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## The UDS-Black Box

**A Contribution to Road Safety Policy,  
Fleet Operations and Cost Savings**

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### Structure

- Acceleration sensor technology (double-axis)
- Compass
- Mixed signal ASIC
- Emergency power supply
- Clock
- Battery
- Analogue, digital, and frequency inputs

The UDS-Black Box in car accidents

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### The UDS-Black Box in car accidents

#### Black Box - Sensors and Status Inputs

- Date/time
- Status inputs (ignition, light, ... up to 10)
- Wheel speed
- Transverse acceleration
- Change of direction
- Longitudinal acceleration

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### The UDS-Black Box in car accidents

#### Typical example of a pile-up collision

Accident situation:  
Vehicle No. 1 breaks,  
vehicles 2-4 crash into No. 1 and into each other.  
Vehicle No. 3 claims to have stopped in time,  
but to have been pushed by No. 4 into No. 2

What happened really?

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### Memory Size

- Three memories for events triggered by button/standstill
- Nine memories for events triggered automatically
- One memory for long-term statistical data

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### The UDS-Black Box in car accidents

#### Example serial collision

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### On-board devices in the european view

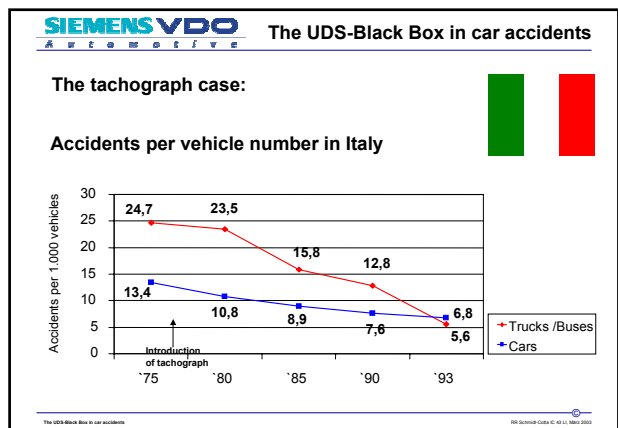
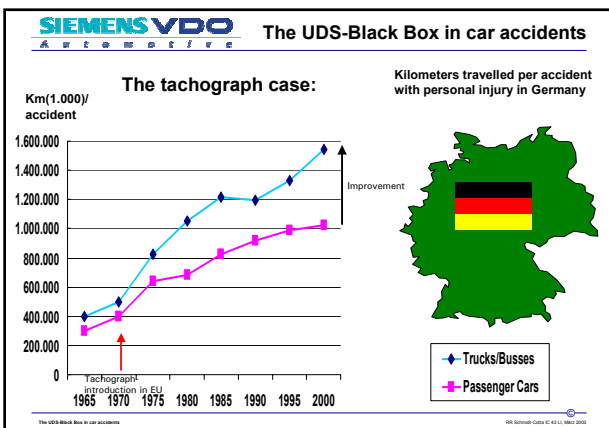
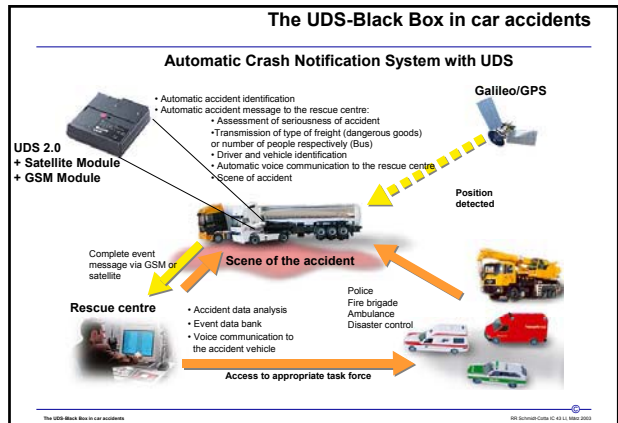
"European transport policy for 2010: time to decide"  
The White Paper of the European Commission (Sept. 2001)  
**Promoting new technologies to improve road safety**

<<Technological developments will also enhance the usual methods of control and penalties, with the introduction of automatic devices and on-board driving aids.

In the same context, the eventual fitting in road vehicles, as in other forms of transport, of **Black Boxes** to record parameters which help explain the causes of accidents, will ...

- make motorists more responsible,
- speed up court proceedings following accidents,
- lower the cost of court proceedings and
- enable more effective prevention measures to be taken. >>

