MultiDisciplinary Crash Investigation (MDCI)

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Important preconditions for accident investigation

• Approach to human error
• The purpose of the investigation
Human error – Individual approach

Accident Factors

- Human factors (95%)
- Road Environment factors (29%)
- Vehicle factors (8%)
Human error – Human Factors Approach

- Human error is not a cause of failure. Human error is the effect, or symptom of deeper trouble.

- Human error is not random. It is systematically connected to features of people’s tools tasks, operating and organisational environment.

- Human error is not the conclusion of an accident investigation. It is the starting point.
A systems perspective

It is necessary to adopt a **systems perspective** where individuals, technology and organisational aspects should be seen as interacting parts which cannot be isolated from each other.
Purposes of MDCI

• Identifying direct causes and contributing factors causing the accident or its consequences.
• Learning in order to prevent future accidents and/or their consequences not to apportion blame or liability.
• Not another tool for statistical data.
MDCI vs. statistics

Quality

MDCI

Statistics

Quantity
MDCI-analysis of road traffic accident

- Professional truck driver driving on a straight road
- Speed limit 70 km/h
- The driver falls asleep
- The truck drives off the road
- The truck hits a rigid lamppost
- The truck driver is killed
Event-cause analysis

**Direct causes**
Why did it happen?

- Truck driver on extra shift
- Truck driver drives off the road
- Truck collides with lamppost

**Underlying causes**
Why was it not prevented?

- Insufficient surveillance
- Incorrect priorities
- Lack of resources
- No quality assurance system at haulier
- Competitive situation
- No legal requirements
- Lack of management commitment
- Bad safety culture
- No governmental directives
- Lack of economic incentives
- Insufficient safety analysis by authorities

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Barrier analysis

Truck driver drives off the road
Truck collides with lamppost

Alertness systems
No quality assurance system at haulier
No harmonised legislation
Lack of economic incentives
Car industry doesn’t equip their cars

Political priorities
Insufficient QA-systems
Insufficient analysis
Safety priorities
No legal requirements

Road authority has not installed a collapsable lamppost
Collapsible lamppost

Lack of resources

Insufficient analysis
Lack of resources
Political priorities

No quality assurance system at haulier
No harmonised legislation
Lack of economic incentives
Car industry doesn’t equip their cars

Truck driver on extra shift
Contact

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