



**10th UIC World
Security Congress**
Lisbon 2014



Graffiti in Trains

response capacity and time

as the central issue



INTERNATIONAL UNION
OF RAILWAYS



COMBOIOS DE PORTUGAL

Artur Cerejo

Agenda

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1. The graffiti context



What is graffiti? Origins:

The word “graffiti” was first used in English in 1851 to refer to ancient wall inscriptions found in the ruins of Pompeii.

Definition of *graffiti* in English:

Writing or drawings scribbled, scratched, or sprayed illicitly on a wall or other surface in a public place: the station was covered in graffiti (in Oxford Dictionaries)

Graffiti as an illicit act:

Graffiti is the unauthorized act of marking other people’s property without their permission. It is illegal, ugly and expensive to remove. Graffiti affects us all, it can lower property values, make people feel unsafe, reduce business patronage and encourage other types of crime. (Australian Government paper – City of Gold Coast)



1.1 Brief glossary

Blackbook, piecebook, sketchbook – book with sketches

Bombing – also known as “throw-up”, quickly-painted with two or three colors, sacrificing aesthetics for speed

Cap – spray paint nozzle

Crew – graffiti gang

Graffiti creator - is a useful tool to help with lettering and creating your own style

King – a notorious and recognized writer

OSB – one step beyond

Piece - is a more elaborate representation of the artist's name, incorporating more stylized letters, usually incorporating a much larger range of colors

