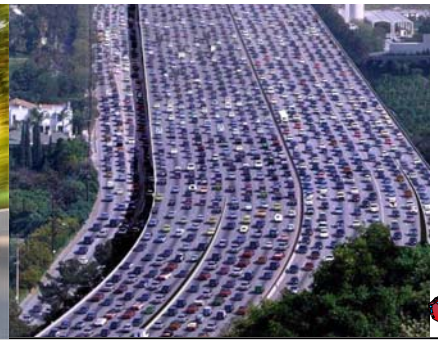


1.i.r.:1784-steam
2.i.r.:1870-el.-line prod.
3.i.r.:1970-eln.+IT
i.r. 4.0. - now-Cyber

SOURCE: RINCK, VDMA, 2014

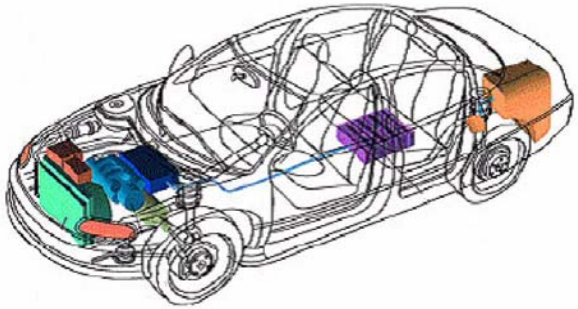
LEVELS of INTEGRATED SYSTEMS

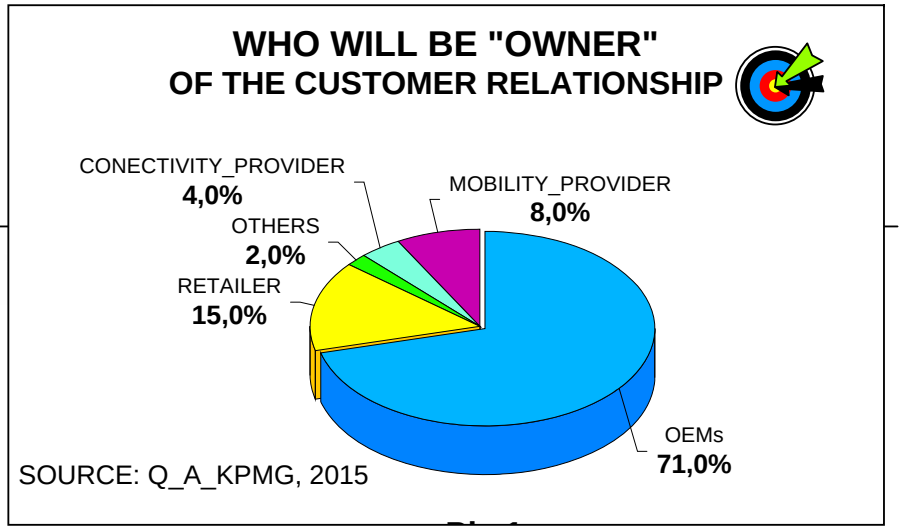
TRANSPORT



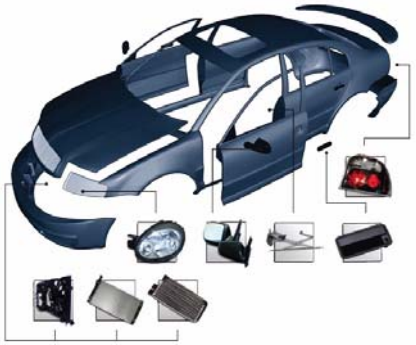
CYBER SAFETY

CAR

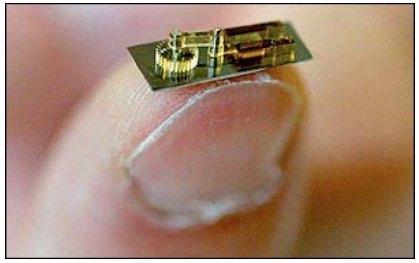




VEHICLE MODULS



POWER MODULS



INSP.: AVL 2014

ELECTRO (DIGITAL) AGENDA

E/E

50%

POWER PACKAGE ELECTRIFICATION

- accumulator, traction

INTERCONNECTION SOLUTIONS (CAR-CAR, CAR-x)

- car as part of internet, combination of safety, quality, active infotainment and **DMB**

