

Designing out crime

A designers' guide



Design & Technology
Alliance Against Crime

Contents

- 2 About this guide
- 3 Why design out crime?
- 8 Making the case to clients

Tools and techniques

- 12 User and abuser-centred design
- 14 Tools to help designers think about how crime happens
- 16 The Crime Lifecycle Model
- 18 _ Presence and access
- 24 _ Design and use vulnerabilities
- 28 _ Behaviours and actions
- 33 _ Effort, risk and reward
- 42 _ Post-crime impact, response and detection
- 44 _ Offenders' predisposition and the long-term consequences of crime

Design strategy and futures

- 48 Tactics and strategies
- 52 Understanding systems and stakeholders
- 60 Design Out Crime as a catalyst for innovation

Conclusion

- 66 Incorporating a Design Out Crime approach in your design work

Appendix 1 – Example briefs

- 70 Residential bike theft
- 78 Retail crime
- 86 A safer pint glass
- 94 Brief structure

Appendix 2 – Methodologies and academic research

- 102 Links and resources
- 105 Endnotes

About this guide

This resource has been created to help creative professionals understand more about how design can be used to combat crime. It is a practical guide that will give design practitioners, clients, educators and students useful information about how the design of products, services and communications can help to prevent crimes occurring, lessen their impact, aid the recovery of stolen items or help apprehend offenders.

Through a series of tools, models and methodologies, it will help designers of all disciplines to find out more about understanding users and abusers, think creatively about solutions to the social challenges that crime presents and apply foresight when considering how the products and services they create will be used and misused.

Why design out crime?

Crime in the UK has fallen over the last decade, but as society and technology have evolved, new crime challenges have emerged.

Changing behaviour is of course one aspect of crime reduction, but design also has an important role to play in preventing crime and reducing criminal activity without compromising the enjoyment and usability of products, places and services by legitimate users. So central in designing out crime remains being focused on those you are designing for, as well as those you are designing to thwart.

If designers consider the ways in which the object, systems or environments they are designing might be susceptible to crime – and do this early enough in the design process – they can prevent crime from occurring, or at least reduce the opportunities for offender behaviour.

This might mean, for example, product designers understanding more about how portable consumer electronics like mobile phones, sat navs and MP3 players are attractive to thieves because they are small, valuable and easy to re-sell. Interior designers working on bar and restaurant projects might need to think about how the layout of interior space and the furniture they specify can help prevent thefts of and from customers' bags, or how the design of bathrooms and toilets can help prevent illegal drug use. Similarly, designers of bicycles, cycling accessories and street furniture might need to understand how and when bicycle theft most often occurs.

Designing out crime from the start

It is important to understand that designing out crime is not simply a case of designing better locks and bolts. For it to be most effective (and cost effective), crime prevention needs to be designed-in at the start of a project, where it is able to influence choices and behaviour, not added on at the end.

Crime in the UK

In 2009/10 there were approximately 9.6 million crimes against adults living in England and Wales. While the numbers of offences are the lowest since the British Crime Survey began in 1981, it does mean it is likely that, whichever sector or market a designer is working in, crime will have some impact on a client's business cost or will directly affect customers, consumers and members of the public.

Notes

Designers working for global brands or with clients who export should also consider the rates and types of crime in other countries.

You can find more information about crime statistics in the Links section on page 102.

Designers already use sophisticated techniques throughout the design process to fully understand people's latent and unmet needs, in order to create products, services and spaces that are useable and desirable. In taking time to research users and customers at the beginning of the design process, designers will often find that what people say they do often does not reflect what they actually do in practice.

In the same way, by researching abuser 'needs' such as loopholes and weaknesses in systems, situations, premises, designers can apply this creativity and innovation to developing sophisticated solutions that can prevent and ultimately pre-empt crime. When places, products and services are developed with crime resistance in mind, designers can help to make it more difficult, more risky or less attractive for offenders to commit crimes, and help to make it easier for people to stay safe and keep their belongings secure. This makes people and communities feel safer.

