



International conference
GO SMART – GO RAIL
Munich, 28-30 October 2015

Operation and safety of tramways in interaction with public space (COST Action TU1103)

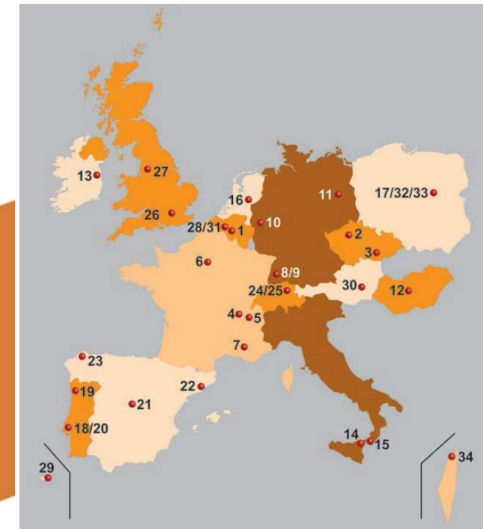
Laetitia FONTAINE, STRMTG, France
Chair of COST Action TU1103

LOCAL HOST



Context

- COST Action TU1103 = Sept 2011 → Sept 2015
- transport researchers, tram operators (incl. UITP) & national control authorities - 15 countries
- deals with the improvement of LRT safety through a better management and design of their insertion into urban spaces



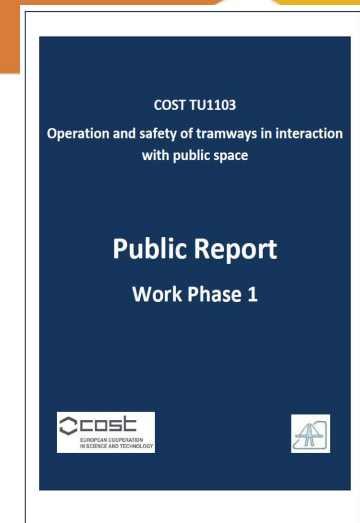
- **To merge LRT performances and urban spaces, interactions have to be dealt with properly !**

Context

Results

Two main Phases & results

- inventory of the current situation in each country, by identifying the data, information and analysis methods available while highlighting the most useful ones
 - **First phase report**
- propose advice on collision data collection tools and on infrastructure design for tram/space users interactions (conclusions on analysis, highlighting of good practices, recommendations)
 - **Final report**



Operation and safety of tramways
in interaction with public space
Analysis and Outcomes
Detailed Report



COST is supported by
the EU Framework Programme
Horizon 2020

TU1103 Action final report
September 2015

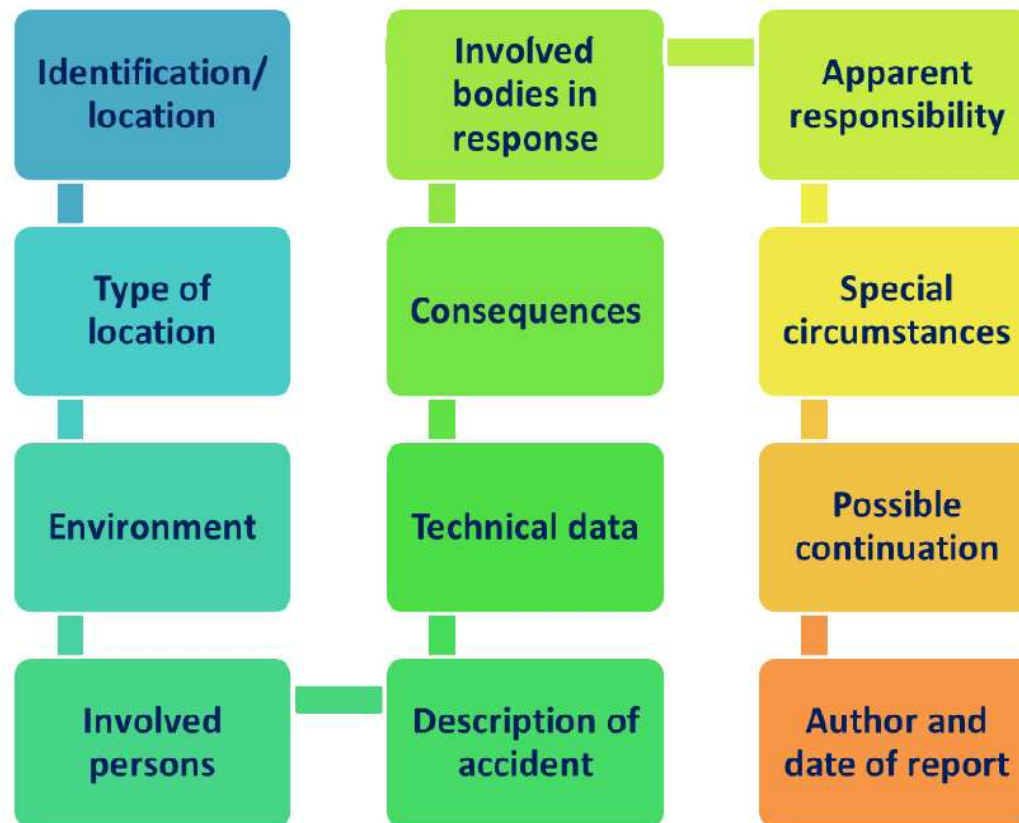
UITP

Ideal Accident Report

- The template is a suggestion, adaptable for each operator's need. A continuous application provides:
 - structured data acquisition on site,
 - essential element of accident prevention,
 - conservation of evidence.
 - Methodology COST TU 1103:
 - Examples from 7 different countries
 - Examples show extent and different approaches
 - Common denominator + suggestions for improvement
- => Ideal Accident Report**

Monitoring tools

Ideal Accident Report



Do not forget!

