

POLIS



2013 ANNUAL POLIS CONFERENCE

European cities and regions for a more sustainable mobility

**4-5 December
in Brussels**

www.polisnetwork.eu/2013conference

***Safety Concepts for Cities: Today's Possibilities
and Future Potentials of Using Crash Data, Speed
Data and Accident Prediction Models.***

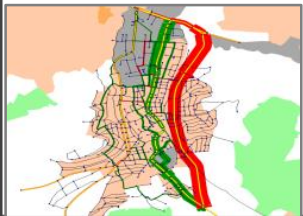
Hoffmann Timo, PTV Group

ROAD INFRASTRUCTURE SAFETY MANAGEMENT IN THE EU

EU Directive 2008/EC/96

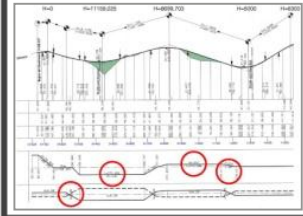
**Road Safety
Impact
Assessment**

(RIA)



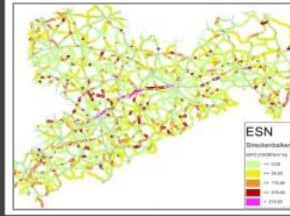
**Road Safety
Audit**

(RSA)



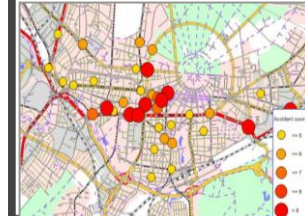
**Network
Safety
Management**

(NSM)



**Black Spot
Management**

(BSM)



**Road Safety
Inspection**

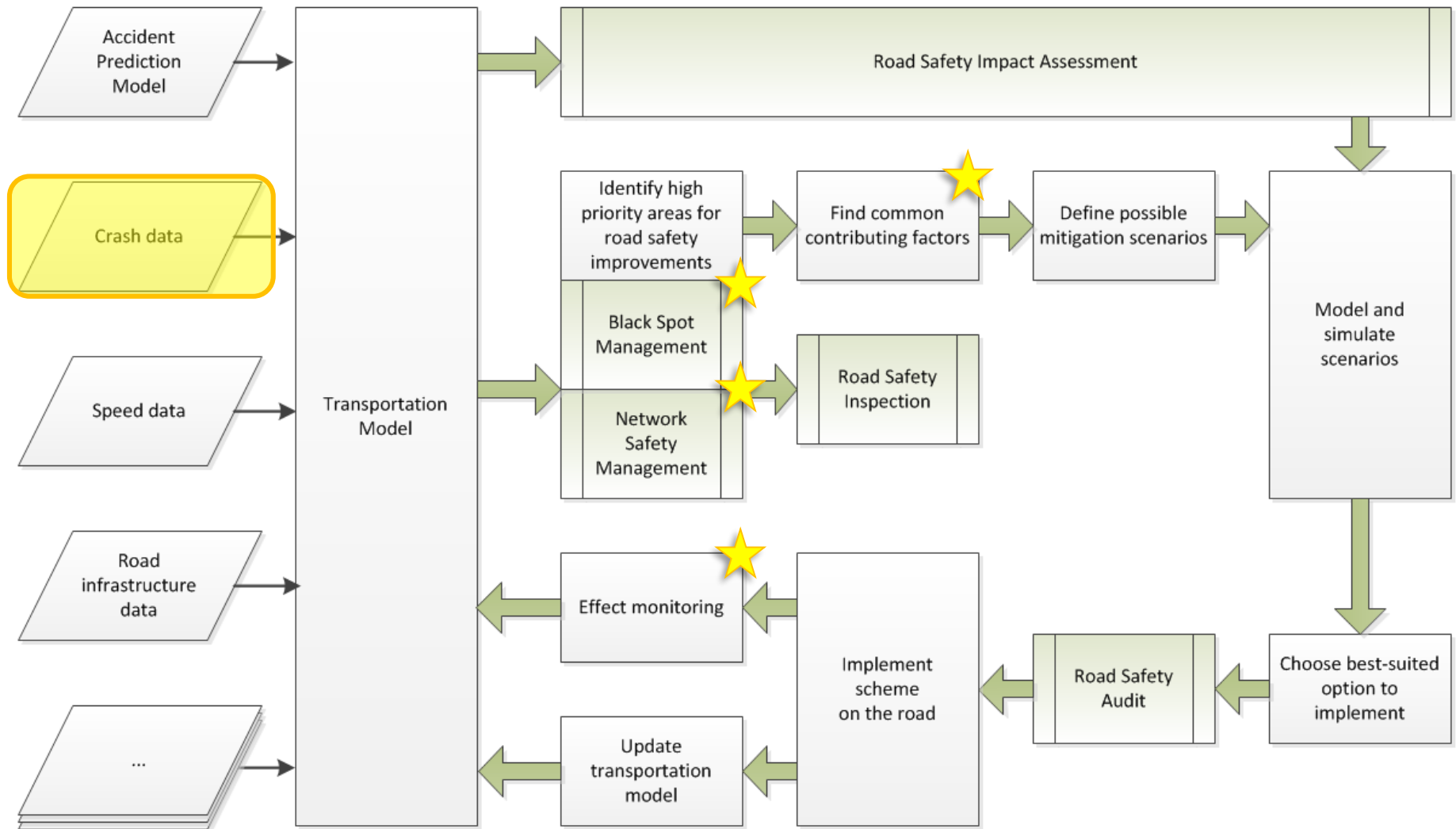
(RSI)