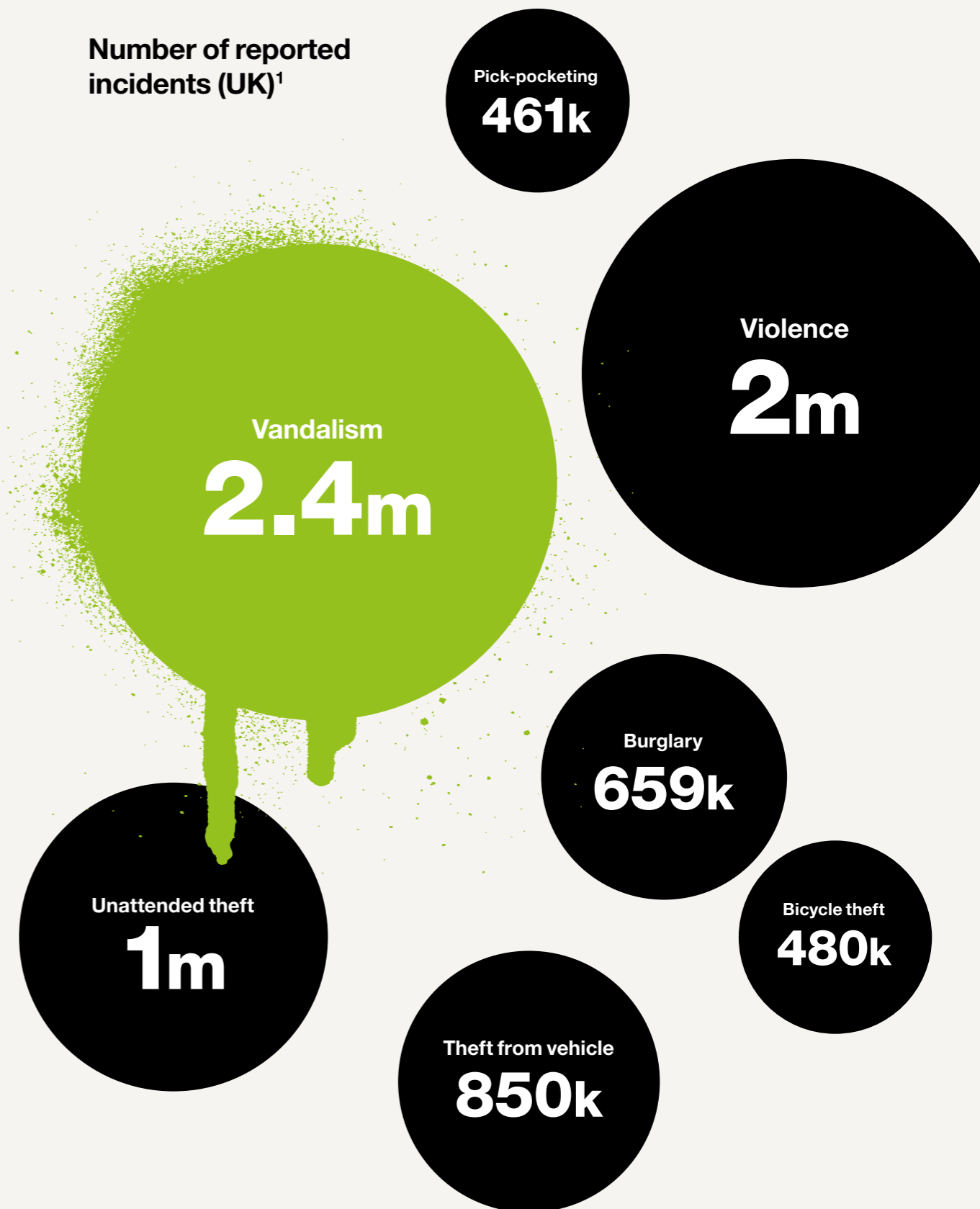
The cost of crime

Crime brings with it a cost to individuals and businesses in three ways:

- cost incurred in anticipation of crime (the cost of security)
- costs incurred as a consequence of crime
- the cost of responding to crime

For individuals the cost of crime can include time off work through injury, as well as the hidden costs of anxiety, stress, feelings of vulnerability and reduced confidence. For businesses this can lead to a fall in

Number of reported incidents (UK)¹





1. Anticipation



2. Consequence



3. Response

productivity or difficulty retaining or recruiting staff. And of course crime has additional costs for local and national authorities in terms of police time and the cost to the NHS and other public services.

It is difficult to calculate the cost of crime against businesses, but British Chambers of Commerce estimate that crime costs UK businesses £12.6bn a year.²

How designing out crime may differ from other design briefs and projects

Crime is a social issue – it involves individuals (both the victims of crime and people who commit crimes) as well as social systems including the police and the justice system.

For designers, one of the hardest things to grasp when thinking about designed responses to crime is the complexity of the whole eco-system. This complexity, in turn, means that the solutions to design out crime problems may turn out to be very different from what the designer or client may have imagined at the start.

For example, the theft of prestige vehicles is often not the result of an opportunistic criminal act: frequently, this involves organised criminal gangs, using the vehicles as currency to fund other offences such as the supply of drugs or firearms. This is why in design out crime projects particularly, it is crucial to undertake research, user observation and stakeholder interviews at the start of the design process, and to engage in divergent, wide-ranging thinking and idea generation which will enable designers to consider all the areas where a designed approach can help to reduce crime or lessen its impact. For designers, this is an opportunity to extend the reach and influence of the work they do.

On a purely commercial level, this may mean that in considering how to design crime out of a product or service, designers may identify new clients or new markets for their work. In-house designers and brand owners may see opportunities for brands to extend their reach or to differentiate themselves from competitors.

For example, glassware manufacturer Arc International and UK glassware firm Utopia are both currently developing new, safer glasses for use in pubs and clubs. These separate projects aim to help reduce the estimated 87,000 violent incidents involving glass which occur each year across the UK. Both companies hope this early investment in ‘next generation’ pint glasses will improve market share.

Designing out crime can also help designers and design agencies make their work responsive to broader social challenges. So, the approaches, tools and methods that designers have always used to create products that are easy to use and that people want to buy or own can also be applied in this area.

Note on crime statistics

Crime statistics are made up of crimes recorded by the police and the British Crime Survey which is based on interviews with the public about their experiences.

Most people will be familiar with the phrase ‘crime rate’ which relates the incidence of crime per head of population. However, it is hard to generate an accurate picture of the full extent of crime in a community or population.

For example, the British Crime Survey has only recently begun to ask children aged 10 to 15 about their experience of crime, in order to estimate the levels of crime experienced by children and their risk of victimisation.

This is important because young people are particularly susceptible to certain sorts of crime such as mobile phone theft. The 2007–08 British Crime Survey (BCS) showed that around a quarter (24%) of victims of mobile phone theft were aged between 10 and 17 and nearly half were aged between 10 and 24.³

Also, the ways in which crimes are recorded can sometimes create an inaccurate picture. For example, a vehicle that is stolen as a result of the theft of the car key from a house will be recorded as a burglary, not as a vehicle theft.

Crime statistics are useful to help clients and other stakeholders understand the seriousness of a crime problem, but designers may need to scrutinise available evidence and combine national statistics with qualitative research in order to get a truer picture of a crime area.

