

Case studies

Examples of design being used to tackle crime problems around the world



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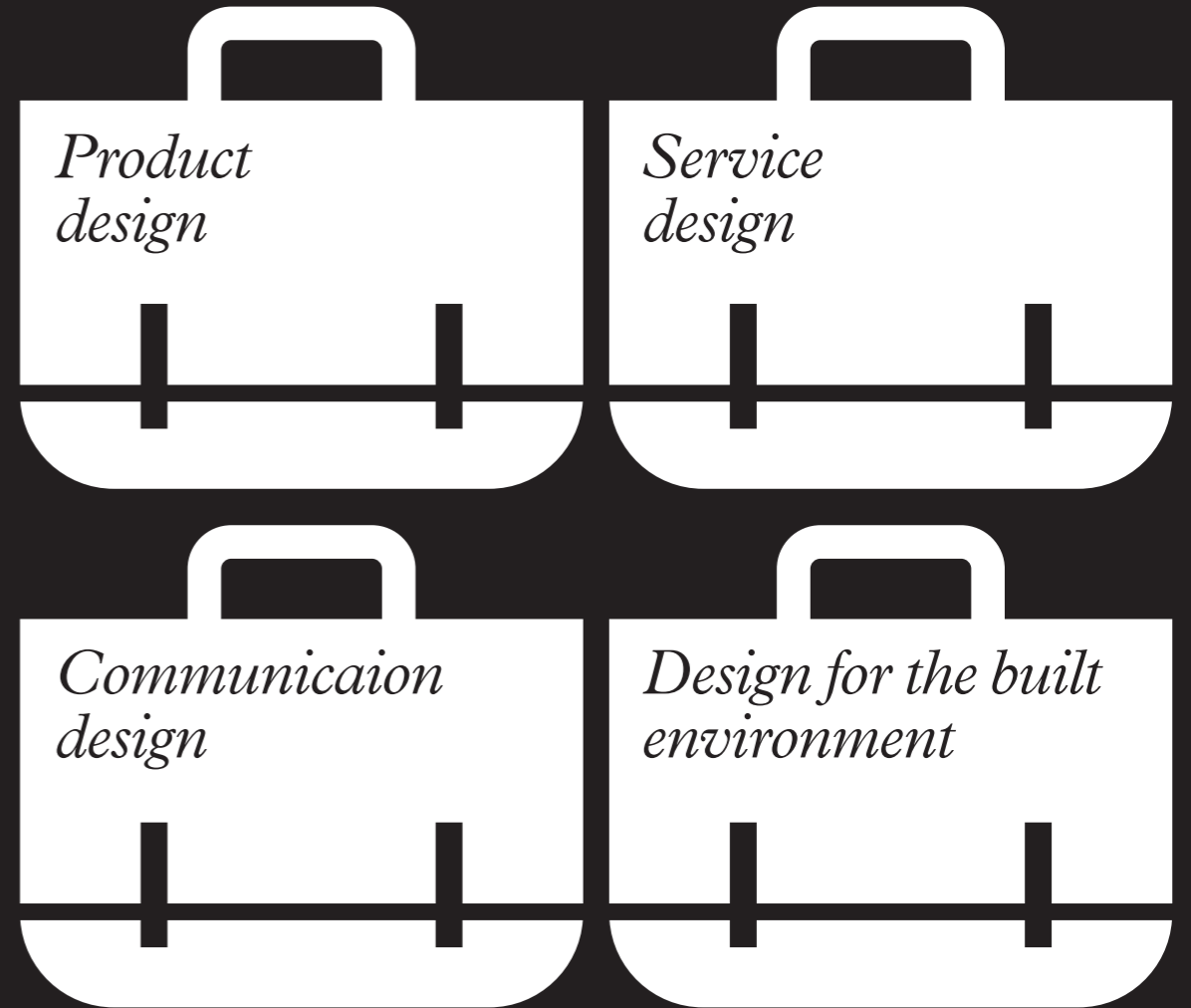
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Design Out Crime is an initiative from the Home Office's Design & Technology Alliance Against Crime and the Design Council. The Alliance is tasked with bringing about innovation and encouraging others to 'think crime' in the first stages of design, planning and product development. It is comprised of experts from the world of design, industry and law enforcement.



Beyond the immediate scope of Design Out Crime, designers all over the world are finding ingenious addresses to crime problems. The examples described here show just how diverse this field of activity can be, with highly effective solutions coming from product, communication and service design and design for the built environment.





Product design

Anti-theft number plates

How do you make a product more secure when it needs to be constantly on show? One answer might be to build it so it breaks if it's moved.

Stolen number plates are used in a range of vehicle crimes, including the sale of stolen cars, avoidance of congestion, toll or parking charges and speeding.

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Product design / design for the built environment

An anti-terrorist rubbish bin

Terrorism was actually just one of the factors that had to be considered in design of a new rubbish bin for train stations. The result shows how a wide range of functional and aesthetic concerns can be met by a single, well thought-out design.

In 2009 the Designing Out Crime research centre (DOC) at the University of Technology, Sydney, was approached to design a rubbish bin for use on NSW train stations. The clients were RailCorp, the government corporation managing Sydney's rail stations, and the New South Wales Police, Counter-Terrorism unit.

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Service design / product design / design for the built environment

Barclays London Cycle Hire scheme

The Barclays Cycle Hire (BCH) scheme was introduced in 2010 to give London residents and visitors a readily accessible sustainable transport option. To do that successfully, it had to find some smart ways of deterring theft. Fortunately, it had a 50-year history of innovation to draw on.

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Product design / design for the built environment

Bikeoff

Design can not only be used to make products more theft-proof directly, it can also be a way of improving a security measure. Bike lock-up stands have become more secure through observation of how people use them, how criminals abuse them and how locking could be made easier.

80,000 bikes were stolen in London during 2005/06. 17% of cyclists have had a bike stolen and 24% of those stopped cycling altogether.

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Product design

Biometric security

These days, hot products like mobile phones, GPS and computers can be secured at the touch of a fingerprint. Designing in security at the start of a new product development process is more effective than adding it on later.

Unlocking your mobile phone by scanning your fingerprint is not a thing of science fiction. It's an everyday reality for millions of mobile phone users, the greatest proportion of whom live in Asia.

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Design for the built environment

Birmingham Heartlands Hospital

Designing a space to make it more secure doesn't have to mean access controls, razor wire and bullet proof glass. Improving wayfinding and signage and promoting levels of natural surveillance rather than CCTV made the A&E department of a hospital in Birmingham a safer place to work and visit.

As part of the Safer Hospitals Project managed by the Home Office Scientific Development Branch (HOSDB), a UK treasury funded initiative funded within the Invest to Save Budget scheme, Birmingham Heartlands Hospital undertook a project to reduce crime and fear of crime in its Accident and Emergency department through the application of integrated systems and innovative technology.

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Design for the built environment

Britannia Mills

The design of Britannia Mills, the first residential scheme in Castleford, an industrial part of Manchester, has led to more residential development and a safer feel to the new industrial suburb. The success of the project is due, at least in part, to the conscious thought given by its designers to crime prevention measures.

As the government is pushed one way by the need to find land for new housing and the other way by the environmental lobby who want to stop the development of greenfield sites, there really is only one way to go – to land designated for industrial use, so-called brownfield sites.

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Design for the built environment

The Camden Bench

City Centre benches can be magnets for crime and antisocial behaviour, attracting thieves, rough sleepers, problem drinkers, graffiti and skateboarders. In some central London areas, virtually all the street benches had to be removed due to residents' complaints. It was time for a new approach.

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Design for the built environment Cashpoint Art Safety Zones

When the Metropolitan Police, Hammersmith approached the Design Against Crime Research Centre (DACRC) at the University of Arts London in 2010 for help in dealing with pickpockets, the DACRC team looked sideways from traditional security solutions and proposed a collaboration with artist Steve Russell to help find new and creative ways of influencing behaviour around ATMs.

Police at Hammersmith were experiencing problems with pickpockets and bag thieves. PC Paul Trueman consulted DACRC because Professor Lorraine Gamman, who directs the Centre, had worked closely with businesses as well as crime prevention and creative professionals. When she learned about the nature of the crimes in Hammersmith, she suggested it might be worth trialling a version of the cashpoint safety zones with which a Manchester 2007 police pilot had had success, but bringing a more aesthetic sensibility to the idea.

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Landscape Projects, 1999

Design for the built environment Hulme Park

Completed in 2000 after a period of collaboration with local people, Hulme Park was of immediate benefit to a community where many lived in social housing and needed somewhere to enjoy open space and feel safe while they did.

Parks make a difference in a city centre, potentially providing havens of peace and relaxation. Unfortunately, they also frequently become sites of crime, antisocial behaviour and bullying.

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Service design

Immobilise: online security service

As digital transactions become more and more commonplace, digital ownership has also become viable, with products protected via information sharing networks.

It can be difficult to trace the owner of stolen hot products. Since 2003, Immobilise, a product registration system supported by the National Mobile Phone Crime Unit, has been operating a secure database system that allows anyone to protect their property by registering online any valuables that have a unique serial number.

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Design for the built environment

Living Laneways, Sydney

Too often, measures against crime and antisocial behaviour can have almost as unpleasant an effect on an environment as the things they aim to prevent. An approach being proposed in Sydney suggests uplifting alternatives.

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Design for the built environment MADE youth shelters

The Crime and Disorder Act of 1998 and the emergence of the concept of antisocial behaviour has meant that distracting groups of young people from behaving in a threatening manner has become a big priority for many local councils. This often takes the form of hastily installed ready-made constructions for young people to congregate in: so-called ‘youth shelters’, which are generally made from metal tubing and have no walls or lighting.

In the West Midlands MADE (Midlands Architecture and the Designed Environment) wanted to change this approach. MADE is the regional architecture centre for the West Midlands. It fosters and promotes excellence in the designed environment by raising people’s aspirations and increasing their ownership of the buildings around them. The processes and outcomes of public engagement are central to MADE, which uses them to raise the design agenda, influence professional practice and increase design excellence.

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Product design No Climbin

In 2006, there were 261, 895 reported incidents of unlawful entry and burglary in Australia. As she conducted research into why burglary was such a big problem, Jenny Loqvist, a design student at Griffith University, found that wheelie bins were often used to climb into open windows and balconies on the first storey. Loqvist decided to make them less useful to criminals.

For the 2008 Design Out Crime Product Design Awards, contributed by the Office of Crime Prevention of WA and Curtin University of Technology, Loqvist developed an idea for a No Climbin wheelie bin. ‘After doing 2D form studies I then went on to conducting 3D form studies in the workshop, which further helped me develop a suitable form for a non-climbable bin,’ says Loqvist.

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Product design

Orange projectors: Security with colour

Designing a product to be make it more secure doesn’t have to mean fitting locks and chains. Design can sometimes even make a product more secure by means of aesthetics alone.

The theft of information and communications technology (ICT) equipment from schools is widespread and costly. Projectors are especially prone to theft, with one local authority estimating that the cost of replacing projector equipment ran to £200,000 in a single year.

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Service design / design for the built environment

Parksafe Systems

In 1998 the first Parksafes Systems car park opened in Derby. Design and technology created a crime-free car park that could then be replicated at two further Parksafes sites.

Imagine you come home from a trip abroad. You walk to your car in the multistorey airport car park. You don’t see it at first, though you spot a similar car with a smashed windscreen and the dashboard all ripped out. Then it dawns on you. This is your car!

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Product design

Stop Thief Chair and Grippa Clips

How do you ensure bags are safe in bars and cafés without installing intrusive security measures that destroy the relaxed atmosphere? A pilot study in London suggests that some simple, unobtrusive and attractive design interventions can make a real difference.