New Schemes

Existing Roads

THE BENEFITS OF INCLUDING CRASH DATA



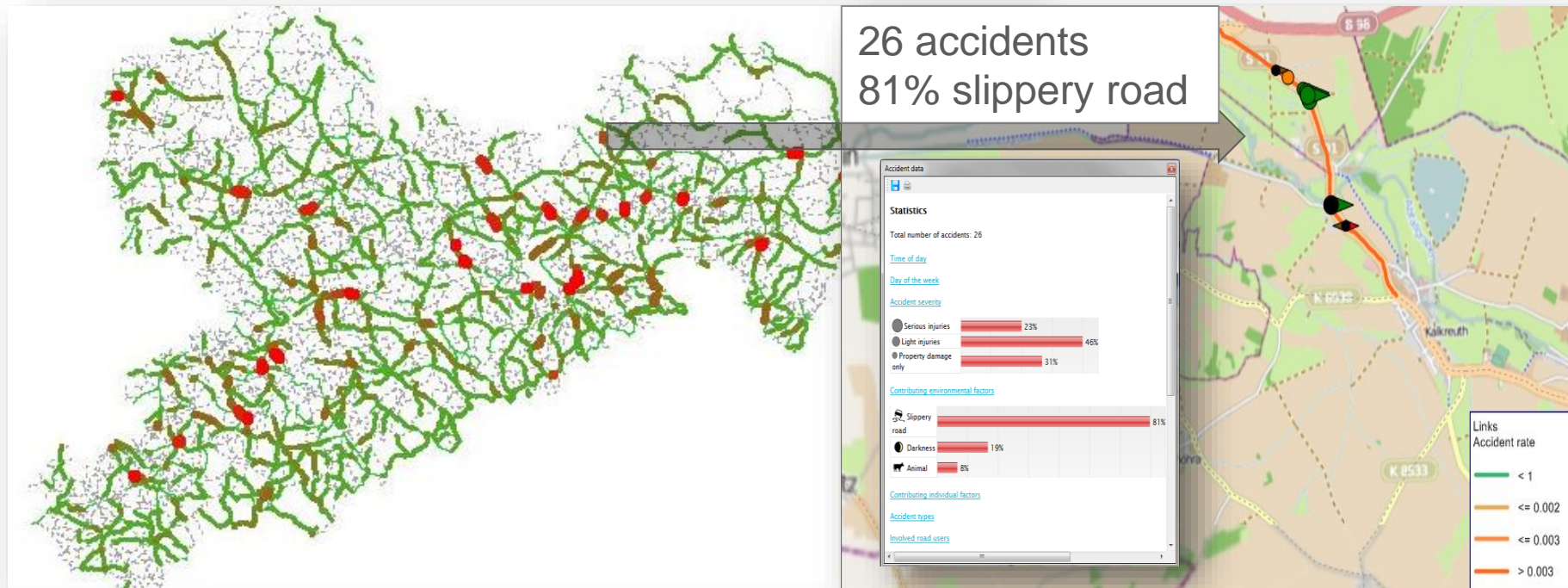
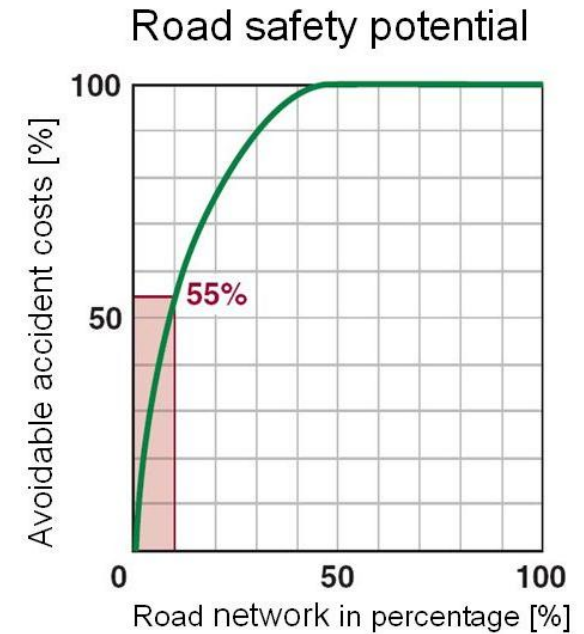
INTEGRATION OF CRASH DATA INTO TRANSPORTATION MODEL