Making the case to clients

Some designers may be fortunate enough to get a brief which specifically asks them to consider crime reduction and prevention strategies. Schools, local authorities and other public sector bodies with a remit to reduce crime have successfully commissioned designers to create solutions to local crime issues (read more at www.designoutcrime.org.uk).

For most clients the idea that design can be used to help fight crime is probably new. So how can designers help clients to understand why they should embed a design out crime approach into design projects and new product development strategies?

Benefits for businesses

For some clients crime is not just antisocial, it is also expensive. The costs of crime for businesses and organisations can include:

- repairing or replacing property and furniture that has been vandalised
- covering the cost of stock lost through shoplifting or theft by staff
- loss of staff time through injury or stress
- increased insurance premiums

Businesses with staff affected by crime or the threat of crime also report low morale



Mobile security

The FindMyiPhone feature on Apple's MobileMe service displays the approximate location of a lost or stolen iPhone or iPad and enables users to remotely lock the device or restore it to factory settings to prevent unauthorised access of personal data.

and recruitment problems. Designing crime prevention and reduction into business processes and systems as well as the products companies use can help reduce costs in all of these areas.

Benefits for customers and users

New designs and innovations that are developed to combat crime can also have additional benefits too. These can include products being easier to use, or consumers being happier to use products in situations and locations where they might not have used them previously through fear of crime.

New market opportunities

Crime or security issues may present an opportunity to develop a new product or service, or to refine an existing one. Designers have integrated security features into everyday products such

as developing handbags that protect users from thieves and airport seating that makes it easier for preventers (other passengers, security staff, etc.) to see left luggage or any suspicious package left beneath.⁵

Safety and security as brand attributes

Brands can use anti-crime features and systems as a way to differentiate themselves from their competition. Security can be presented as a unique selling proposition or as a benefit for the consumer, and if brands begin to compete on how safe or secure their products are (as some car brands have done), this will result in improved products and services.

Designing out crime is more sustainable

Businesses and customers who are concerned about the environmental and social impact of products can also see a design out crime approach as part of their commitment to sustainability. Crimes like theft of mobile phones and MP3 players can be seen as a form of planned obsolescence, meaning that a consumer has to buy a replacement product.⁶



Example

Camden bench by Factory Furniture

A good example of a client investing in crime reduction – and taking the time to consider crime before the briefing stage – is the London Borough of Camden, which commissioned Swindon-based Factory Furniture to create a new street furniture bench, the first installation of which would be a public space in Covent Garden, London.

Tim Long and Jane Debono from Camden's Clear Zone Partnership based their detailed (and demanding) design brief on a list of problems Camden had experienced in terms of maintaining street furniture. They also brought in a team of stakeholders, including experts from the Design Against Crime Research Centre at the University of the Arts, London, a Crime Prevention Design Advisor from the Metropolitan Police and London Borough of Camden staff from departments including Community Safety, Street Policy, Conservation and Urban Design. These frontline staff were able to advise on 15 sketch designs, and suggest adjustments.

The brief asked for a bench which would resist criminal or anti-social behaviour such as graffiti, fly-posting, skateboarding, littering, drug dealing and rough sleeping.

The bench incorporates a number of design features to prevent these activities: it has an anti-graffiti coating, has few flat surfaces which will help stop fly-posters, skateboarders and rough sleepers from using the bench and prevent people from leaving litter on it. The absence of cracks or slots also means drug dealers can't hide materials in the bench⁴

Tools and techniques



1

User and abuser-centred design

User-centred design

Like all good design, designing out crime needs to start with an understanding of the user. Knowing as much as possible about the people who are going to use a product, environment, system or service – their needs, desires, capabilities, weaknesses and aspirations – will help to ensure that design solutions are effective, usable and sustainable.

Of course, not all users are the same, nor do the same users act the same way all the time. This is why designers need to conduct user research to understand how individuals, as well as groups of users, respond to different objects or spaces or in different situations.

In practice, user research can range from ethnographic and observation-based techniques to depth interviews, workshops and role-play with target audience groups. These qualitative approaches enable designers to understand how a wide range of users act and react – and can help to reveal how people really behave, which can be quite different from how they think they behave.

User-centred design approaches also advocate involving users throughout the design process of testing, iterating and refining.



User research in designing out crime projects

As part of the Design Out Crime programme, The Sorrell Foundation conducted workshops with 150 young people from six locations in England and Wales. Facilitators and designers helped them to map where crime happens in their schools and communities, and how they felt about crime and security issues.

These insights were then translated into design briefs which seek solutions to problems like bullying and vandalism in school toilets.⁷

Groups of users can give feedback on sketches, physical prototypes or storyboards that show service propositions, and tools like eye-tracking software can help users test interactive design solutions such as websites. Using images and illustrations to bring complex products and services to life can be a helpful way of communicating during user research. Users can also be brought in to help to build realistic scenarios so designers can understand how their products and services might be used now and in the future.

Groups of users can give feedback on sketches, physical prototypes or storyboards that show service propositions, and tools like eye-tracking software can help users test interactive design solutions such as websites. Using images and illustrations to bring complex products and services to life can be a helpful way

Abuser-centred design

Designers working on crime prevention and reduction need to think beyond the user: to understand how to prevent crime from occurring, they have to fully understand how crimes happen. To do this they need to gain insight into crime from the point of view of the offender – thinking about the abusers of products and environments as well as their users.

The most direct way for design teams to gain this understanding is by talking with people who have committed crimes. Obviously, though, this is not as straightforward as talking to groups of consumers or customers: interviewees made be hard to find or they may be unwilling to share their experiences. Designers who try to observe offenders in the act of committing a crime may well put themselves at unnecessary risk.

