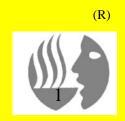
New Technology to Reduce Costs of Graffiti Vandalism

Graham Bell

E-Nose Pty Ltd
The Australian Technology Park
18 August 2011





Change the Behaviour.. Change the Reward Structure

- Graffiti Vandals enjoy the thrill of breaking the law (reward 1)
- They get prestige in the eyes of their mates (reward 2) ...and even better...
- There is almost no risk of being caught! (Impunity: reward 3)
- ...so let's change "almost no" to "every"...

With every risk of being caught the Reward Structure Changes

Reward 1. Thrill: Changes to fear

Reward 2. Prestige: Changes to shame

 Reward 3. Impunity: Changes to Unpleasant Consequences

Likelihood of being caught deters graffiti vandals

- If there is always a high risk of being detected and consequences follow, you will not offend
- Consider the effect of speed cameras on your own driving behaviour: they have changed the odds of your being apprehended...and you hate them...and you drive slower...
- New technology that may be at any potential graffiti attack site changes the odds of being apprehended

New Technologies 1. DNA Spray

- Product:.....South Australia
- Set off by proximity to a "hot-spot"
- Sprays vandal with unique substance
- Police use CCTV to identify vandal
- DNA "reader" identifies presence of unique marker residue

2. Weeping Wall

- Product:.....NZ
- A sprinkler system on top of wall is activated by proximity of vandal to the wall
- Water runs down the wall making it difficult to spray
- Feet (trainers) become soggy
- Vandal departs without damage to the wall

3. Auditory Detection

- Product: USA
- Detector on top of wall detects sound of spray can
- Activates a silent alarm
- Vandal is apprehended in the act

4. Graffiti Database

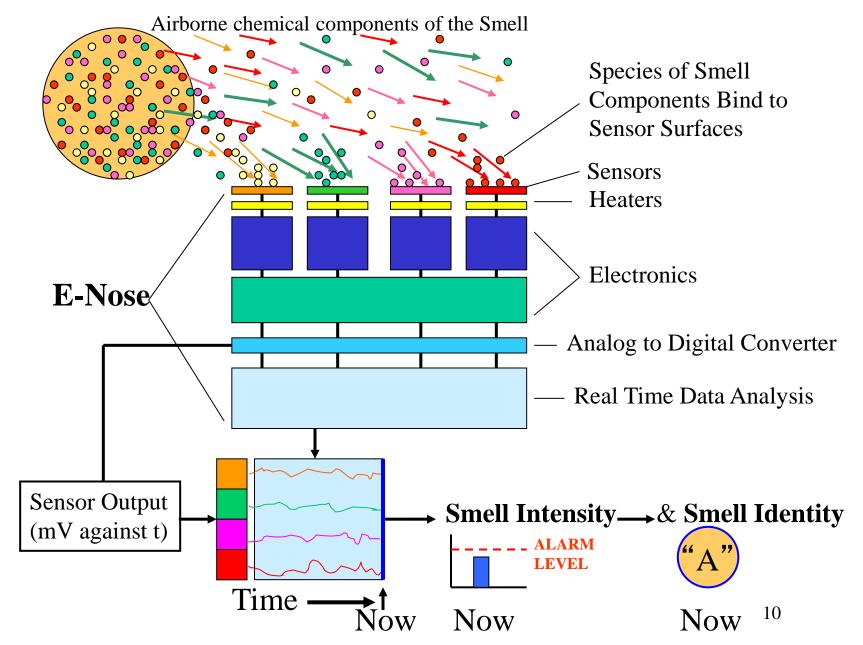
- Product: numerous
- GPS / Phone based systems
- Geospatial reference system
- Multiple users / stake holders
- Log graffiti vandal tags / fingerprints
- Identify high vandal activity areas
- Direct clean-up crews for rapid remediation

5. Chemical Detection

- Product: graffit-e-nose_(R) (E-Nose P/L, NSW)
- Identifies fumes from graffiti paint/ink
- Activates silent alarm (SMS)
- Recipient calls up video-steaming on smart phone and makes assessment
- Verification of attack acted on by Police
- Vandal is caught in the act and identified on video record.

Smell of "A" (complex mixture of odorant compounds)







Mk 4 E-Nose

- Integrated with computer and telecoms
- Improved algorithms for target discrimination
- Remotely check-able
- Verify attacks with video stream
- Can switch on/off 4 independent systems
- Under construction: web access to multiple devices









Results from Mk3 graffit-e-nose® Trials

Newcastle C C (Feb-July 09):

Attacks reduced to Zero. Deterrence Prevails

Campbelltown C C (April to July 09):

Attacks Reduced Deterrence Prevails

New trial: Aug 2011

Miranda Community and Scout Hall (ongoing):

Attacks Reduced Deterrence Prevails

4 Arrests (including 2 for drugs and knife)

Sutherland Shire Council (March-May 2010)

1 Arrest Reduced attacks

Salisbury City Council, S Aust (Oct – Mar 2009)

2 Arrests Reduced attacks – Increase deterrence

Blacktown City Council (Sept – Dec 2010)

Reduced attacks – Increase deterrence New trial Sept 2011

Penrith City Council (Sept – Dec 2010)

Reduced attacks – Increase deterrence

New trial: Sept 2011



One Vandal's Reach

Skate Park, Library Wall, Community Centre, Toilet block, Bus stop, Council Car Park, **Drop-in Centre, Playground Equipment,** Street Signage, Bus shelter, Car Park, Bridge, Post box, Under bridge, Lane-way, Picket Fence, Shop shutter, War Memorial Inside bus, Inside train, Train station, Outside train, School wall, Fences, Rocks in Park, Trees, Club House, Overpass, Back of shops, Shopping Centre Access, Loading dock, Construction site, bill board, Safety Sign, change rooms... 16

