Network safety management (NSM) SS20

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Outline of this presentation

- NSM objectives & key points
- Historical origins of NSM
- NSM methodology in four steps
- NSM in practice: an example in France
- NSM deployment in France
- NSM deployment in Germany
- NSM is one of several measures
- Conclusion

NSM objectives

The Network safety management (NSM) procedure aims at :

- Improving road safety on the existing road network
- While helping road operators
- Prioritize their actions
- Based on accidents that really occurred

Motives :

- Most safety potentials are to be found on the existing (older) road network
- Road operators need to know where and how to start
- Especially when budgets are limited (which is very often the case)
- NSM helps them do so through a scientific method that justifies choices
- It is an alternative to normative approaches that list potential problems (as opposed to proven problems) without any prioritization

NSM key points

NSM is a method developed jointly between Germany and France.

Large number of inspectors have already been trained.

NSM focuses on priority itineraries.

It is an in depth ad hoc analysis of full itineraries.

➔ No « one size fits all » systemic solution

NSM prioritizes action on high-return measures.

Evaluation of road safety savings of NSM program is under way.

Historical origins of NSM

NSM is the output of a joint project between Germany and France in 2003-2004

NSM is adapted in Germany -> ESN

NSM is adapted in France -> SURE

ESN and SURE share a joint methodology for computing safety potentials.

NSM methodology : 4 steps

Step 1 Analysis of actual accident data over the whole network

- ➔ Output : safety potentials of all roads based on a comparison of accident costs with best practice design
- ➔ Output : ranking of priority itineraries

Step 2 Detailed analysis of priority itineraries

- ➔ Accident causation analysis for each accident
- ➔ Output : remedial measures are proposed