ADVANCE ASSISTANCE SYSTEMS

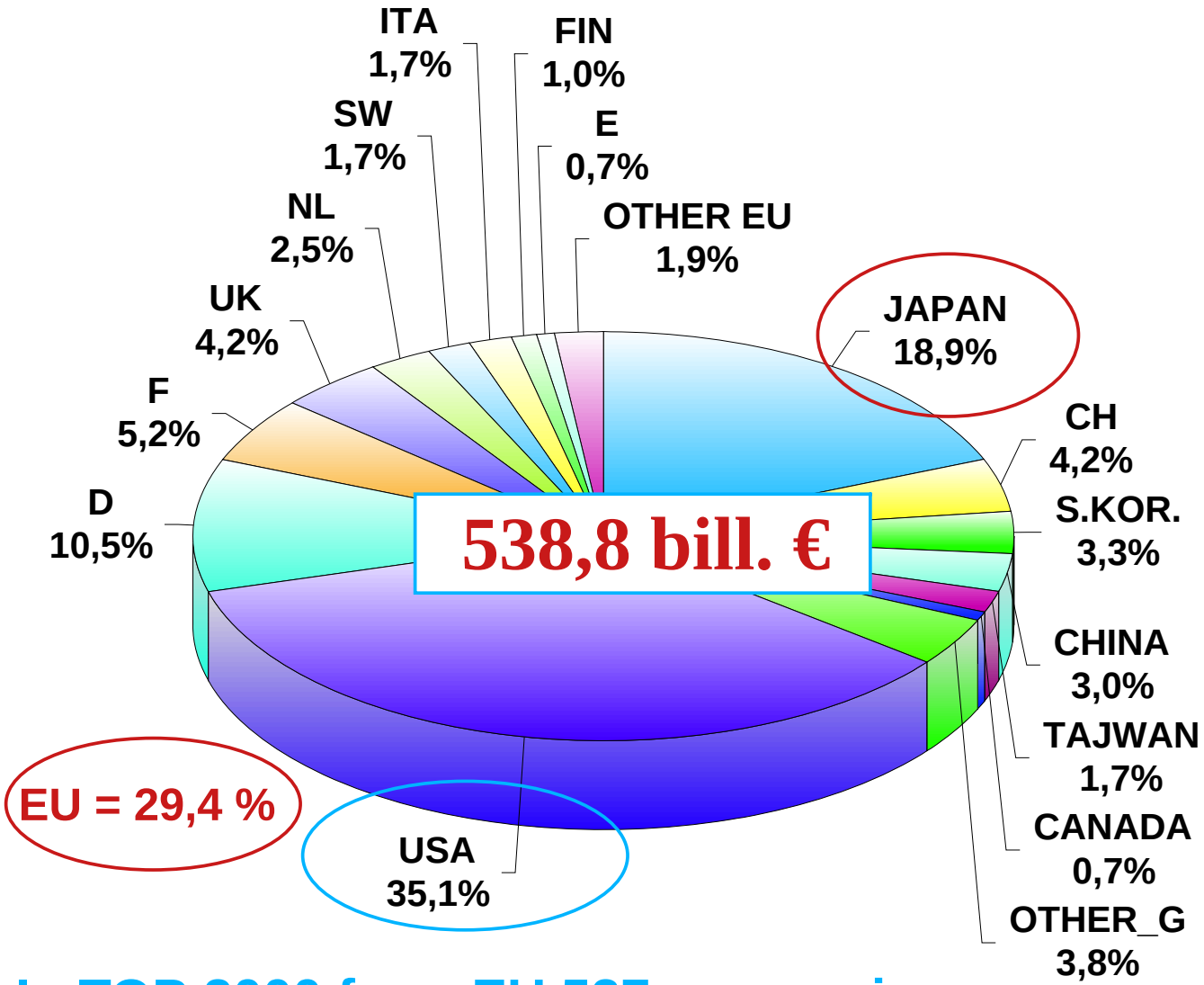
- conservation of "autonomy" between sensors, road maps, consolidated data, and **DMB**