Advantages of integrating crash data with a transportation model in a transportation planning tool:

- ▶ Referencing to the road network
 - ▶ Availability of traffic volumes...
 - ▶ allows for accident rate, accident density indicators
 - ▶ ...and other road parameters (number of lanes, intersection types, etc)
- ▶ Access to safety indicators (e.g. black spots) while doing other transportation planning tasks
 - ▶ Road work management
 - ▶ Strategic planning

IDENTIFICATION OF HIGH PRIORITY AREAS

- Network Safety Management (NSM)
 - Macroscopic view on the entire network
 - Ranking of high risk sections in the jurisdiction



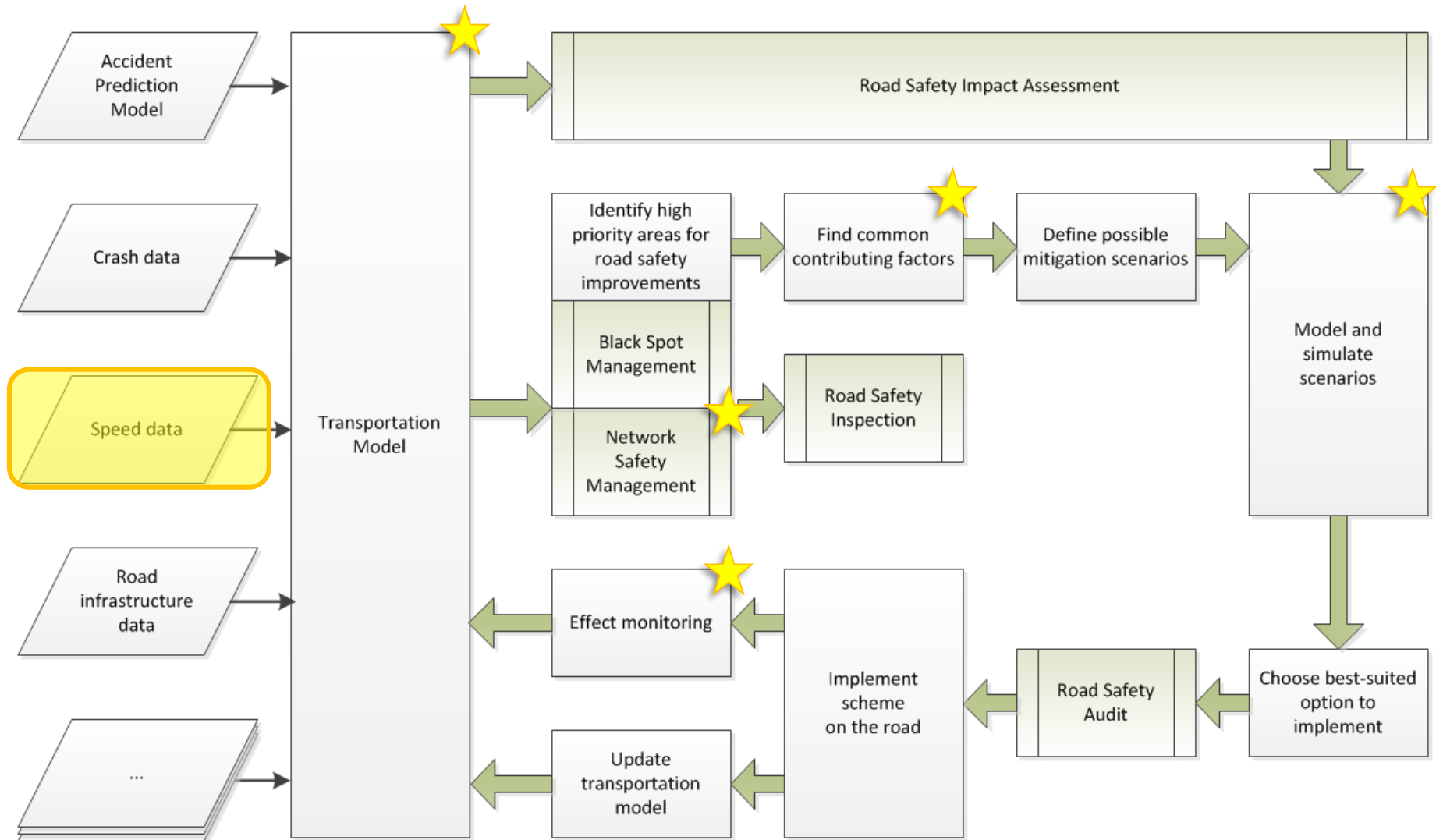
IDENTIFICATION OF HIGH PRIORITY AREAS

Black Spot Management (BSM)