Step 3 Selection and implementation of appropriate measures

- ➔ Taking available budgets into account

Step 4 Evaluation

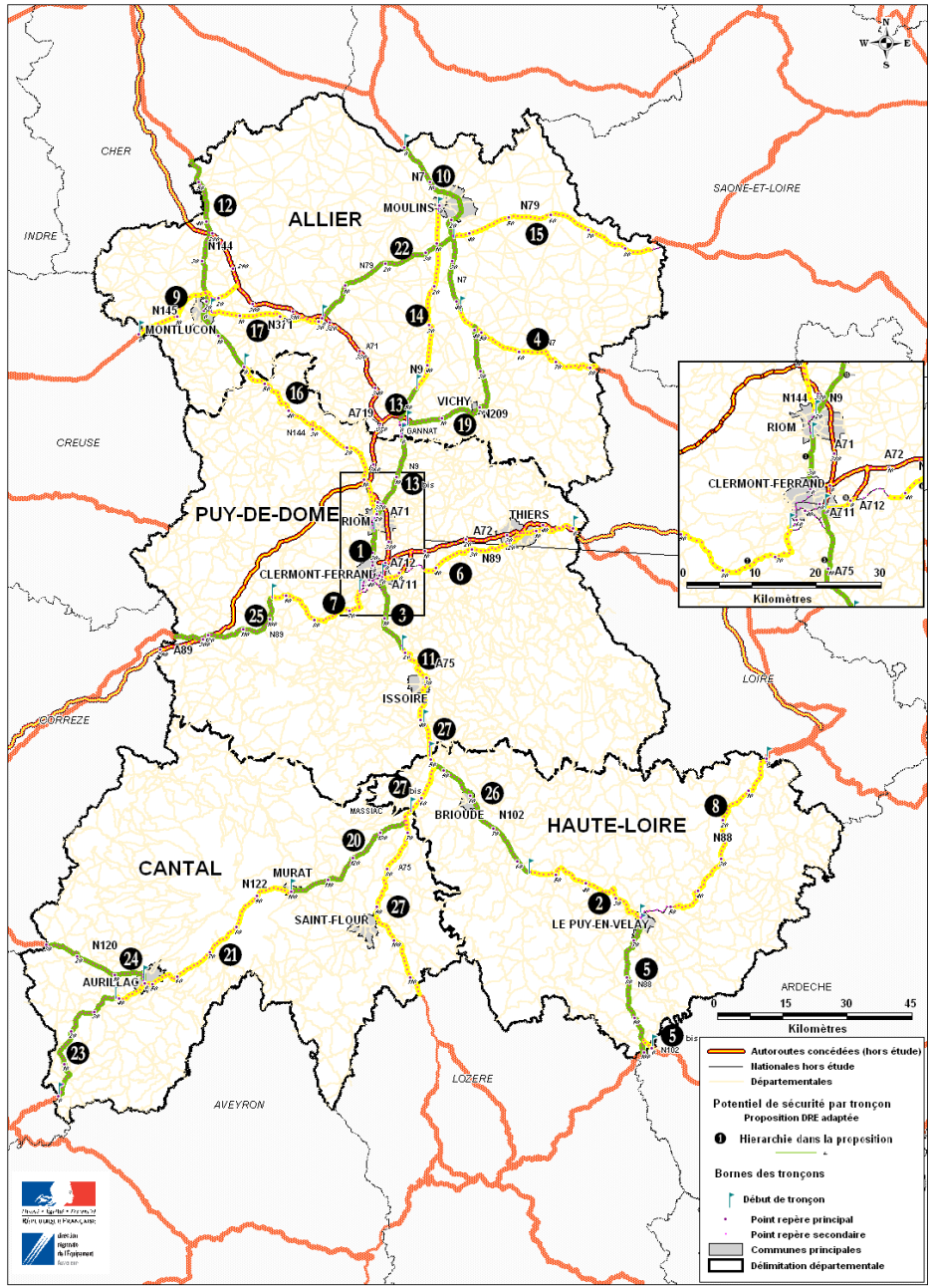
NSM in practice

The following slides detail an example of NSM in central France.

NSM Step 1

Analysis of RS stakes over the State network of one region.

Numbers indicate ranking within the area.



NSM Step 1 (continued)

« RN102 » itinerary is analysed.

- Between 1998-2002, it totals 22 deaths, 55 serious injuries and 105 light injuries.
- Accident rates and densities are compared to national average for that type of road.
- Safety potential of that itinerary amounts to 450 k€.
- From a comparison with other itineraries, RN102 ranks number 2 within that department :

= > RN102 kept for detailed analysis in Step 2

NSM Step 1 (technical details)

- NSM uses accident costs as opposed to accident numbers, in Euros per km
- Use data over a long period (3-6 years) to allow for good statistical analysis
- Use long segments : about 10 km

NSM Step 2 : Detailed analysis of « RN102 » itinerary

Accidents are regrouped in families :

- ➔ Loss of control on wet roadway (27), Junction with a secondary road (14), Passing/overtaking manoeuvre (11), In a curve, on dry roadway (11)

Real accident factors are identified :

- ➔ 1/ Poor grip in curves w/ radius < 250 m, 2/ Poor geometry, 3/ Poor legibility and excessive right of way

Targeted remedial measures are proposed :

- ➔ For factor 1 : Cross town : Maintain CTF > 0,5 in curves w/radius < 250m ; Outside built up areas : Maintain CTF > 0,5 in Chazotte, des Carrières de la Denise et de Pouzols
- ➔ For factor 2 : According to each location (local accident accumulation zones)
- ➔ For factor 3 : Check trees alignment and marker posts

In the process, local accident accumulation zones were analysed.

NSM Steps 3 and 4

Step 3 : Selection and implementation of measures

- ➔ Based on their cost and efficiency
- ➔ Note : If possible, benefit from neighbouring works to deploy NSM measures more rapidly or cheaply

Step 4 : Evaluation of safety benefits

- ➔ This requires hindsight and time.

