

ACRS National Conference – Sydney, NSW

9-10 August 2012




IMPROVING WORKER SAFETY through better visibility

Contents

- Behind the numbers...
- Road work zones = black spots
- Standards and Specifications
- Best practice
- Truck visibility

Behind the numbers...



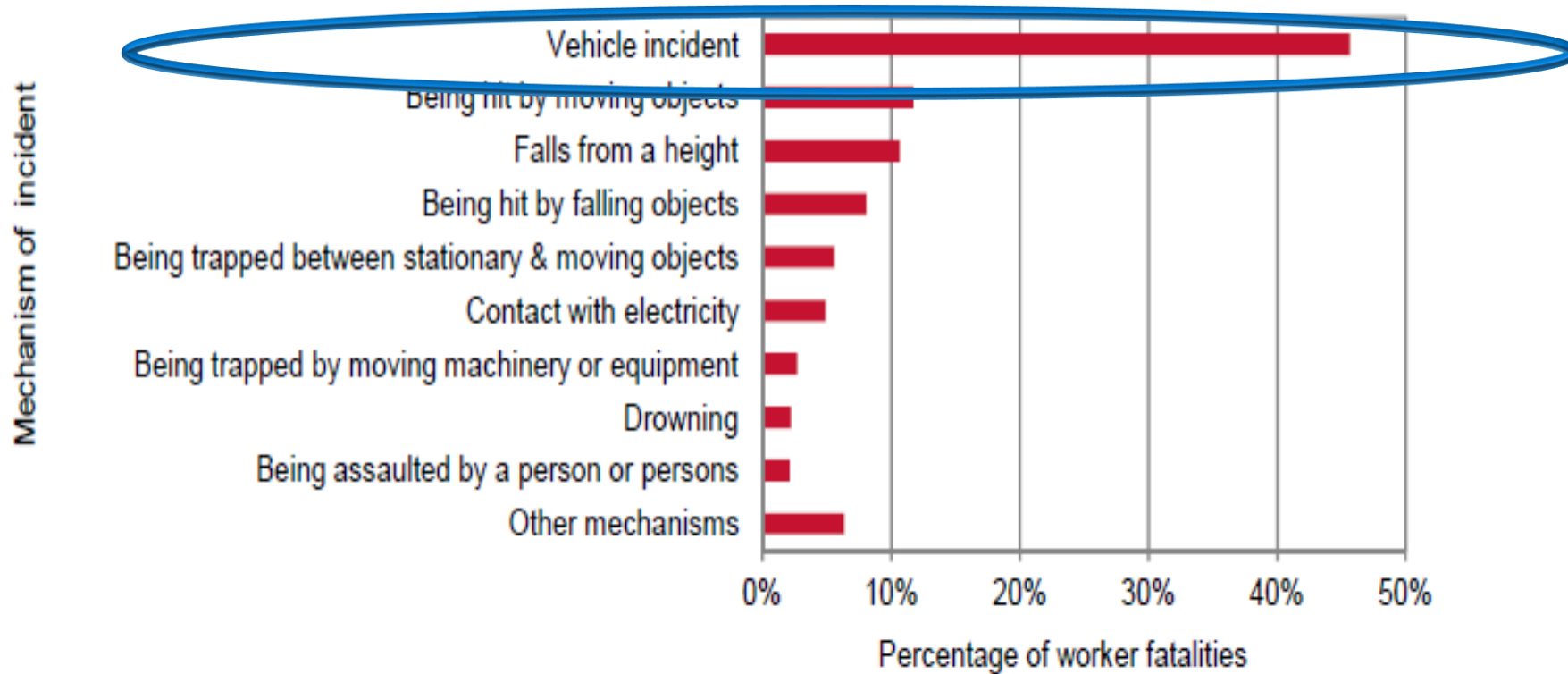
Could 282* lives be saved annually?

*Safe Work Australia 2012 – AVG no of death/year



Behind the numbers - Worker fatalities 2003-2010

Figure 12 Worker fatalities: Proportion by mechanism of incident, Australia, 2003-04 to 2009-10 combined



Source: Safe Work Australia 2012 – Work related traumatic injury fatalities, Australia 2009-2010



Behind the numbers - Worker fatalities 2003-2010

46%



Behind the numbers - Worker fatalities 2009-2010

73%

Public road

27%

Work sites



Behind the numbers - Worker fatalities 2003-2010



438

TRUCK DRIVERS



Behind the numbers - Worker fatalities 2003-2010



57

**WORKERS IN
CARS OR UTILITIES**



Behind the numbers - Worker fatalities 2003-2010

48

**WORKERS AROUND
TRUCK AND CARGO**



**Road work zones =
BLACK SPOTS**



Roadwork – What are the dangers?