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### UDS References

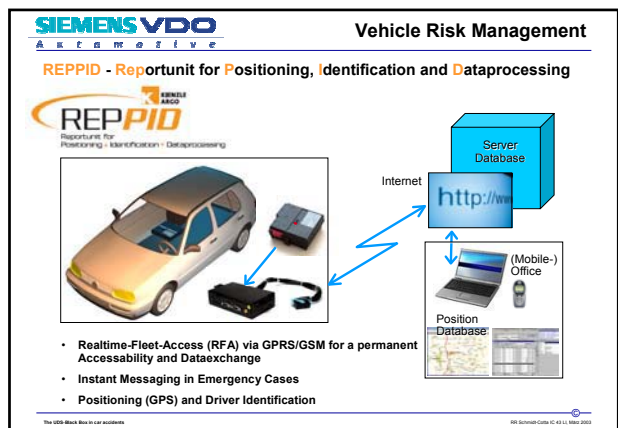
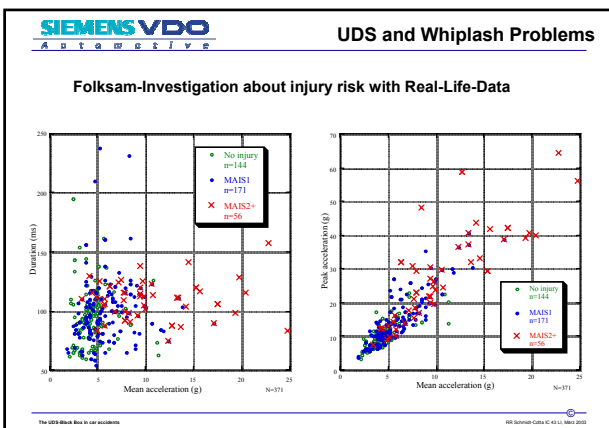
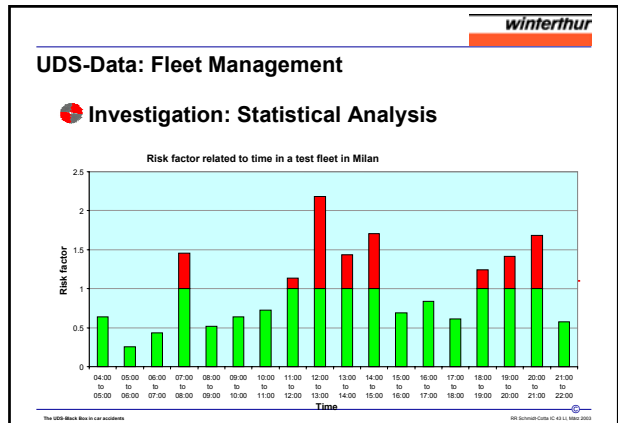
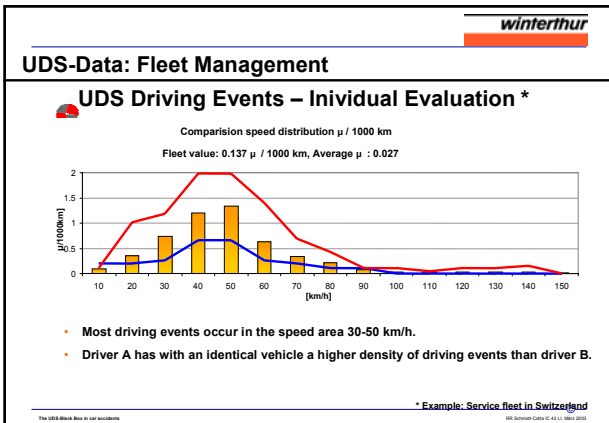
Project	Country	Collisions	Costs
Samovar/EU/B/NL/GB (1995)	EU, B, NL, GB	-28%	-40%
WKD Security/D (1995/1996)	D	-30%	n.n.
Federal Police Vienna/A (1995/1996)	A	-18%	-40%
Suedbaden Bus Co./D (1996)	D	-18%	-59%
Taxis Hatscher/D (1996/1997)	D	-66%	n.n.
Berlin Police/D (1997/1998)	D	-20%	-25%
Border Police/D (1999/2000)	D	-9%	-34%
Rotterdam Police/NL (1999/2000)	NL	n.n.	-25%
London Met. Police/GB (2000/2001)	GB	-25%	n.n.

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**SIEMENS VDO** Automotive UDS - Projects and Perspectives

Project	Country - Year	Responsible/Partner
KriSiS	D - 1999/2000	DVR/Driving Schools
Canton Polices	CH - since 2001	Bosshard/Winterthur Insurance
Police Fleets	GB - since 2001	County Police Forces
Risk Management	CH - 2002	Winterthur Insurance/Fuji Co.
Motorcycles	CH - 2003	Winterthur Insurance
School Transport	E - 2003	Catalunya, Valencia, Madrid
Official Vehicles	F - 2004	Ministry of Transport, Paris
Fleets	I - 2004/05	Bus and Truck Fleets/Reg. Govmts.
E-Call	EU - since 2002	E-Safety - E-Merge e.a.
VERONICA	EU - 2005-2007	SIEMENS VDO and 30 Partners

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### Vehicle Risk Management

#### Main Applications for UDS/REPPID

Features of RFA (Realtime-Fleet-Access):

- Automatic Event Recognition
- Autonomous Eventreport
- Emergency Call Release
- Incident Severity Check (ISC)
- Vehicle Status (e.g. on duty / off duty)
- Tracking / Tracing controlled by Office Access
- Online Data Analysis

Additional Data-Management for UDS – Statistical Data and Datalogbook

- Driver-dependant Datalogging (Driver-ID)
- Position-dependant Datalogging (GPS)

Profits:

- Instant Data-Availability for better Evaluation of Accidental Situations
- Higher Process Efficiency through Online-UDS-Access
- Higher Process Efficiency through Fleet Management Functions
- Initiation of Rescue Procedures for Persons in Danger
- Initiation of Saving Procedures for Goods in Transit

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Thank you for your attention!

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