

Vision Zero and distraction

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Swedish Road Administration

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Total 2004

		%
1	Ischaemic heart disease	12.2
2	Cerebrovascular disease	9.7
3	Lower respiratory infections	7.0
4	Chronic obstructive pulmonary disease	5.1
5	Diarrhoeal diseases	3.6
6	HIV/AIDS	3.5
7	Tuberculosis	2.5
8	Trachea, bronchus, lung cancers	2.3
9	Road traffic accidents	2.2
10	Prematurity and low birth weight	2.0
11	Neonatal infections and other	1.9
12	Diabetes mellitus	1.9
13	Malaria	1.7
14	Hypertensive heart disease	1.7
15	Birth asphyxia and birth trauma	1.5
16	Self-inflicted injuries	1.4
17	Stomach cancer	1.4
18	Cirrhosis of the liver	1.3
19	Nephritis and nephrosis	1.3
20	Colon and rectum cancers	1.1



Total 2030

		%
1	Ischaemic heart disease	14.2
2	Cerebrovascular disease	12.1
3	Chronic obstructive pulmonary disease	8.6
4	Lower respiratory infections	3.8
5	Road traffic accidents	3.6
6	Trachea, bronchus, lung cancers	3.4
7	Diabetes mellitus	3.3
8	Hypertensive heart disease	2.1
9	Stomach cancer	1.9
10	HIV/AIDS	1.8
11	Nephritis and nephrosis	1.6
12	Self-inflicted injuries	1.5
13	Liver cancer	1.4
14	Colon and rectum cancer	1.4
15	Oesophagus cancer	1.3
16	Violence	1.2
17	Alzheimer and other dementias	1.2
18	Cirrhosis of the liver	1.2
19	Breast cancer	1.1
20	Tuberculosis	1.0

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Traffic safety in Sweden

Swedish Road Administration has the sectoral responsibility for traffic safety

Current traffic safety performance is 4,3 deaths per 100000 population (US at 10-15)

Swedish long term vision is zero deaths and serious injuries in the road transport system

Swedish policy based on system's approach, innovation and multi-stakeholder contribution

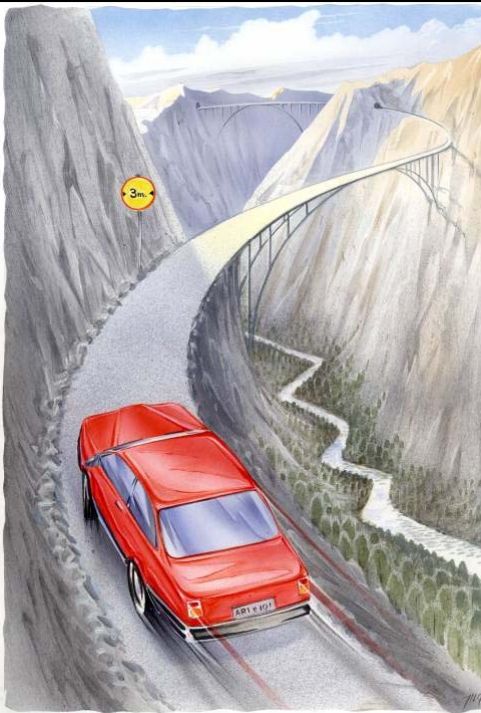
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The road transport system is an open and complex system

- Infrastructure
- Vehicles
- Road users
- Transports of goods and passengers
- Road users on duty
- Companies and organisations
-
- Rules and regulations
- Enforcement
- Etc.

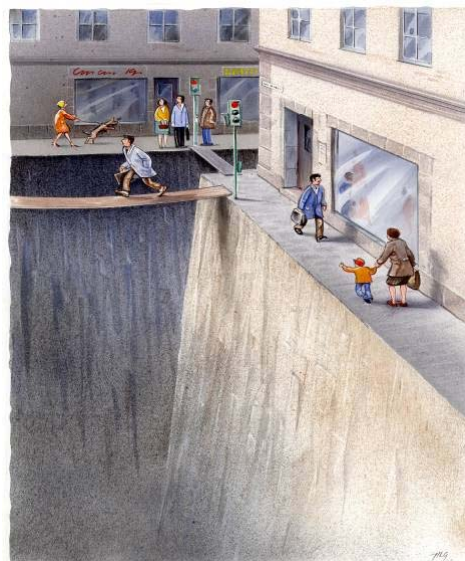


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Vision Zero forms a basis

Vision Zero not only Zero fatalities

Vision Zero, 5 dimensions

1. vision for many stakeholders
2. ethical platform (right to survive)
3. shared responsibility
4. safety philosophy (failing human)
5. driving forces for change