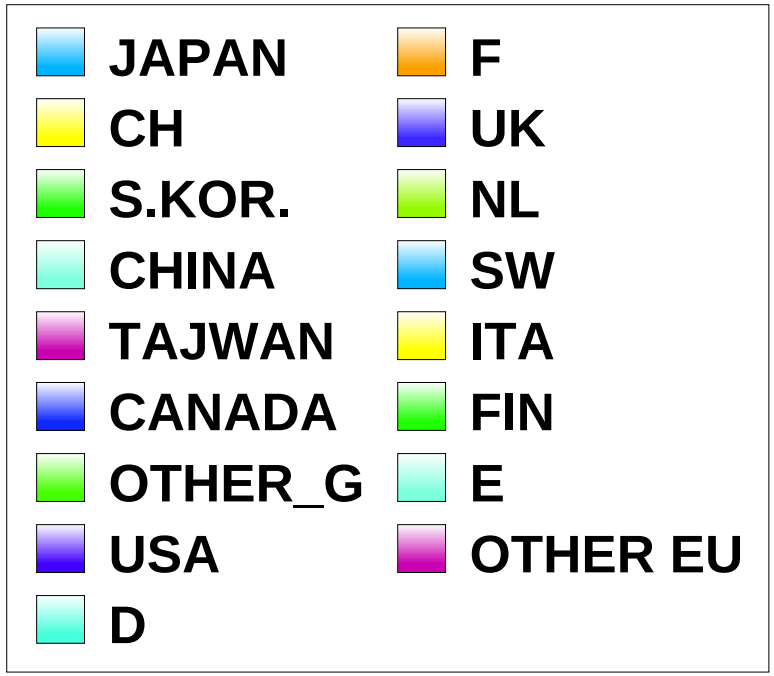
CYBER SAFETY

© Ján Lešinský

SOURCE: Dif.

R&D WORLD INVESTMENT_2012
TOP 2000 companies





In TOP 2000 from EU 527 companies

World: 1. VW 9,5 bill.

2. Samsung 8,3 bill.

TOP 50

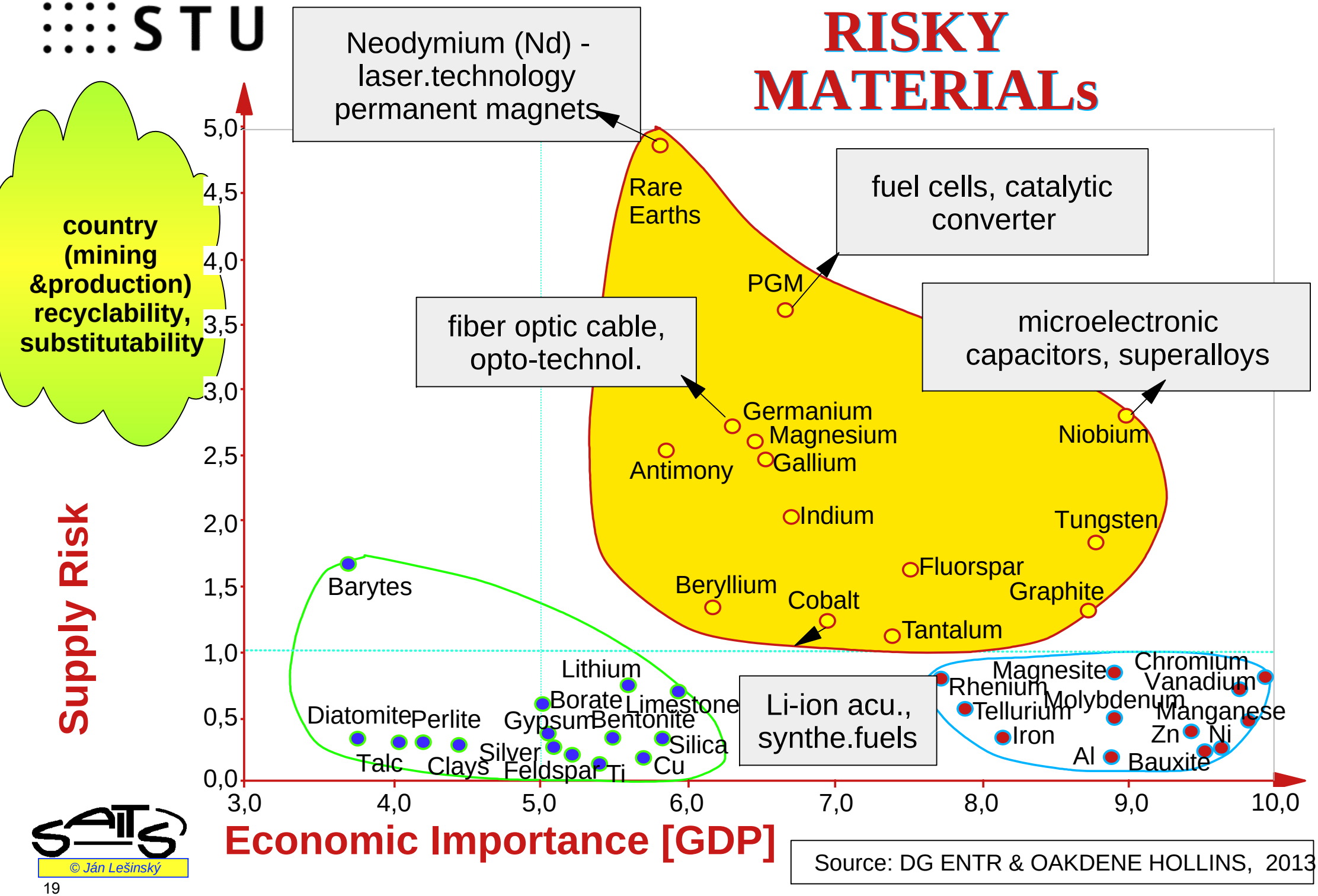
*auto - 12

* ICT - 14

* bio+farm - 15

Source: EU JRC 26 221 EN

RISKY MATERIALs



Source: DG ENTR & OAKDENE HOLLINS, 2013

© Ján Lešinský

ENDANGERED PRODUCTS

***Automotive engineering*, aerospace industry, traffic engineering**

1. Light-gauge steel with tailored blanks,
2. Electric traction motors for vehicles
3. Fuel cells electric vehicles
4. Super capacitors for motor vehicles
5. Scandium alloys for constructing lightweight airframes