B
L
A
C
K

S
P
O
T

5 TIMES MORE RISK FOR AN ACCIDENT



S
A
F
E
T
Y

OBSCURE ANGLES FOR SIGNS

Roadwork

WHAT PROTECTS THE WORKERS
ON THE ROAD?

Roadwork – temporary signage



- Temporary signage plays a critical safety role in
 - *Warning motorists*
 - *Protecting road workers*

Roadwork – personal protective equipment (PPE)



- High visibility garments
 - *Well regulated*
 - *Mandatory*
 - *Fluorescent colours combined with retroreflective materials*
 - *New trend: biomotion pattern*

Roadwork – visibility of vehicles?



INVISIBILITY



Standards and Specifications

Standards and Specifications - Australia

- AS/NZS 1742.3:2009 MUTCD Part 3 Traffic Control for Works on Roads
 - *High visibility clothing, signs, other devices*
- AS/NZS 1901.2:2007 Retroreflective materials and devices for road traffic control purposes, Part 2 Retroreflective devices (non-pavement application)
 - *Delineators*
- NSW RMS Traffic Control at Work Sites (2010)
 - *Signs, barriers, delineators, temporary line marking, attenuators*
- QLD DTMR 2011 MUTCD Part 2 Traffic Control Devices for General Use



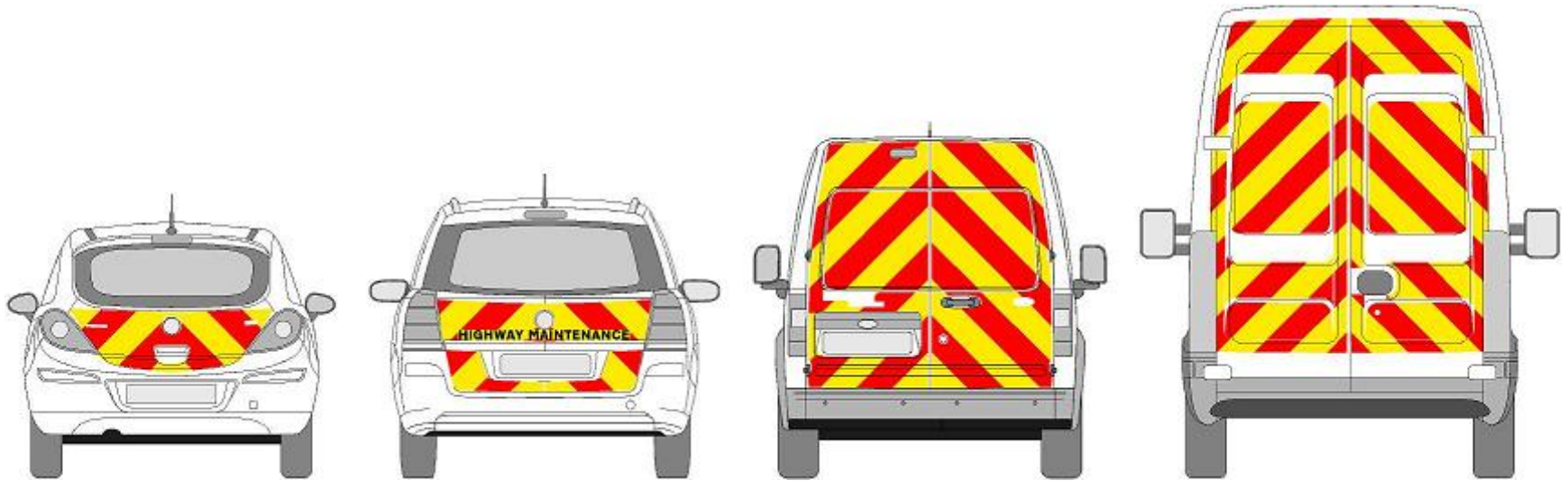
Standards and Specifications - Australia

- No standard or specification about the visibility and markings of
 - *Road side equipment*
 - *Vehicles*
 - *Attenuators*

