

# Current Status of the Euro NCAP Whiplash Subgroup

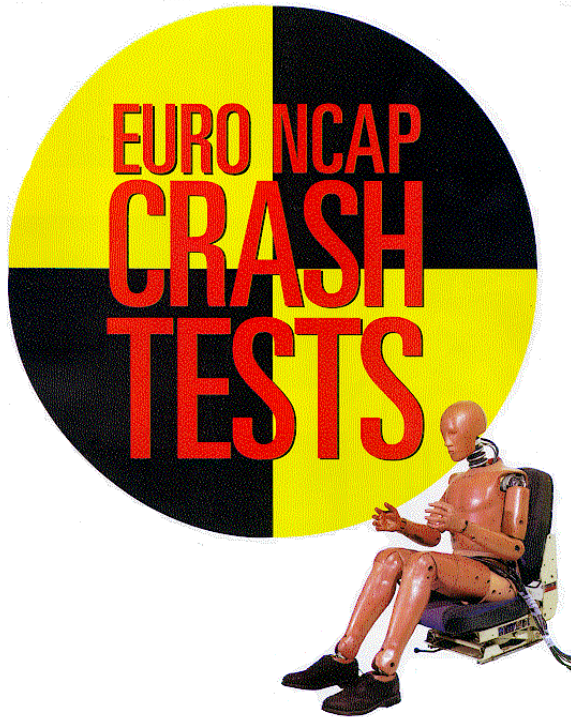
**Bernd Lorenz**



## European New Car Assessment Programme

HR-2-11

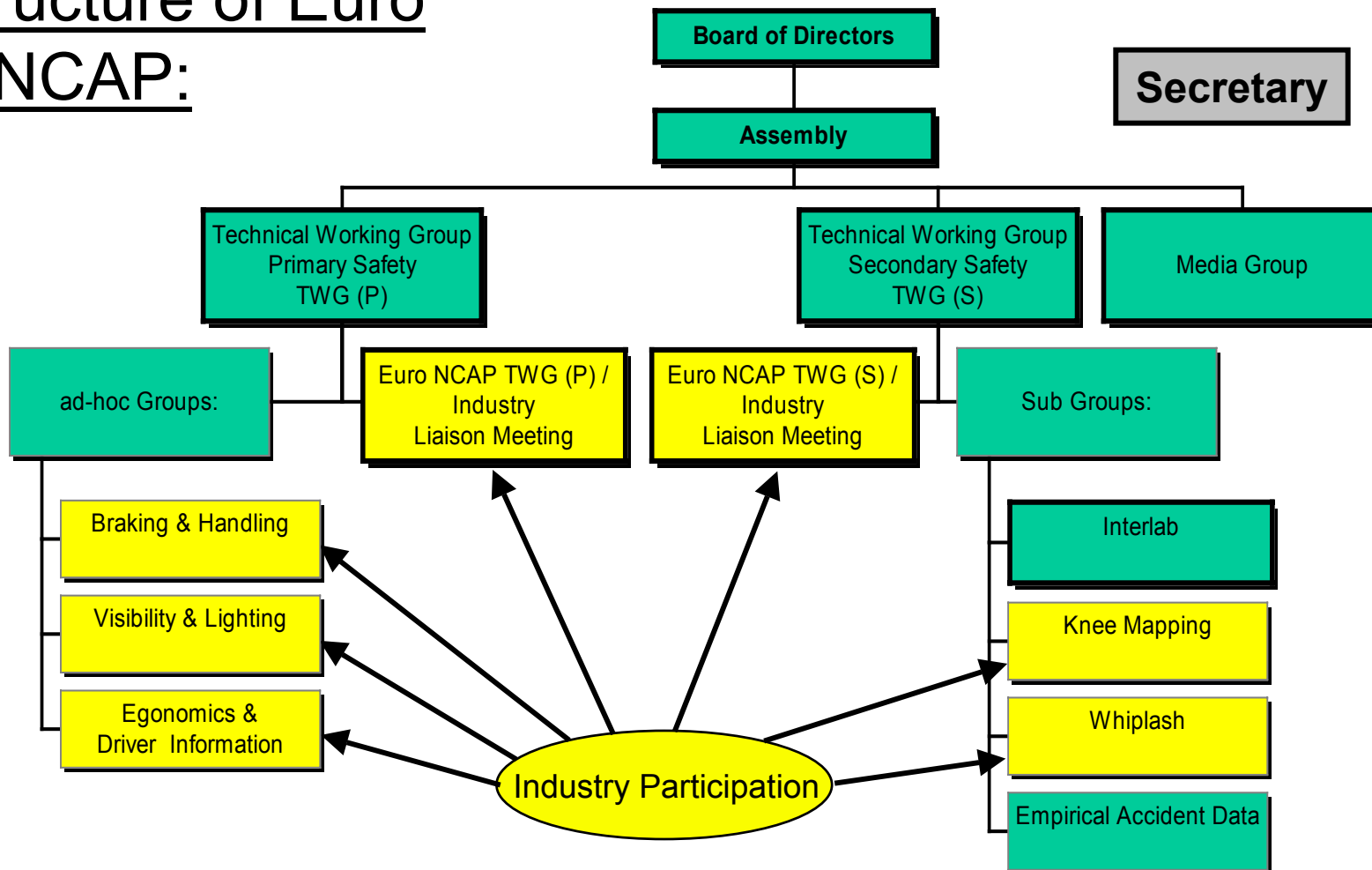
- ADAC (Allgemeiner Deutscher Automobil Club)
- BMVBW vertreten durch die BAST
- DfT (Department for Transport, UK)
- Dutch Ministry of Transport (NL)
- European Commission (no member !)
- FIA Foundation (Federation International de L'automobile)
- Generalitat de Catalunya (ES)
- ICRT (International Consumer Research and Testing)
- Ministère de l'Équipement (F)
- SNRA (Swedish National Road Administration)
- Thatcham