Information and communication technology, optical technologies, micro technologies

1. Lead-free solders
2. RFID - Radio Frequency Identification
3. Indium-Tin-Oxide (ITO) in display technology
4. Infrared detectors in night vision equipment
5. White LED
6. Fiber optic cable
7. Microelectronic capacitors
8. High performance microchips

SOURCE: DG ENTR & OAKDENE HOLLINS, 2013

© Ján Lešinský

ENDANGERED PRODUCTS

Energy, electrical and drive engineering

1. Ultraefficient industrial electric motors
2. Thermoelectric generators
3. Dye-sensitized solar cells
4. Thin layer photovoltaics
5. Solarthermal power stations
6. Stationary fuel cells - SOFC
7. CCS - Carbon Capture and Storage
8. High performance lithium-ion batteries
9. Redox flow batteries for electricity storage
10. Vacuum insulation

Chemical, process, production and environmental technology, mechanical engineering

1. Synthetic fuels
2. Seawater desalination
3. Solid state lasers for industrial applications
4. Nano-silver

Medical engineering

1. Orthopaedic implants
2. Medical tomography

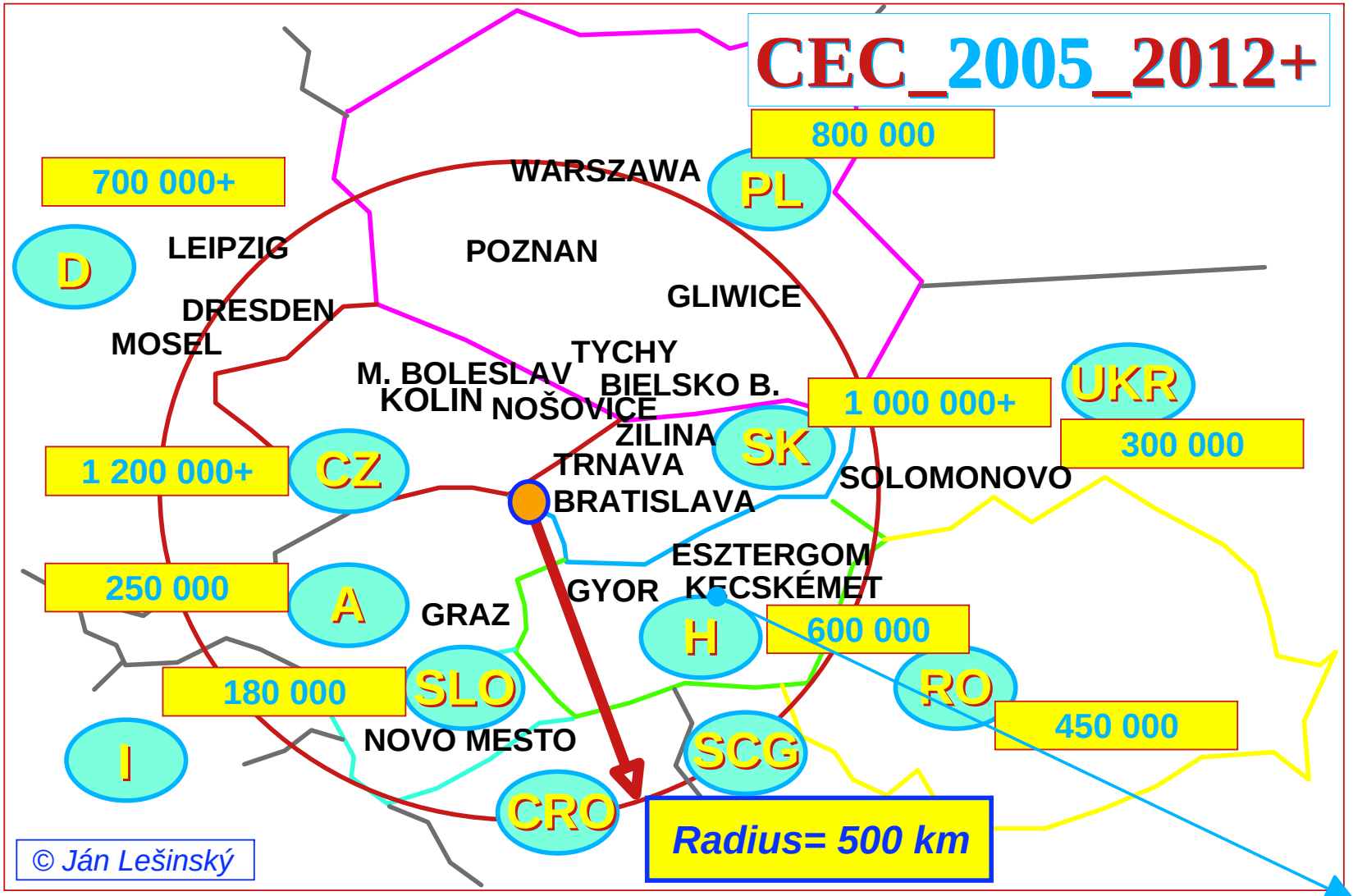
Materials technology

1. Superalloys
2. High-temperature superconductors
3. High performance permanent magnets

Source: DG ENTR & OAKDENE HOLLINS, 2013

AREA 1,9 --> 5,5 mil. PsCs / year

12 COUNTRIES - 20 POSTS



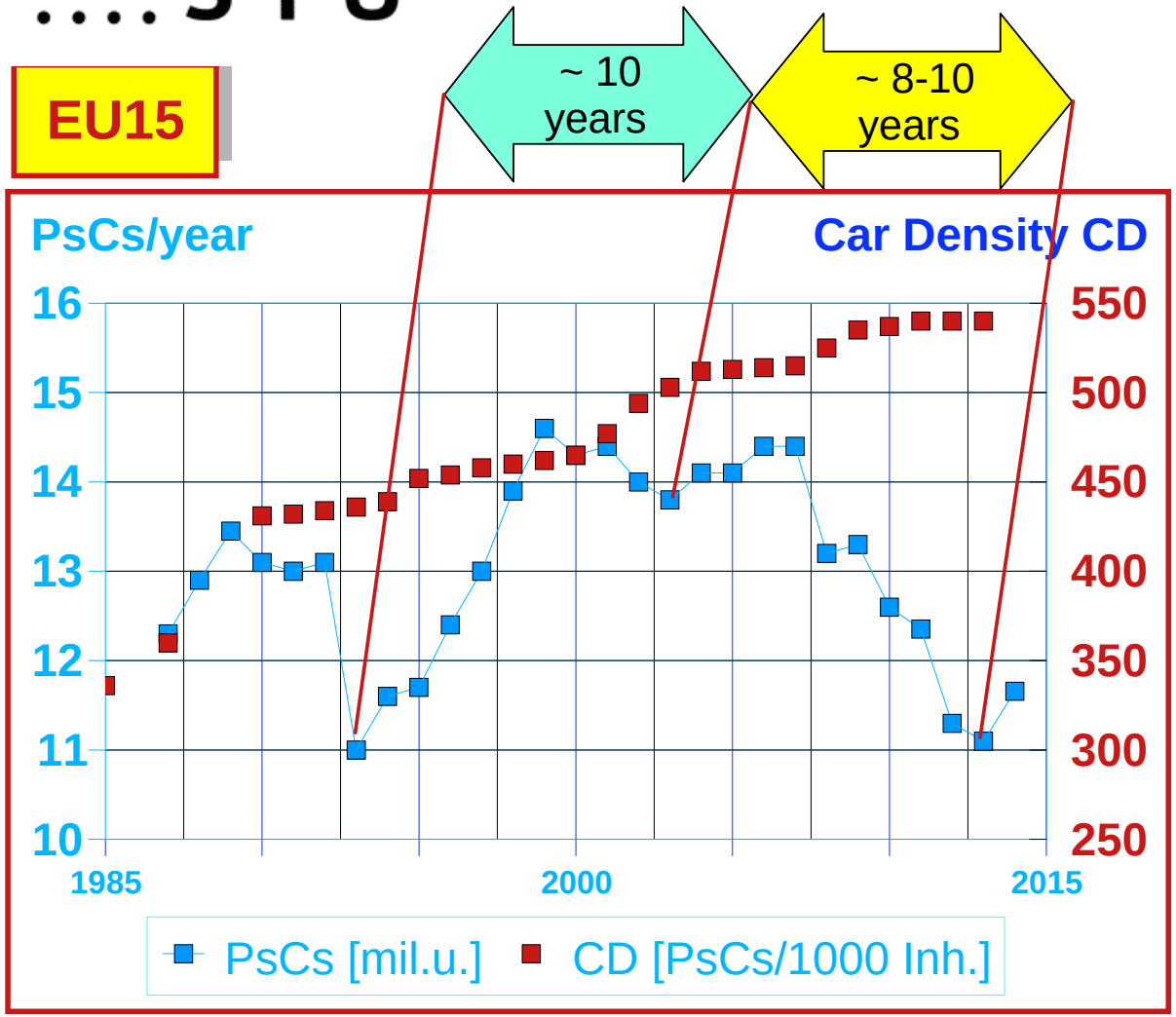
2012 MB - B class, +CLA,

~ 100 000 /year, 3 000 empl.