Best practice

Best Practice - UK

- Department of Transport 2009 – Traffic Signs Manual / Chapter 8



Best Practice - UK



Best practice – Australia / NRMA



Best Practice – Australia: Incident Response Vehicles



Best Practice – Roadside Equipment



Best Practice – UK: Police vehicles

- Battenburg Livery
 - *Combination of colour and luminance contrast*
 - *Most effective colours: blue and fluorescent yellow-green*



Best Practice – Battenburg Livery



Best Practice – Emergency Vehicles



Truck visibility and safety

Braking distance

The faster the vehicle moves, the more time it takes to stop

30 m at 50 km/h



56 m at 80 km/h



99 m at 110 km/h



Visibility vs. Braking distance



Braking distance vs. Visibility

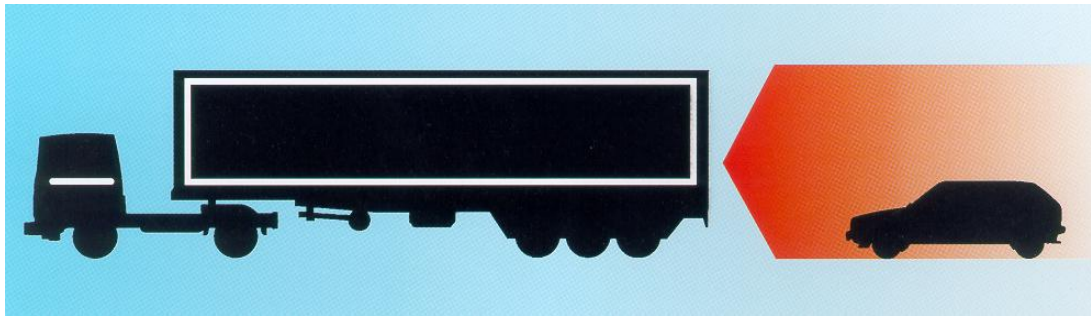
A marked truck is recognized earlier than an unmarked truck.
This gives other drivers more time to manoeuvre safely in traffic.

[\(See LBI Study\)](#)

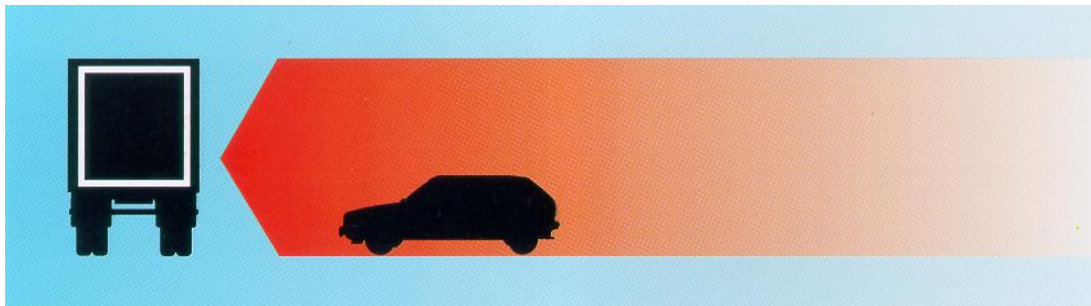


Darmstadt Conspicuity study

Results with improved visibility:



