



EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY



**COST ACTION TU1103:**

**OPERATION AND SAFETY OF TRAMWAYS  
IN INTERACTION WITH PUBLIC SPACE**

Final conference – Frankfurt, Germany – 29 September 2015

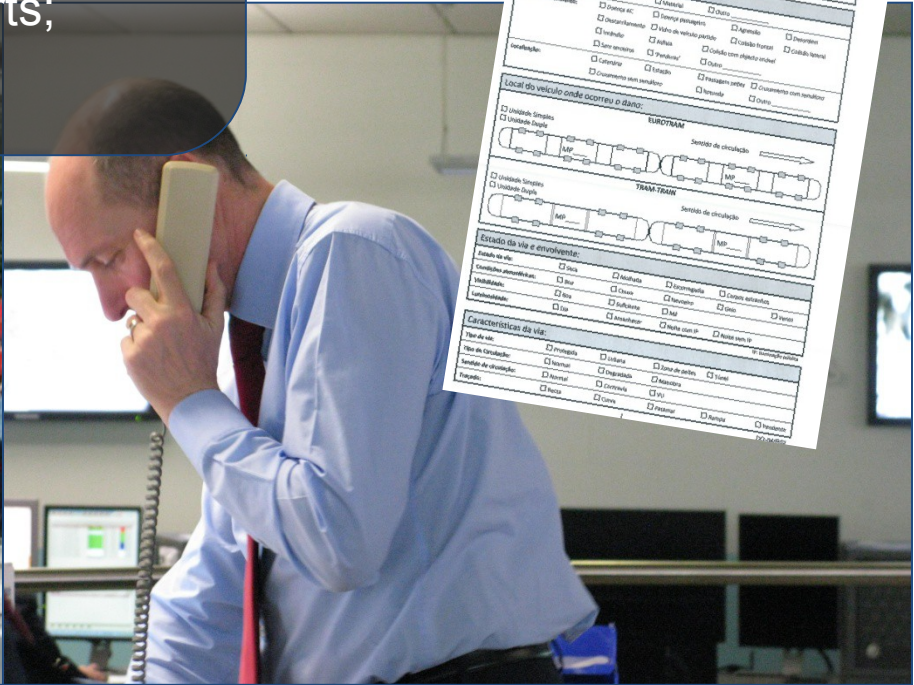
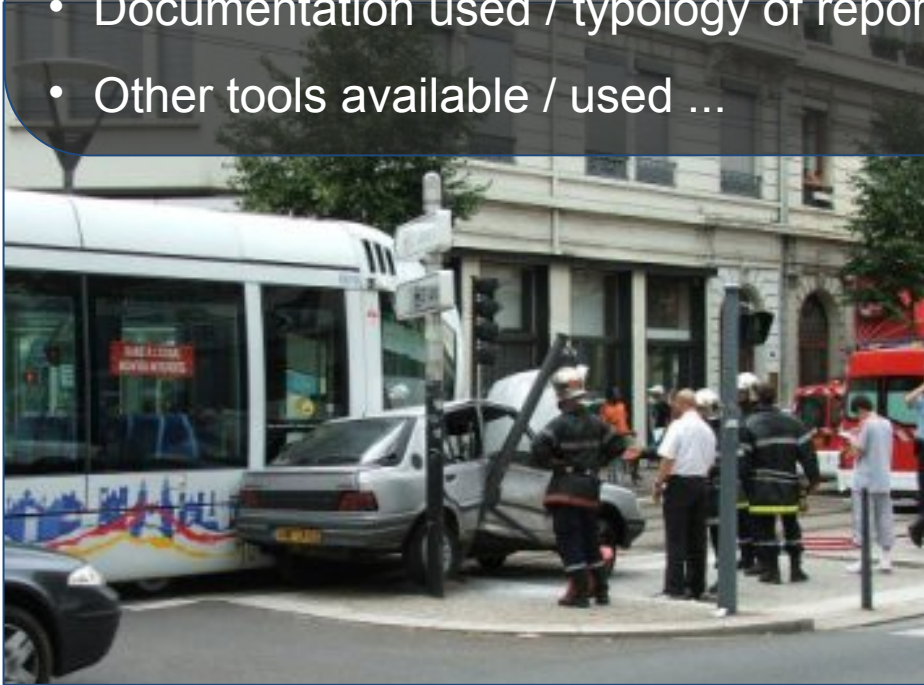
# Conclusions on Infrastructure Design . From Theory to Reality

## Background

We wanted to know, as much as possible, about :

- Practices on collecting data;
- Documentation used / typology of reports;
- Other tools available / used ...

**Remembering!**



## Background

...and we took some important conclusions that helped us to:

- **Identify crucial items that should be part of an Ideal Accident Report;**
- **Make a Questionnaire to Operators about main problems and the identification of hotspots;**
- **Define a strategy for our analyses based in Problems / Hazards/ Objectives / Measures.**





Then we went back to the Ground and studied the Interaction Points of the Infrastructure.

We went through:

Stops and Stations



Pedestrian Crossings



**Road Junctions  
Roundabouts**



**Running Sections**



After the study of the Interaction Points, and crossing with the information of the Operators' Hotspots, we arrived to the same type of hazards!

“I did not **see** him!”



### Angle of sight

Intervention on geometry of the sight is very important in order to achieve the best angle when road users interact between them.

Objective – 90° Perpendicular.

### Obstacles

Clean sight from any obstacles (trees, urban furniture, pools, cabinets,...)

### Contrast

Enhance the presence of the vehicle using bright colours and circulate with the lights On



I did not **understand!**



Intervention on the tramway system infrastructure through:

### Tramway

Highlighting the presence of the tramway bed and swept path, using **different materials, textures, colours and/or other elements like fences, bushes etc.**

**But!**

**Do not forget to guarantee the visibility between road users.**



I did not **know** !



Use **understandable** and **sufficient** information to make clear the presence of a tramway system and to regulate the movements of road users, through:

**signage;**  
**traffic signs;**  
**traffic lights;**

...

And other type of information to “shape” the behaviour of road users for a safe circulation in a Tram zone:

**flyers;**  
**outdoors;**  
**Social networks campaigns**

...



Considering that tramway systems operate in the cityscape, interacting with other the road users, urban insertion design must create all the conditions that allows people:

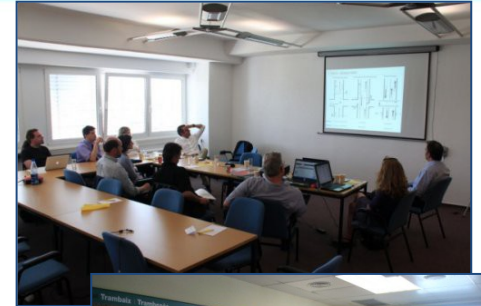
**To See**  
creating physical conditions

**To Understand**  
improving the perception of trams and tramway infrastructure parts

**To Know**  
providing and/or taking information to road users

...in order to guarantee a pacific and safe use of the public space among all .









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Thank you for your attention !

Manuel Paulo Teixeira .  
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