



# HOW CHANGE THE ROLE OF STATION, HOW CHANGE THE RAIL SECURITY.

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# Threats to Railway Infrastructure and Trains

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- CYBER ATTACK
- SABOTAGE
- TERRORISM



- ABUSIVE OCCUPANCY
- ACTIVATION OF THE EMERGENCY ALARM ON BOARD
- THROWING STONES
- VANDALISM
- GRAFFITI
- THEFT
- COPPER THEFT
- ROBBERY
- AGGRESSIONS
- OBSTACLES ON THE RAILWAY LINES
- ARSON

# Stations: which role in the urban environment?

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## Major Stations : a prime target

- ❑ Major Stations as “open areas”
  - ❑ Shopping center/Meeting place
  - ❑ Optional facilities (parking areas, hotels, ...)
  - ❑ Intermodal transport exchange
  - ❑ Concentration of social decay
  - ❑ Masterpieces of contemporary architecture
- ❑ Easy target, complex environment, hard to protect
  - ❑ High probability of success
  - ❑ High economic damage
  - ❑ Wide eco impact of mass media and on public opinion

# Station security: what it's all about?

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**The structural “trade off”**

**Security technologies**

**Security in the layout**

**Information and public awareness**

- ❑ Prevention of progressive collapse of the building
  - ❑ Minimize injuries and loss of lives
- ❑ Facilitate the evacuation and rescue of survivors
- ❑ Contain damages in the vicinity of an explosion

# Civil engineering for risk mitigation

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## BLAST

Threats	Guidelines	Counter measures
<ul style="list-style-type: none"><li>Fragmenting structural material</li></ul>	<ul style="list-style-type: none"><li>Strengthen infrastructure elements as columns, walls and floor slabs</li></ul>	<ul style="list-style-type: none"><li>Insulating Concrete Forms (ICF)</li><li>Use of barriers along the building perimeter as planters, bollards other barriers</li></ul>
<ul style="list-style-type: none"><li>Building collapse</li></ul>	<ul style="list-style-type: none"><li>Redund load bearing structures</li><li>Designing redundancies into the structure to carry additional load</li></ul>	<ul style="list-style-type: none"><li>Metals for structural protection as steel, aluminium, ect.</li></ul>
<ul style="list-style-type: none"><li>Breaking glasses (glazing break)</li></ul>	<ul style="list-style-type: none"><li>Minimize the use of windows in facade</li><li>Use proper material</li></ul>	<ul style="list-style-type: none"><li>Thermally Tempered Glasses (TTG), Polycarbonate films or Polycarbonate in place of glass</li></ul>

# Civil engineering for risk mitigation

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## CBRN

Threats	Guidelines	Countermeasures
<input type="checkbox"/> Unauthorized access	<input type="checkbox"/> Protect physical accesses	<input type="checkbox"/> Armoured doors <input type="checkbox"/> Control access
<input type="checkbox"/> CBRN substances spreading	<input type="checkbox"/> Install air monitoring systems <input type="checkbox"/> Partition the areas	<input type="checkbox"/> Sensors and hand-held detection equipment <input type="checkbox"/> Segregated ventilation ducts and emergency doors <input type="checkbox"/> Training in CBRN awareness as basic characteristics and symptoms of substances
<input type="checkbox"/> Contamination of the attacked areas	<input type="checkbox"/> Use of non porous surfaces	<input type="checkbox"/> Use of easy to decontaminate materials

# Security in the layout

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## Police Forces Office

- Maximum visibility to travelers
- Easily access to/from different station areas
- Control Room on site

## Technological premises (Operation Control Center, Energy Power Station, Control Room,...)

- Strategic building far from crowded area
- Not accessible place

## Commercial Area

- Far from emergency exit
- Proportional to flow analysis



# Security Technologies

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WHERE / WHAT TO USE	CCTV	ACCESS CONTROL	INTRUSION DETECTION	SOS COLUMNS	PASSIVE PROTECTION
Sidewalks, subways, atrium, waiting rooms, ticket office and ticket self machines	X				X
Sensitive and technological premises and buildings	X	X	X		X
Accesses and accessible windows in sensitive premises			X		X
Atrium and sidewalks (only if Police is on duty 24hrs/day)	X			X	
External areas of the station	X				X

Procedures and staff training : Emergency plans, and easily accessible procedures/Regular training program/E-learning/Joined emergency plans testing (Police, Fire brigades, Civil Protection)/Debriefing



# The outcome

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## SECURITY BY DESIGN



Cost reduction

Greater chance to mitigate effects of an attack

Security Standard in civil engineering

UE Critical Infrastructure Protection legislation compliance



...Thank you

for your kind attention

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