The Stop Thief Chair and Grippa Clips are designs to help bar and café customers take care of their bags and protect them from thieving fingers. The bag-holding slot at the front of the chairs allows straps to be sat on, with bags hanging safely below the chair. This enables the user to make the most of 'defensible space', effortlessly using body consciousness to help protect belongings. Similarly the Grippa Clips are designed to secure bags to table edges or vertical surfaces, where they can be easily seen. The Grippa makes it easy for users to hang bags securely, but demands a more conspicuous action to release them, making life awkward for thieves.

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Communication design / product design

Theft prevention, UTS Campus

In a recent change, UTS City Campus Library, Sydney, has begun to admit the general public. Unfortunately, this has led to an increase in thefts. How could design deter this, without the new open access policy being rescinded?

Laptops are the primary targets as well as any unattended belongings with high price values. 'Seven laptop thefts were reported within the UTS library in just one month,' a UTS Security Staff member reported.

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Design for the built environment

Villiers High School, Platform Playground

Villiers High School in Southall had 1,300 students who were meant to spend every lunchtime outside in a 1,750 square metre space with little to distract them except cultural and personal differences. Violence flared regularly and the students themselves wanted to do something about it.

The school has a focus on design and technology and students had already watched a designer at work when Clara Gaggero, a student in industrial design and engineering at the Royal College of Art, included them in the testing of her prototype digital playground.

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Service design

Ushahidi

Ushahidi is a website that was developed to map reports of violence in Kenya after the post-election fallout at the beginning of 2008. Being able to see where disturbances, crimes and other events are happening is an important way to coordinate information from news sources as well as local people.

A new Ushahidi engine has been built using the lessons learned from Kenya to create a platform that allows anyone around the world to set up their own way to gather reports by mobile phone, email and the web – and map them so that other people can see where problems are occurring.

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Case studies in detail



Product design

Anti-theft number plates

How do you make a product more secure when it needs to be constantly on show? One answer might be to build it so it breaks if it's moved.

Stolen number plates are used in a range of vehicle crimes, including the sale of stolen cars, avoidance of congestion, toll or parking charges and speeding. Number plate theft is a big problem according to police forces, which estimate that around 40,000 plates were stolen from vehicles in 2007.¹ Criminals can remove plates from one car and fix them to another stolen car of the same model before it's sold on and people committing speeding crimes, ignoring road charges or stealing petrol can use stolen plates to avoid detection.

To combat this problem, the UK's Driver and Vehicle Licensing Agency (DVLA) asked number plate manufacturers to design new plates with anti-theft measures built in. The agency set rigorous standards for these new designs – plates will only be certified as anti-theft products if they cannot be removed from a vehicle within three minutes or if removal renders them unusable.

The first company to create a DVLA-approved anti-theft plate was Hills Numberplates, which launched its SecurePlate product in 2006. 'The DVLA asked companies to design something to prevent car cloning, which is seen as a growing crime problem. 'We designed SecurePlate so that it breaks into a minimum of four pieces if it is removed from the car,' explains Hills Numberplates Marketing Manager Louise Sambrook.

The patented number plate is certified by SoldSecure and approved by Secured by Design, a national crime prevention initiative from the Association of Chief Police Officers (ACPO). More than 300 dealers sell SecurePlate across the country.

However, anti-theft plates are still an optional upgrade for motorists and new cars are not required to have them fitted as standard. And while ACPO's Vehicle Crime Intelligence Service has called for all cars to have tamper-proof plates, a spokeswoman for the DVLA says the effectiveness of the plates needs to be proven: 'We aim to demonstrate in practice that the standard is both achievable and effective before we consider making it compulsory. We are also prepared to modify the standard in the light of experience and a voluntary standard gives us greater flexibility to do this.'

The SecurePlate concept

The SecurePlate idea is to build in lines of weakness at different points along the plate, which cause it to snap when pulled from its fixings and adhesive. This snapping also stretches and damages a transparent top sheet, so it is obvious that it has been tampered with, leaving it useless to the thief.

Product design / design for the built environment

An anti-terrorist rubbish bin

Terrorism was actually just one of the factors that had to be considered in design of a new rubbish bin for train stations. The result shows how a wide range of functional and aesthetic concerns can be met by a single, well thought-out design.

In 2009 the Designing Out Crime research centre (DOC) at the University of Technology, Sydney, was approached to design a rubbish bin for use on NSW train stations. The clients were RailCorp, the government corporation managing Sydney's rail stations, and the New South Wales Police, Counter-Terrorism unit.

The design problem was put to final-year design students, following which the DOC staff teamed up with an industrial designer to produce a prototype. The prototype is a front-loading, tamper-proof, semi-transparent modular bin that can be wall-mounted securely and x-rayed if required without being dismantled.

A manufactured version of the prototype is now in use in Sydney train stations.

Problem background

DOC was initially given the job of assisting NSW Police, Counter-Terrorism Unit to provide design solutions to protect the tourist and commuter transport hub of Circular Quay from a possible terrorist threat.

A core focus was the question of rubbish bins on train stations. In advance of the 2000 Sydney Olympic Games, RailCorp removed all rubbish bins from city and suburban trains, platforms and station concourses with a view to minimising the threat of terrorist attack. The terrorist attacks on New York's World Trade Centre on 11 of September, 2001 further confirmed the need for rigorous counter terrorism measures.

For nearly a decade following, Sydney's rail users had been carrying their rubbish with them, or (probably more often) leaving it on RailCorp property. During this period, RailCorp's customer service team received more complaints about the inconvenience, uncleanliness and unsightliness caused by lack of rubbish disposal facilities than about most other aspects of its rail service.² The issue of public dissatisfaction had become a serious concern for RailCorp by the time the authority engaged DOC to design a rubbish receptacle for its stations.

Response

In considering options for the design of a rubbish bin for train stations, DOC's primary imperative was to create a solution that would be resistant to terrorist attack.

As the DOC team and students began brainstorming ideas, a design paradox quickly became apparent. Counter terrorism measures are often of great inconvenience to the public – for example, the confiscation by airline security of all objects deemed to be sharp, regardless of their usual function or their value; or, indeed, the evacuation of entire train stations when a larger-than-normal package is noticed in a rubbish bin. Since the disruption of normal life is an objective of terrorism, cumbersome security measures can actually do some of the terrorists' work for them. DOC determined that there was a particular need to ensure, as much as possible, that counter-terrorism measures did not directly inconvenience passengers.

The DOC team also needed to consider RailCorp's specific needs concerning garbage disposal. The capacity of the bins was important to RailCorp, since if they were too small the station staff would be unable to keep them from overflowing, while if they were too big they risked obstructing the flow of people, especially during peak times. The bins needed also to be easily accessible by people with restricted mobility.

Considering that one of the public's concerns was the unsightliness caused by rubbish on station property, DOC also resolved that the appearance of the bin was important to the success of the solution. The bin needed to be aesthetically pleasing while satisfying its functional needs. Additionally, like all station property, the bin needed to be resistant to malicious damage and graffiti, as the cost of graffiti removal and replacement of damaged property represented a considerable expense for RailCorp.

The solution

Various bin designs were considered, but the winning design included a number of innovative features to ensure it satisfied the stated requirements in a variety of ways.

The bin's most novel feature (which has been patented) is a narrow gap at the back to permit the insertion of an x-ray panel to allow safe examination of contents. Vibration-proof rails surround the gap into which the x-ray panel is inserted so the bin can be examined without the slightest movement to the structure or its contents – thus avoiding triggering a vibration-sensitive bomb. This feature eliminates the need to pre-emptively evacuate passengers from the station.

A simple front-locking system prevents the bin opening ordinarily but ensures that it can be unfastened quickly and easily by a police robot if it is deemed necessary to further examine the bin's contents.

The bin has a narrow, circular aperture allowing disposal of standard passenger rubbish but restricting the dumping of large items. The bin itself is narrow with relatively small volume to restrict overall capacity as well as to attract the regular attention of cleaners. The narrowness also allows it to be placed unobtrusively in various locations. It can also be wall or floor mounted.

The bin's top and side panels are half-translucent, allowing for quick visual inspection. However, the materials from which the panels are constructed are corrugated and perforated to prevent the bin becoming a target for graffiti. The front panel, which is the largest and most accessible, is made of polycarbonate in a concertina mould, so that it is very strong and damage-resistant.

Finally, the bin is constructed of a number of separate components to ensure cheap and easy replacement if it is needed.

Implementation/production

The prototyped design was changed in production but the key features of the original design (including the x-ray capacity, front-locking system, size of aperture and panel transparency) were retained.

The bin is now in use at the major Sydney city train stations and is intended to be gradually introduced to suburban stations.

Find out more at the Designing Out Crime website. <http://www.designingoutcrime.com>

Barclays London Cycle Hire scheme

The Barclays Cycle Hire (BCH) scheme was introduced in 2010 to give London residents and visitors a readily accessible sustainable transport option. To do that successfully, it had to find some smart ways of deterring theft. Fortunately, it had a 50-year history of innovation to draw on.

Research indicates that 12% of British adults report being regular cyclists, while 6% cycle most days.³ However crime is a big deterrent to cycling, with cycle theft the single greatest deterrent.⁴ UK figures indicate that 17% of cyclists experience cycle theft and, of these, 24% stop cycling and 66% cycle less often.⁵ The number of police recorded bicycle thefts remained stable between 2007/08 and 2008/09, but the British Cycle Survey (BCS) shows a 22% rise in bicycle thefts, from 444,000 incidents in the 2007/08 survey to 540,000 incidents in the 2008/09 survey, with the 2008/09 survey estimating that only 38% of these thefts were reported to the police.⁶ As well as putting people off cycling, theft also generates a knock-on cost to the insurance industry when people claim for new bikes.

Bike hire and share schemes have been running since the 1960s when Amsterdam provided its citizens with the famous white bicycles for free use. Unfortunately, due to widespread vandalism and theft, the scheme collapsed. More recent schemes have sought to create systems that would be resistant to both crime and damage.

The first large-scale, formalised scheme was Bycyklen in Copenhagen, a free service accessed through coin deposits. The bikes were specially designed for intensive use, with solid rubber tires and strong wheels and there was space to promote advertisers that had sponsored the system. While more secure than previous systems, the Copenhagen scheme still experienced bike theft due to customer anonymity. Future schemes have therefore built in customer tracking.

The first example was a scheme called Bikeabout, launched at Portsmouth University in 1996. Here, students could use a magnetic swipe card to rent a bike. This and subsequent systems were smartened with a variety of technological improvements, including electronically locking racks or bike locks, telecommunication systems, smartcards and fobs, mobile phone access and on board computers.

Paris' Vélib' bikes are fitted with a lock and alarm system, which is activated if the bike is not returned on time. The designs of Bicing Barcelona bikes are proprietary, so there's little point in stealing their parts because they aren't compatible with other commercially sold bike models. And the fact that there are so many Bycyklen, Vélib' and Bicing bikes lining the streets of Copenhagen, Paris or Barcelona means that, in theory, the bikes have no real value to thieves because they can't be sold on.

Nevertheless, the viability of Paris' scheme came under threat from the loss of over half its original fleet to theft or damage, with 8,000 thefts in all, 3,000 of those in the first six months. A previous scheme in Lyons had also lost nearly half its 2,000 bikes to theft. Even Montréal's Bixi bike scheme, considered one of the most successful bike hire schemes in the world, lost 50 bikes to theft in the first month, though amendments to the locking system seemed to address the problem.

Security-wise, the Montréal bikes were possibly the most sophisticated yet, with built in theft and vandalism deterring technologies such as RFID, so that bikes could be traced if not returned. Bike stations are fitted with solar panels to power internet connections with which customers register their details so they are traceable if they fail to return the bike.

