

VOLVO CARS ADDRESSING GRAND CHALLENGES



HÅKAN SAMUELSSON
CEO, VOLVO CAR GROUP



MADE BY GOTHENBURG



Historically



- City of commerce
- City of industry
- Open & international

Today



- Big supplier network
- Extensive university collaboration
- Volvo global R&D: 5000 engineers

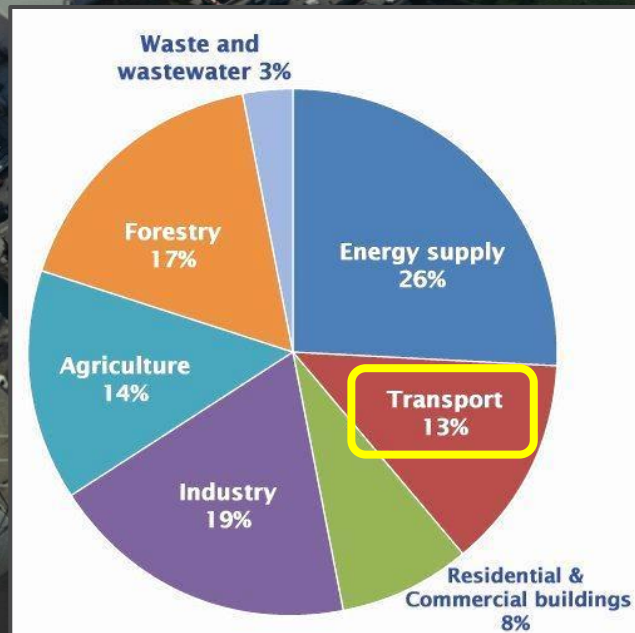
GLOBAL CHALLENGES



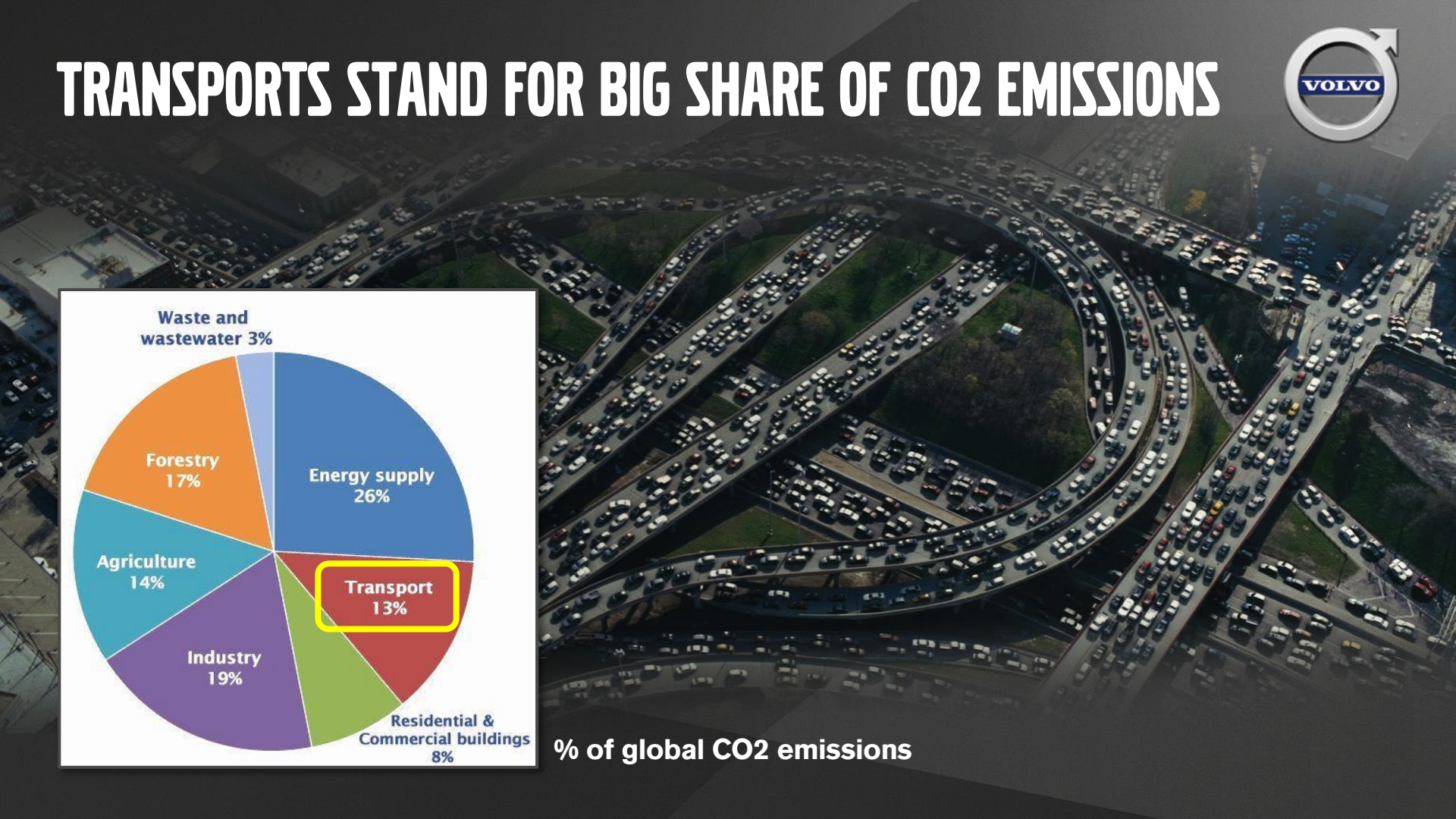
- Urbanisation / Growing mega cities
- Growing car population / Congestion
- Climate change / CO₂ emissions
- Air quality; a major health problem
- Traffic accidents; a global health issue
- Expectations of constant connectivity



