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**TRAFIKVERKET**  
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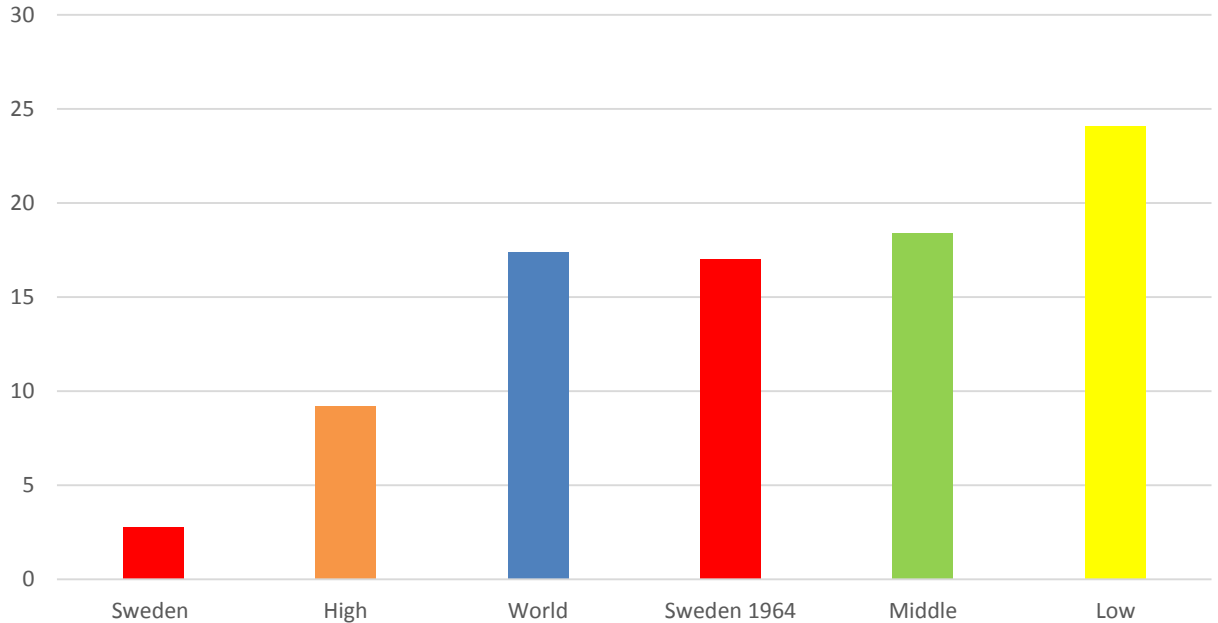
## Leading causes of death, 2004 and 2030 compared

TOTAL 2004			TOTAL 2030		
RANK	LEADING CAUSE	%	RANK	LEADING CAUSE	%
1	Ischaemic heart disease	12.2	1	Ischaemic heart disease	14.2
2	Cerebrovascular disease	9.7	2	Cerebrovascular disease	12.1
3	Lower respiratory infections	7.0	3	Chronic obstructive pulmonary disease	8.6
4	Chronic obstructive pulmonary disease	5.1	4	Lower respiratory infections	3.8
5	Diarrhoeal diseases	3.6	5	Road traffic injuries	3.6
6	HIV/AIDS	3.5	6	Trachea, bronchus, lung cancers	3.4
7	Tuberculosis	2.5	7	Diabetes mellitus	3.3
8	Trachea, bronchus, lung cancers	2.3	8	Hypertensive heart disease	2.1
9	Road traffic injuries	2.2	9	Stomach cancer	1.9
10	Prematurity and low birth weight	2.0	10	HIV/AIDS	1.8
11	Neonatal infections and other <sup>a</sup>	1.9	11	Nephritis and nephrosis	1.6
12	Diabetes mellitus	1.9	12	Self-inflicted injuries	1.5
13	Malaria	1.7	13	Liver cancer	1.4
14	Hypertensive heart disease	1.7	14	Colon and rectum cancer	1.4
15	Birth asphyxia and birth trauma	1.5	15	Oesophagus cancer	1.3
16	Self-inflicted injuries	1.4	16	Violence	1.2
17	Stomach cancer	1.4	17	Alzheimer and other dementias	1.2
18	Cirrhosis of the liver	1.3	18	Cirrhosis of the liver	1.2
19	Nephritis and nephrosis	1.3	19	Breast cancer	1.1
20	Colon and rectum cancers	1.1	20	Tuberculosis	1.0