THE TYLÖSAND DECLARATION

Articles

1. Everyone has the right to use roads and streets without threats to life or health
2. Everyone has the right to safe and sustainable mobility: safety and sustainability in road transport should complement each other
3. Everyone has the right to use the road transport system without unintentionally imposing any threats to life or health on others

THE TYLÖSAND DECLARATION

Articles

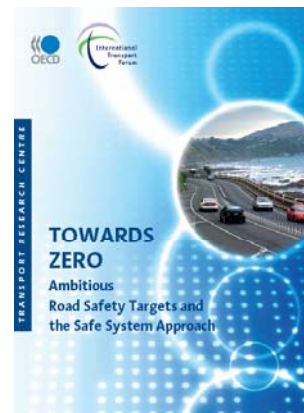
4. Everyone has the right to information about safety problems and the level of safety of any component, product, action or service within the road transport system
5. Everyone has the right to expect systematic and continuous improvement in safety: any stakeholder within the road transport system has the obligation to undertake corrective actions following the detection of any safety hazard that can be reduced or removed.

**Changing
Lanes**
ROAD SAFETY SUMMIT
SEPTEMBER 3-5 2007



Report published September 2008

- Working Group 2005 – 2008
- 21 governments, World Bank, WHO, FIA Foundation
- Greece Prof. Kanellaides



Safe System Targets

- Vision – zero deaths
 - Only ethical approach
 - Stimulates new measures and research
 - Raises level of ambition
 - Possible to achieve
 - First killed child in Sweden this year 22nd of October
- Interim Targets – based on
 - Policies adopted
 - Modelled results of measures to be taken
 - Such evidence-based targets are needed to make ECMT / EU 50% improvement happen

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Recommendations

1. Adopt an ambitious vision
2. Set interim targets
3. Develop a safe system approach
4. Exploit proven interventions
5. Analyse data to understand crash risks and safety performance
6. Improve safety management with a results focus
7. Accelerate knowledge transfer
8. Invest in road safety
9. Foster commitment at top political levels

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Challenges

- Close to known management systems
- Integrate traffic safety knowledge with management systems principles
- Get agreement within 48 months (40 months from now)


Road traffic safety (RTS) management systems — Requirements with guidance for use

Warning

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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Our vision is that by 2020
no one will be killed or injured in a Volvo

Vision 2020



SAFETY

Currently, 1.2 million individuals die in traffic accidents annually. Volvo Cars has a vision of no serious injuries or deaths in or by a Volvo car by the year 2020, in line with a long tradition focusing on safety. Safety efforts are based on behavioral science research and knowledge from actual traffic situations, which has paved the way for new, successful innovations. The path towards Volvo Cars' vision 2020 consists of two parts: its own development of safety efforts and partnerships with other key players in society.

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VOLVO CAR CORPORATION – CORPORATE REPORT 2008/09

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Vision Zero forms a basis

Vision Zero not only Zero fatalities

Vision Zero, 5 dimensions

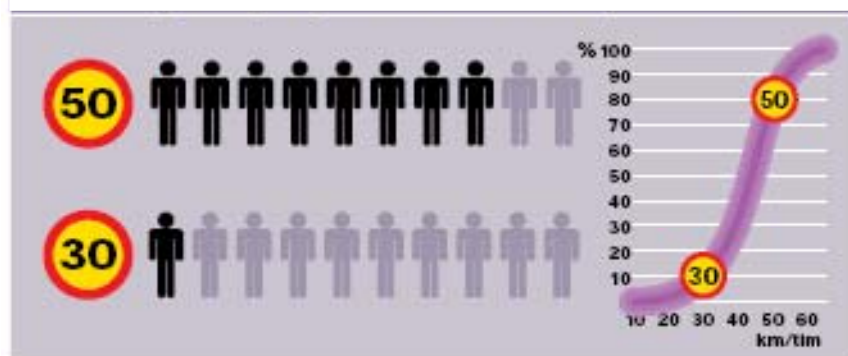
- vision for many stakeholders
- ethical platform (right to survive)
- shared responsibility
- **safety philosophy**
(failing human)
- driving forces for change