NSM deployment over France

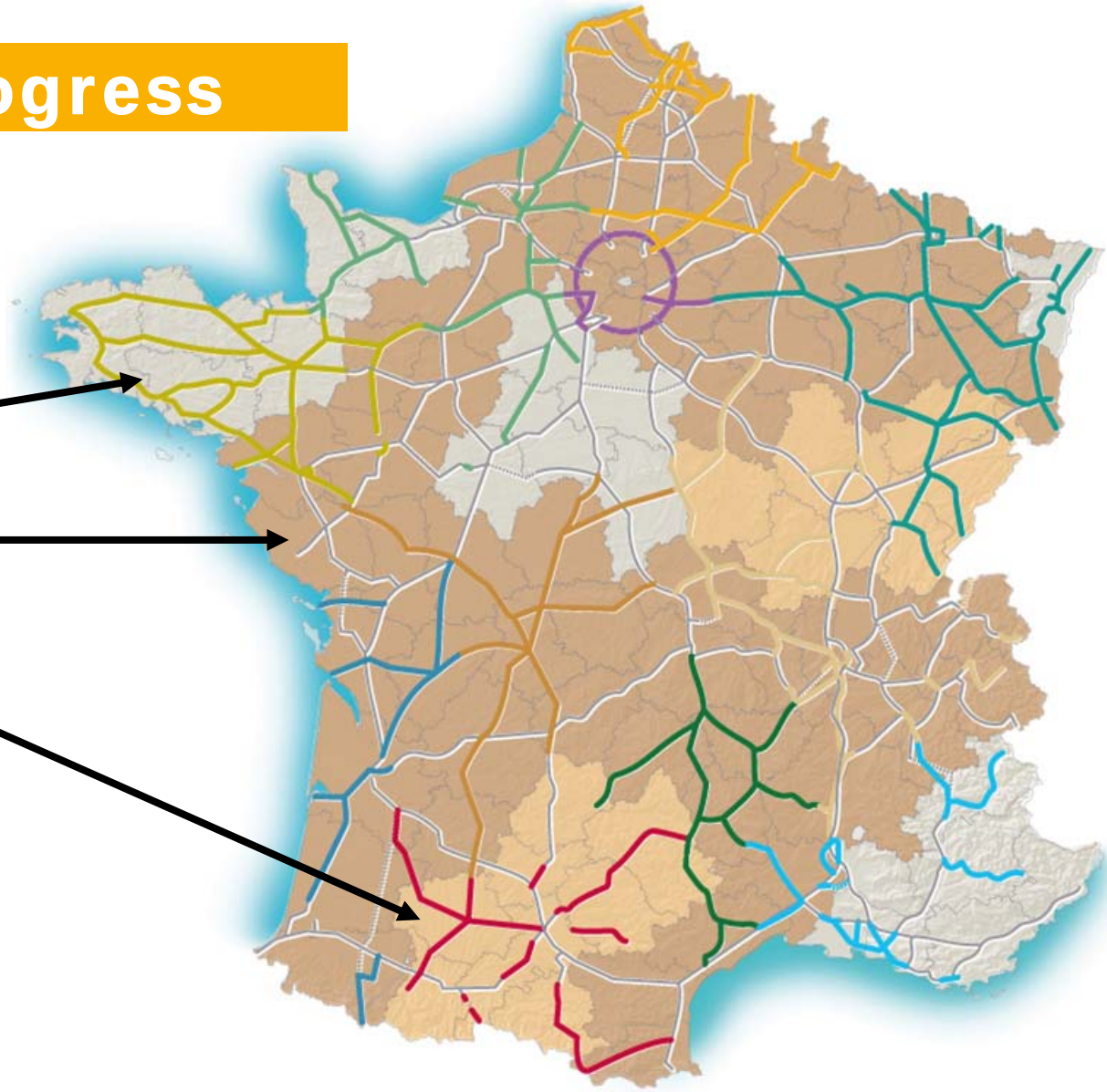
2004 : French SURE is tested on 15 pilot sites

2005 : French SURE is launched over the whole French State network

2007 : 40 priority itineraries have been analysed and remedial measures budgeted for (20 Mio€)

The following slide shows the progress of Step 1 studies (analysis of actual accident data over the whole network)