How the London scheme learned from its predecessors

Security was always going to be key to the success of London's scheme. London Mayor, Boris Johnson feared the bikes would become targets for vandals and thieves, but London benefited from lessons learned through previous schemes:

- In Lyon and Paris, each hire bike is fitted with a flimsy lock that can easily be circumvented by thieves. In London, the bikes use no lock. Instead, they must simply be returned to docking stations. This not only keeps the bikes safer, but also ensures higher availability.
- In Lyon, docking a bike is a two-step process: put the bike in the dock, then lock it. Many people don't realise they need to do the second part and the bikes are left unlocked. In London, when the bike is in the dock, it's locked.
- In many previous schemes, it was relatively easy to prise bikes out of their docks. It is far more difficult to do this in London.

Other security measures built into the design of the BCH scheme include

- Docking stations located in areas with good lighting, CCTV and natural surveillance
- A unique design, making bikes easily recognisable, difficult to dismantle for parts and resistant to criminal damage
- A unique number on each bike visible via CCTV
- A deposit system putting the onus on users to return bikes to secure docking stations
- Measures to minimise the risk of fraud and forgery in card reader payments
- The low scrap value of the bikes. The aluminium in them, for instance, is only worth £35 – a low return for the effort of stealing, transporting, dismantling and melting down a bike.

The care given to this matter seems to have paid off: eight months after the BCH launch, in stark contrast to the problems faced by other schemes, just eight of its bikes had reportedly been stolen.

'One of the keys of the success of the Mayor's flagship cycle hire scheme is the well designed security systems.'
— Transport for London spokesperson.

Product design / design for the built environment

Bikeoff

Design can not only be used to make products more theft-proof directly, it can also be a way of improving a security measure. Bike lock-up stands have become more secure through observation of how people use them, how criminals abuse them and how locking could be made easier.

80,000 bikes were stolen in London during 2005/06. 17% of cyclists have had a bike stolen and 24% of those stopped cycling altogether.⁷

The Bikeoff Research Initiative was set up in January 2004 by the Design Against Crime Research Centre at Central Saint Martins College of Art and Design to explore how the design of cycling related objects and environments could reduce the risk of theft and promote cycle usage.

Through practice-based design research Bikeoff aimed to catalyse, and in some cases create, cycling products and services that consider users but also abusers (vandals and thieves) and mis-users.

Know your enemy: abuser-centred design

First, the team talked to police specialists in bike crime to identify common bike theft perpetrator techniques:

- Lifting: If your bike is chained to a sign post, thieves can lift it and the chain up and over the top of the post.
- Levering: Thieves can insert tools between the bike, lock and stand to lever the lock apart. Or they may use the bike itself as a lever by rotating it against the stand. If it breaks before the lock, what do they care? It's not their bike.
- Striking: If your lock rests on the ground thieves can strike against it with a hammer or chisel.
- Cutting: Bolt cutters of hack saws can cut through bike chains or locks.
- Unbolting: If you lock your bike by the wheel alone it can be unbolted from the rest of the frame.
- Picking: Locks can be broken open.

Facts as inspiration

They also reviewed the cycle parking at a theft 'hot spot' which just happened to be on their doorstep, outside Central Saint Martins Southampton Row buildings. They watched how 8,500 cyclists locked their bikes. They saw what was good and what was bad about the current facilities and found out that

- 75% of site users rode bikes with a standard diamond frame
- 87% used only one lock
- 31% locked the front wheel
- 22% locked the back wheel
- 19% locked the bike frame only

The design brief

From watching cyclists try to protect their bikes by locking them onto stands and learning how bike thieves might break them away, a set of key design priorities emerged. They needed to

- Reduce opportunities for insecure locking practice
- Support the bike from falling and the front wheel from falling to the side
- Increase security for people using just one lock
- Relocate long-stay parking to off-street sites

The results

Designers worked with a manufacturer to produce a range of bike stand designs that were less prone to crime. With Broxap they came up with three new bike parking stands that are designed to be

- Easy to use for a diverse range of bike types
- Easy to install
- Easy to maintain
- Competitively priced ➔

The caMden stands, as they were called, named for their distinctive M shape, promote more secure locking because they make it easier for cyclists to keep bicycles upright and to lock both wheels and the frame.

The stands have been tested on the street in Camden and the hundreds of cyclists that used them showed that all three designs made them lock their bikes more securely, thus reducing the risk of theft.

Adam Thorpe and Lorraine Gamman picked up the 2007 ‘Best Cycling Initiative’ at the London Sustainable Transport Awards, which recognised the Bikeoff team for ‘... leading the world in bringing new thinking and international best practice to London’s cycle parking – showing the importance of context in design, both to reduce crime/theft and to enhance the environment.’

The end results

The M stand design is made from galvanised steel tube 48mm thick and designed for short-stay parking. Its M design denies cyclists the opportunity to lock the top tube of their bike frame to the stand, the bike cannot be levered against the stand to break the lock and the centre section of the M is high enough to ensure locks cannot touch the ground and be broken by striking.

An offset version of the M stand encloses the front wheel of the bike to stop it from falling. A butterfly shaped stand encloses the front wheel while the central section supports the bicycle frame and promotes safer locking.

Product design / service design

Biometric security

These days, hot products like mobile phones, GPS and computers can be secured at the touch of a fingerprint. Designing in security at the start of a new product development process is more effective than adding it on later.

Unlocking your mobile phone by scanning your fingerprint is not a thing of science fiction. It’s an everyday reality for millions of mobile phone users, the greatest proportion of whom live in Asia.

But designing-in security to mobile phones can be difficult. PIN codes and passwords take too long to enter and users often disable them. Since everyone has a unique fingerprint, biometric technology companies have shown that security at the touch of a fingerprint can be an alternative for portable electronic products. Pantech was the first to put fingerprint scanning technology on its GI100 mobile phone, but phones

aren’t the only application for biometrics. Medion gave its GoPal P4425 GPS extra security in 2007 with biometrics and fingerprint scanners are embedded into hundreds of different laptop computers, PC keyboards, memory keys, computer mice, portable hard drives, password managers and other devices.

US consumers too are convinced that fingerprint sensors add value to devices through greater security, says Authentec, manufacturer of fingerprint scanners for 95% of the world’s biometric mobile phones. But in the UK, using people’s fingerprints as a security measure is seen as intrusive. BAA abandoned plans to fingerprint every passenger passing through Heathrow’s Terminal 5 after it was warned the move may breach data protection laws.

Authentec says the success or failure of fingerprint scanning technology depends on its application. Its 2008 Consumer Biometrics Survey of US men and women between the ages of 21-55 reveals that two thirds trust fingerprint biometrics more than traditional passwords but 67% have little awareness of the availability of consumer electronics that feature a fingerprint sensor.

In the UK, traditional security measures like passwords and PINs for monetary transactions, have been jettisoned in one new product: the 02 wallet phone from 02, Transport for London and BarclayCard, a contactless payment system using near-field communications (NFC) technology that’s been around for some time. Customers pay for goods by swiping their phone on touch points.

The phone doesn’t use any security technologies even though it flouts some basic safety principles, like keeping your valuables separate so that if you get robbed, you don’t lose everything.

What do you think?

How can biometrics be designed in to products that appeal to UK consumers?

Fingerprint security

Authentec has manufactured 95% of the fingerprint biometric scanners that are currently used in mobile phones. Its scanners can be small and unobtrusive to look at and they have been designed in to many mobile phones, particularly in Asia. Pantech was the first manufacturer to use fingerprint scanners to secure its mobile phones. Medion incorporated a fingerprint scanner in its GoPal GPS for the UK market in 2007

Design for the built environment

Birmingham Heartland’s Hospital

Designing a space to make it more secure doesn’t have to mean access controls, razor wire and bullet proof glass. Improving wayfinding and signage, and promoting levels of natural surveillance rather than CCTV, made the A&E department of a hospital in Birmingham a safer place to work and visit.

As part of the Safer Hospitals Project managed by the Home Office Scientific Development Branch (HOSDB), a UK treasury funded initiative funded within the Invest to Save Budget scheme, Birmingham Heartlands Hospital undertook a project to reduce crime and fear of crime in its Accident and Emergency department through the application of integrated systems and innovative technology.

Intelligent Space Partnership (ISP) was asked to evaluate the risk of crime occurring in A&E due to its physical design. Elspeth Duxbury, ISP Director says: ‘It is important to consider the movement of people when looking at crime risk because movement rates influence the occurrence of antisocial incidents.’

In particular, the risk of crime is influenced by

- The number of people present
- The ways in which people are enabled or restricted in their movements through the environment
- The restrictions or opportunities afforded by the immediate environment

But taking a design approach to making its working environment crime proof took some getting used to at Heartlands. Dr. Anthony Bleetman, senior A&E consultant says: ‘I was sceptical at first but converted by the results.’

ISP was called in because crime levels in the A&E department were rising, particularly violent crimes against staff. In 2002 there were over 700 crime incidents recorded, which was 73% higher than in 2001. Nearly 60% of all recorded crimes occurred in the ward where patients were treated and where emergency cases were brought in by ambulance.

ISP did two different sorts of design survey. Firstly, for 12 hours on 19 May 2003 an ISP researcher observed how staff, visitors and patients moved around the A&E department. They counted the number and type of people coming into and out of each of the external entrances and tracked the

routes that people took through the department. The research started to explain why crimes were happening where they were. ‘Almost all crimes were occurring in the major injuries ward, Maitland, which is the last place that you want it to,’ says Duxbury and after looking at the map of the department with entry counts and well-used routes drawn on it, it was clear that the majority of people came into the building by the wrong entrance and that from there they were guided by natural light, people traffic and the appearance of a medical looking area, towards Maitland.

The spatial analysis also revealed that

- The patient entrance was less prominent than the paramedic entrance, which had a large canopy over it.
- The natural wayfinding was poor. People were drawn by light and activity to the wrong areas.
- Signage was not obvious or clear. In fact there was a red sign advertising the A&E department pedestrian entrance. Red sounds good right? But not in this context. It was positioned on a red brick wall so had no stand out.
- People entering through the correct entrance came face to face with a wall and a sign pointing them one way to reception when it appeared the medical attention they might need could be found in another direction. There was no immediate eye contact possible with a member of staff.

Duxbury explains how these problems affected crime levels: ‘Difficulties in wayfinding may exacerbate the stress that patients or visitors are already experiencing, and this may increase the risk of aggressive crimes happening.’

Mapping the problem

The A&E department floorplan was overlaid with pie charts showing the numbers and sorts of crimes that occurred in different areas.

The majority of crimes – 60% – happened in the Maitland area, where patients and visitors should not be unless admitted by staff members. Here, the dominant crime type was crime against the person. Fewer crimes occurred in the entrance and foyer areas, but they were designed to lead easily into the Maitland ward rather than towards reception, which was where the department staff wanted visitors and patients to go first.

It was in the waiting area that the second greatest number of crimes occurred. When analysing the design of this space, it became clear that services like the vending machines were located in a place where they couldn’t be seen easily by staff so ☹

vandalism of these would not be seen, and it would take time to realise if frustration levels associated with using them were rising.

The Blakesley ward, a minor injuries ward which was not always open and in use, experienced a relatively high number of crimes. There was no direct access to the public from either the waiting area or other treatment areas, but when people were in Blakesley they were often left unattended and unobserved.

Redesigning the view

ISP used its visibility modelling software to calculate how far a person could see from any point in a public space.

Visibility is one of the most important ways to deter crime, says ISP, because

- The risk and fear of crime may increase as the level of surveillance decreases
- Artificial surveillance has the potential to provide evidence during a crime to enable appropriate intervention or after a crime occurs to help a conviction
- People are more likely to witness crimes, incidents or disturbances if the location is highly populated or overlooked

In 2003, the levels of natural surveillance in the reception area of Birmingham Heartlands Hospital A&E department were low. The reception staff could not see either the public or paramedic entrances. In 2005, after changes had been made to the design of the reception area, levels of natural surveillance in the entrance and foyer areas were much higher. Staff could see members of the public coming through either entrance.