© Ján Lešinský

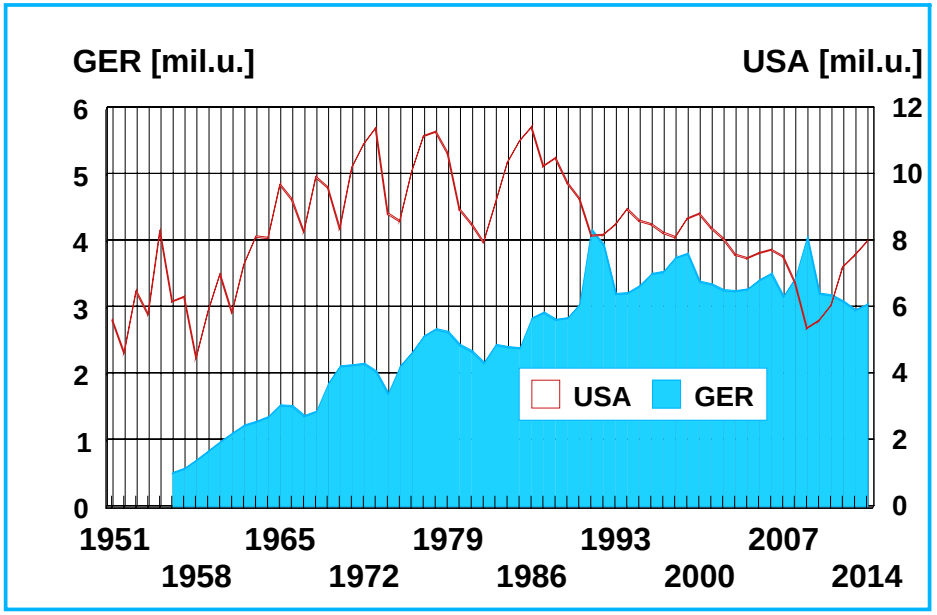
STU

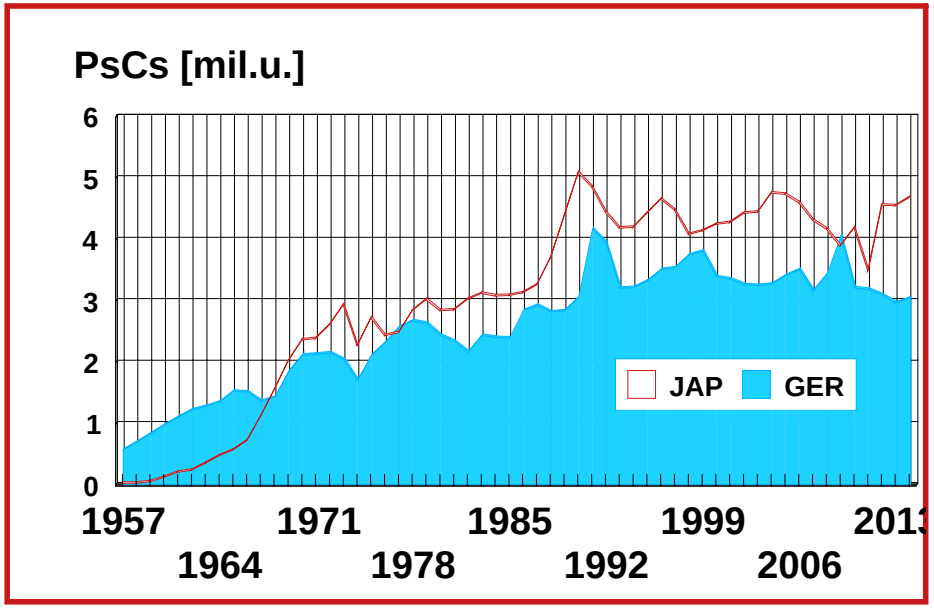
EU15



© Ján Lešinský

Source: Diff.