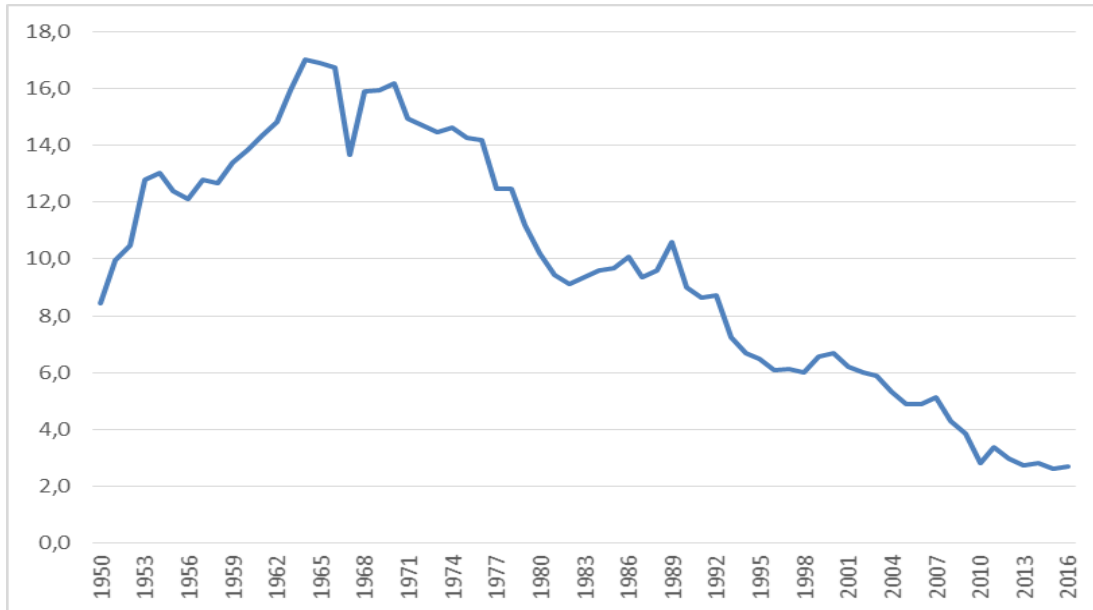
<sup>a</sup> Comprises severe neonatal infections and other, noninfectious causes arising in the perinatal period.  
Source: World health statistics 2008 (<http://www.who.int/whosis/whostat/2008/en/index.html>)

## Global status report on road safety 2009

## Number of road traffic death per 100 000 population by country income status + Sweden (WHO global status report on road safety 2015)



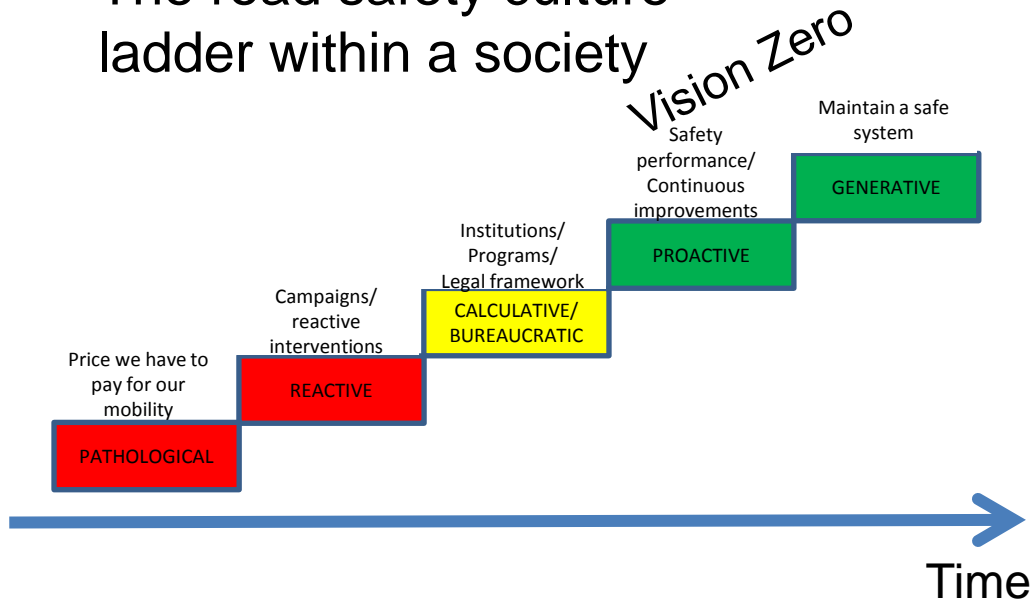
# Number of deaths in road traffic accidents per 100 000 population in Sweden (1950-2016)