Pictures of the data the visibility model and the researcher had compiled were vital to explaining the ISP process to the hospital. They showed that the department's layout had a definite impact on the likelihood of crime happening. In areas that couldn't be seen easily by staff, crimes were more likely to occur. The pictures also helped the team decide on what design changes needed to be made, which would include

- The removal of signage from the paramedic entrance, as paramedics know where to go so they did not require signs.
- A new foyer incorporating illuminated signage to indicate to patients and visitors that this is the entrance.

—A new reception area design that would address questions raised by ISPs surveillance modelling like how far could staff members see if they were sitting behind the reception desk and where would they need to be to see people entering through the ambulance doors or through the right entrance? It designed out crime by promoting levels of natural surveillance. The reception desk was relocated to face the patient's entrance, walls were replaced with transparent screens so receptionists could see people entering and those in the waiting area.

Now these design changes have been made they have '... provided an 80% reduction in trouble and staff are very much happier and feel very much more secure,' says Bleetman, who stresses that the mapping exercise and design changes were supplemented by staff training, more CCTV and access controls.

When ISP spent another day mapping how A&E was used by staff, visitors and patients they observed that the design measures were having the desired affect on how people moved around the department, and as the department was more in control of where staff, patients and visitors were, its crime levels had dropped.

There were more people taking the desired route round the department, fewer patients and visitors wondering through the Maitland ward and 88% of people using the correct entrance to the department. The total use of the paramedic entrance had been reduced by 55%. This led to a dramatic reduction in the levels of aggressive incidents between 2003 and 2005, after design work had been completed. In 2003, there were on average 13 aggressive incidents reported each month. This decreased to just 5 a month in 2005.

Design for the built environment

Britannia Mills

The design of Britannia Mills, the first residential scheme in Castleford, an industrial part of Manchester, has led to more residential development and a safer feel to the new industrial suburb. The success of the project is due, at least in part, to the conscious thought given by its designers to crime prevention measures.

As the government is pushed one way by the need to find land for new housing and the other way by the environmental lobby who want to stop the development of greenfield sites, there really is only one way to go – to land designated for industrial use, so-called brownfield sites.

But who wants to live on an industrial estate? The answer, thanks to the work of companies like the award-winning Urban Splash, is actually, quite a lot of people. Which might seem surprising: industrial estates are often outside city centres, and while that isn't a problem in itself (plenty of estate housing is also situated quite far out) there's a feeling that houses in such remote, unfrequented places could be a target for criminals, especially at night, after the workforce has gone home.

Craig Owen worked for Urban Splash while they were conceiving and building the Britannia Mills apartment complex in Castlefield, Manchester. 'When we first looked at the site, the signs weren't good. It was to be the first residential building in what was an area designated for light industry, and the potential for security problems was significant. The area, on the fringe of the city centre, had a high risk of crime. We realised the only way we could persuade people to live here was to make them feel safe. We decided to try and create an oasis in the industrial desert around. We wanted to make it secure, but we also wanted to make it aesthetically pleasing. Anyone can build heavy gates and big block walls. This had to feel safe without looking like Stalag 14!'

Urban Splash's approach to design has always been people-centred: 'We have learnt that people don't treat perimeter doors like their own front doors,' says Craig. 'They are likely to leave them open. So when it came to building Britannia Mills, we made the access doors into the central courtyard self-closing. A lot of energy went into making them look right.

'Lighting is another vital security factor. The inner courtyard had to be well lit, but we didn't want it keeping the residents awake at night. So we created lights that shone downwards, away from the buildings, lighting the paths and walkways, not their bedrooms. The lights have been carefully designed, as with everything else in the courtyard. The trees are baretrunked and the shrubbery is kept low, so it looks good without providing hiding places.'

The car park is also secure. You enter and exit through electric doors operated by a hand-held magnetic fob. The car park is overlooked by apartments and well-lit, which provides an extra sense of security for the residents. Keys are accounted for. If people move away, they are asked to return their fobs.

Inside, some of the apartments feature computer links to CCTV cameras in the car park that enable residents to check on the security of their vehicles. The computer can also operate the curtains and the lights, so residents can appear to be in when, in fact, they are out. The system works automatically, using light sensors to determine whether it is day or night.

The heavy, plain wooden doors to the apartments are stylish, yet secure and attractive. The large windows, balconies and access walkways ensure visibility and contribute towards the community spirit, though there are shutters on the ground floor windows to prevent burglary. The lift to the upper floors is transparent, improving the sense of security and visibility.

The focal courtyard backs onto a canal that was used to transport materials to and from the old cotton and saw mills. Its presence as a natural barrier adds to the sense of residential safety. 'We took a novel approach to making the walls around the courtyard,' says Craig. 'We've all seen rendered breeze block walls along canals, and frankly they are not very pretty. So we created a mesh structure filled with pebbles. It's low maintenance and looks great. And even if the graffiti kids attack it, you can hide their work by moving the pebbles, taking them out and cleaning them, or replacing them altogether. Pebbles are pretty cheap!

'There were a few teething problems. The main electric door was initially key-operated, until we realised that vandals found it amusing to snap things off inside the mechanism. So now we've replaced it with an electronic key fob, or, in the case of the courtyard, a swipe card.

'For me, the most impressive part of this development is the courtyard. Many developers might have been tempted to use the space for car parking or further housing. But we wanted this oasis feel, this sense of tranquility within the city. It's a secure, private space for all the residents to enjoy.'

Urban Splash has a policy of getting regular feedback from the residents. This enables the company to continually improve lifestyles while collecting data which will mean more effective building in other construction projects. Craig says, 'Because Britannia Mills looks so good, vandalism hasn't been an issue. In fact there have been no significant problems there. The feedback from residents has been very positive and it's an indication of the success of the project that the value of their property has risen so dramatically.'

Design for the built environment

The Camden Bench

City Centre benches can be magnets for crime and antisocial behaviour, attracting thieves, rough sleepers, problem drinkers, graffiti and skateboarders. In some central London areas, virtually all the street benches had to be removed due to residents' complaints. It was time for a new approach.

Tim Long and Jane Debono commissioned design of a new bench for the London Borough of Camden, delivering a detailed (and demanding) design brief based on a list of problems Camden had experienced in maintaining street furniture. The bench was designed by Factory Furniture, with strong direction by Long and Delano who also brought in a team of stakeholders to advise on the 15 sketch designs and suggest adjustments. These experts formed the Bench Design Group and included Professors Lorraine Gamman and Adam Thorpe from the Design Against Crime Research Centre (DACRC)⁸ at the University of the Arts London, plus Adam Lindsay, Crime Prevention Design Advisor from the Metropolitan Police Camden, plus members of Camden staff from areas such as Camden Transport Planning, Sites Team, Highways Engineers, Community Safety, Street Policy, Conservation and Urban Design, Street Cleansing and the recycling centre Operations Manager, and the DDA officer.

This breadth of expertise was intended to ensure the new bench would meet a wide variety of urban challenges. The result aims to improve activity support in public space and resist criminal or antisocial behaviour through the following features:

- Anti-graffiti coating.
- Anti-postering – it has few flat surfaces, except the ends, which have the Camden logo cast into the bench so it is easier to pull off any posters.
- Difficult to skateboard on – as the edge of the bench fluctuates in height.
- Anti-rough sleeping – bench has a peaked top that cannot be slept on.
- Deters drug dealing as there are no cracks or slots in the bench in which to hide materials.
- Deters bag theft as slot along each side allows people to position bags behind their legs.
- Easy to slightly move the bench, removing it from problem areas, as it sits on the footway and is not bolted to a foundation.
- Reduces littering as it has no flat surfaces or slots to leave litter on.
- Designed for water and litter to flow off it with no slots that can trap water.

- A stand-alone bin has also been designed in the range, which can be placed next to the bench. However, an improved bench is being delivered imminently, with bins inserted into the ends of the bench.
- The bins help reduce littering as they cannot be tipped over and contain a cigarette bin.

There are a range of benches, so the right solution can be provided for precise locations, targeting specific problems.

Prototyping

After the first iteration was located on site in a new square opposite Freemasons Hall, Covent Garden, the Bench Design Group experts were consulted, in addition to Keep Britain Tidy, and interviews were conducted with the public. Further refinements to the design briefs were made and subsequent solutions were recommended and implemented. The revised benches were then installed at this site.

An anti-terrorism version was developed later by Factory Furniture and CPNI officers. This heavier bench (with a foundation), has passed the first PAS68 test (to stop a 7.5t truck, at 30mph with 5.2m penetration distance).

Achievements

Observational study has shown that people have quickly taken to using the bench. In fact, Camden are pleased to find people sitting on it in ways research did not predict. They seem more comfortable sharing it (compared to a park bench), possibly due to the larger size and the opportunity to sit facing away from others.

A further positive accolade is that this first installation is one block from a homeless hostel, on the edge of the 24-hour economy in Covent Garden, and is surrounded by high-value flats, yet no complaints have been received to date, unlike many other areas of Covent Garden, Bloomsbury, and Camden Town. Further interest in the bench has also developed, as an anti-terrorist opportunity, linked to police recommendations.

Tim Long from Camden comments 'I believe the Camden bench sets new standards: in reducing antisocial behaviour, simplifying street cleaning and creating a much more inclusive design (as the benches address about 28 different design issues). The new counter-terrorism version contains many of the features that reduce antisocial behaviour and make it easier to clean and more inclusive, and so we are much more likely to use this version in high profile locations.' (October 2010). Keep Britain Tidy have subsequently documented the design process of the bench and bin as best practice.⁹

Design for the built environment

Cashpoint Art Safety Zones

When the Metropolitan Police, Hammersmith approached the Design Against Crime Research Centre (DACRC) at the University of Arts London in 2010, for help in dealing with pickpockets, the DACRC team looked sideways from traditional security solutions and proposed a collaboration with artist Steve Russell to help find new and creative ways of influencing behaviour around ATMs.

Police at Hammersmith were experiencing problems with pickpockets and bag thieves. PC Paul Trueman consulted DACRC because Professor Lorraine Gamman, who directs the Centre, had worked closely with businesses as well as crime prevention and creative professionals. When she learned about the nature of the crimes in Hammersmith, she suggested it might be worth trialling a version of the cashpoint safety zones with which a Manchester 2007 police pilot had had success, but bringing a more aesthetic sensibility to the idea.

The Greater Manchester Police research from 2007 reported that one in four street crime offences (personal robbery and snatch theft) were geographically connected to a cashpoint and that on introducing yellow privacy or 'safety zone' boxes on pavements around ATMs offences could be reduced by 66% within 150m of the ATM.¹⁰

Problem

Cashpoints or ATMs have been in use on the streets of the world for over forty years.¹¹ Their design has evolved to ensure that they work for the convenience and benefit of users and to make sure machines are highly resistant to physical attack from criminals. There has been some work towards linking machines to CCTV protection and a great deal of focus on developing original encryption software and hardware to ensure transactions can be verified and avoid abuse. Biometric cashpoint dispensers look set to represent the next stage of the ATM's technological evolution.¹²

But for all this increasing sophistication, there has been little design address to how the 'context of use' affects the ordinary user experience. There has been some research that looks at environment in order to deter violent crimes like ram-raiding or Payment Card Data compromise crimes such as 'skimming', but what repeatedly gets overlooked is the simple, but ever present danger to users on the pavement nearby the ATM from pickpocketing, distraction theft and 'shoulder surfing' in which thieves can watch PINs being entered in preparation for later theft and use of cards.