Tag – signature of the writer

Toy – inexperienced writer or new writer

VW – Vandals wanted

Writers – painters of graffiti

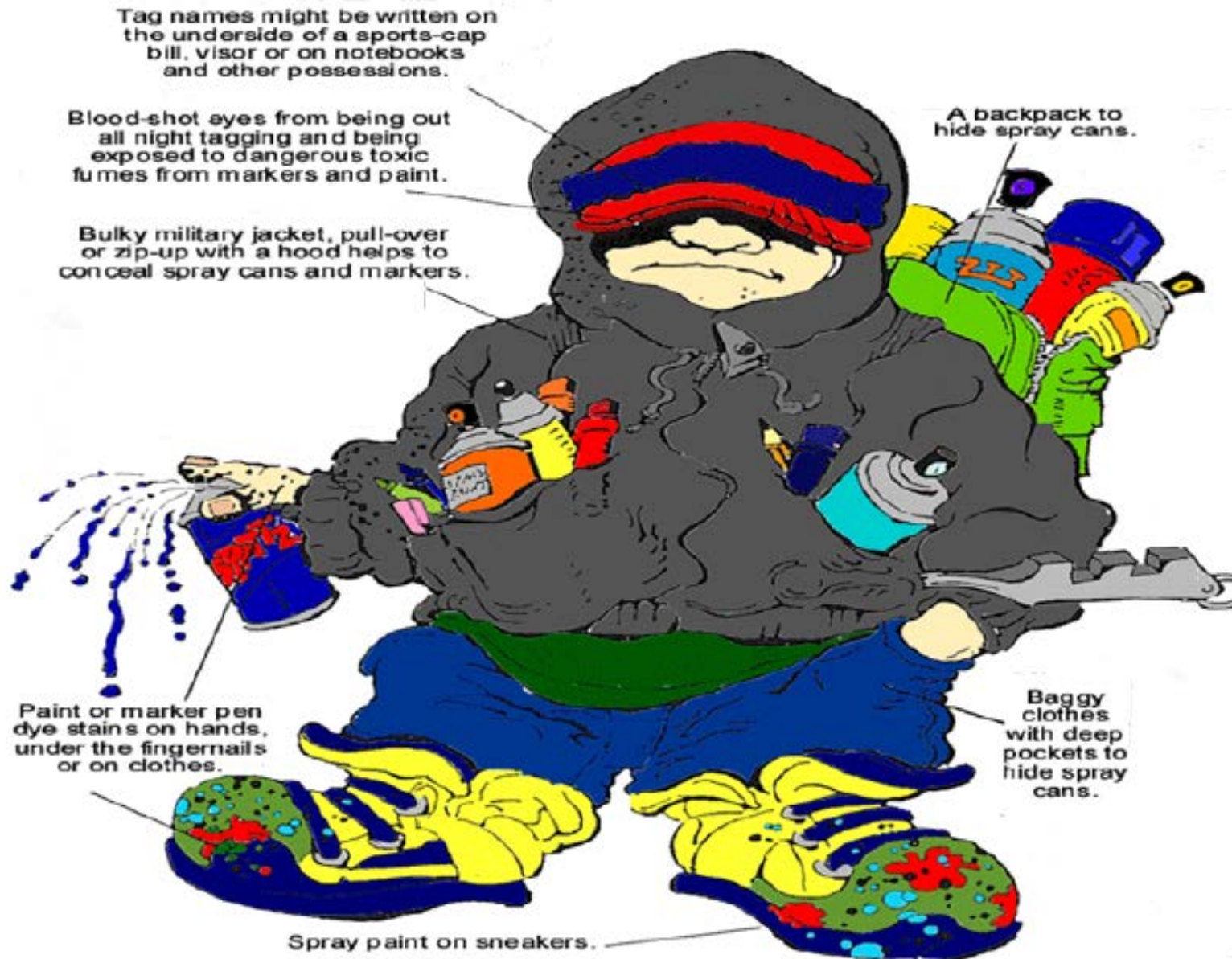
1.2 Culture

- Graffitists have developed a fairly lofty “philosophy” first made a public in subway art, a glossy illustrated “bible” for writers compiled from research on three continents
- Kids become graffitists for fame, recognition and identification (the possible motivations can be: Revenge, anger, boredom, acquisition, exploration aesthetic experience, existential exploration), each group can have different motivations
- Graffitists have a pecking order, and to qualify as a serious practitioner (a “writer”) rather than an amateur (a “toy”) a youth has to spray his initials (“tag”) at least 1,000 times on trains....graffiti crew communications net-works are so effective that a train painted at 3 a.m. in a depot will have an audience of admirers with cameras lining the tracks when it “runs” on its first trip of the day
- Writers also gain status by being arrested and can become heroes if they get off the charges.

(Preventing graffiti & vandalism- Australian Institute of Criminology)



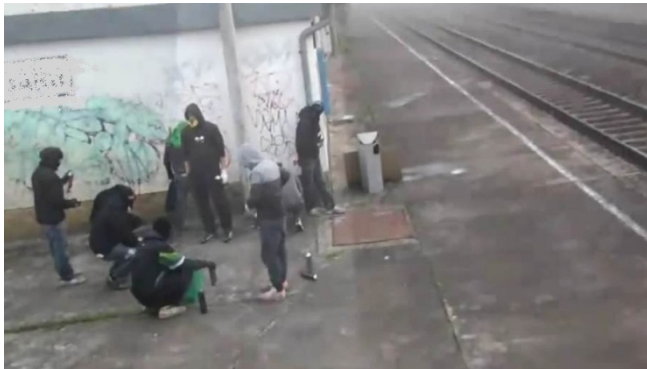
HOW TO SPOT A TAGGER



1.3 Modus Operandi



1.3 Modus Operandi - Trains in service



The crew is waiting for the train to arrive at the station (it can happen or not at the station or even at any place)



One element of the crew that travels in the train triggers the alarm



Meanwhile the hidden crew, rushes to the train and starts the graffiti



In general the crew is divided into two groups of 4 or 6 elements to be able to quickly finish



Each group has specific tasks - make the base, the outlines or filling of the letters. The crew strictly complies the drawing that trained in the blackbook



It takes them 3 minutes to complete the train and proceed to run way (they know very well the trains timetables and the time and places of stop of the trains in the network, even better than we do).

1.3 Modus Operandi – Trains in depots

Police patrols take more than 5 min arriving

It's easy to jump or cut the fence

CCTV systems only give the alert

Private security takes more than 5min to go from one side of the depot to the other part of the depot

115m

1470m

In more than one place the crews have the possibility to follow and find where are the vigilantes

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Data das imagens: 23 Jun 2007

38°47'58.15"N 9°21'26.04"O elev 200 m

Altitude de visualização 1.34 km

Google

Rua Lusitana

Rua Marginal

Rua das Buscadas

Parque

Estação da CIP

10

2. Reaction time



**GRAFFITI IS NOT ART.
GRAFFITI IS A CRIME.**



Since August 2013 in Portugal it's just an administrative infraction.

2.1 Security solutions

Security solutions are effective only when combined, constituting a comprehensive security plan.