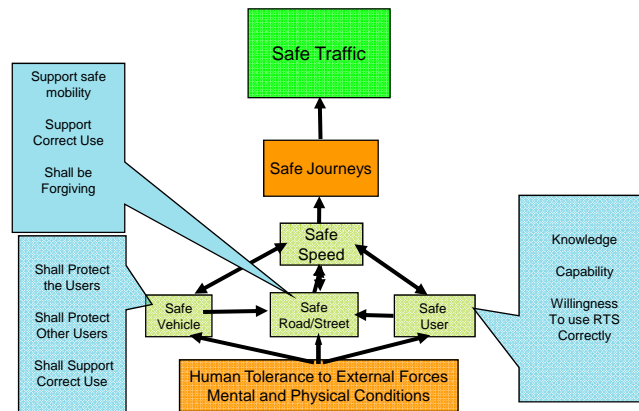
Kinetic energy is the problem

- But – people are blind to kinetic energy!
- People are not perfect, mistakes, misjudgements and misinterpretations must be absorbed
- That's why you can't put all responsibility on the road user

The human as pedestrian road user



Model for safe traffic



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Safe conditions (km/h)

70



Front to front

30



Unprotected Road Users

50



Side to front

Modern cars, belted users
Rapidly developing

30

50



50

70

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Where does distraction come in?

- Should distraction be seen as an externality to the design or integrated in the design?

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Controlling on-coming traffic



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The safety properties of cars and roads are key factors for dealing with the problem

- Alternative design can reduce fatality risk with up to 2 or 3 factors of ten

Relative fatality risk/km/year

1

10

200

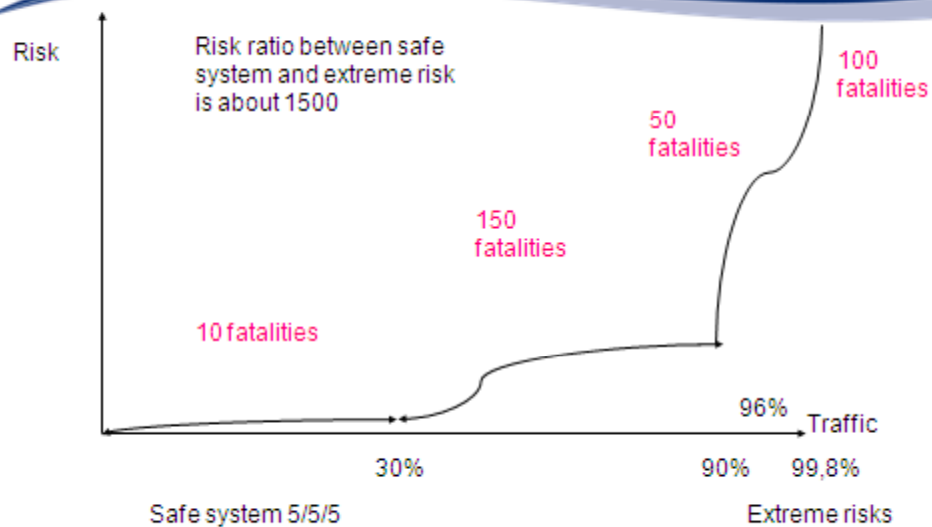


2+1 roads

- First built in 1998
- Built on existing 13m wide roads
- Now 2000 km
- Up to 90% reduction in fatalities
- Production cost 200-300 US\$/m
- Popular among road users



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Separation of road users



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Intersections to roundabouts



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Intersections to roundabouts