Cashpoint safety zones created using painted lines (yellow or white boxes) have, over recent years, been implemented in many towns and cities in the UK on police advice. The idea is to create a safe zone around the cashpoint user that others should not enter. They allow the cashpoint user to feel safe and able to say something if the boundary markers are infringed. However, the approach has problems. The instructive direction of the yellow or white lines is over-stated for many environments and does not complement the user-friendly image many banks strive to create. Also at a functional level, the distance marked out for pedestrians to stand back from cashpoint users varies. At times, the lines are not painted to enclose a space large enough to reduce opportunities for thieves to shoulder surf.

Some businesses tend to view police warnings as bad for business, sending the wrong message to customers about the safety of the premises or the geographic location of the business, by association. Police warning signs on the street conveying the need to take precautions against pickpockets may simply make passers-by afraid. As PC Truman observed: 'When starting the initiative, I was aware that raising awareness amongst the public could sometimes be seen in a negative way within the local business community, almost like attaching crime to the locality. What we wanted to achieve were designs which would be seen as positive, innovative and which would create a talking point.'

Despite the success reported by a Manchester study on safety zones in 2007, when Hammersmith Metropolitan Police approached high-street banks to adopt the strategy in 2010, there was little interest. This may be because banks and other businesses do not want to be associated with crime, which the yellow boxes implicitly represent, albeit as a deterrent. They may work, but they have little aesthetic appeal, their visual language being more commonly associated with enforcement of street transit activities. This is a case of 'involvement failure' precipitated by poor aesthetic design awareness.¹³

Solution

Cashpoint art rather than simple painted lines was proposed for Hammersmith. Art symbolically avoids treating people like road traffic and provides aesthetic environmental appeal, while still promising to deter shoulder surfing and/or distractions by pickpockets. Additionally, the proposed cashpoint art zones were larger than most linear-painted safety zones, further denying opportunities for shoulder surfing.

Cashpoint artworks by Steve Russell aimed to offer the benefits of cashpoint safety zones using a more appealing aesthetic strategy. They were reproduced on vinyl and literally stuck to the floor to create safety zones that can engage and even amuse or delight the public, while simultaneously effecting increased ☺

space for the cashpoint user. They are designed to be refreshed every three months, although DACRC have undertaken research into more durable materials that could give the installations greater longevity, depending on the context of use, foot-fall, external or internal applications, etc.

Steve Russell observes: ‘My paintings were created as a gentle and enjoyable reminder to ATM users to be aware of each other’s space when using, and waiting to use the machines. The use of art is a positive move away from the strictures of yellow warning lines and “you must not do this” graphics.’

Six Cashpoint Art Safety Zones were installed in October 2010 in external and internal venues in Hammersmith, in partnership with The Royal Bank of Scotland Group (RBSG). Locations included National Westminster Bank and the Broadway shopping centre. These were subsequently monitored by the Metropolitan Police until January 2011. Police reports from Hammersmith indicate considerable success in reducing ATM crime and RBSG are now in discussion with DACRC about how to take this idea forward in wider London and national contexts.

Design for the built environment Hulme Park

Completed in 2000 after a period of collaboration with local people, Hulme Park was of immediate benefit to a community where many lived in social housing and needed somewhere to enjoy open space and feel safe while they did.

Parks make a difference in a city centre, potentially providing havens of peace and relaxation. Unfortunately, they also frequently become sites of crime, antisocial behaviour and bullying.

The transformation of Hulme, one mile from Manchester city centre, is fast becoming a legend in civic renaissance. The area was notorious for muggings, burglary, robbery and poor housing. As life there deteriorated during the eighties into a kind of living hell, it was decided that something had to be done. The local council and its partners secured substantial EC funding and began planning a total reconstruction of the area. The £2.2 million project to create a new park at its heart fell to Neil Swanson, the Practice Principal of Landscape Projects.

Swanson says, ‘It was a visionary project. Nothing like it had happened in Manchester for 50 years. We were being given the opportunity to build a park from scratch, to think: “What should a park be?”’

The brief was to design a safe and attractive park in the city centre that could be used by a range of different groups. But how was it possible to make the park open and welcoming, and yet secure?

The answer lay in the creation not of physical, but of psychological barriers. The first technique was size. The park was never more than 70 metres wide at any point.

Neil Swanson: ‘A park should not be too deep, as this makes people feel uneasy. We can pick out figures at a distance of 70 metres, recognising age, gender, even perhaps facial expression. You can recognise people and, perhaps subconsciously, one is aware of not being anonymous.’

The second technique was surveillance. It was agreed that new housing would be built facing on to the park, partly to give residents a good view and partly to increase the sense of security. Landscape Projects were happy to keep the road running through the middle of the park and encouraged parking around the perimeter to increase the sense of busyness and watchfulness. For safety reasons the road needed to be fenced on both sides. The type of fencing became a contentious issue. Neil: ‘You have to think of how it’s going to be abused. You have to be able to repair a small area, without needing to change the whole lot.’ Neil opted for a low brick wall, topped with black, horizontal steel railings built in removable sections. ‘You can see through horizontal railings much more easily than vertical ones. There used to be ‘sod off’ railings here. But this park is about welcome and inclusiveness. The council were concerned that children would hurt themselves if they sat on (and then fell off) the top horizontal bar, so we set it at an angle. They can climb the railings, but it is uncomfortable to sit on the top one. So they don’t do it.’

Landscape Projects prevented cars from entering the park with attractive stainless steel bollards. They cut small water-recycling trenches which also serve to stop bikers riding at high speed across the park. The firm developed a very open-plan style with pathways and roads connecting the park to other parts of the city. They wanted people to use it and so contribute to the sense of security and passive surveillance. Swanson says, ‘The more people are about, the less is your fear of crime. You feel safe with people about.’

For Swanson, it was vital that the park served all ages, especially children and teenagers. ‘It was important that we could create a space for young people to hang out.’

But who was he to say how their part of the park should be? ‘I felt it was vital that I got alongside the people who were going to use the park so we could design it specifically for them.’ He set up a series of meetings with young people from the area. ‘The teenage group was extremely boisterous and enthusiastic. But it soon became apparent that the boys wanted loads of macho equipment in the park, and the girls really weren’t that bothered. So I tried bringing an artist in to work with mosaics and to see if he could capture their imagination. Frankly it was going nowhere and this whole part of the project began to look a bit sad. We had to rethink. We realised that there was a big difference in the three age groups we were catering for. Adults like parks to be like big landscape gardens, children like lots of bright colours and playful stuff, and teenagers want something more provocative than a garden and not as ‘babyish’ as bright colours. And the girls wanted something different to the boys. Nightmare. But we eventually hit on a winning theme – swimming and surfing.

‘We created a “swimming pool” out of vandal-proof resin-bonded glass that was coloured blue through to green. It’s beautiful to look at. We built two long benches out of tough laminated timber, which look like surf or diving boards. And we brought in a boat builder from Bristol to create a ship-shaped rain canopy. It created a sense of beach fun, relaxation and colour that everyone enjoys. We also created play areas for children, including an exciting “treasure island” near the school, complete with dunes, shipwrecks and “monsters”. Dogs are kept out by the doggie equivalent of a cattle grid. The kids love it and use it regularly. It’s a great place to be on a summer’s day – or night. And they care about it. There’s been no vandalism.

‘Next to the existing Proctor’s Youth Centre, we created an area designed specifically for sports coaches to train a whole team. It is a circular area, next to the football pitch, just five metres across so the coach can see the entire team. We have a skateboard area too, of course, with half pipes and jumps.

‘I’m very proud of this place. Parks are one of the last nonprivatised spaces where your activities are not proscribed by the owners. You’ve got to treat that seriously. It’s very important to people.’

The park has been relatively free from crime and was described by a local police officer as ‘a triumph of design’. More recently, additional measures have been added to the park to deal with previously unknown problems. Notably, gates in keeping with the original park design have been added to address the problem of joyriding on scooters.

Service design

Immobilise: online security service

As digital transactions become more and more commonplace, digital ownership has also become viable, with products protected via information sharing networks.

It can be difficult to trace the owner of stolen hot products. Since 2003, Immobilise, a product registration system supported by the National Mobile Phone Crime Unit, has been operating a secure database system that allows anyone to protect their property by registering online any valuables that have a unique serial number.

More than 22 million items, from mobile phones to antique jewellery, have been registered with Immobilise, which works with police forces and the second-hand trade to match details held on Immobilise with unique serial numbers found on recovered stolen products, or on products marketed for sale second hand. But it’s not compulsory, it’s not automatically linked to lists of stolen items reported to the police and it doesn’t have the power to disable electronic goods via their International Mobile Equipment Identity (IMEI) number. To do that, you have to contact your network. It also doesn’t share information with companies selling high value products that are potential targets of crime.

Immobilise is designed to increase personal responsibility for valuable property. It’s an online system so it is easy for most people who buy valuable products to access. Registration of these goods has been promoted by retailers like Carphone Warehouse, which has been involved in the service since it started. The ultimate aim is to get customers to register all products that have a unique ID number the minute they buy them; the more people who register, the easier it will be to check recovered stolen products, and the more people will get their stolen items back.

Another system designed to reduce crime is TV Licensing’s dealer notification system. Since 1967 it has been compulsory for any company selling or renting TVs to give TV Licensing their customers’ names and addresses. While this is designed to help stop TV Licence evasion, Immobilise relies on individuals to register their own product details to protect against theft. Could legislation help Immobilise, and systems like it, benefit from the automatic sharing of transactional information like TV Licensing does? Or could design help make systems that encourage a culture of action against theft?

Design for the built environment

Living Laneways, Sydney

Too often, measures against crime and antisocial behaviour can have almost as unpleasant an effect on an environment as the things they aim to prevent. An approach being proposed in Sydney suggests uplifting alternatives.

The Living Laneways project set out to deter graffiti without alienating those who were responsible for creating it. It was felt that the involvement of respected artists in the street-art community alongside community centres that deal directly with youths on the streets would allow for a ‘true’ representation of Sydney to be projected onto the environment.

Long-term, it was hoped that communication with young people via stickers and information packs would lead to a strong relationship. However, in the short term it was felt that there simply needed to be a solution to the prevalence of illegal tagging, stencils and throw-ups.

The dark and unused laneways in the city centre were mapped out in order to identify the most appropriate treatments for each area.

It was proposed that a system of signposting laneways by block-colouring garage and roller doors would liven up previously dark and dreary areas and compliment a coloured sticker system that was also being developed. Anti-graffiti coatings would also be applied to the doors, making these awkward surfaces much easier to clean. A system of sensory lights would also be placed in deep doorways, deterring unsavoury activity.

The project is an excellent example of carrot and stick measures synthesised by design. It recognised from the start that the goal was to create safe, accessible and inviting spaces, not merely to prevent graffiti and other crimes. However, it also found that deterrents to crime and antisocial behaviour could be incorporated seamlessly into ways of beautifying the city.

Find out more at the Designing Out Crime website.
<http://www.designingoutcrime.com>

Design for the built environment

MADE youth shelters

The Crime and Disorder Act of 1998 and the emergence of the concept of antisocial behaviour has meant that distracting groups of young people from behaving in a threatening manner has become a big priority for many local councils. This often takes the form of hastily installed ready-made constructions for young people to congregate in: so-called ‘youth shelters’, which are generally made from metal tubing and have no walls or lighting.

In the West Midlands MADE (Midlands Architecture and the Designed Environment) wanted to change this approach. MADE is the regional architecture centre for the West Midlands. It fosters and promotes excellence in the designed environment by raising people’s aspirations and increasing their ownership of the buildings around them. The processes and outcomes of public engagement are central to MADE which uses them to raise the design agenda, influence professional practice and increase design excellence.