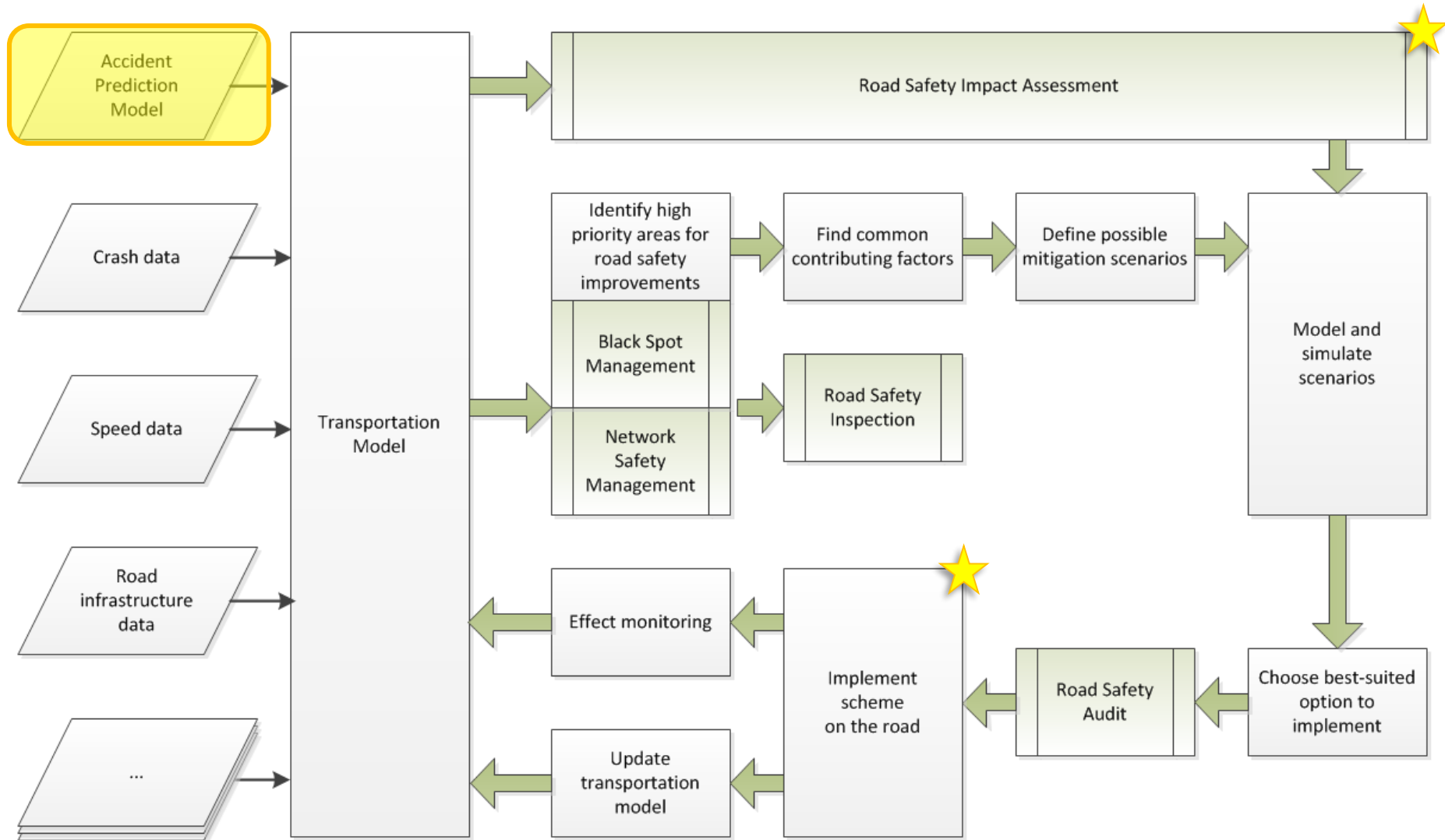
- Micro view
- Small scale high risk sites / hot spots (spots/intersections or lines/road sections)



THE BENEFITS OF SPEED DATA



THE BENEFITS OF USING ACCIDENT PREDICTION MODELS

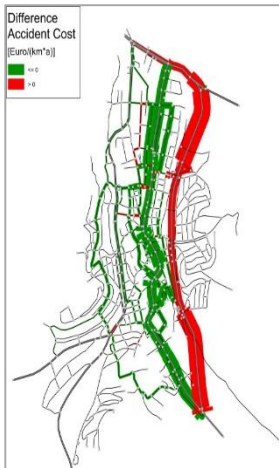


SAFETY PREDICTION IN INTEGRATED ROAD SAFETY MANAGEMENT

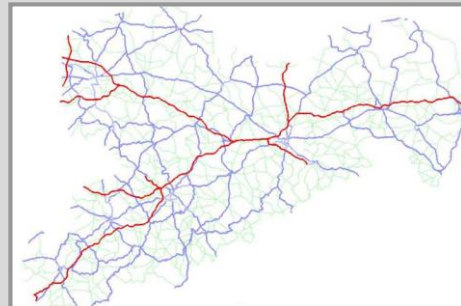
Road Safety Impact Assessment (RIA)

Strategic Optimization based on a prediction model

- Assess effects of planning and reconstruction projects on road safety (prediction)
- Enhance traffic demand modeling by accident prediction models (APM)



$$A(P)_s = e^{-20.15} \times L^{1.03} \times AADT^{0.56} \times v_m^{3.82} \times e^{UI} \quad \text{APM}$$