41% less rear-end collisions



37 % less side collisions

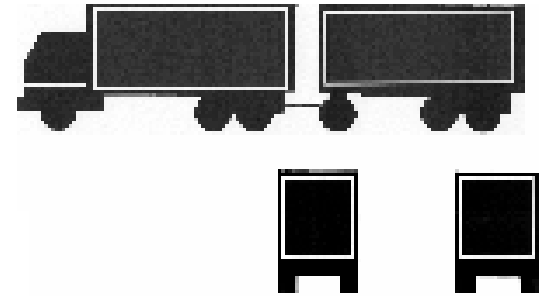


The UN Reg. 48 and ECE104

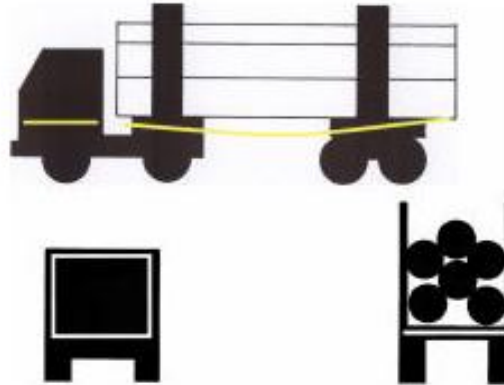
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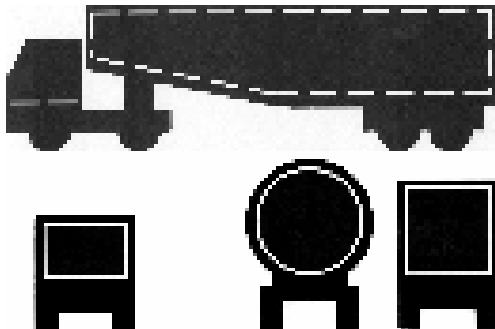