From <http://www.dailymail.co.uk/news/article-1380432/Chernobyl-Pictures-abandoned-disaster-zone-25-years-nuclear-meltdown.html>

# The road safety culture ladder within a society



The ladder applied in road sector by Dr.Belin based on:  
Westrum R (2004) Qual Saf Health Care 2004;13(Suppl II):ii22–ii27. Hudson P (2007) Safety Science 45 697-722

# Vision Zero - a Swedish contribution to the global community

In October 1997, Vision Zero was passed by a large majority in the Swedish parliament.

The Vision is an expression of the ethical imperative that It can never be ethically acceptable that people are killed or seriously injured when moving within the transport system



# Vision Zero, Safe System, Road to Zero.... "We Have Many Names for the Things We Love!"



**U.S. DOT, NATIONAL SAFETY COUNCIL LAUNCH ROAD TO ZERO COALITION TO END ROADWAY FATALITIES**  
New partnership aims to end traffic fatalities within the next 30 years

<https://www.transportation.gov/briefing-room/us-dot-national-safety-council-launch-road-zero-coalition-end-roadway-fatalities>

# Vision Zero a policy innovation

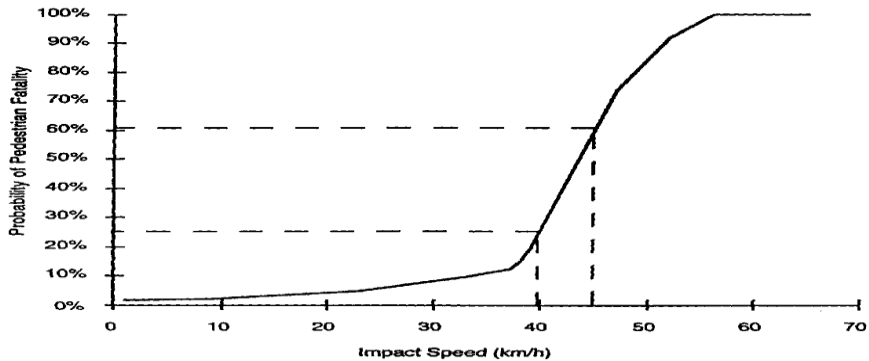
	<b>Traditional</b>	<b>Vision Zero</b>
What is the problem?	Accidents	Fatalities and serious injuries
What causes the problem?	Human factors	Humans make mistakes Humans are fragile
Responsibility?	Individual road users	System designers
Peoples demand for road safety?	People don't want safety	People want safety
What is the appropriate goal?	Optimum number of fatalities and serious injuries	Eliminate fatalities and serious injuries