The optional solutions are numerous and can be divided in two main groups:

- **Technology-based solutions**—electronic fences, metal detectors, CCTV, etc
- **Personnel-based solutions**—security training, procedures, drills, etc



2.2 Preventive activity

From the security central rooms the monitoring of the Operation with the CCTV cameras is done

Video Analytics is used to analyse video for specific events/behaviour/objects/attitude:

- Vehicles
- People
- Specific data
- Colours
- Biometrics
- Intelligent Detection



- Visual Motion Detection
- Abandoned items
- Entrance/Exit monitoring
- Perimeter protection
- Virtual tripwires



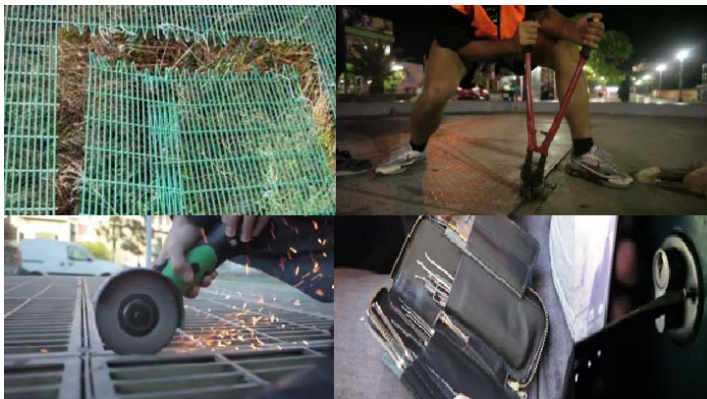
2.3 Increasing the reaction time



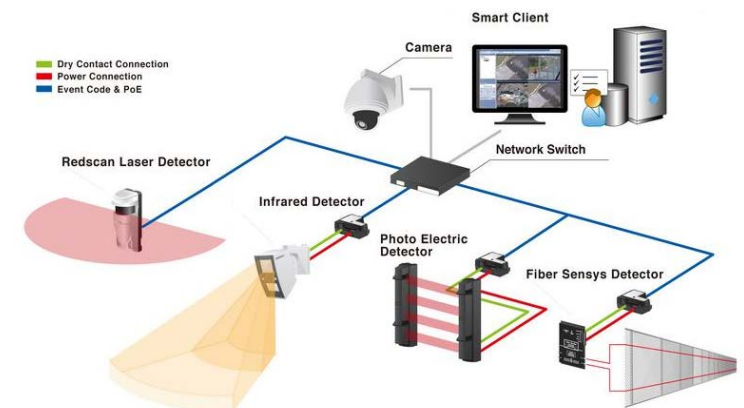
If we have PTZ cameras to have less cameras and a wireless system, we are more vulnerable than having a Backbone Cabling System Structure

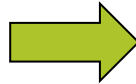


If the fencing is a normal fencing, any pliers can cut it in less than 1 minute and enter in a rolling stock depot

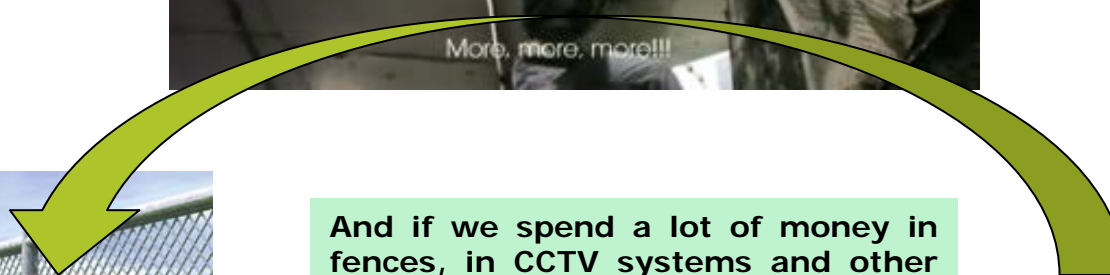
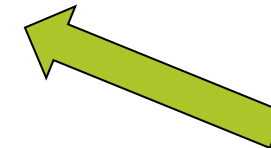


If in the security central rooms, the systems are not well customized and are not the correct ones, with Video Analytics, and the right warnings we will have a problem, we'll never know what's happening in the field