Fortunately, there are other tools and resources at the designer's disposal. Various called 'thinking thief' or 'adopting the criminal gaze', designers can use the collected experiences and research conducted by the police, criminologists, design researchers and others in order to imagine how an offender might approach a product, environment or situation.⁸

The tools in this guide will help to give designers systematic ways of considering projects from the offender's point of view.

Interviews and workshops with individuals from crime prevention agencies and the police are also invaluable in understanding how particular crimes happen and how they are best prevented and solved. Also workshops or interviews with people who have been victims of crime can give useful insights into how, when and where crimes are committed. Obviously, people may be more or less willing to talk about their experiences of crime, depending on the nature and severity of the crime involved, and such interviews need to be handled sensitively.



Tools to help designers think about how crime happens

Criminologists, crime prevention agencies and researchers have developed a number of tools which can be adapted to help designers think strategically about design solutions to crime problems.

The **Crime Lifecycle Model** is a design resource developed by the Design Against Crime Solution Centre.⁹ It draws on a causal framework developed by criminologist Paul Ekblom for the UK Home Office.

Professor Ronald V Clarke from the school of criminal justice, Rutgers University, has identified the **25 Techniques of Situational Crime Prevention** and these can provide additional insight for designers working on projects that include strategies to reduce or prevent crime. His techniques make use of insights into how people naturally behave, and draw on interviews with offenders which reveal how they think.¹⁰

Designers can adapt these tools to help give structure to designing out crime projects. These tools can be used to bring focus to design research, as inspiration for idea generation, or to refine and test design concepts.

This section shows how designers can use these models, illustrated with examples and case studies.

Using the Crime Lifecycle Model, designers can:

- systematically understand all the causal factors in a crime event
- better understand offender motivations
- be reminded that some solutions need to focus on what happens after a crime has been committed
- think more widely about how design and creativity can be used to reduce offender's propensity to commit crime

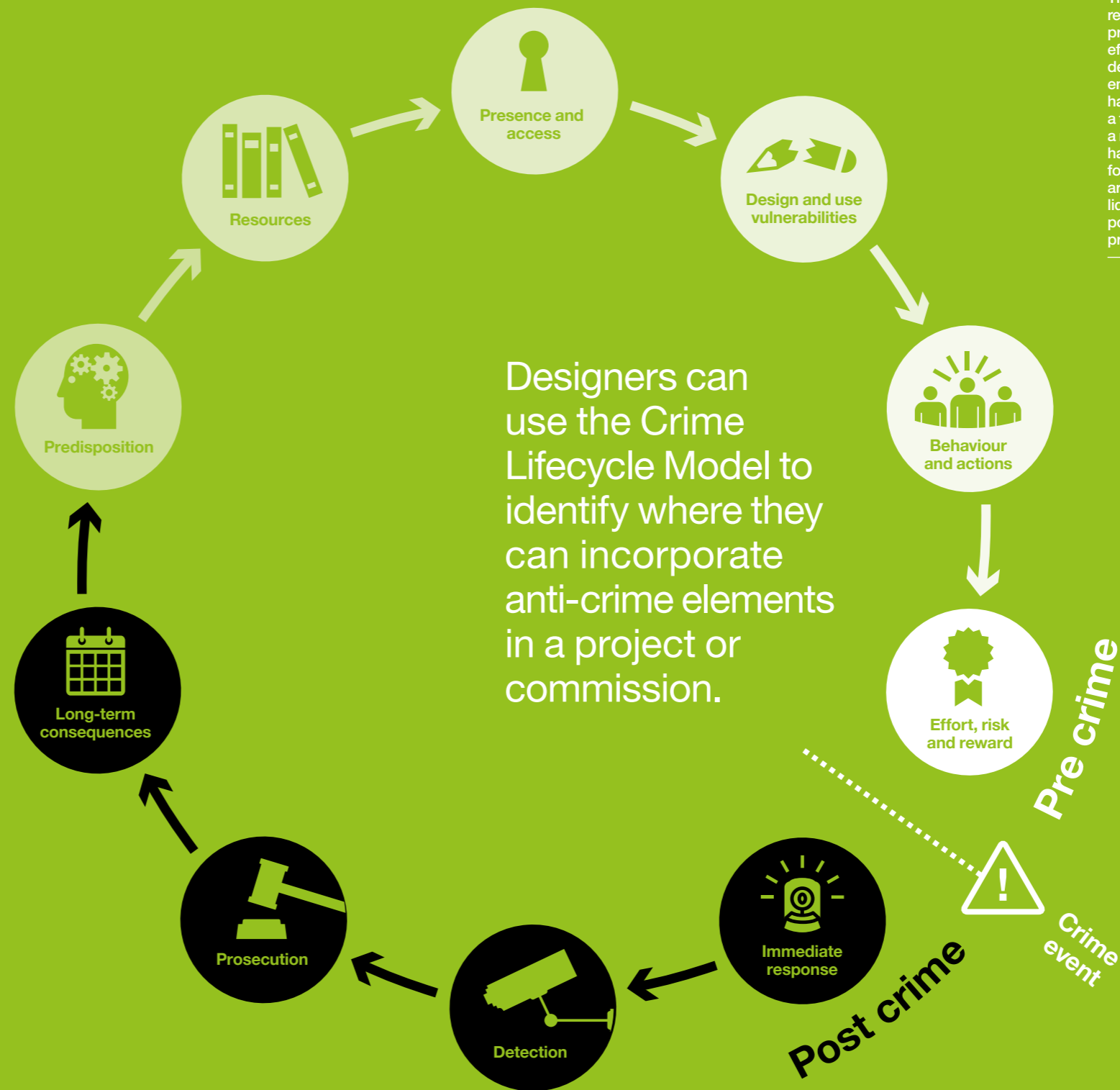


The Crime Lifecycle Model

In order to create solutions which reduce or prevent crime, designers need to fully understand how crimes happen.