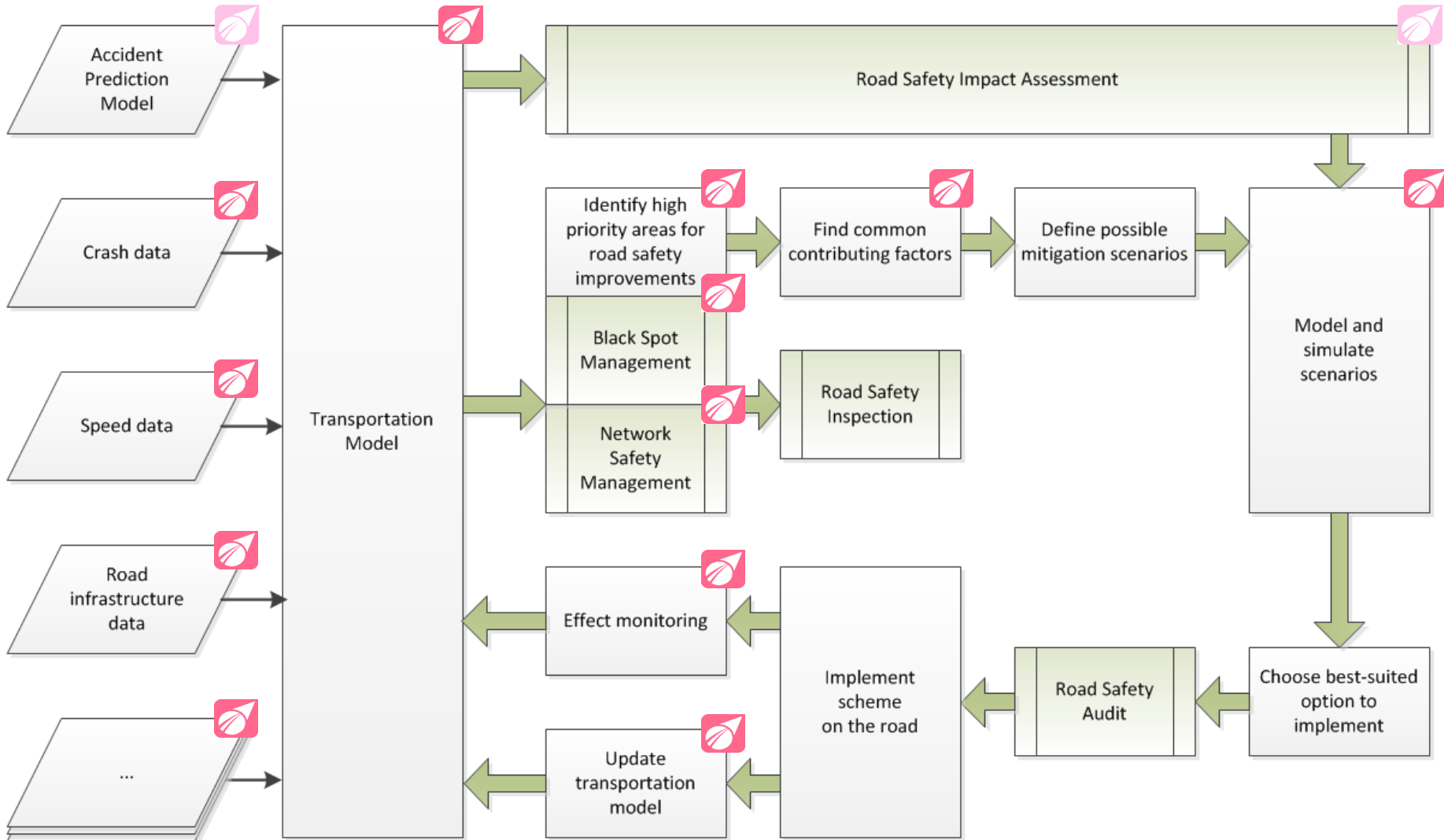


Road Network Traffic Forecast

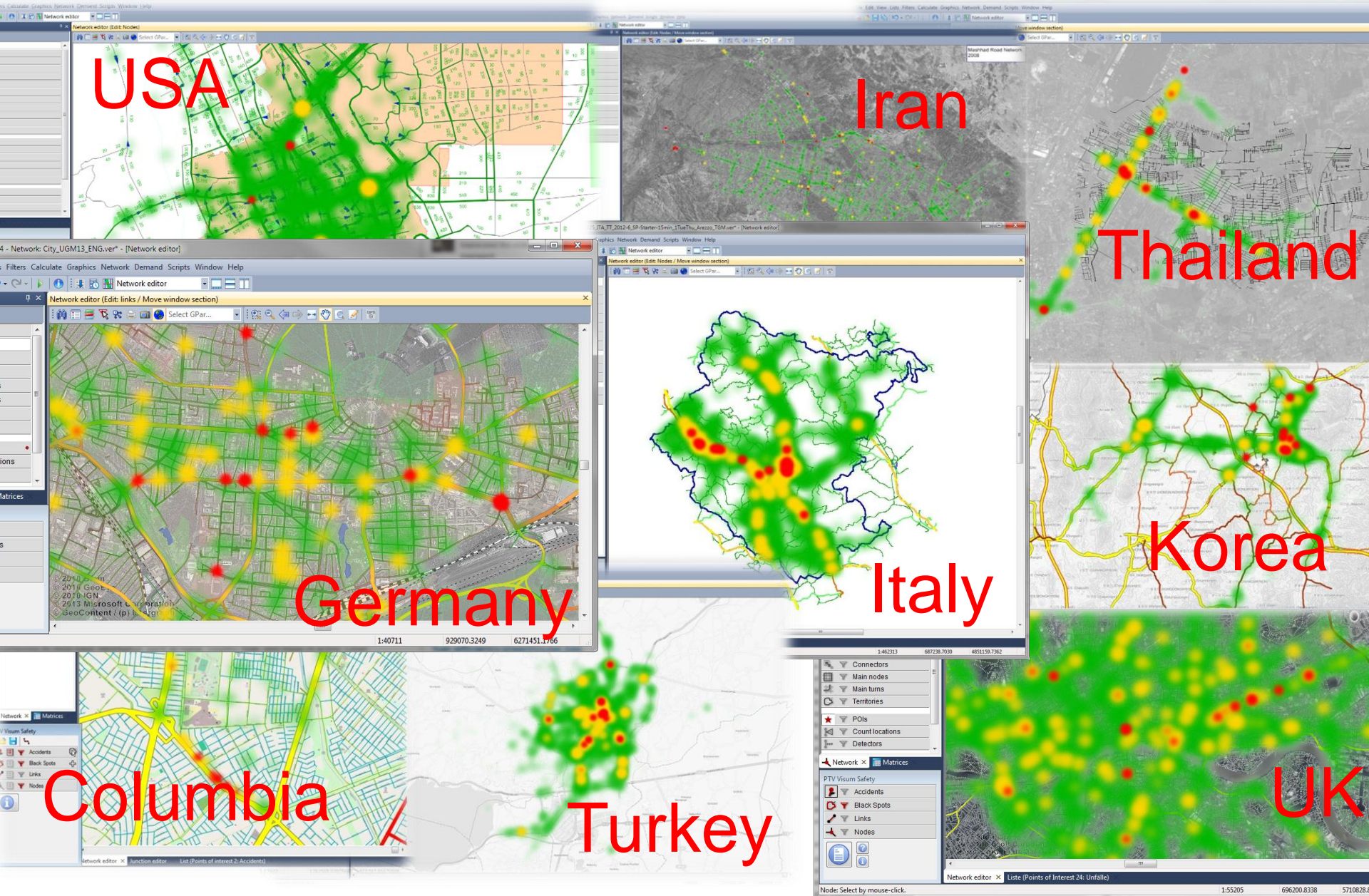
RANKING (Δ accident cost, cost-benefit-ratio)

, do nothing' scenario	Σ xxx.xxx €/a
1. Δvariant-A	- xxx.xxx €/a
2. Δvariant-B	- xxx.xxx €/a
3. Δvariant-C	- xxx.xxx €/a

INTRODUCED PROCESS IN THE PROVINCE OF AREZZO, ITALY



VISUM SAFETY IN USE AROUND THE WORLD



THANK YOU FOR YOUR ATTENTION

Hoffmann, Timo (Dipl.-Geogr.)
Product Manager Safety
Traffic Software
PTV GROUP

PTV AG
Haid-und-Neu-Straße 15
76131 Karlsruhe
GERMANY

+49 721 9651-7250
timo.hoffmann@ptvgroup.com