Boots on the ground are needed, none of those systems, will resist too long without being vandalized unless we have security patrols, in a sufficient number (1 man in a depot of 1km it's not enough)



And if we spend a lot of money in fences, in CCTV systems and other systems in the field and there is not anybody there to avoid the damage, they'll be vandalized (perpetrators cut the normal fencing in seconds). eyes in the security central room and patrols in the field are needed



To mitigate
intrusions
and
graffiti's
we need:

❖ 1st level – early signs

we only can obtain early signs with the correct motorization, the systems must be correctly customized to the needs of the operator and balance between human and technological resources, as well as the collected information (intelligence) from the local and the historical data of security incidents

❖ 2nd level – detection and alert

We must have the capacity to detect all the approach movement to security perimeter - the fence, in order to be able to act in time, this detection should be as fast as possible, the sooner the movement detected the faster we have to act, and allocate the necessary resources to the local in order to avoid security breaches.

❖ 3th level – protect and avoid

We can protect and avoid breaches of security, if the detection is done in time, if the monitoring systems are operating correctly, If the fence was not cut, if communications are working properly, if there are enough human patrols, then we will have the ability to contain a belligerent force and avoid breach of security (however as it can be seen there are too many "if")

❖ 4th level - accept the impact

It probably would cost a fortune to ensure a level of effective security to prevent all security breaches, we can not forget that we have less than 5 minutes to detect and counter the threat. then we must have a minimum security device that can mitigate the number of graffitis on trains and the minimum square feet graffiti/train

❖ 5th level - transfer of the risk (to maintenance)

In many cases we have to accept a minimum number of trains with graffitis, otherwise the security device, would start to be too expensive. So to avoid that we must believe that the trains with graffiti will not only take more than 24 to 48 hours to be cleaned (it depends on the policy of each company, there are companies that do not operate with graffiti on train)

Final considerations

Imagine being lucky enough to own a Learjet Model 60 and finding out your US\$2.3 million private jet had been vandalised by graffiti artists... talk about heart breaking!

That's exactly what happened at Van Nuys Airport in the United States this week, where criminals broke into a secure area and spray-painted terms such as 'R.I.P' and 'Flame' on the fuselage.



Van Nuys Airport is in the city limits of Los Angeles, California. No major airlines fly into this airport, but it's the busiest general aviation airport in the world and the 25th busiest airport (in terms of takeoffs and landings) in the world. This airport is used by Hollywood celebrities, politicians, and business executives, mostly due to its convenience and anonymity.

In addition, there are some unidentified initials on the tail of the aircraft, which Los Angeles police believe are "gang related and gang initiated".

The most important is to avoid damage: the legislation, prevention programs, police repression, working groups, CCTV systems do not avoid the security break.

The security systems must be designed taking into consideration the time and space necessary to meet the threat.

Detection by itself does nothing, so the monitoring systems must always be in tune with the responsiveness / intervention.

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“Boots on the ground” are necessary, despite to be need to be supplemented with the eyes of the command and control rooms.

Taking into attention the crew’s Modus Operandi, which nowadays is very aggressive and in high numbers, the security team must also be correctly sized, otherwise we are putting at risk the physical integrity of the security team.

The longer we delay our capacity of intervention, the greater will be the damage.

The goal should be to mitigate to the minimum size the graffiti and number of trains with graffiti, and be realistic with the notion that it will be impossible to wipe out the graffiti on the railway, according to the culture of writers.

Accept the risk of having security break (graffitis) even where we have security team in places like big depots can be acceptable, otherwise the security costs would increase too much to maintain an operation able to prevent all intrusions (we are talking about times of less than 5 minutes of intervention to prevent graffiti on trains, in depots with more than 1 km).

Never forget that it is much cheaper to clean trains, than have a "bulletproof" security dispositive. where we have security team (even in a few number) the damages are not so big. the number of square meters with graffitis is substantially smaller and the number of trains is extremely limited. remember always, that there is a limit to spend money even in security.

To avoid a damage of 10, we can not spend 100 security, security dispositive need to be economically advantageous.

European legislation and policies, towards the costs of damage caused by graffiti each year, should be common and more punishing.

In conclusion, a well balanced security layout between technology and human security team, ensures smaller intervention times, therefore minor damage.



Thank you for your attention
aacerejo@cp.pt