Crime is complex social issue and goes far beyond the actual moment when a crime is committed. Crime involves individuals choosing to transgress the rules of their society or community, whether these involve personal property, business transactions or physical safety or emotional wellbeing. The reasons that people commit crime are complex too, and can be linked to factors such as poverty and poor education as well as to individuals' psychological background, community and peer group. In addition, for every crime there are situational factors such as the in-the-moment choices that affect offender behaviour and the ways in which the behaviour and actions of offender, victim and bystanders can affect how and whether a crime takes place. And for every crime there are different consequences and repercussions that happen after the crime has taken place.

A framework such as the Crime Lifecycle model is useful for designers wanting to understand these issues and break them down into sections in order to consider how – and indeed whether – a particular aspect of a crime can be tackled by a design solution. Designers of products and environments may be able to do little to tackle the underlying social reasons why crime occurs, but a systematic approach which allows them to interrogate how crime happens can not only help to create more effective deterrents and preventions, but also help to inspire more divergent and creative thinking around a particular crime problem.



Note:

This model is also useful as a reminder that few design-led crime prevention methods will be 100% effective so, for some projects, designers may need to focus their energies what happens after a crime has been committed. For example, a technology solution that renders a mobile phone unusable once it has been stolen is a solution that focuses on post-crime issues. So too are solutions like forensic marking liquids (see page 43) which aid police in the identification of stolen property that has been recovered.

Presence and access



In order for a crime to occur, the person committing the crime has to be present in a place, or gain access to it. Although this presence or access can be virtual, in cases of hacking or cyber-crime, for the most part this means physical access to a space or place.

Opportunistic presence

In a public space, in a crowd or on public transport an offender can commit a crime opportunistically by taking advantage of being in the same place as the target of crime, whether this is an object or a person.

Purposeful access

Here the offender deliberately gains access to an area for the purpose of committing a crime, for example a bank robbery or trespassing in order to create graffiti.

This is perhaps one of the most basic approaches to crime prevention – stopping offenders gaining access in the first place. It is the reason that offices employ electronic card access and why there are shutters on shops at night.



Example
Psychological barriers: ATM art

Cashpoints and ATMs have been on our streets for more than 40 years and include a number of design features designed to combat crime, for example incorporating cameras that take pictures of every person conducting a transaction.

ATMs and the areas around them can be the site for crimes including pick-pocketing (while the customer is distracted by using the cashpoint), 'shoulder surfing' (where an offender watches a customer inputting their PIN, memorises it and then steals their card or wallet to enable further theft or fraud) or other forms of theft or robbery (theft with the threat of violence).

One solution to increase cashpoint safety has been to paint yellow road-marking style boxes on the pavement in front of the ATM to create a 'defensible space' for the cashpoint user. Outlining this psychological barrier aims to prevent offenders from getting close enough to bank customers to commit a crime, and to make the offender's behaviour more obvious to customers and passers-by (see Natural surveillance, page 35).

As the Design Against Crime Research Centre (DACRC) at Central St Martins College of Art point out, this solution 'is hardly easy on the eye' and sees members of the public treated 'as if they are road traffic rather than human beings using the pavement.'

Hammersmith Business Improvement District, in consultation with DACRC and the police, has introduced cashpoint artworks by Steve Russell, reproduced on vinyl and stuck to the floor around cashpoints in Hammersmith Broadway. They act as a more gentle and positive reminder for ATM users to be aware of each other's space when using and queuing for the cash machines.¹¹

Controlling access by introducing barriers in this way, however, can mean introducing a level of visual brutality into the environment. High fences, locked gates, barbed wire, bars and grilles rarely add to the beauty and elegance of an environment, and their presence can contribute to fear of crime among residents and consumers.

More sympathetic design elements, such as landscaping or changes in paving, surface texture or colour can be introduced into environments to act as psychological barriers, signalling where property is private or showing where people should or shouldn't stand or walk.



Example
Preventing access to alleyways in terraced housing

Introducing gates at both ends of alleyways behind rows of terraced housing, or at the street end of an alleyway in between terraced buildings, has been successful in reducing burglaries and helping to make residents feel safer.