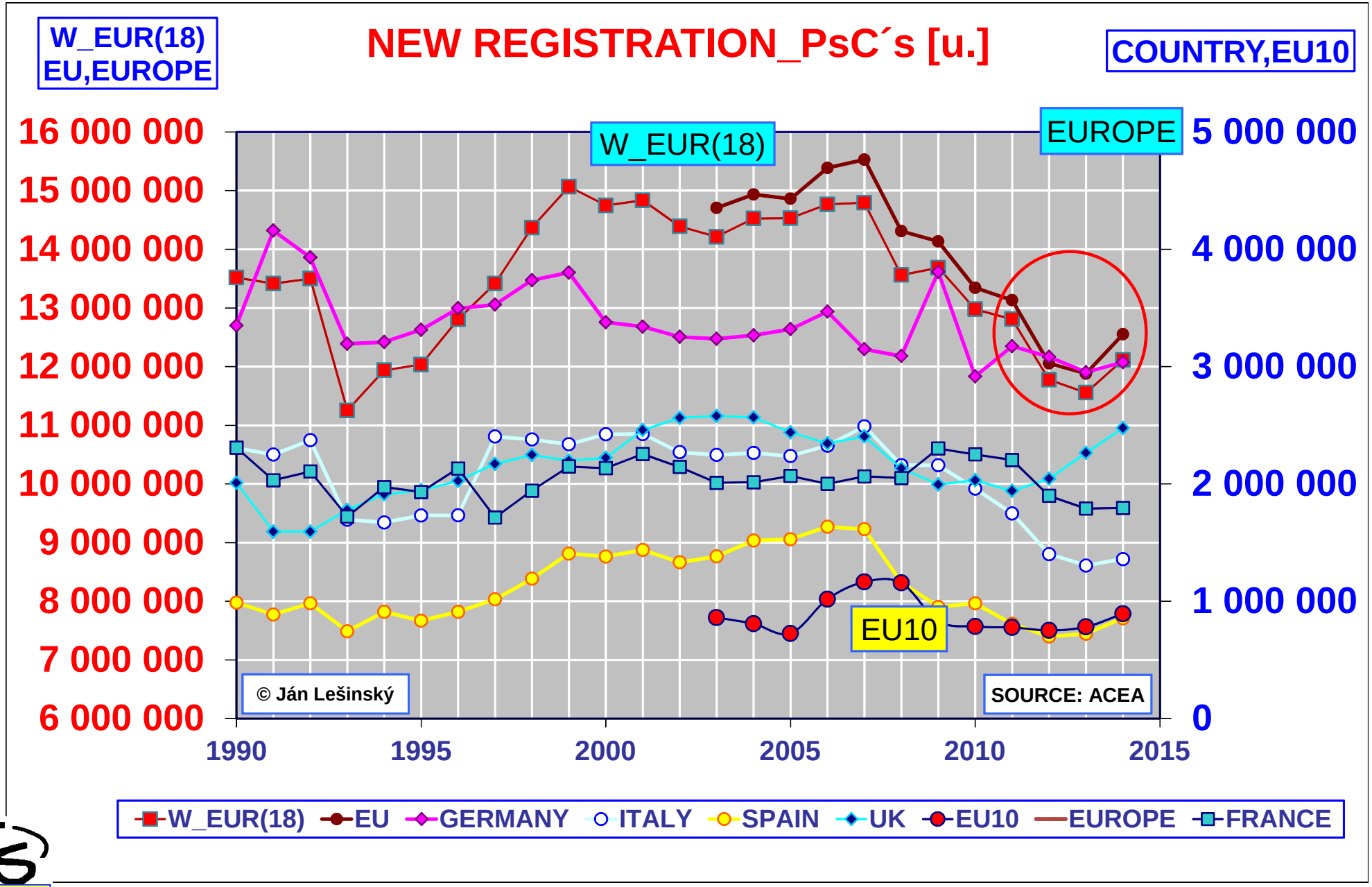




NEW CAR REGISTRATION CONTINENTS

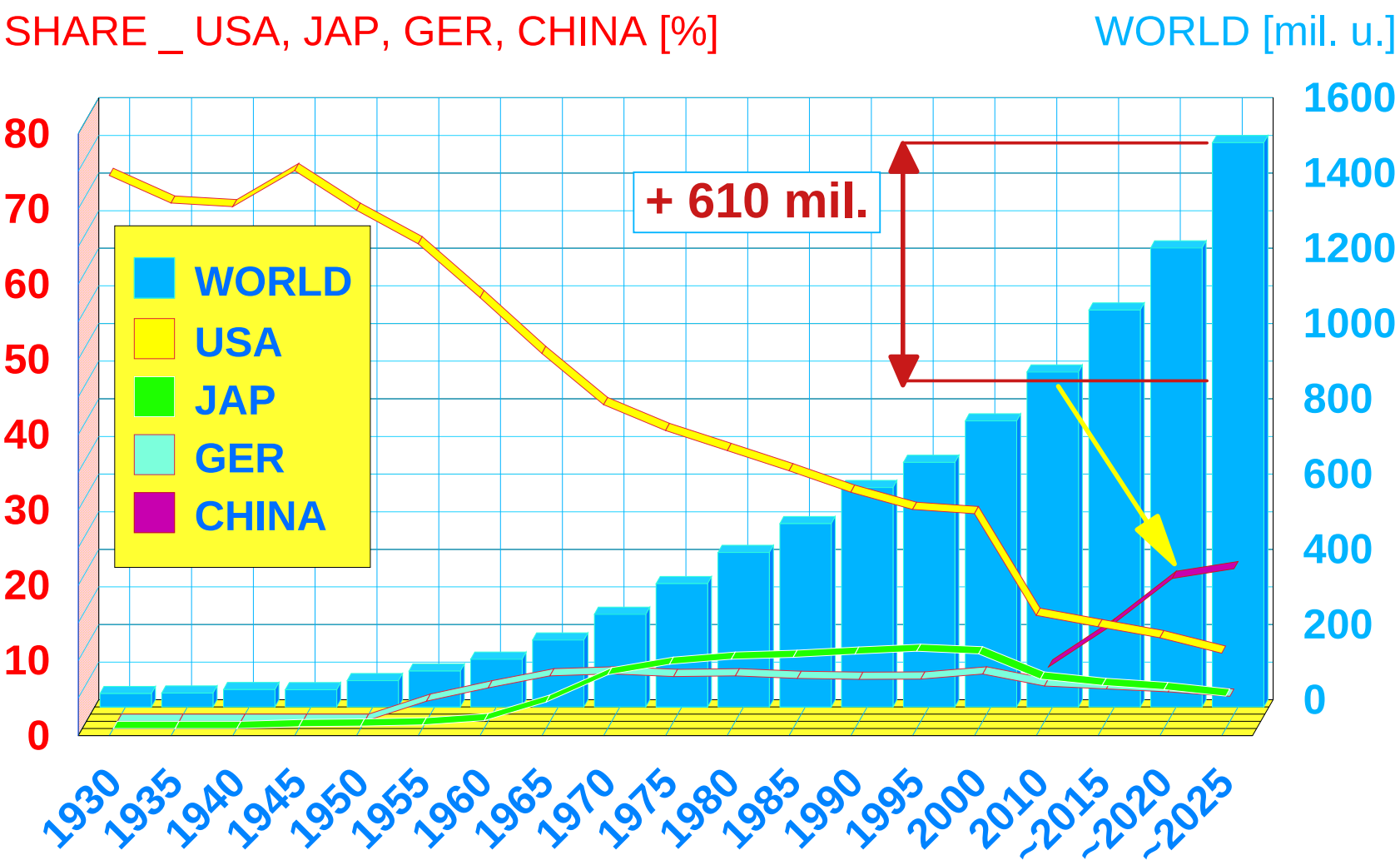
© Ján Lešinský

EU PsCs NEW REGISTRATION by COUNTRY



© Ján Lešinský

CAR FLEET_ WORLD



© Ján Lešinský

WE NEED IT !!!

TALENTS

TECHNOLOGY (NEW)

TIME - (WE DON´T HAVE)

TOLERANCE (..BOOST CONFIDENCE)

TUTORS (... SENIOR - JUNIOR)