‘Groups of young people being “a nuisance” are often identified as a priority. In communities where there are few or no youth facilities, it is perhaps not surprising that young people sometimes drift in to antisocial behaviour,’ says Rosemary Wildblood, director of strategy and organisation at West Mercia Constabulary.

MADE was funded by the Government Office for the West Midlands (GOWM) to convene a group of experts from the fields of youth, community, crime prevention and urban design who agreed that giving young people some shelter was a positive idea for potentially reducing antisocial behaviour in a number of West Midlands communities. But they agreed that young people needed to be engaged in each project.

‘Young people are full of creativity and energy, but as a society we often fail them by not providing safe places where they can meet and express themselves without coming into conflict with other members of their community. That’s why the Youth Space initiative and the active participation of young people in the creation of youth shelters is so valuable,’ says Wildblood.

Six regional community safety partnerships wanted MADE to help them run engagement workshops and use design tools and ideas to tackle the different crime and antisocial behaviour issues they faced.

At Coleshill in North Warwickshire the project was a means of addressing increased issues of antisocial

behaviour and street crime during the evenings and weekends. More than 15 young people, mostly boys who enjoyed skateboarding, worked with artist Alisha Miller and architect Sabine Gollner in collaboration with Mueller Kneer Associates.

The Wolverhampton site at Penn Island roundabout had the highest level of street crime in the town centre. There 15-20 young people worked with artist Gwen Heeney and Solander da Cruz Architects.

Old Yardley Village Park in Birmingham’s Stechford was an area where antisocial behaviour issues arose as affluent properties butted up against a high degree of social deprivation. Police and the Parks Manager were already trying to address antisocial behaviour and the shelter design project was a key part of this campaign. A group of 15 teenage boys and girls worked with artist Carolyn Morton and architect Patricia Gomez.

Other projects ran at:

- Hunderton, Hereford where artist Dr Sally Payen collaborated with Silva Productions and architect Brian Witheridge of Landmark Consultants.
- Romsley, Bromsgrove, where It’s About Time Productions collaborated with Sabine Gollner and Mueller Kneer Associates.
- Warndon, Worcester where artist Dr Sally Payen collaborated with Glazzard Architects.

‘MADE’s impetus was more about ‘designing in’ creativity to public space than ‘designing out’ crime’ says Julia Ellis, director of MADE.

Creative teams of artists, architects and young people were formed in the six locations and started by identifying what problems they felt a youth shelter could help address.

For example, the young people at Warndon said they were concerned about exclusion areas and their often difficult relationship with surrounding communities. Through the collaborative and creative approach, they have designed a youth space that visually expresses this previously abstract and negative experience.

Warndon, Worcester

Warndon’s £43,100 new youth shelter was installed in April 2005 and has provided much needed services for 13-17 year-olds in the area. Before it was built, the area regularly experienced problems with antisocial behaviour from young people and it had regularly featured on police tasking strategies.

Seven design workshops involved unruly local young people whom youth workers had previously found very difficult to engage.

Initial mapping workshops asked the young people to identify places where they felt unsafe and places where conflicts happen.

Further workshops got the young people using graffiti, clay and large-scale collage to explore ideas of space and movement around the site and the shelter.

A photography workshop got the young people to take pictures of each other and it proved such a high-energy exercise that these pictures of the kids moving around have been blown up and used as colourful silhouettes to decorate the final shelter.

Vanessa Brothwell, project architect says, ‘This design is a small result of a massive effective process. This should be the way that all buildings are designed. We should be asking the people who are going to be using the building exactly what they want, how they will use the building and what the area is like.’

Jessie Nicholls, project participant says, ‘We designed a youth space and we had a number of workshops deciding the best place for the youth spaces and what we could do to make it accessible.’

The shelter has been designed to provide a base for several groups of young people at one time and the external platform is to be used as an overflow area. The openings in the structure have been carefully placed to enable visibility to all parts of the shelter while retaining the privacy the young people requested. The structure has been designed with the facility to be adapted and extended if required.

‘When it came to putting it up they physically guarded it so that nobody could come and trash it. It’s not been damaged at all,’ says Angie Rich, youth worker.

The young people involved are now rarely brought to the attention of the police and the local authority feels that the provision of the youth space will draw the focus of young people away from antisocial behaviour hot spots. There has already been a reduction of complaints and in the fear of crime from local residents.

Coleshill, Warwickshire

For £20,200 and after extensive collaborative design workshops and consultation with the wider community, Coleshill Youth Skelter was installed in October 2005.

The Skelter is situated in parkland behind the police station in Coleshill and it proved the catalyst for regeneration of that area. There’s now also a skate park on site. ☺

15 young people participated in four design and development workshops with artist Alisha Miller and architect Sabine Gollner in collaboration with Mueller Kneer Associates. They

- Collected examples of contemporary designs they liked
- Sketched their ideas for solutions
- Made models of what the shelter would look like

Dominic Ward, one of the project participants says, ‘The workshops let me express myself and show that I can actually be part of my community.’

Alisha Miller, project artist says, ‘They were into it first session and by the second session they were making amazing models and using really accomplished tools and different skills so I think they surprised themselves.’

The result is a space whose shape and finish came from them. ‘Skelter is clearly inspired by their passion for skateboarding,’ says Sabine Gollner. ‘The young designers experimented with forms and shapes, thus creating an innovative, contemporary design.’

One of the young people involved was Scott Turner. He says, ‘This was people being creative, doing what they want for the community and the community is a place where we all live so we should all have a say on what goes in and what goes on in it.’

Turner thinks it’s been a success because they feel like the space is now theirs: ‘Young people would feel offended if a shelter was just placed there, there would be no respect. Everybody has a right to feel comfortable in their place that they use everyday.’

Because they take pride in this construction they are stopping other people causing damage to it.

Sabine Gollner, project architect says, ‘Working in collaboration with a group of people will always change your designs and influence it differently.’

Impacts

Throughout the process of creating the six youth shelters the young people were on the one hand the clients, briefing the professionals in the workshops but, on the other hand, by participating in the design workshops they also became members of the design team.

‘Creative behaviour is never predictable and not always “safe” but it can produce safer, better-designed places. MADE would also argue that an increased sense of personal “safety” is derived from the increased self-esteem and the new value sets that come with and from all types of creative engagement,’ says Ellis.

Marianne Mueller, from Mueller Kneer Associates, one of the architect firms involved in the collaborative design projects says, ‘Good design can inspire and have a positive impact beyond the boundaries of the single building. On another note, “design” can also create barriers, physically or mentally. In fact, design is sometimes used deliberately to create barriers, to keep certain people out, to exclude them. So what is important is to explore issues of design and inclusivity in this discussion.’

‘Buildings do not only serve but hopefully also inspire and focus. They have the power to create communities as they become places where new communities can be rooted. This is why I think it is not only essential to employ “good design” but it is also vital for design to keep on pushing the boundaries, to experiment with use and inhabitation, as well as more formal or material aspects. It is important to design beyond the limits of what a community already knows or expects, to open minds and not leave people behind.’

‘Anecdotally and in some cases statistically, areas have noted reductions in reported crime and antisocial behaviour,’ says the director of MADE, Julia Ellis.

At the Warndon project the local authority believes the project has improved relationships between young people and the remaining neighbourhood. These young people are now rarely brought to the attention of the police and the local authority is reassured that the provision of youth space will draw the focus of the young people away from the antisocial behaviour hot spots.

In Coleshill the youth shelter project was the spark for further regeneration and investment in youth facilities, including a skatepark designed and installed after a group of young people formed a Colleshill Skatepark Association.

At Stechford the community still feels the benefits of the collaborative design project thanks to the sense of pride the young people feel in their contribution. The process has strengthened relationships between the community, the school, the young people and the police force. In general, more people are now aware of the park in Stechford, where further improvements are being made.

This method of engaging young people in designing their own services has been so successful that it has spread across the UK. In London’s Clerkenwell young people and Islington council worked with local architecture practice Fluid to create two youth shelters.

Product design

No Climbin

In 2006, there were 261, 895 reported incidents of unlawful entry and burglary in Australia. As she conducted research into why burglary was such a big problem, Jenny Loqvist, a design student at Griffith University, found that wheelie bins were often used to climb into open windows and balconies on the first storey. Loqvist decided to make them less useful to criminals.

For the 2008 Design Out Crime Product Design Awards, contributed by the Office of Crime Prevention of WA and Curtin University of Technology, Loqvist developed an idea for a No Climbin wheelie bin. ‘After doing 2D form studies I then went on to conducting 3D form studies in the workshop, which further helped me develop a suitable form for the wheelie bin to create a non-climbable bin,’ says Loqvist.

On the No Climbin the traditional flat lid and rim is replaced with a sloping, curved rim, so climbing onto it and balancing there is more difficult. Since the lid is made of a flexible material, it gives no support if someone tries to stand on it.

The design is user-centred as well as focused against crime. The lid has a rigid rim, making it easy for the user to lift. The shorter sides also accommodate the needs of shorter people who can find normal bins too tall.

Loqvist says that there should be a market for designs that seek to prevent crime: ‘I do believe there is a large market for design that deals with crime prevention since crime is something that is increasing.’

While the customers for an anti-crime wheelie bin may be local authorities who sometimes find it difficult to procure innovative new solutions, there are ways design can help make ideas like the No Climbin fit in with existing systems, says Loqvist: ‘The bin has been designed to fit existing wheelie bin trucks to make the transition as easy as possible. If an idea like the No Climbin were to be taken on by local authorities, I think there should be some collaboration between the designer and the authorities to ensure the design is easy to implement. With the right tools to promote and drive something like this forward to the council, I believe that it is certainly possible.’

Product design

Orange projectors

Designing a product to be make it more secure doesn’t have to mean fitting locks and chains. Design can sometimes even make a product more secure by means of aesthetics alone.

The theft of information and communications technology (ICT) equipment from schools is widespread and costly. Projectors are especially prone to theft, with one local authority estimating that the cost of replacing projector equipment ran to £200,000 in a single year. The expense is not just attached to buying new equipment. It also covers damage to school property resulting from the theft, insurance claims and disruption to lesson schedules.

A simple solution

After 195 projectors were stolen from London schools in the first three months of 2005 (many sold to pubs and clubs to show football matches and films) the British Educational Communications and Technology Agency (Becta) proposed a simple and low-cost design solution: all educational equipment could be produced in a bright and distinctive orange colour so as to make it more difficult for criminals to sell on. Potential customers are likely to find the gaudy orange units less desirable, especially if they know it means an item is school property and has been stolen.

Forming partnerships

Becta worked with representatives from the Home Office, police forces, the Department for Education and Skills, local authorities and equipment manufacturers to generate enthusiasm for the idea. From early 2006 ten manufacturers have been producing orange projectors, combining the colour deterrent with additional security features such as PIN codes and remote control operating devices.

For the idea to be really effective, ICT procurement departments and people in the community all have to be aware of it. Comproom, a school computer room design company, created a series of ‘Don’t Get Caught Orange Handed’ posters to publicise and explain it. Designed to be memorable to the school pupils who use them and anyone in the local community who visits, they feature cartoons of thieves appearing in court with orange hands, charged, of course, with stealing educational projectors. ☹

The results

According to Becta, the initiative had an immediate and beneficial impact. In the London Borough of Havering, annual ICT thefts from schools had exceeded £150,000 in one year. When the borough introduced orange projectors and linked them with other security measures, such as etched and forensic marking on the equipment, burglary rates fell substantially.

Service design / design for the built environment Parksafe Systems

In 1998 the first Parksafe Systems car park opened in Derby. Design and technology created a crime-free car park, that could then be replicated at two further Parksafe sites.