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Shared Traffic Space



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Traffic calming

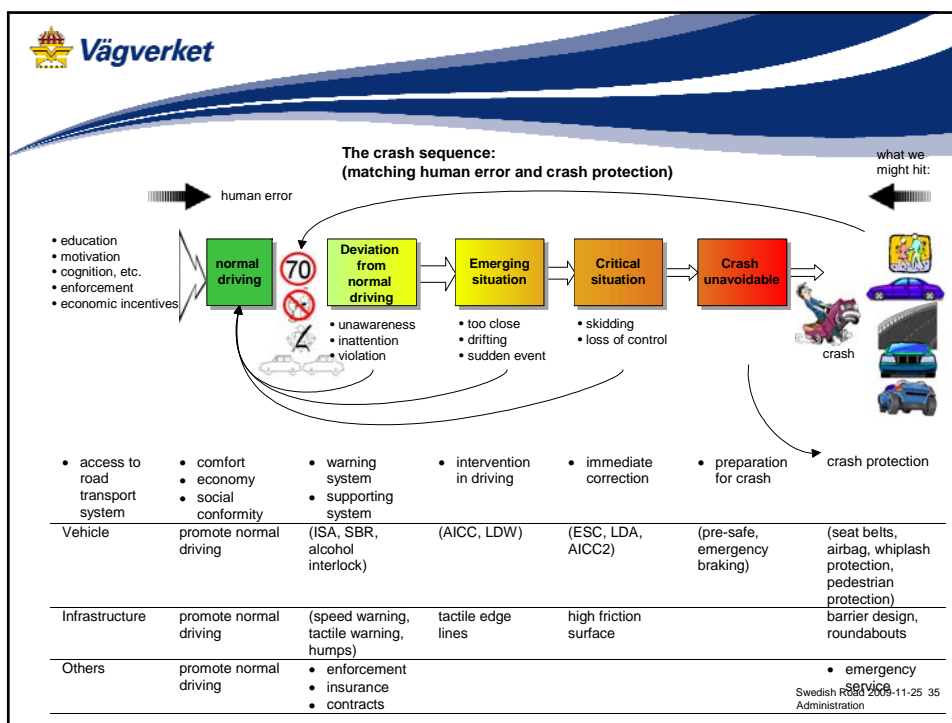


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Traffic calming



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Vägverket

Unsafe driver behaviour can be tackled through the whole integrated safety chain

- Through limited access to the vehicle
- Through support for normal driving
- Through warnings in risky driving
- Through correction in hazardous situations
- Through taking control in situations when driver is out of control

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Normal Driving

Support systems

- Seat belt reminders
- ISA/Speed Alert
- Alcolocks
- Impaired driving detection
- Etc.

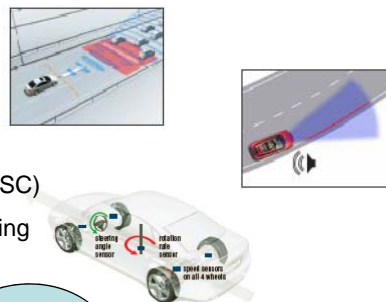


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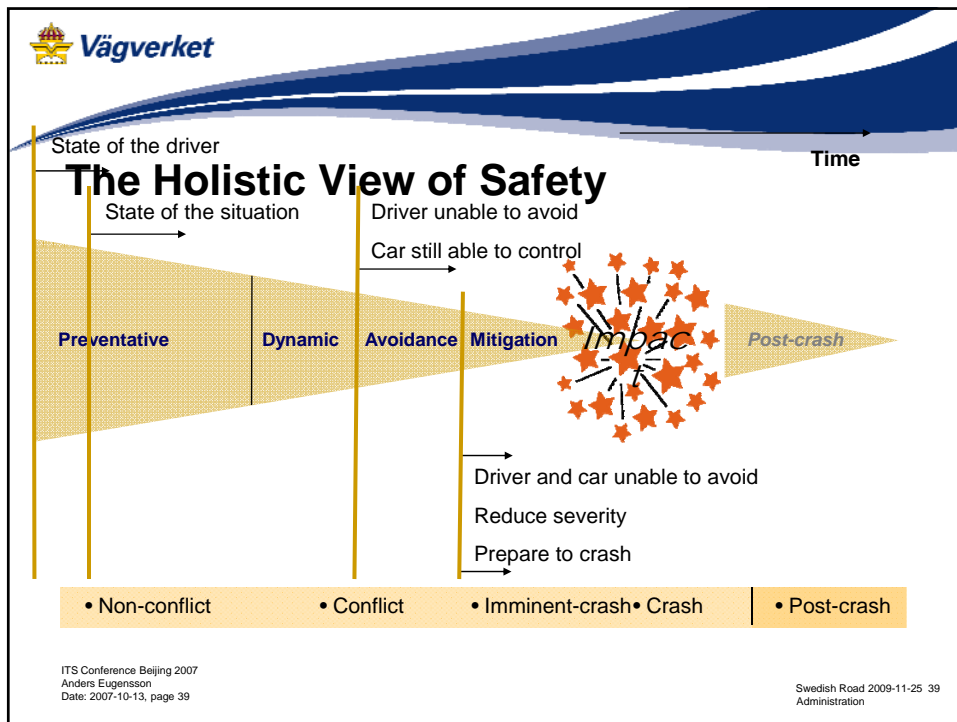
Dangerous Situation

Support systems

- Adaptive Cruise Control
- Lane departure warning
- Electronic stability control (ESC)
- Pre Impact Emergency Braking
- Etc.