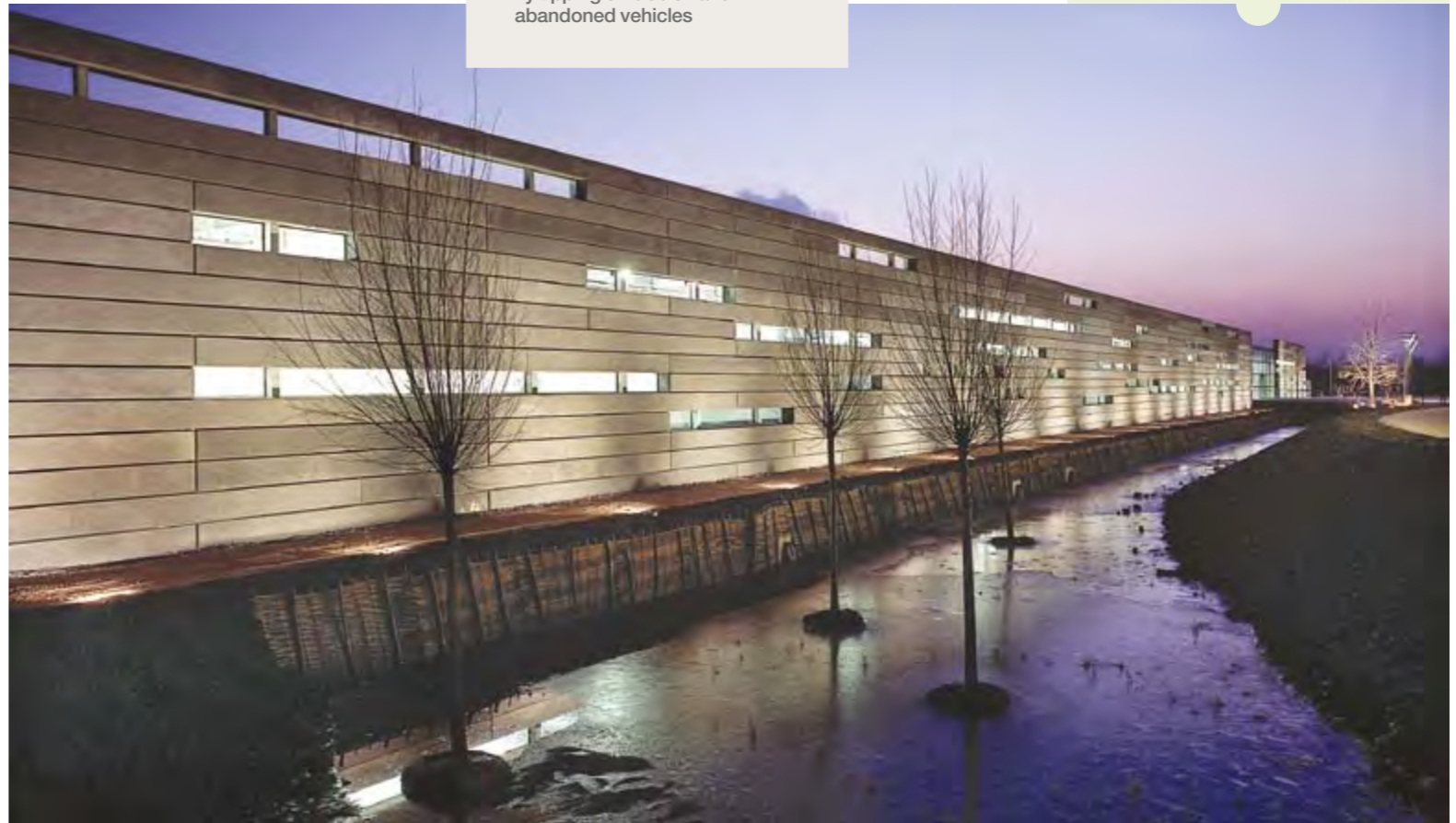
A study of alley-gating in Liverpool conducted by the University of Huddersfield found that residents in gated areas experienced less crime and less anti-social behaviour, and felt safer in their homes than residents living in non-gated areas. Burglary in some areas of Liverpool has reduced by 37% since the introduction of the gates.¹²

Gating alleyways and providing keys for residents only can also prevent other crimes and antisocial behaviour, including:

- drug-taking/drug dealing and drugs related litter
- graffiti and criminal damage
- prostitution
- arson attempts
- dog mess
- fly tipping of rubbish and abandoned vehicles

Example
Incorporating sustainable design and building protection

Sheppard Robson's design for the Experian Data Centre is on the fringes of the city of Nottingham and needed to incorporate security features without looking like a featureless fortress. The front wall of the building is 170m long and in front of it is a reed-bed moat. This not only prevents access to the building but will filter waste water and provides a sustainable wetland habitat for wildlife. At the rear of the building, which looks out onto fields with no road access, the landscape architect incorporated a series of deep ditch ha-ha style defences which aims to prevent access to the building from the rear.¹³



Opportunistic crime as part of a daily routine

It may seem obvious that where a building or space is situated can have an impact on how vulnerable it is to crime. This is perhaps most obvious when a building is isolated or an office or public space is deserted at night or at weekends.

But being situated in a busy or residential area can also lead to increased vulnerability. Offenders often take advantage of opportunities to commit crime that arise during the course of their daily routine – travelling to work or school, visiting friends or relatives, returning home.

These opportunities might include noticing an open window, a poorly-secured bike or valuables in a parked car. Many offenders tend to commit crimes near their homes or concentrate their crimes around ‘activity nodes’: the places they visit most often.

Top tips for designers *Presence and access*

Think about:

- who will use a space or building: public spaces and open access buildings can be vulnerable to opportunistic offenders
- how purposeful offenders might gain access, particularly when a building or space is empty
- how access can be prevented without introducing unappealing, fortress-like security solutions which compromise design intent
- whether there are more subtle or sophisticated access prevention solutions available, or whether gates, shutters and screens can be incorporated into the design
- whether a design project’s location makes it vulnerable



Warning
Site under
Surveillance





Design and use vulnerabilities

🔍 Designers work hard to create products that consumers enjoy using and want to own, and to develop brands that inspire loyalty or become aspirational. Unfortunately, the downside of this is that these same features and benefits make some products attractive to offenders.

In crimes such as theft, robbery and burglary, offenders most often focus on items that have high intrinsic value: products that are desirable to the thief or are easy to sell on and turn into cash.

For this reason, while it is important that all designers try to understand more about the impact of crime, product and industrial designers who work on consumer electronics in particular have a responsibility to consider how they can help reduce the likelihood of these products being stolen or limit the use and re-sale of stolen goods.