Step 1 progress



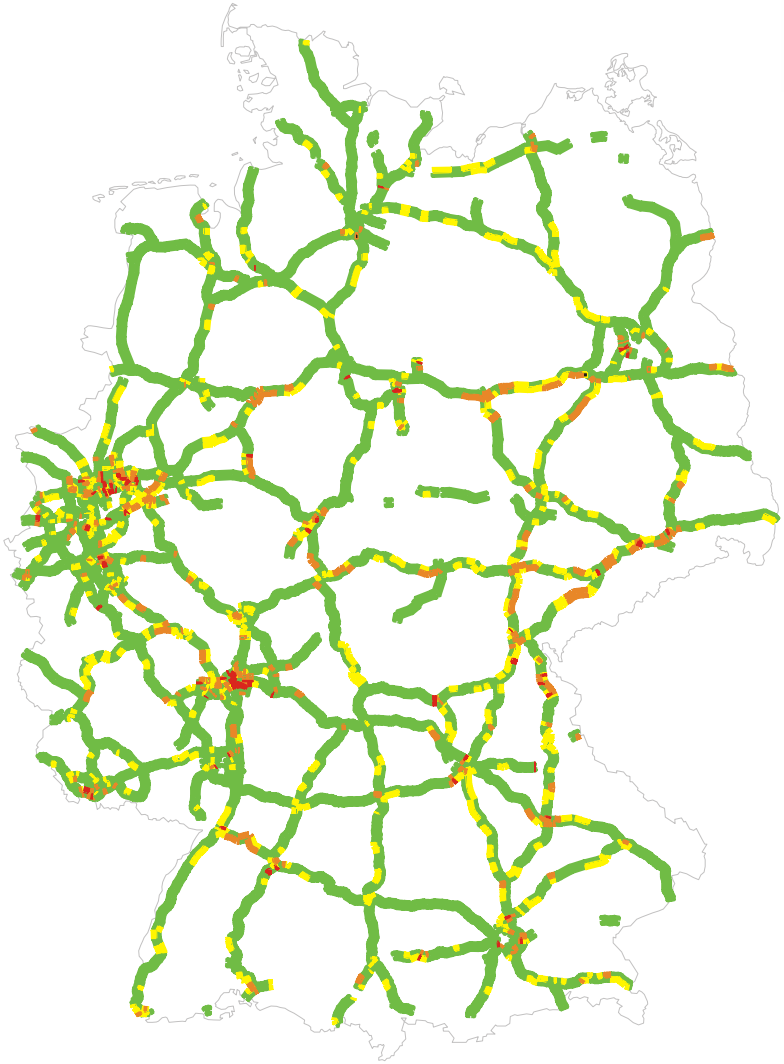
NSM deployment over Germany

2003 : “Guidelines for Safety Analysis of Road Networks (ESN)“

Since 2003 : Safety potential map for motorways (www.bast.de)

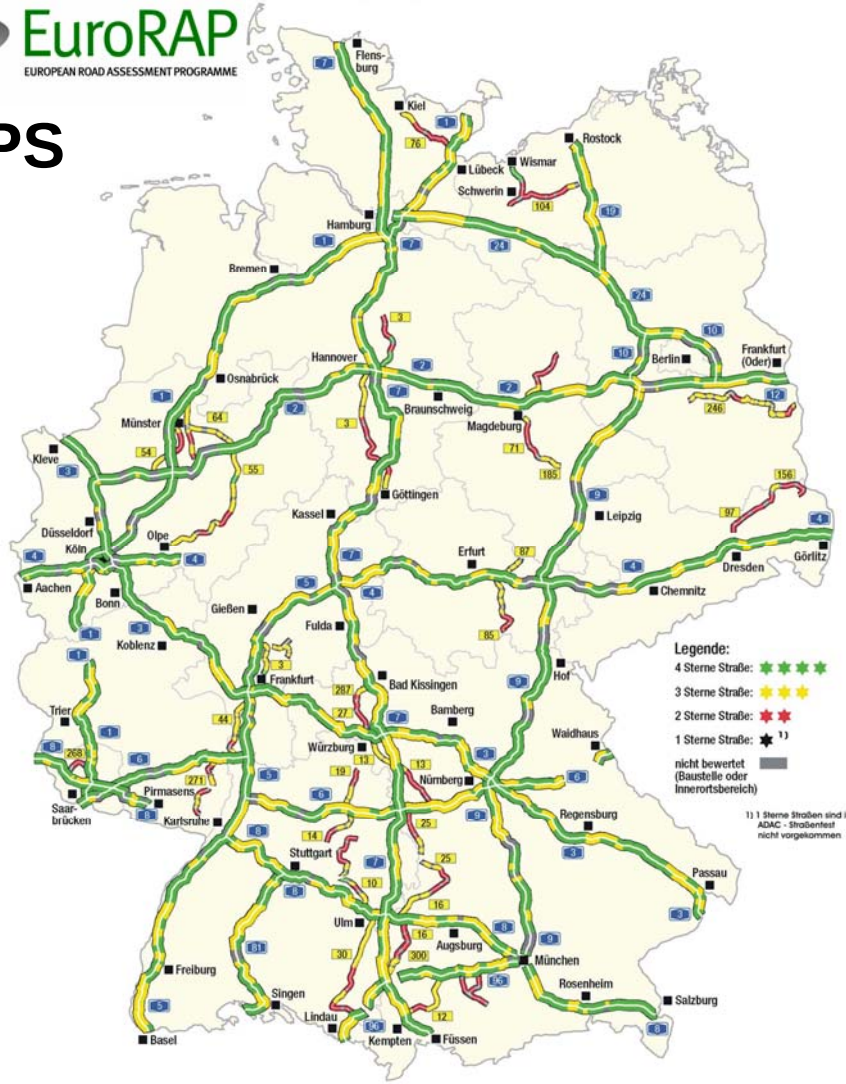
2006 : Pilot for all interurban roads in one state (including software development for application)

NSM deployment in Germany (2)