# Structure of Euro NCAP

## Structure of Euro NCAP:

HR-2-11



- Wilfried Klanner (ADAC) Chairman
- Bob Moran (UK DfT)
- Anders Lie (SRA)
- Bernd Lorenz (BASt)
- Mat Philippens (TNO)
- Matthew Avery (Thatcham)
- Ricardo Satué (IDIADA)
- Francois Minne (UTAC)
- Peter Gloyns (ICRT/VSC)
  
- Raimondo Sferco & Celine Adalian (ACEA)
- Adrian Lund (IIWPG)

- Protocol based on good understanding of injury mechanisms – **Rejected as sufficient information will not be available in the medium term**
- Protocol acknowledging lack of information about injury mechanisms, but encouraging seat design towards current best practice – **Recommended on basis of extensive work by SRA, ADAC, IIWPG and ACEA**

- Early head restraint contact
- Low neck forces
- Energy absorption within system

- Protocol based on encouraging best practice.
  - Pros
    - Builds on extensive field experience of protective performance of different designs
    - Concepts validated and developed using seats with known real world performance and dedicated crash testing with whole vehicles. (Saab, Volvo, Toyota, Ford)
    - Uses unique data gathered from Folksam's crash recorders
    - Builds on extensive test experience using range of pulses and multiple measures of seat performance.

- Protocol based on encouraging best practice.
  - Pros
    - Industry already familiar with many aspects of this type of testing
    - Provides design guidelines appropriate for industrial use
    - Provides clear consumer information to activate market forces, capable of integration into main Euro NCAP vehicle scoring system



- Protocol based on encouraging best practice.
  - Pros
    - Capable of implementation in near future within Euro NCAP
    - Formulated by whiplash group drawing on extensive experience within group of consumer seat rating tests

- Protocol based on encouraging best practice.
  - Cons
    - Detailed understanding of injury mechanism not available  
(No early prospect of this being solved, but group monitoring any progress in this area. All international activities being considered)

## REMARK

- Future possible benefits or disbenefits of design changes not fully known – Potential new load paths need careful monitoring i.e. lumbar spine loading

- **Either**

Implement recommended concept, based on encouraging best practice, drawing on established consumer test programmes

- **Or**

Do nothing in short term, await further developments in understanding injury mechanisms. No predictable time for this at present

- Dynamic sled testing for whiplash prevention
- Multiple pulses to avoid sub optimisation and address a range of relevant accident severities for whiplash
- Additional control of seat deflection in higher energy rear impacts to prevent ejection and interaction with rear seat occupants
- Multiple measures of seat performance combined to provide a rating system

## Strong tendency towards:

- BioRID dummy
- Three potential whiplash pulses
- One seat stability pulse
- Seven measures of seat performance
- Additional criteria for geometry, locking etc.

- BioRID dummy
- Test set up
- Pulses at low, medium and high severities
- Seven equally weighted measures of seat performance, all based on sliding scales

- Check durability and repeatability of dummy at high severity pulse for final adoption of high severity test
- Document reproducibility of protocol
- Confirmation of pulse mix in light of above
- Check sliding scale limits against experience with all seat testing so far
- Further develop protocol documentation

- Explore relationship between seat stability testing and accident experience to ensure test is at appropriate level of severity
- Check use of Hybrid III 95<sup>th</sup>ile dummy in this context



Next sub group meeting – 29<sup>th</sup> April 2005

Thank You  
for  
Your  
Attention !