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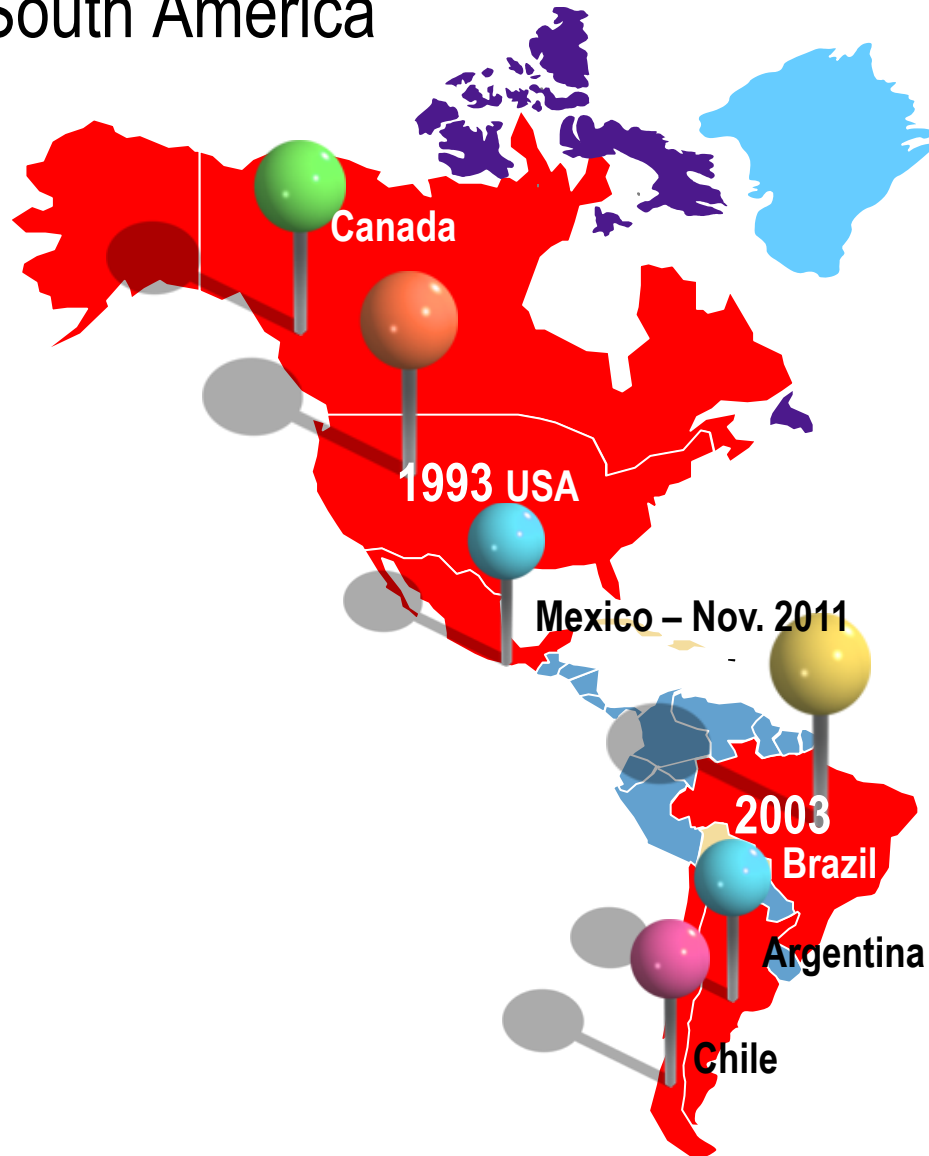
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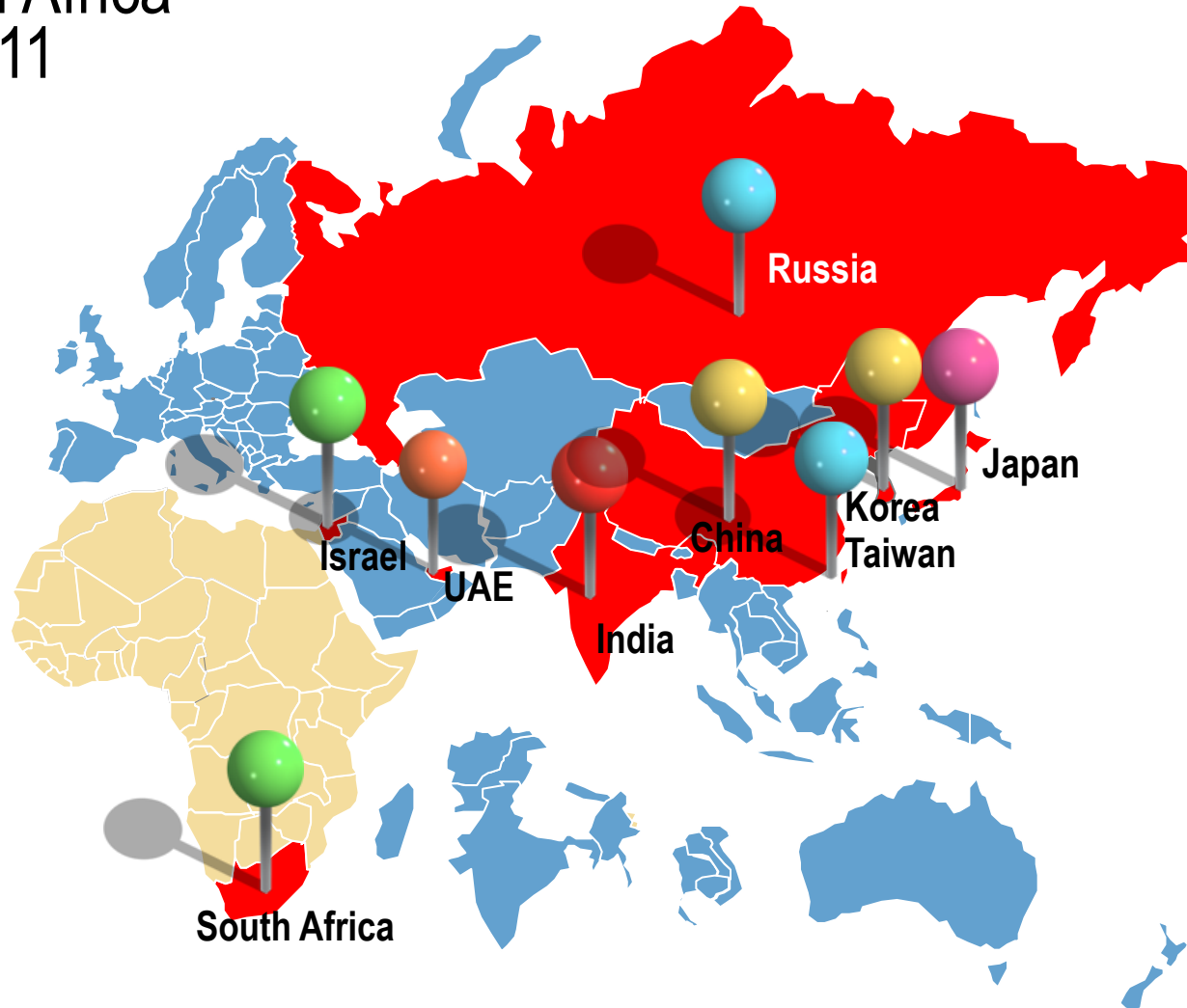
How does it translate into global practice? North and South America