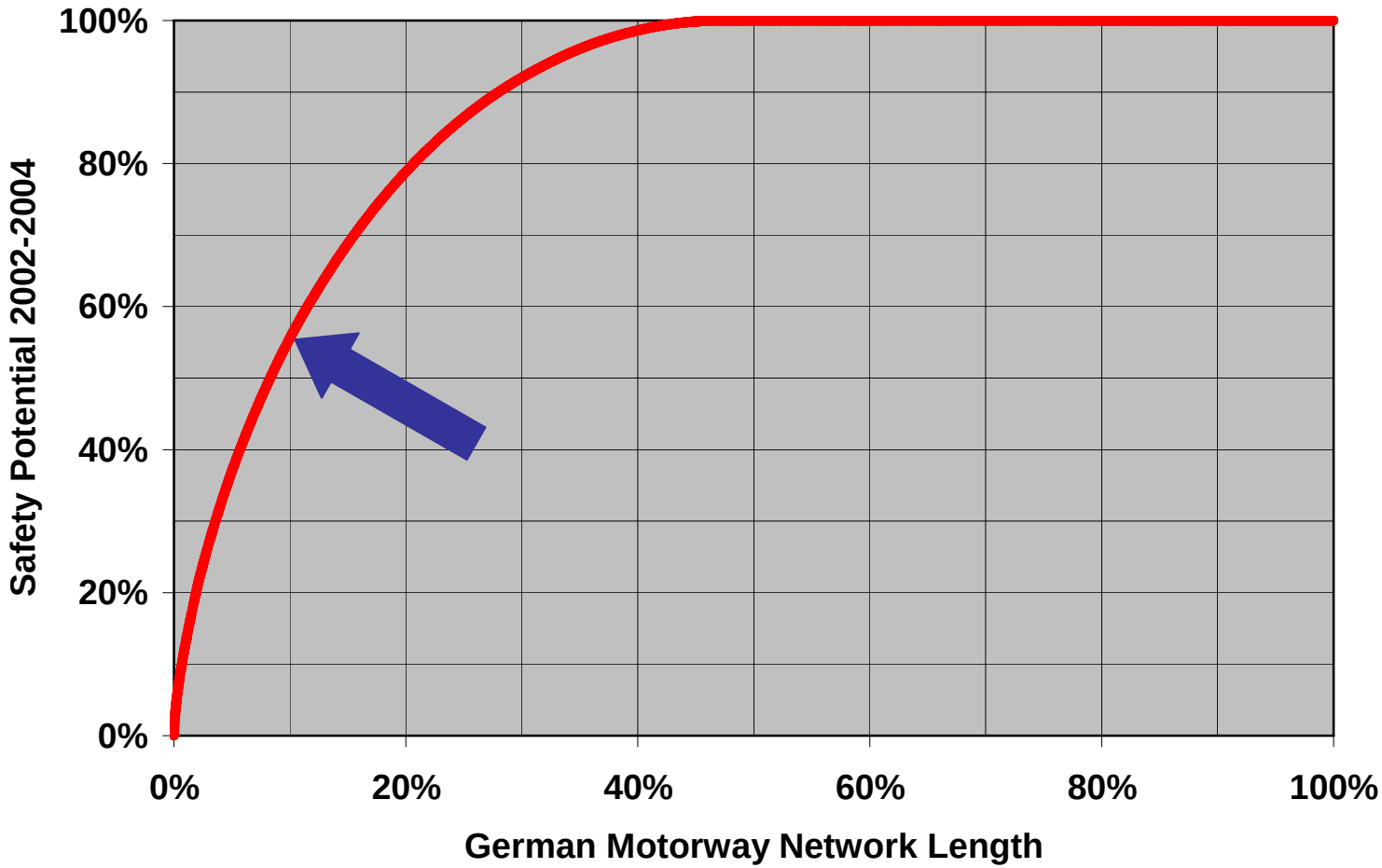


EuroRAP
EUROPEAN ROAD ASSESSMENT PROGRAMME

RPS



Priority Ranking



NSM is one of several measures

Road accidents are failures of a system involving driving behaviours, vehicles and the infrastructure (which is involved in 40 % of cases).

NSM is one of several measures that tackle infrastructure-related issues :

- Road safety audits for new projects
- NSM on the existing network
- Comprehensive road safety inspections on the existing network (under development in France)
- « Route autrement » or « Calming road » project (under development in France)

Conclusion

- NSM is a European method that prioritizes action on high-return measures.
- NSM addresses safety issues on the existing road network, which are a priority.
- NSM is a tool among others
- NSM requires accident data.
- It complements driver and vehicle-targeted measures.
- NSM has been successfully deployed over two large road networks and inspectors have been extensively trained.