TRANSPORTS STAND FOR BIG SHARE OF CO2 EMISSIONS



% of global CO2 emissions



AIR QUALITY

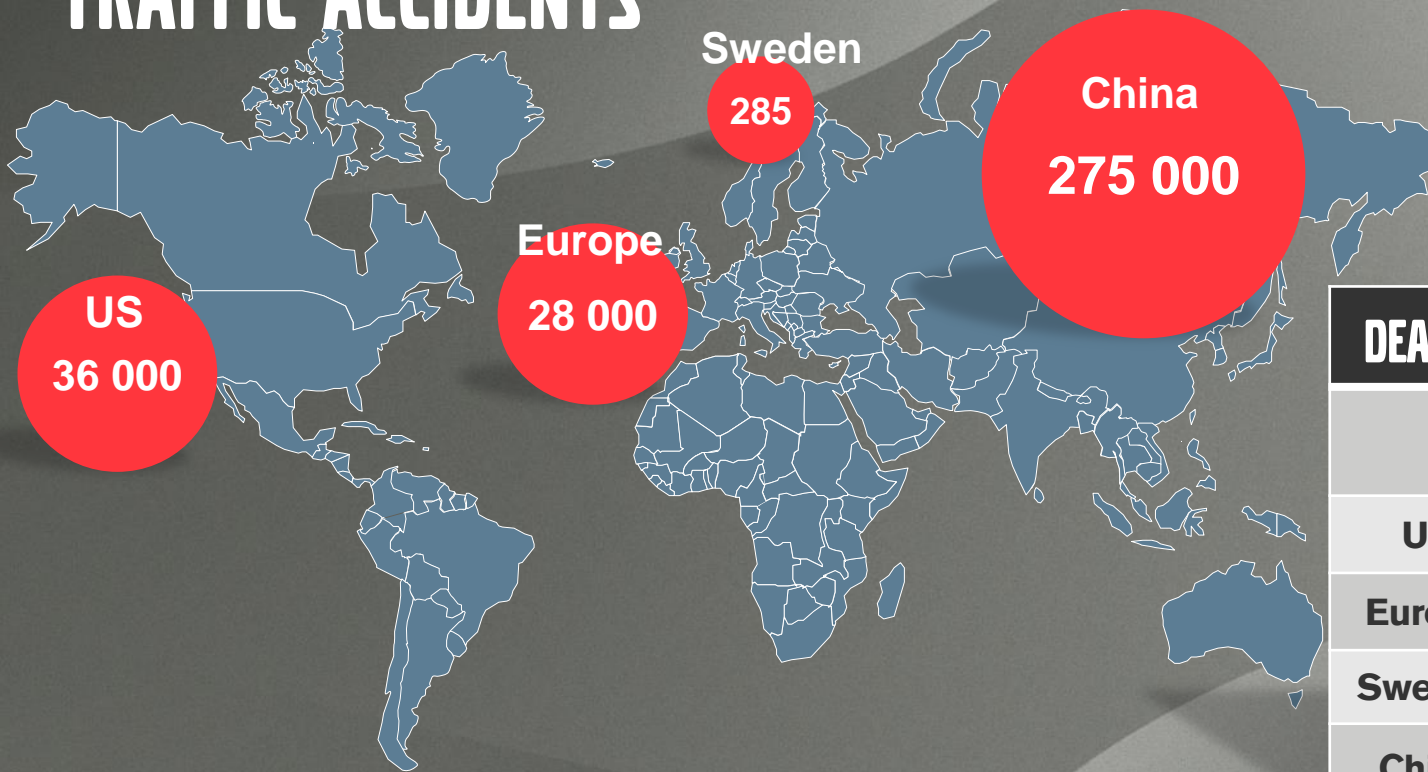


- A global issue: Primarily China – but also US and Europe
- 20 of the 30 world most polluted cities are in China
- Hazardous particles (PM-2.5), yearly average in:
 - Beijing: 106 ppm** (900 in January 2013)
 - Swedish cities: 15 ppm***





TRAFFIC ACCIDENTS



| DEATH RATES PER 100 000 | | |
|-------------------------|--------|----------------|
| | capita | motor vehicles |
| US | 12 | 14 |
| Europe | 10 | 11 |
| Sweden | 3 | 5 |
| China | 20 | 133 |

- Over 1.2 million die in road accidents every year
- An additional 20 - 50 million are injured

(Source: WHO, 2013)



FUTURE CUSTOMERS

- Used to being constantly connected

- Many of today's teenagers think that constant connectivity is more important than having a car.
- Connectivity and Autonomous driving is the key to attract next generation car buyers.