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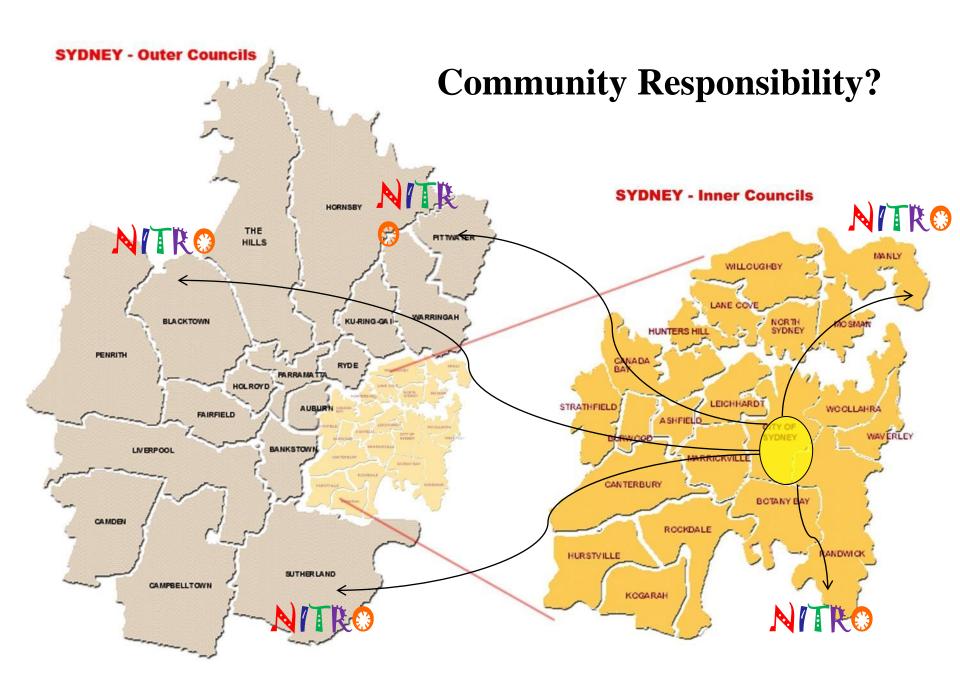
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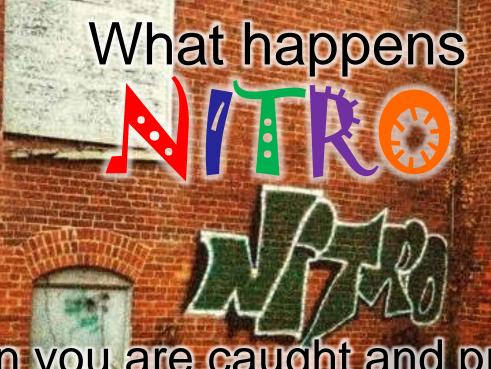
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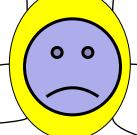


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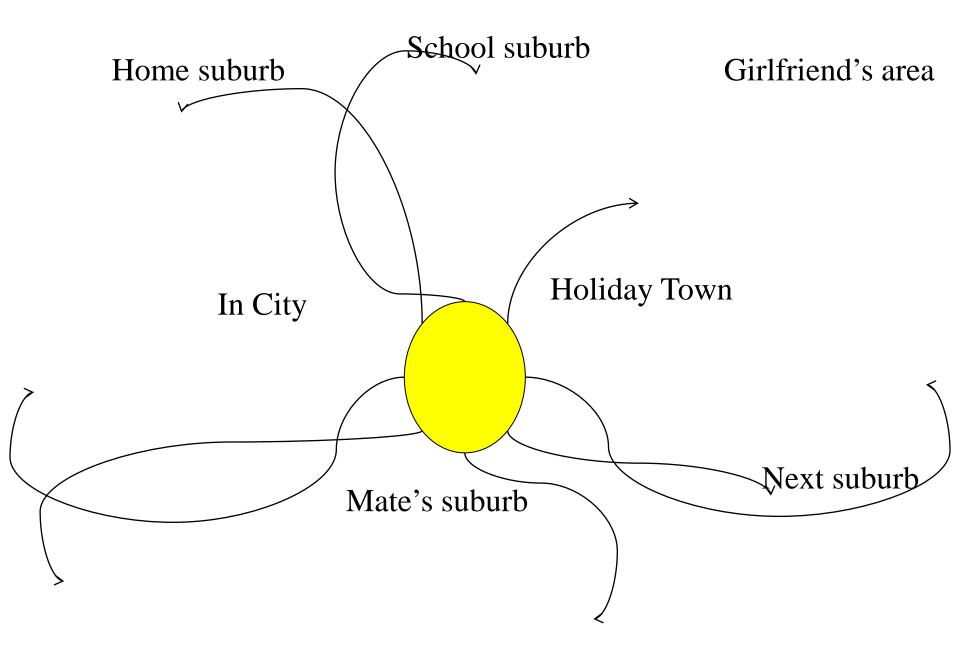
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School suburb

Girlfriend's area







The Community In City Wins!



Holiday Town



Beach area



Mate's suburb



Next suburb





Tangible Outcomes

- Arrests & Deterrence of graffiti vandals
- Decreased costs of vandalism
- Eradication of ugly mindless graffiti
- Increased Public Satisfaction
- Public Money for Better Uses
- Safer, Cleaner Community Spaces
- Reduced Social Disorder (Science, Dec 2008)

Thank You!

Acknowledgements

Ben Wright, ATP Innovations
ATP-Innovations Team: (Hamish, Sally, Britt, Sue)
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Council and Community Supporters