Hot products

Most thieves steal because they want money in a hurry. Consequently, after cash (which is the most frequently stolen item in thefts, burglaries, and robberies), thieves also tend to target a relatively small number of products which have earned the name ‘hot products’.¹⁴ These include laptop computers, DVD players, sat-navs and mobile phones. The items that fall within the hot product category do vary, however, depending on what is available and fashionable. For example, in the past hi-fi systems, and DVD recorders have been on the list of hot products, but as the prices of home entertainment systems

Cash thefts

Find out more about schemes to reduce thefts from and around ATMs on page 20.

To find out more about a programme to develop ways of ensuring financial transactions through mobile phones are safe from crime, see page 62.

have dropped, these items are less valuable to thieves, and the pattern of crime has changed.

The rise in ownership of personal electronic devices such as MP3 players, smart phones and portable games systems has made them a target for theft – with the result that some offenders have switched from burglary to theft from the person or mugging.

Products used as resources for crime

Offenders require resources to commit crime: this can mean products (weapons or specialist equipment like a card skimmer), knowledge and skills (a familiarity with the layout of a residential area, skill in picking locks, or knowledge of CCTV blind spots) or co-offenders during or after a crime.

For product designers it is important to remember that everyday objects can be misappropriated to be used as resources for crime: from shopping trolleys used by burglars to transport stolen goods and aerosol car paints used for graffiti to wheelie-bins used to help burglars climb over walls and fences. Products, services and systems may be put to use by offenders in ways never intended by their designers.

Products targeted by thieves

You can use the acronym CRAVED to identify whether the product being designed is likely to be a target for theft, burglary or robbery.¹⁵ This stands for:

Concealable:
These items are easily hidden after theft, or their theft is not likely to be noticed initially

Removable:
Items are easily taken, carried and transported, especially on the person

Available:
Items are on display, or in an insecure location, or are not being watched over

Valuable:
The items are of significant monetary value, or signifying status or power

Enjoyable:
Items are fun to use or possess, and therefore desirable

Disposable:
Items are easily sold on or exchanged for cash, drugs, etc.

cr
ved

Example
Pint glasses used as weapons

Pint glasses are used in 5% of all violent crime in the UK, and there are an estimated 5,500 glassing every year.¹⁶ Can designers and materials scientists work together to product safer pint glasses? Design Bridge has developed prototypes for a new generation of pint glass which is safer for everyone. Read more on page 90.



Fighting crime through packaging design

Product designers are not the only ones thinking about how design can combat crime. Packaging designers already work to combat two sorts of crime: counterfeiting and product tampering.

Counterfeiting

Losses from counterfeiting and piracy can be very high for brands, and one way of tackling it is through designing packaging that can't easily be copied.

This can include introducing advanced labelling systems such as holographic stamping, or building trade marks into all the main parts of a product and its packaging. The pharmaceutical industry, in particular, has developed a number of packaging design solutions to combat counterfeiting, including covert technologies such as microscopic tagging, molecular markers and biological tracers, which can only be identified by customs agencies and authorised distributors using laboratory equipment.

Product tampering

Tamper-evident packaging which reveals when a product has been opened or otherwise interfered with can be as simple as a shrink-sleeve around a bottle cap, a foil seal on the lid of a bottle or jar or a plastic tab that has to be broken before a piece of packaging can be opened. Regulations for tamper-evident packaging vary between sectors and markets. The pharmaceutical sector has developed a number of solutions including blister or strip packs and breakable caps that cannot be resealed. Packaging designers incorporating tamper-evident features also have to balance sustainability and usability issues, however, to ensure products can still be opened by consumers and do not use excessive materials.


Top tips for designers

Design and use vulnerabilities

Think about:

- how offenders could make illegitimate use of a product or fixture
- how packaging design could help reduce counterfeiting or piracy or make tampering evident
- whether the design strategy that best addresses vulnerabilities of use might be a service or system issue. Think about how the design is purchased, used, managed, maintained and disposed of

Behaviours and actions

 Few people would say they deliberately allow crime to happen to themselves or to those around them. Yet many crimes could be prevented if individuals involved in or near the crime scene acted differently.

Understanding how people actually behave (which may be at odds with how they say they behave) and then designing solutions to help them change their behaviour is a key part of preventing or reducing crime through design.

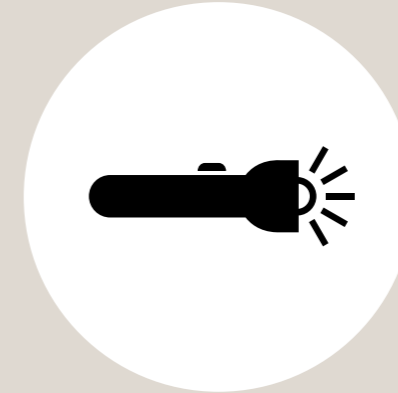
In a crime situation, individuals can act as preventers or promoters

It is especially valuable for designers to explore areas where the user acts as a passive promoter of crime. This is where user research, especially if it includes observation or ethnographic techniques, can reveal how people can inadvertently put their belongings or themselves at risk of crime. People using mobile phones or portable media devices, for example, can be so immersed in a conversation or piece of music that they are vulnerable to offenders simply snatching a device from their hand or bag.