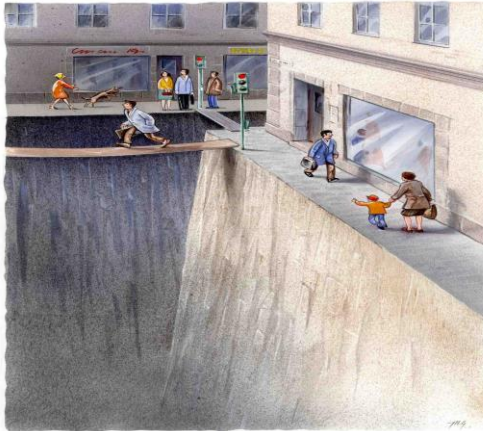




## Probability of Pedestrian Fatality by Impact Speed

Figure 2: Probability of Pedestrian Fatality by Impact Speed.  
Derived from the Interdisciplinary Working Group for Accident Mechanics (1986) and Watz, Hoefliger and Fehrmann (1983)





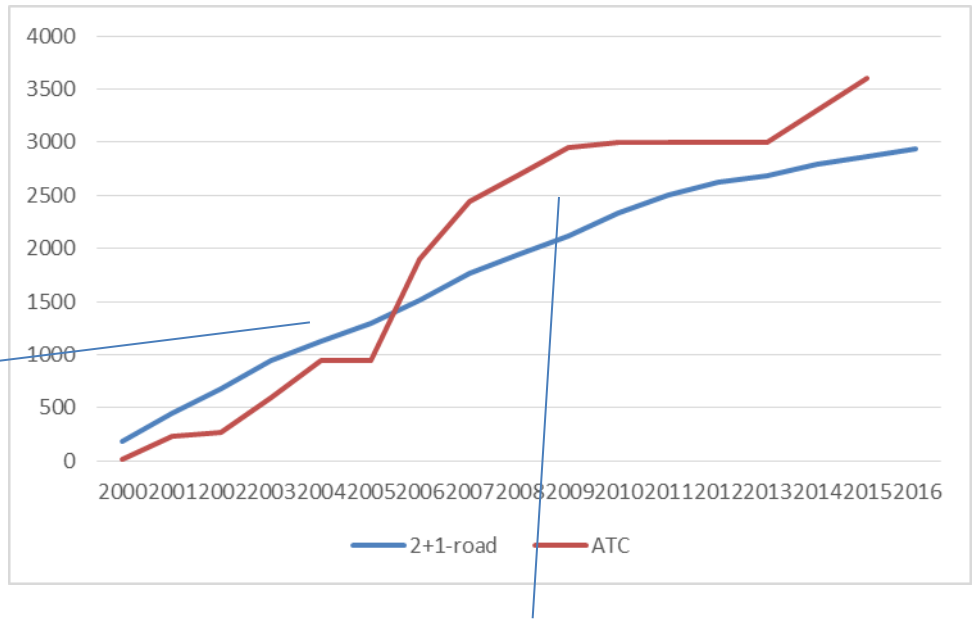
# Urban safety



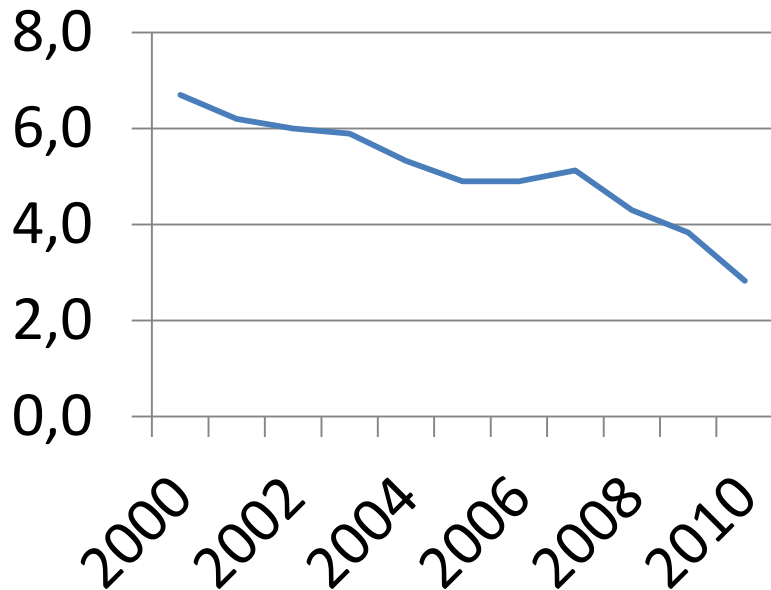
# Rural safety



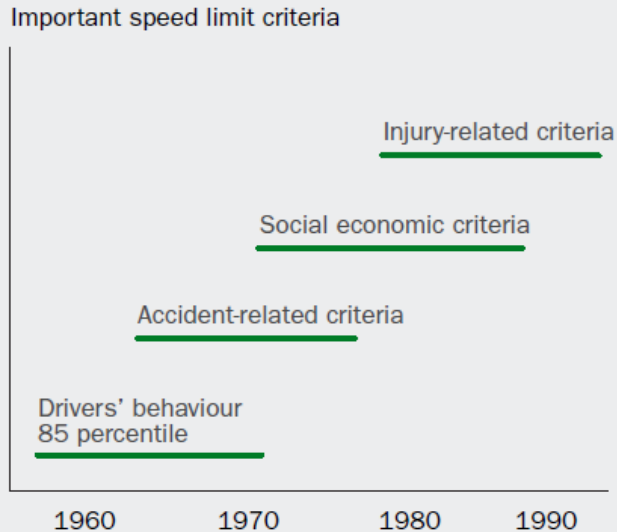
# Rural Safety



# Number of persons killed in road traffic crashes/100 000 inhabitants in Sweden 2000-2010



**Figure 1.6** Major factors determining speed limits, Sweden, 1960–1990



*Dr. Belin Speed management: a road safety manual for decision-makers and practitioners.*  
Geneva, Global Road Safety Partnership, 2008



Foto: Kristoffer Thessman

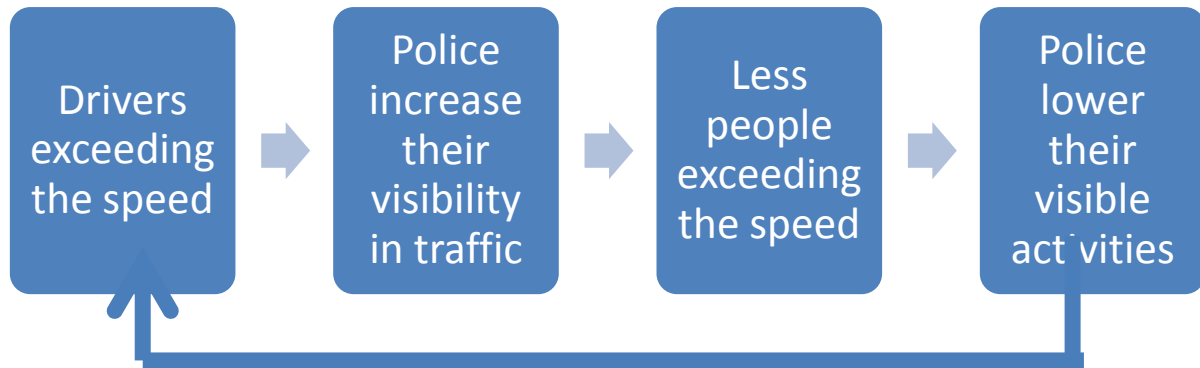


# The fundamental principal .....

“ A large number of people exposed to a low risk is likely to produce more cases than a small number of people exposed to a high risk. In business the same principle underlies the mass market: profits are larger when small amounts are taken from the masses than when large amounts are taken from the few rich people; and this principle of the mass market applies to many community health hazards.”

Geoffre Rose. Strategy of prevention: lessons from cardiovascular disease, British medical journal volume 282 6 june 1981

# "The prevention game"



Dr Belins interpretation from Can road traffic law enforcement permanently reduce the number of accidents, Tokel björnskau Rune Elvik Accid. Anal. & Prev. Vol 24. No 5 pp 507-520. 1992

**The different components in the program theory**

**Victoria (1991)**

What main problem does the speed camera program try to solve?

The problem is that a large proportion of drivers are continuously exceeding the speed limit and thereby creating road safety problems

What does the program try to achieve?

