SAFETY AT LEVEL CROSSINGS IN BELGIUM

New risk model & Awareness campaign targeting young users

Safety team
07.06.2018
Infrabel manages the Belgian railway infrastructure

6,511 km of tracks
10,176 signals
1,737 level crossings
86 signal boxes
10,935 employees
Change in the number of accidents at level crossings

Main cause = road users ignoring the Highway Code
Causes LC accidents 2014-2017 (excl. harbours)

Negligence (zigzagging) 48%
Imprudence (Blocking Back) 36%
Weather factors 14%
Others 2%

Car 52%
Pedestrian 33%
Motorbike 3%
Van 5%
Bicycle 7%
What strategy should be adopted?

Infrabel takes three types of action:

- **Enforcement**
- **Technical measures**
- **Raising awareness**

➤ Take action at targeted priority sites:

*New risk model enabling identification of the level crossings with the highest accident risk.*
PART 1: New risk model
Process management for actions plan

Process in 6 steps (from analysis to evaluation)

1. Problem identification (what, where?)
2. Further details (how, why?)
3. Partners & stakeholders
4. Resources
5. Target location
6. Problem behaviour
7. Existing measures
8. Objectives of new measures
9. Which measures could fit the problem?
10. Focus on families of measures
11. Consult *Specific guidance*

- Evaluation
  - Follow evaluation plan
  - Effects
  - Costs and problems
  - Whole process
  - Implications
  - Publication of results

- Analysis of target situation
  - Target location
  - Problem behaviour
  - Existing measures
  - Objectives of new measures

- Selection of measures
  - Which measures could fit the problem?
  - Focus on families of measures
  - Consult *Specific guidance*

- Implementation plan
  - Select specific measures
  - Expected effects
  - Involved organisations
  - Estimated costs

- Implementation
  - Follow implementation plan
  - Execution
  - Maintenance

- Describing and understanding the problem
  - Follow evaluation plan
  - Effects
  - Costs and problems
  - Whole process
  - Implications
  - Publication of results

*Process in 6 steps (from analysis to evaluation)*
Define the LC hotspots

Create a **decision tool** to build a **LC ranking** in terms of potential risk of accident (except historic of accident)

Drawing up a **Top 50** for:
- LC with a highest potential risk of accident,
- LC with a high risk of Blocking back,
- LC with the worst visibility.
Integration of 40 parameters grouped in 3 categories: Road, Railway, LC Environment

Calculation of a score for each LC (-1 to +1) thanks to a multicriteria analysis method (qualitative and quantitative data’s with different unities): PROMETHEE method

Collaboration with a specialized consulting office linked with University of Brussels (Dart Consulting)
**ROAD**

- Road traffic density
- Average speed of vehicles
- Number of road leading to LC
- LC Visibility 50 m upstream
- LC visibility 150 m upstream
- Losses of priority downstream (right priority, roundabout, crossroads)
- Lighting
- Warning signs upstream LC
- ...

**RAILWAY**

- Railway traffic density
- Average speed of trains at LC
- LC Equipment
- **Waiting time for road users**
- LC pavement
- LC wide
- ...

**LC ENVIRONMENT**

- Weather factors (often fog, ...)
- Type of urban density
- Element leading to distraction of road users
- Number of schools 500 m around LC
- Events near a LC
- ...
Intern databases (railway data's)

Research of environment data's for each LC by students with a checklist (Google Map, Google Street View, field visit)

Road vehicles counting

Field experience from Infrabel agents
Some examples of preventive measures

- Pilot projects in progress in some hotspots
- Installation of technical measures following the TOP 50
PART 2:
Awareness campaign targeting young users
Communication strategy

Knowing your audience: speak like they speak

Keeping on top of trends: go where they are – online, use tech

Make campaigns relevant: make them share

Leaving customers with positive emotions - humor, empowerment and human connection: encourage them to engage & act or change
Summer festivals
Make your digital sign!
#NoTrespassing
Make your own digital sign #NoTrespassing

Infrabel will be present on music festivals this summer

**Potential Reach**

- **100,000** people
- **250,000** people
- **270,000** people
Make your own digital sign #NoTrespassing
Make your own digital sign #NoTrespassing
Make your own digital sign #NoTrespassing

Our active channels to communicate our presence at the festivals:

Making and distribution of short films
ONLINE Campaign
Make your own digital sign #NoTrespassing
Since 2017, we have put the priority on increasing the awareness of young people on the basic safety rules in the vicinity of the tracks.

Our main message is:

Your life is worth taking the long way round!

TOOLS FOR PRIMARY SCHOOLS
(age 6 – 12 years):
school kit, games booklet and large school calendar

TOOL FOR SECONDARY SCHOOLS
(12 – 18 years)
The Floor
The Floor by Infrabel: realistically raising awareness

- **Secondary school** pupils (from 12 to 18 years old) are made aware about the risks of trespassing on the tracks

- **Safety lesson** with interactive presentation by Infrabel employees or teachers

- **Session on The Floor**
  - 30 to 50 can view the VR film at the same time
  - **360° film** shot from the viewpoint of the trespasser, moving stage and sound effects

- **A realistic experience with virtual reality**
2017 - 2018 academic year: RESULTS

21
opportunities to raise awareness in schools or during police road safety events

10,000
school pupils reached by end of June

30
applications for academic year 2018 - 2019

Wide coverage in the press and social media
Film The Floor
30”
Crashtest
Stop before the sign!
SCENARIO

a car stops on a level crossing and is struck by a train running at a speed of **75 km/h**

PURPOSE

a multidisciplinary exercise allowing different partners (rescue services, police, signalling, safety systems) to test their intervention methods

**Impressive pictures**
Film Crashtest 30"
Any questions?
Change in the number of cases of trespassing on the tracks

The actual level of trespassing is (probably) even higher

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ON AVERAGE ➢ 6 HOURS DELAY DAILY
Profile of the track trespasser

Gender

18 - 34 years old

Near a station and with local people

Especially during rush hours
Intrusion on the tracks (trespassing)

KEY FIGURES

- **SHORTEST WAY**
  - Commuters: 46%
  - Local residents & walkers: 16%
  - Children & young people: 20%

- **FEELING OF INSECURITY IN LEVEL CROSSINGS**
  - Older persons: 4%

- **DROP SOMETHING ON THE TRACKS**
  - Commuters: 4%

- **GATHERING PLACE/GAME**
  - Children & young people: 20%

- **TEMERITY**
  - Young people: 8%
  - Other: 2%
Every year, Infrabel has quite a few accidents on and around the tracks, on level crossings, resulting in serious injuries and/or fatalities.
Next steps

The photo booth concept will be re-used for The Floor in order to maintain our presence on social media.

The Back to school programme starts again in September with our existing activities:

- Pupil's calendar
- Raising children's awareness
- The Floor