Imagine you come home from a trip abroad. You walk to your car in the multistorey airport car park. You don't see it at first, though you spot a similar car with smashed windscreen and the dashboard all ripped out. Then it dawns on you. This is your car! You rush to the attendant's office. You say: 'My car's been vandalised while I was away.' The attendant looks at you, a bored expression on his face. 'See that, mate?' he says, indicating, with a slight raising of his eyebrows, a sign over your shoulder that reads, 'All vehicles left at owner's risk'. End of conversation.

Incidents like this happen in car parks around the UK every day. In fact, this one happened to Ken Wigley, around 12 years ago. He was so furious with the attendant's couldn't-care-less attitude that he decided to do something about it – something dramatic and constructive. He invented Parksafe.

Wigley is now chairman of Parksafe Systems Ltd. 'I'm an agricultural engineer. I had recently developed a sensor system for a forage harvester, a metal movement detector. If it spotted a horseshoe or even a beer can, it would automatically shut the machine down before the metal wrecked it.

'Parking is pretty boring stuff, but the more you get into it, the more intriguing it becomes. I was thinking "How could the attendant have prevented what happened to my car? If he couldn't see or hear it happening, then how could he know?" So I thought: invent a sensor that can do his job for him. One that can tell if the car is being moved by people who shouldn't be moving it. And so I did.'

Not only did Ken invent a sensor, he designed a whole secure car park system. 'What happens if you drive

into a Parksafe car park, say the 24-hour multistorey on Bold Lane, near the shopping centre in Derby? It's got 440 parking bays, covering ten floors. It's designed for short stay shoppers as well as people who want to park overnight. You pick up your ticket as per normal, and then find a free parking bay. The bay has a big number on it. On your way out, you pass the Bay Controller machine. You put your ticket through it, and it activates the sensor under your car. This is a device that keeps an eye on the undersurface of the car and detects any movement above a preset level. If someone is kicking the car or trying to break into it, the alarm goes off. When you come back to the car park, you put your ticket in the Pay on Foot machine and the sensor is switched off.

'The CCTV system is comprehensive and so is the PA. If we see a bunch of lads drive in we know to watch for them later. Sometimes they come back a bit drunk. We watch them, say, go up to level five, where they think no-one's watching them and then they might start larking about. Play fighting. The sort of behaviour that's fine by itself but can make them all a bit leery. If it looks like getting out of hand, we bollock them! We say, over our very loud PA: "OK boys, settle down, get in your car, and LEAVE." And the amazing thing is, they always do.'

With panic buttons set at every five metres, 190 CCTV cameras in a typical installation, car exits controlled by attractively designed doors to prevent casual pedestrian access, automatic control of exits to prevent escape by criminals, reduced entrances and exits, all monitored, suddenly the car park is becoming one of the safest places in town.

'We used to have a problem of people urinating in the stairwells. Of drug abuse in all the dark corners. Of tramps and prostitutes. The year before we moved in to the Derby car park, there were 171 reported crimes in the car park. And the police told me that for every crime reported, there were on average three that hadn't been. The car park was being used less and less. The council had redecorated it, installed 16 CCTV cameras and employed a patrolling officer. This reduced crime a little for about six months, but it soon came back.

'Now, in four years of operation there hasn't been a single incident. No crime at all! No graffiti, no theft, no breakage. Nothing. We're getting 400 cars a night on the weekends. Which is pretty amazing really, because you have to pay to come in here. 'People are prepared to pay for security. All the surrounding parks, most closer to the city centre than us, are free.

'We offer the car user a guarantee. If their car gets damaged here, we'll pay for it. Though I do actually video scan the cars on the way in to make sure I'm

not going to be caught with a fraudulent claim! Now more and more middleaged and elderly couples use the car park at night – and women on their own. Because they feel safe. Usage was 10% up on last year. That's unknown in this business – especially with no new stores opening up around us.

'It was hard to get this project off the ground. I did most of it off my own bat. I put a lot of money into it to develop the system, and built it up on paper over a couple of years. I thought: "This will be easy to market." I seriously didn't think I'd have a problem, I was so convinced it would be such a good idea. So once I'd created the design and prototype sensor, I took it round various bodies and businesses. All for nothing. Until I came full circle back to Derby where someone in the city council had the balls to say: "Let's try it!" Then we were able to get private investors and banks to raise half a million. It's a long-term project. There's no real return yet. It'll be ten years before we see any serious profit, but it's definitely going to be worth it in the long run.'

There have been a few criticisms that Parksafe is over the top, yet crime has been reduced to zero and feedback from customers is extremely positive. An independent survey showed that 97% felt safe in the car park and 100% felt that their vehicle and its contents were secure. Nearly everyone who parked there felt that paying an extra 20p per hour was worth it and/or good value for money. Wigley also plans to sell the detector system to private owners who park their cars in driveways. That's nearly 14 million potential new customers.

Product design

Stop Thief Chair and Grippa Clips

How do you ensure bags are safe in bars and cafés without installing intrusive security measures that destroy the relaxed atmosphere? A pilot study in London suggests that some simple, unobtrusive and attractive design interventions can make a real difference.

The Stop Thief Chair and Grippa Clips, created by the Design Against Crime Research Centre, are designs to help bar and café customers take care of their bags and protect them from thieving fingers. The bag-holding slot at the front of the chairs allows straps to be sat on, with bags hanging safely below the chair. Similarly, the Grippa Clips are designed to secure bags to table edges or vertical surfaces, where they can be easily seen.

The Grippa makes it easy for users to hang bags securely, but demands a more conspicuous action to release them, making life awkward for thieves.

Both designs use the body or the weight of the bag, to complete the 'lock' and reduce opportunities for theft, both are flexible enough to be installed in different locations and meet different customer preferences and both are easy on the eye, avoiding fortress aesthetics. But do these solutions work in the real world? Their promising functionality had been well-documented by the press, but had not yet been sufficiently tested by the public.

A research pilot team commissioned by the Design Council worked to pilot-test 40 chairs and 50 clips in situ with the British Transport Police and an international coffee chain venue with a high footfall in Victoria station that was experiencing a significant bag theft problem. Within the first two months, customers were seen to be using the products and exercising better care and crime reduction had occurred, though this cannot be taken as conclusive evidence.

Problem

Café and bar culture encourages us to relax but research and bitter experience shows that many bags are stolen when customers become less alert as they switch off. Thieves prey on these soft targets in predictable ways, pushing away bags on the floor with their feet and lifting or dipping into bags hanging off the back of chairs. Some bar and café furniture designs, including square-backed chairs, may be complicit with the needs of thieves. Such furniture allows or even prompts insecure bag placement over the back of chairs, outside the owner's field of vision and consciousness. Even cautious customers, aware of the risk, may find it hard to locate the bag without making it vulnerable to theft or causing trip hazards. Moreover, customers often do not respond to 'beware of thieves' signs provided by police. In fact, many businesses suggest such signs may inadvertently promote the idea that their premises are uniquely unsafe, rather than the fact that customers must be careful in any busy café or bar.

Response

Could strategic design help reduce this crime and influence customers' behaviour in terms of how they look after their bags? The pilot adopted a dual approach to test the design interventions. A Crime Reduction and Architectural Liaison Officer from the British Transport Police (BTP) collected recorded crime data for the pilot site and two 'control' sites at Victoria and Waterloo stations. Meanwhile, the research team conducted behavioural observations on site for one month before and two after installation to identify ➡

how customers located their belongings before and after anti-crime designs were installed. Changing customers' security behaviour would serve as an 'intermediate impact' indicator that would, moreover, give much richer information on what was going on at the trial venue, than bald crime counts. The research team arranged to install 40 chairs and 50 clips. To 'show' rather than 'tell' customers how the chairs might be used they also commissioned an artist whose relaxed easy-on-the-eye paintings featured people sitting on Stop Thief Chairs. They also worked with the chain to provide additional communication for staff areas.

Findings

The crime data showed that during the pilot's post-installation period (December 2010-February 2011), two thefts were recorded from the intervention venue. By comparison, for the same period in the same venue a year earlier (December 2009-February 2010), there had been seven thefts. A competing café chain venue in the same station saw thefts rise, up from two incidents to three over the same periods. These figures are indicative only, but do suggest circumstantially that the design interventions were having a positive effect.

The behaviour changes identified give a positive picture too – but a much more robust one. Early research feedback from customer comments and behaviour revealed positive changes after the installation of the chairs and clips. 'Best', 'good', 'OK' and 'bad' were defined in terms of how securely bags are located within proximity, visibility and consciousness of their owners. Analysis of the results indicates a 24% increase in 'best- and good-practice' bag care by customers, since the installations. In parallel, a 21% reduction was observed in 'OK- and bad-practice' bag care.

Café staff appear satisfied with the way the chairs are performing, although early findings suggest the clips are experiencing greater initial customer uptake. This may relate to 'behavioural change inertia' often associated with new product genres (think how long we took to get used to people walking down the street talking into 'invisible' wireless headsets, for example).

Customer surveys were also conducted by the research team, following many of the observation sessions. Responses were encouragingly positive to both Stop Thief Chair and Grippa Clip designs. Of 21 respondents to date, 62% suggested the chair is both easy to use and makes it easier to care for their own belongings, and 76% agreed the Grippa Clips could help them feel more secure about their belongings.

Notably, the surveys also revealed the importance of clear visual communication to introduce the new concepts in the venue. When initial A4-sized

wall mounted communication was trialled, 81% of respondents indicated the posters were too small and too 'corporate-style' to notice, whereas after artist Steve Russell's larger paintings were introduced to show rather than tell customers how the chairs could be used, more people noticed both the artwork and the chair designs.

Additional observations

Previously, the trial venue had installed some 40 Chelsea Clips, which remained in place during this study (under the same tables where the Stop Thief Chairs and Grippa Clips were located). Over the three months and 62 sessions of on-site observations conducted by the research team (before and after installation), just one of these Chelsea clips was observed in use by customers, perhaps because of the 'hidden' location its design necessitated (or its limited ability to accommodate as wide a range of weights/sizes of bag – a factor addressed by the Grippa.) This compared to 69 bags observed secured on Stop Thief Chairs and 246 bags hung on Grippa Clips over the two months of post-installation observation.

Product design / communication design

Theft prevention, UTS Campus

In a recent change, UTS City Campus Library, Sydney, has begun to admit the general public. Unfortunately, this has led to an increase in thefts. How could design deter this, without the new open access policy being rescinded?

Laptops are the primary targets as well as any unattended belongings with high price values. 'Seven laptop thefts were reported within the UTS library in just one month,' a UTS Security Staff member reported.

Anyone with a photo ID can now enter the library as a day visitor, increasing the likelihood of theft. The thieves that have so far been caught were non-UTS students, so the rise in theft seems to be linked to the change in accessibility.

There are currently 24 surveillance cameras (CCTV) in the library, located at the entrance and exit, computer labs and areas that have a higher rate of movement and traffic. However, there are still many blind spots where a thief can penetrate the system. It was felt the CCTV alone could not be relied on to solve the problem.

Response

The brief: Develop a design concept that will help deter thieves and increase awareness of theft within the UTS library.

UTS wants to become more open, extending its relationship with the general public by offering them use of its research facilities, so restricting access wasn't a solution here. Cost effectiveness, information technology systems and integrations with the current security systems also needed to be considered.

Conversations with library and security staff, revealed that students lacked awareness of the theft risk in the university and library. Generally trusting, many were in the habit of leaving their belongings unattended for long periods. Some were even prone to falling asleep with their belongings strewn around them. Security staff noted that thieves generally operated in groups using a variety of methods and tricks.

It was felt that there was a need for a communication campaign to raise theft awareness among staff, students and other library users, allied with a workstation redesign that would make theft more difficult.

Theft awareness campaign: 'My Little Eye'

This campaign takes the shape of a graphic information system through which various messages are communicated, including notifications, reminders and tips about leaving belongings unattended. Messages are around such subjects as falling asleep and leaving belongings unattended. They are designed to subtly prompt library users through visual reminders about how to stay safe in the library.