How does it translate into global practice?

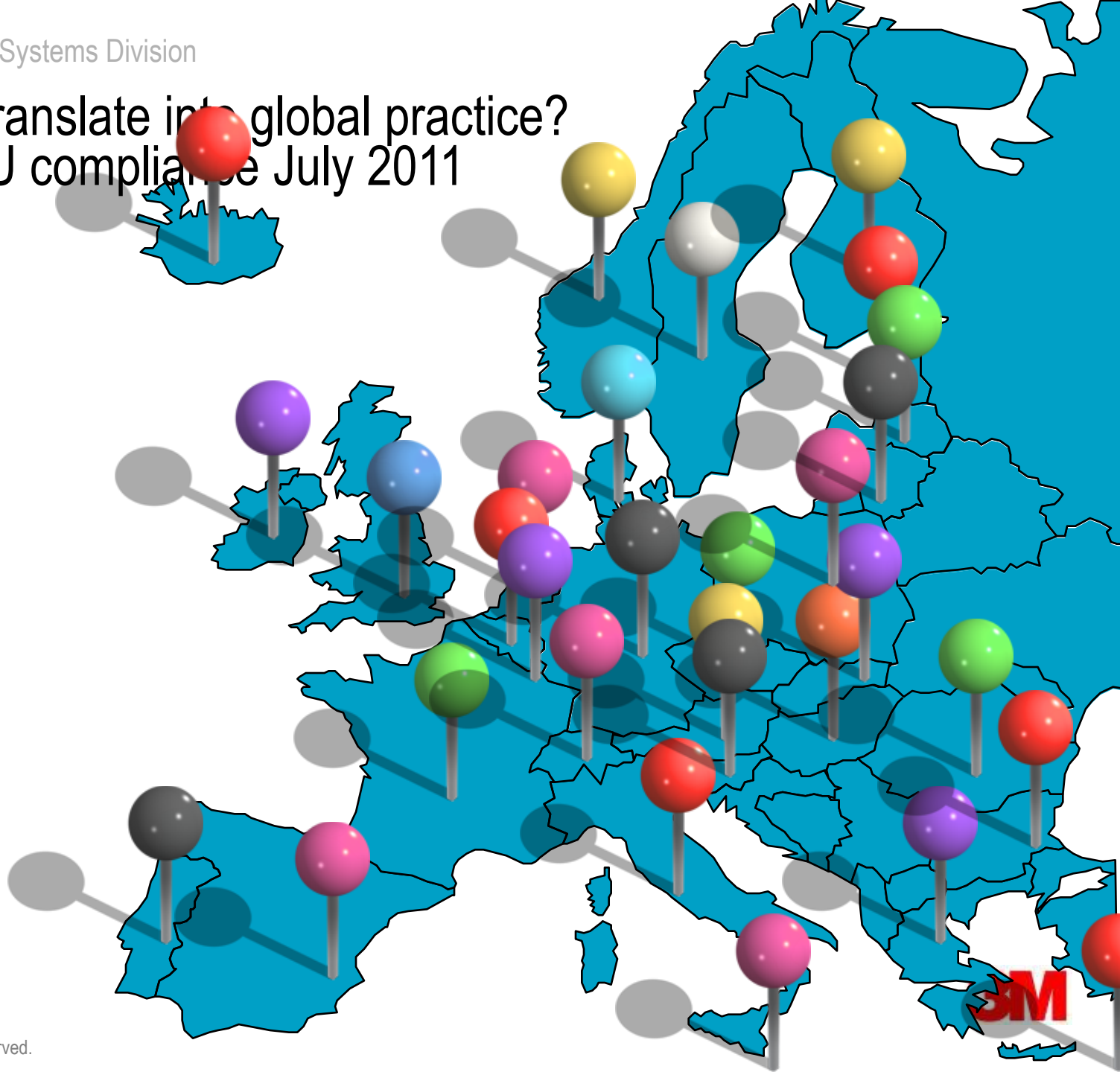
Asia and Africa

2000-2011



How does it translate into global practice?

Mandatory EU compliance July 2011



3M

The 1 million EUR principle

“a road safety measure which saves at least one life in road traffic at a cost of up to 1 million Euros is justified on economic grounds alone (not taking into account the human suffering)” (IRF 2004)

What about Australia?

- ADR 13/00
- Full text of UN Reg. 48, except ONE word

~~MANDATORY~~

OPTIONAL



Summary

■ Road worker safety

- *Working on the roads is listed among the most dangerous occupations*
- *Shorter work zones impose higher risk on workers*
- *The benefits of retroreflective and fluorescent markings on vehicles is underestimated*
- *Besides signage and PPE, visibility markings on vehicles would increase the safety of road workers and other road users*
- *The visibility of vehicles and roadside equipment is currently not regulated, best practice exists in some organisations*
- *Global best practice and regulation UN48 / ECE104 for heavy vehicles have not been adopted yet in Australia*



Thank you for your attention!



Keeping people safer

with 3M™ Reflective Technology

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