© Ján Lešinský

STU

INFORMATION CLOUD

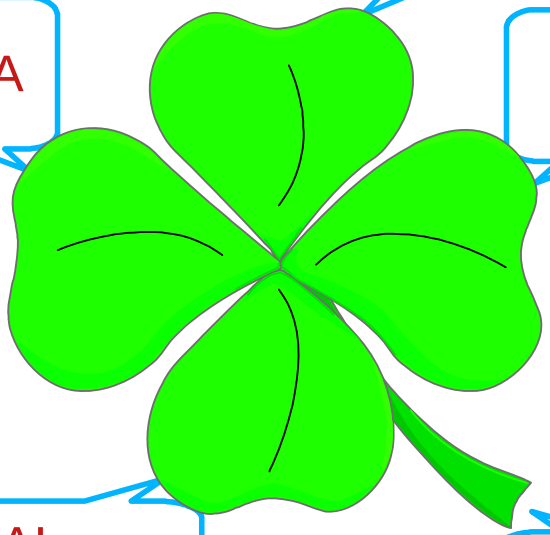
e-car
TALENT
HYDROGEN

DIGITAL AUDIO BROADCASTING TO INCLUDE

ICT

ACADEMIA

PRACTICE



INTERACTIVITY
PERSONALISATION
USERS EXPERIENCE

SOCIAL ATMOSPHERE

NEW GENERATION

INFRASTRUCTURE CREATION

jan.lesinsky@stuba.sk
president@saits.bts.sk

 © Ján Lešinský