WHAT DOES
THIS MEAN
FOR VOLVO

?



DRIVE-E RESPONSIBLE POWERTRAINS



T8 TWIN ENGINE

400 hp

0,27 l/mil

60gr CO₂



2020 SAFETY VISION:

No one should be killed or seriously injured in a new Volvo

Active Safety

+

Passive Safety



DRIVE ME – AUTONOMOUS DRIVE PILOT



- Active safety and future mobility goes hand in hand

- > World-first project on public roads
- > 100 self-driving Volvo cars in real traffic
- > 500 million SEK investment
- > Co-operation with Swedish authorities
- > Project start 2013, real traffic test in 2017

Drive Me

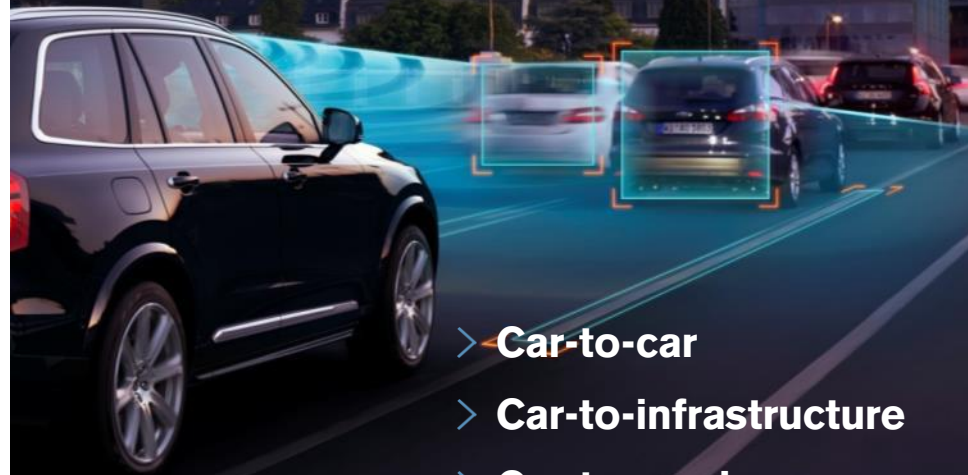
SELF-DRIVING CARS FOR
SUSTAINABLE MOBILITY

INTUITIVE INNOVATIONS AND

Integrated:

- Apple CarPlay
- Android Auto
- Pandora Internet Radio (world first)
- Storytel Audiobook service (world first)
- Parking ticket service (world first)

CONNECTIVITY



- > **Car-to-car**
- > **Car-to-infrastructure**
- > **Car-to-service**

**HOW CAN VOLVO AND
ACADEMIA WORK
TOGETHER**

?



SECURING MUTUAL DEVELOPMENT OF COMPETENCE AND KNOW-HOW THROUGH COOPERATION



Examples of Chalmers cooperation:

- > **Strategic Partnership** with executive meetings twice per year
- > Establishing reasearch infrastructure (**AstaZero**)
- > Discussions ongoing for Chalmers participation in the **Drive Me** project
- > Volvo Cars one of several industry partners in the **Graphene** project

VOLVO NEEDS FROM ACADEMIC COLLABORATION



- Research projects
- Understanding markets, cultures and customers through relations
- Identifying future employees

Competence areas:

- Light weight material
- Software development
- Electronics
- HMI; Human-Machine Interface



WE NEED TO DO OUR PART

- Be an attractive partner in research projects
- Have an Extensive PhD program
- Be an attractive employer for future talents



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THE WORLD'S MOST ATTRACTIVE EMPLOYERS 2013

We asked 200,000 students from around the world to nominate their ideal employers. Here are the top choices.



| BUSINESS RANKING | ENGINEERING RANKING |
|------------------|-----------------------|
| 1 | BAYER 38 |
| 2 | BASF 39 |
| 3 | NOKIA 40 |
| 4 | BCG 41 |
| 5 | PHILIPS 42 |
| 6 | PEPSICO 43 |
| 7 | Deloitte. 44 |
| 8 | Schneider Electric 45 |
| 9 | adidas 46 |
| 10 | BOMBARDIER 47 |
| 11 | FY 48 |
| 12 | VOXARO 49 |
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