The main purpose is to create a feeling among these drivers that speeding can be detected at any time and in any place in the whole road system

What does the intervention mechanism look like?

The main chain of influence is to catch a large proportion of those drivers who exceed the speed limit so that they experience the consequences and avoid re-offending and, in their turn, will tell other drivers that they have been caught

How is the program intended to achieve road safety effects?

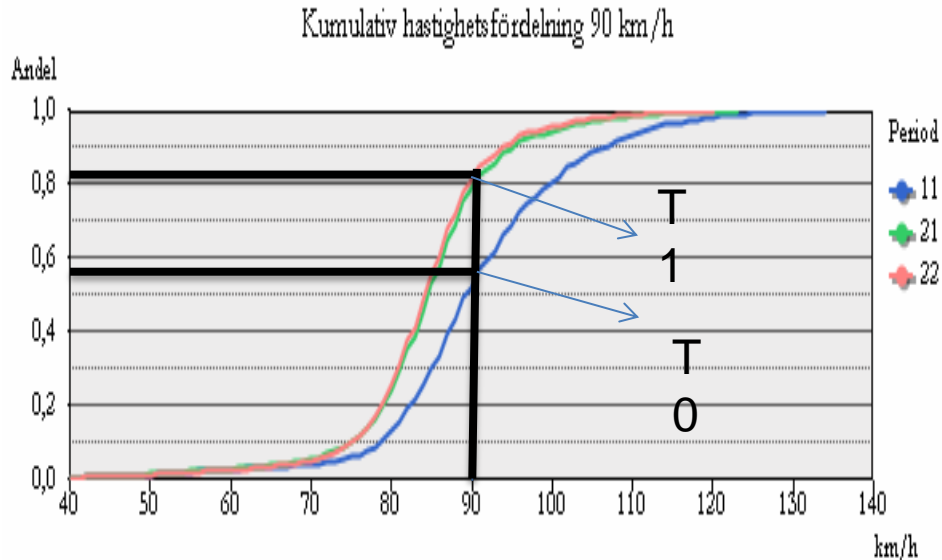
A large number of drivers will be deterred from speeding. Excessive speeds and the average speed will decrease and the number of fatalities and injuries will decrease in the whole system

Matts-Åke Belin, Per Tillgren, Evert Vedung, Max Cameron, Claes Tingvall, Speed cameras in Sweden and Victoria, Australia—A case study, Accident Analysis & Prevention, Volume 42, Issue 6, 2010, Pages 2165-2170, ISSN 0001-4575, <http://dx.doi.org/10.1016/j.aap.2010.07.010>.

The different components in the program theory	Sweden (2006)
What main problem does the speed camera program try to solve?	The main problem is that on a large proportion of the road network the speed exceeds the speed level which the roads from a safety point of view are designed for
What does the program try to achieve?	The main purpose is to support and create a new social norm among drivers that it is easier and better to follow the speed limit
What does the intervention mechanism look like?	The main chain of influence is to inform (through signs and open cameras) the drivers that a large proportion of the traffic network (large proportion of the traffic) is covered by cameras
How is the program intended to achieve road safety effects?	It will prevent most of the drivers from speeding. The average speed will decrease, as too will the number of fatalities and injuries.

Matts-Ake Belin, Per Tillgren, Evert Vedung, Max Cameron, Claes Tingvall, Speed cameras in Sweden and Victoria, Australia—A case study, Accident Analysis & Prevention, Volume 42, Issue 6, 2010, Pages 2165-2170, ISSN 0001-4575, <http://dx.doi.org/10.1016/j.aap.2010.07.010>.