Workstation – SmartDesk and USB Alarm

The SmartDesk system is aimed at library users who wish to work on their laptops for an extended period. Users place their laptops on a stand, locking it down, and then attach the USB that allows them to use their laptop at the desk. This connects the user to a keyboard, mouse and built-in alarm. To lock/unlock the security system and operate the laptop, the user has to enter a username and password. If the user disconnects the USB without doing so, they have just 10 seconds to act before the alarm is triggered. Design for the built environment

Find out more at the Designing Out Crime website. <http://www.designingoutcrime.com>

Design for the built environment

Villiers High School, Platform Playground

Villiers High School in Southall had 1,300 students who were meant to spend every lunchtime outside in a 1,750 square metre space with little to distract them except cultural and personal differences. Violence flared regularly and the students themselves wanted to do something about it.

The school has a focus on design and technology and students had already watched a designer at work when Clara Gaggero, a student in industrial design and engineering at the Royal College of Art, included them in the testing of her prototype digital playground.

They wanted to be involved in designing new facilities for their outside space and pitched to Ealing Council for £25,000 to fund a design and build project.

The school had already been approached by makers of playground equipment, who'd proposed putting in slides and swings, an idea none of the students liked. They wanted a space that was right for teenagers and the school staff wanted to stop the regular fights and broken noses that occurred in the playground.

Gaggero, who had by now graduated from the RCA and set up her own design practice, says that the design process is a powerful tool for finding out what different sets of users need and for developing a solution that fits these needs.

'After the design workshop with me in 2006, some of the pupils were so inspired by the experience of designing that they asked for funds to transform their ageing playground,' says Gaggero. They commissioned her to run workshops, develop the design and manage the building and installation project, all for a tight timescale and a budget of just £25,000.

Gaggero says she had to involve the students right from the start of the design process: it was the only way to get the right results. 'They got the money for the job so they had to be involved.'

Gaggero started in March 2008 by observing how the students used the current playground and she talked to some of them to find out why they did what they did in the space. 'If I look back to my high school it was a very different place,' says Gaggero. 'At Villiers I noticed that the students were not walking on the grass and I asked them why. They said it was because ➔'

they did not want to get their shoes dirty. When I was at school the last thing I cared about was getting my shoes dirty but these kids maybe come from less well off families and may have to make their shoes last a long time.’

Next Gaggero ran brainstorming workshops with a group of 14 enthusiastic students, including those who’d won the funding: Akash, Rita and Fardowsa.

‘These gave me a big insight because when I gave them moodboards and asked them to select the most appealing pictures from a set of 150 images, then put key words beside them, many of the same pictures were chosen. This showed me they wanted somewhere that they felt comfortable on their own, but where they could hang out as a group. They also wanted an intriguing landscape.’

‘Then I gave them a camera and got them to take pictures of things they liked and did not like. I also gave them all a test to fill in, like in a magazine. They each had to do the test with five friends. It really revealed what they wanted.’

After gathering all the wants and needs from the students, Gaggero had just six days to generate three design concepts to present to the students and staff for their feedback. She created digital video walk-throughs of each space, supplied an aerial picture of how the space would look and showed the students how they could use each space.

Although each idea had its fans, one in particular appealed to groups of boys, girls and staff, who needed it to be easy to monitor the students’ behaviour.

A platform for change

Platforum Playground is a design that uses colourful concrete blocks to give students their own spaces to chat or climb. Gaggero found a concrete contractor who could manufacture and install the blocks, so now they are scattered around the space, some piled two or three high, others laid on their side and filled with grass to become informal benches. The variety, says Gaggero, allows a lot of different sorts of students to use them however they want to: ‘Tall piles might be used by the boys to smoke secretly. The piles on the grass are more girly and private.’

The blocks are painted in bright shades of yellow, green and blue and are arranged in a spiral that leads in to the centre of the playground so it encourages the students to visit each other’s blocks, but there are ways for groups to feel they have their own space.

‘Before, when two rival groups were wandering in the playground, if they met then they would fight. But now they have their own spaces,’ says Gaggero and teachers

from Villiers say the new playground has definitely reduced the amount of violence and aggression in the playground.

Robin Street, Villiers deputy Head Teacher says, ‘Before the area was put in what did happen a lot more often was large groups of students occasionally moving in large groups that could be quite intimidating. This has certainly happened a lot less often and this is clearly directly linked to the existence of this space.’

He says other benefits have emerged from the new space: ‘What has been particularly interesting is the number of students who are in the playground when before very few ever were in that particular space.’

Gaggero designed the layout so there would still be lots of open space and no hidden areas. Students could then feel ownership of their own parts, but staff could still easily see that the space is safely used.

Encouraging ownership and pride in the new facilities was, Gaggero felt, vital to ensuring the students used and didn’t abuse the space. She designed in easy ways for them to keep it looking good, with features like rubbish bins shaped as basketball hoops hung at different heights.

This doesn’t mean there haven’t been some issues, but the teachers’ perspective towards incidents of graffiti has changed along with the space. Street says, ‘The way it was designed also gave the students the pride to have their own area and this in many ways is the most positive element of the whole process. There have been few examples of graffiti, something we certainly think is down to the feeling of ownership a lot of the students have over the area.’

While students are out in the playground at lunchtime they benefit not only from fresh air but also from engaging in activities like clambering up, over and into the concrete blocks, or up a £2,000 climbing wall that Gaggero incorporated into the scheme. Street says that as they are more active at lunchtimes, the students are becoming more attentive in afternoon classes.

And while keeping students more engaged at school may be a long-term way to design out crime, the staff at Villiers say that involving the students in the design process has raised many of their aspirations, for themselves and their school.

Juliet Strand, Villiers Head Teacher, says, ‘The creation of Platforum by Clara working with a group of Villiers students has been a fantastic success. At Villiers we are not only really keen on the “student voice” to create student ownership of and responsibility for their school, but also we see great value in students learning from professionals like Clara.’

The numbers say it all about the new playground: 30–40 students used it before. Now around 700 are out there at any time. And there have been no broken noses since.

Did it all end there?

Since Platforum was installed Gaggero has been back to Villiers twice to design promotional and organisational material for a Peace Day event in October 2008, and create plans for a new sixth form centre.

Service design

Ushahidi

Ushahidi is a website that was developed to map reports of violence in Kenya after the post-election fallout at the beginning of 2008. Being able to see where disturbances, crimes and other events are happening is an important way to coordinate information from news sources as well as local people.

A new Ushahidi engine has been built using the lessons learned from Kenya to create a platform that allows anyone around the world to set up their own way to gather reports by mobile phone, email and the web – and map them so that other people can see where problems are occurring.

It is built so that it can work with other websites and online tools and it doesn’t depend on users having access to expensive technology like computers: they can use their mobile phones, a piece of technology 4.1 billion people had access to in December 2008.

Erik Hershman, director of operations at Ushahidi says, ‘We take the stance that you go for the lowest common denominator, which is the SMS enabled mobile phone. So you take your Nokia 1100 and you say, “If we can make the technology work on this that’s useful for people both on incoming messages and outgoing messages then we have something that’s valuable and let’s see what people do with it.” The first iteration of that was in Kenya during the post election ballots. We quickly created a website. It was a mash-up of maps and incoming mobile phones messages that we called Ushahidi, which means testimony in Swahili, then what we did was get funding to build a global version of this.’

Ushahidi’s creates a platform that any person or organisation can use to set up their own way to collect and visualize information. The core platform allows for

plug-ins and extensions so that it can be customized for different locales and needs. This tool is tested and made available as an open source application that others can download, implement and use to bring awareness to crises in their own region. Organisations can also use the tool for internal monitoring purposes.

The core engine is built on the premise that gathering crisis information from the general public provides new insights into events happening in near real-time. It was being developed by a group of volunteer developers and designers, hailing primarily from Africa. So far there are representatives from Kenya, South Africa, Uganda, Malawi, Ghana, Netherlands and the US. ‘Traditional media tend to have a problem of scale and scope. They can’t get to everywhere that the news is happening,’ says Hershman. ‘We pull the information in from traditional news sources but also ordinary people. Put that on the map so they can see what’s happening.’

Hershman also explains the benefit of taking a local approach to problem solving: ‘If you’re solving African problems let Africans solve those problems. The developers working on Ushahidi are from all over Africa who are developing it for their needs and their locations. If you can make it to the constraints and all the negative things you think about Africa means that if you have the perfect trial zone for creating an application that can work everywhere.’

<http://www.ushahidi.com>

Endnotes

1. *Link expired*
2. Dale, Amy, 'Withdrawn for fear of terror attacks at 2000 Olympic Games, rubbish bins to return to rail stations', Daily Telegraph, 22 December 2009 <http://www.dailytelegraph.com.au/travel/withdrawn-for-fear-of-terror-attacks-at-2000-olympic-games-rubbish-bins-to-return-to-rail-stations/story-e6frezhr-1225812561417> NSW Government, 'Bins to Return to Sydney Train Stations' (press release), 2 November 2010.
3. Mintel, 2010.
4. *Ibid.*
5. Transport Research Laboratory, 1997.
6. Crime in England and Wales 2008/2009, Sian Moley, Property Crime
7. Department of the Environment transport and Regions. 07/97: Supply and demand for cycle parking.
8. DACRC is funded 2010-11 by Camden to create a Diagnosis Tool for assesment of further ASB-resistant seating opportunities in the borough. See pp.28-31 of http://www.keepbritaintidy.org/ImgLibrary/Evidence%20Paper%20Two_1728.pdf
9. See pp.28-31 of http://www.keepbritaintidy.org/ImgLibrary/Evidence%20Paper%20Two_1728.pdf
10. Holt, T. And Spencer, J. (2005) 'A Little Yellow Box: The Targeting of Automatic Teller Machines as a Strategy in Reducing Street Robbery'. *Crime Prevention and Community Safety: An International Journal*, 7: 15-28.
11. ATMs first came into use in December 1972 in the UK; the IBM 2984 was designed at the request of Lloyds Bank. The 2984 CIT (Cash Issuing Terminal) was the first true Cashpoint, similar in function to today's machines; Cashpoint is still a registered trademark of Lloyds TSB in the UK. The first document use of a Cashpoint however, appears to have Tokyo in 1968 – see Instant Cash via Credit Cards, ABA Banking Journal, p. 99, January 1967.
12. Polish design first biometric cashpoint dispenser – March 2010 – see: <http://www.independent.co.uk/life-style/house-and-home/polish-bank-claims-europes-firstbiometric-cash-point-1971507.html>
13. Ekblom, P. (2011) *Crime Prevention, Security and Community Safety using the 5Is Framework*. Basingstoke: Palgrave Macmillan. <http://www.independent.co.uk/life-style/house-and-home/polish-bank-claims-europes-firstbiometric-cash-point-1971507.html>

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Design: MultiAdaptor
www.multiadaptor.com

The Home Office's Design & Technology Alliance Against Crime has brought together industry, the public sector, designers and crime prevention experts to create the Design Out Crime programme.



Aiming to develop design-led ideas for crime-proofing products, businesses and communities, the programme has worked on five priority areas:

Alcohol

Finding design-led approaches to reduce the harm caused by alcohol-related antisocial and criminal behaviour, especially assaults in pubs and clubs.

Business

Using design to help minimise crimes such as shoplifting and retail theft that affect businesses, their customers and their employees.

Communities and housing

Embedding design-led approaches to help communities become safer by reducing crime and the opportunities for it to occur.

Hot products

Developing innovations in technology, services and product design that help make personal electronics more crime-proof.

Schools

Understanding the crime problems such as bullying, fighting and petty theft that affect young people in schools so that effective design solutions can be created.