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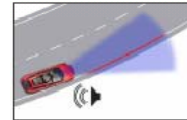
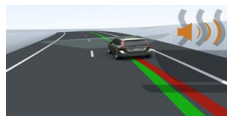
 **Vägverket**

Investments in new technology

- Supplier to Automotive industry invest more than 500 billion Euro/year
- Car manufacturers another 200 billion/year
- Research and development investments: 30 billion Euro/year for suppliers – 10-15 billion Euro/year for safety
- Suppliers want return of investment!

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Intelligent Speed Adaptation
Electronic Stability Control
Detection of impaired driving
Emergency Braking
Lane Departure Warning
PRE SAFE



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Penetration of new technologies

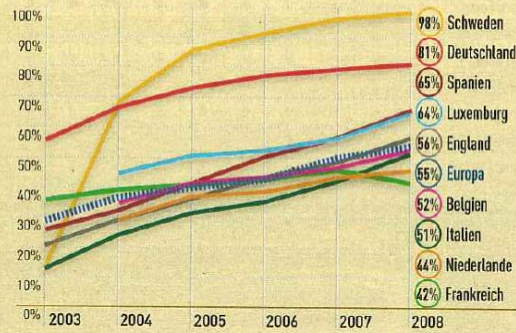
- Electronic Stability Control (**ESC**) from 15 % to 90 % in 36 months (now 98%)
- Intelligent Seat Belt Reminders (**SBR**) from 0 to 80% in 48 months
- Emergency Brake Assist (**EBA**) from 0 to almost 100% in 48 months
- Adaptive Intelligent Cruise Control (**AICC**), Lane Departure Warning (**LDW**), Lane Departure Assist (**LDA**), Emergency Brake (**EB**), Intelligent Speed Adaptation (**ISA**) etc are already on the market!

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ESP-AUSRÜSTUNG

Die Schweden sind Vorbild für Europa

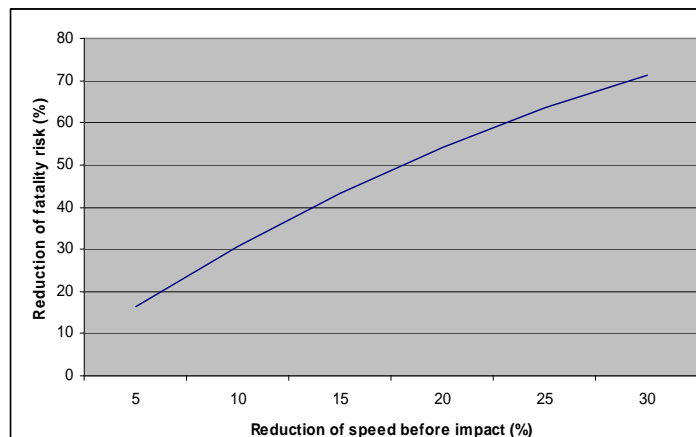
98 Prozent der in Schweden 2008 verkauften Neuwagen besitzen den ESP-Schleuderschutz, bei uns sind es immerhin schon 81 Prozent. Die Vereinigung Euro-NCAP (New Car Assessment Programme) wird ab 2010 strenger: Auch wenn die Autos noch so crashtester sind, fünf Sterne erhalten sie nur, wenn ESP serienmäßig ist.



Nr. 33 - 14. August 2009 • www.autobild.de 31

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The reduction of fatality risk (%) in relation to reduced speed before impact



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Summary

- In essence, we are tackling only a few types of human failures - distraction and inattention are very common among these
- System design must accommodate distraction
- Distraction will be a key issue in vehicle integrated safety
- Distraction must be handled with care, and behavioural modification must be in focus