# Effects on speed distribution (90 km/h) – Nudge effect

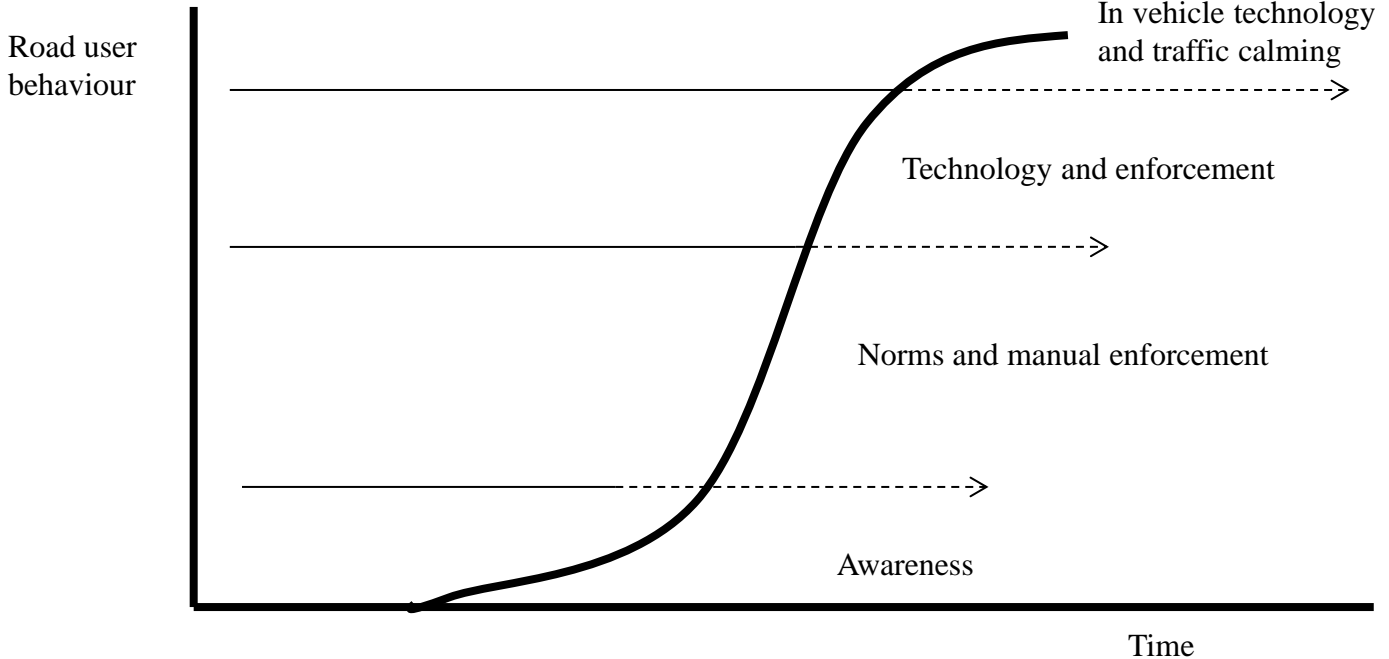


Automatisk trafiksäkerhetskontroll (ATK)

– En studie av effekterna på fordonshastigheter Automatic speed cameras – A study of the effects on vehicle speed

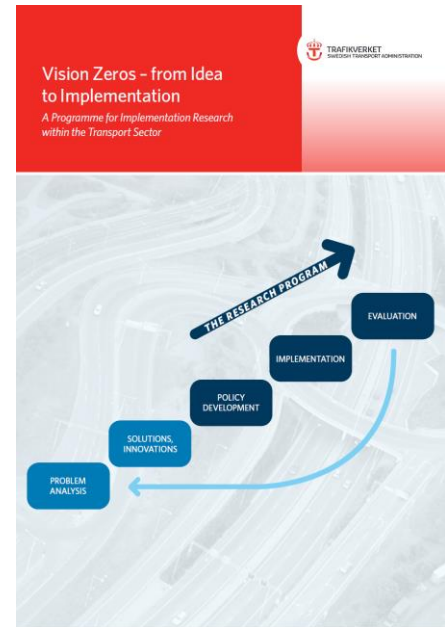
Fredrik Bergdahl U.U.D.M. Project Report 2007:27. Department of Mathematics Uppsala

# Evolution of strategies and speed compliance



# To create a safe mobility is a process which ought to be managed

- Learning by doing
- Trial and Error/Success
- We need more systematic learning!!



<http://www.trafikverket.se/en/visionzero>



**Towards Zero  
Together**