Every detail can be of crucial importance for subsequent investigations.

Monitoring tools

From the accident to data acquisition and analysis

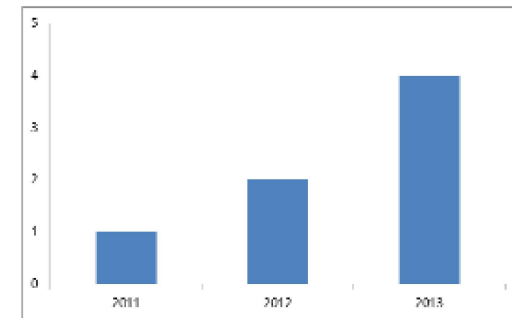
- Accident Report on site
- Ideal Accident Report
- Other data collection
- Post-analysis and hotspots
- National and European database
- Indicators



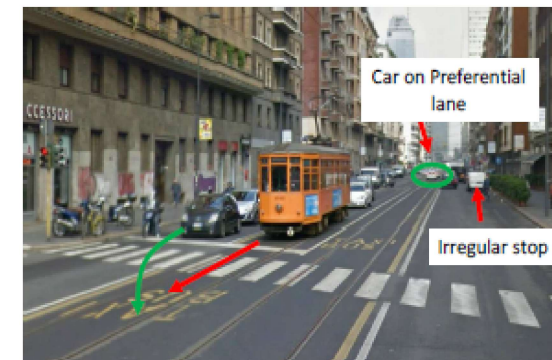
Infrastructure Design

- Sources: TU1103 members shared their experiences and knowledge organising them by “interaction points” considering the specific place in the network and the main categories of road users
 - collecting examples of practices (150)
 - interviewing operators (24)
- => whatever the tram network, some points/layouts deserve more attention - systems in every country face similar kinds**

Number of accidents (in the last 3 years)



All accidents are cars that cut in front of the tram.



MEASURES IMPLEMENTED

Have you implemented corrective measures?

No

If no,

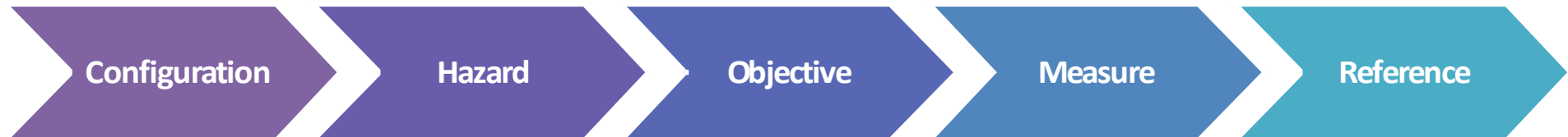
Are there any measures planned/approved for implementation?

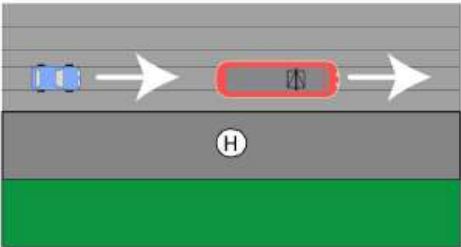


There is a project to protect the preferential lane with a curb, but the Municipality doesn't want to realize it. They reject the project because they want to allow car parking (in "kiss and ride" mode).



Infrastructure Design

Methodology: for each interaction point:



Configuration	Hazard	Objective	Measure	Reference
<p>1.1 Tracks are located in lateral position. There is no dedicated platform. Tram shares the traffic lanes with road traffic.</p> <p>1.1.1 Configuration with one lane in each direction shared by vehicles and tram</p>  <p>1.1.1 no dedicated platform - mixed</p>	<p>When there are staggered platforms (not face to face), pedestrians might cross anywhere and in particular behind a tram when a second tram approaches from the other direction.</p>	<p>To channel pedestrians onto a designated crossing</p>	<p>A pedestrian crossing is drawn between the two platforms. Between the two tracks, there is a physical separator except at the crossing.</p>	<p>FR2_1 (Stations)</p> 
	<p>Road vehicles that overtake a tram when it stops at the station surprise another tram or a vehicle arriving from the other direction</p>	<p>To avoid vehicles overtaking the tram when the tram stops in station</p>	<p>To implement a physical barrier between the two tracks.</p> <p>Other types of separator, such as a kerb, white line or rumble strip, can be used; they are less intrusive but may not be so effective.</p> <p>To ensure vehicles stop behind the tram, using Stop-lines etc</p>	<p>FR2_1 (Stations)</p> 

Infrastructure Design

Stops and stations: the first contact between the users and the tr

- Main hazards :
 - People waiting at a stop or station
 - Pedestrians crossing to reach the tram or getting out of the tram
 - Vehicles circulating (mixed traffic)
 - Additional distraction of pedestrians who use headphones, smartphones...



Infrastructure Design - Stops & stations

Pedestrians crossing to reach the tram or getting out

- Hazard: crossing between platforms, sometimes behind a tram when another tram is approaching
- Objective: to prevent pedestrians crossing the track in the station
- Measure:
 - To implement barriers in the middle of the track
 - To signal danger for pedestrians between platforms





EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

Thank you for your attention !

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www.tram-urban-safety.eu