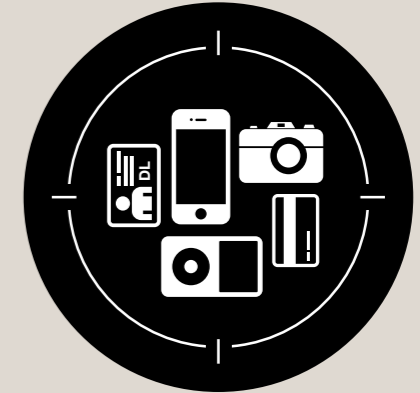
Preventer

Promoter

Active



Police officer or a security guard



Someone who leaves valuables on display in their parked car

Passive



The mere presence of other people



Accomplice who keeps watch while their friend burgles



Example
Bag theft in cafés and bars

In most societies it is normal behaviour not to get too close to a stranger: the feelings of discomfort, anger, or anxiety that may arise if somebody invades your immediate surroundings or what you might call your personal space occur because in getting too close to you, a stranger has transgressed an accepted social norm or custom.

Because of the pervasive nature of the idea of personal space, people tend to overestimate the security of their immediate surroundings.

In bars, cafés and clubs, customers will put down belongings such as bags or mobile phones, leaving them within arm's reach but perhaps not paying full attention to them. Offenders will happily break social norms in such circumstances to get close enough to steal personal property. Or they might employ a distraction technique such as covering up personal property (e.g. a mobile phone left on a table) with a map or card while pretending to ask directions.¹⁷

Example
Product and communication design supporting better bike locking

There were around 486,000 incidents of bike theft in the UK in 2009-10.¹⁸ Bikeoff, a project set up by the Design Against Crime Research Centre at Central Saint Martins College of Art and Design, made 8,500 visual observations of cycle parking before creating designs for six secure cycle stands. Research showed that a majority of cyclists locked their bikes by only securing the top tube of the bicycle to a stand, making them vulnerable to common theft techniques, such as levering the lock apart or unbolting the wheels of the bike. The CaMden bike stand promotes more secure locking behaviour because they make it easier for cyclists to keep their bicycles upright and lock both wheels and the frame to the stand. Stickers on the stands, which can also be applied to other bike stand designs, remind people of the safest way to lock their bikes.

Plantlock, which enables bicycles to be secured to an immovable box in which plants can be grown, also incorporates a graphic helping users to lock their bike correctly.

Top tips for designers
Behaviours and actions

Think about:

- how a product might be used – may it cause the user to be distracted from their surroundings?
- who are the potential preventers in an environment or where a product or service will be used? How could design features support them?
- whether design features can help to prevent users becoming passive promoters? Are there opportunities for graphics or communication design, for example, to remind users of known risks? Can features designed for convenience, such as car central locking systems, also help prevent crime?





Example
Sweet dreams security

Designer Matthias Megyeri has created a series of concepts which show security devices transformed with humour.


sweetdreamssecurity.com



Example
Arsenal stadium

The huge stone lettering spelling out the club's name at Arsenal's Emirates Stadium is an anti-terrorist barricade

Effort, risk and reward

 Immediately before a crime is committed, the perpetrator will have made a series of judgements, weighing up whether the effort and risk involved are worth the potential reward.

Consequently, one useful method for assessing where to bring crime prevention or reduction into the design of a product, environment or service is to consider where a design solution can:

- increase the offender's perception of the effort required
- increase the offender's perception of risk of detection and subsequent identification
- reduce how much reward the offender thinks they can derive from the criminal act. This reward might not always be a financial benefit: some crimes are committed for other reasons including thrills or peer respect, for example.

Some of Professor Ronald Clarke's *25 Techniques for Situational Crime Prevention* are useful here, and worth looking at in more detail.

Increasing effort

At its simplest, this is about making it physically more difficult for an offender to commit a crime.

There may be other ways of increasing effort which could provide sources of inspiration for designers or brand owners looking to reduce criminal activity through design. Sometimes this means that the design solution is introduced well before the crime is actually committed – in the case of creating pint glasses that cannot be used as weapons, for example.

Target hardening

In the same way that we saw how preventing access is one of the basic methods of crime prevention, increasing an object or space's physical (or electronic) resistance to criminal attack can also be useful in increasing the effort needed to commit a crime. Crime prevention researchers call this 'target hardening'.

Everyday examples of target hardening include strengthening windows and doors with locks, grilles and shutters, or the security screens used in banks and ticket offices.

As we saw in the discussion of techniques to prevent access, these solutions can be visually unappealing and can increase the fear of crime among residents and users of a space, service or building. The challenge for designers thinking about strength and security issues is in integrating this kind of solution seamlessly into a design concept.

Example
Classical music as a youth deterrent

The Co-operative has used classical music to deter groups of youths from congregating outside its stores and has seen a reduction in crime and anti-social behaviour outside and even inside its stores. A roll out of the system to 105 stores saw a 70% reduction in overall crime.¹⁹



Control tools or weapons

This approach concentrates on increasing the effort criminals have to expend on getting access to the tools they need to commit crimes, or to weapons which they can use to threaten or force. Systems surrounding gun registration and knife sales are part of this approach, as are campaigns which try to reduce graffiti by restricting the sale of spray cans to juveniles.

Other examples of this approach are less obvious and could provide a surprisingly useful area of inspiration for service designers and in-house teams considering how best to build crime prevention into their systems and services. In the UK in the early 1990s changes to the ways in which new credit cards were delivered by banks led to a marked reduction in the amount of credit card fraud on cards which were never received by customers – those which had been intercepted before or just after delivery. In 1991, losses on cards not received totalled £32.9million. By 1996, after systems were put in place to control delivery of cards to addresses where fraud had occurred before and on postal routes on which fraud was particularly prevalent, total losses were £10million.²⁰

Deflect offenders

The principle of physically separating groups or individuals in order to prevent crime from happening – as when rival football fans are seated in separate areas in a stadium or football ground – may not seem immediately relevant to designers. There may be projects, however, where this approach could be an integral part of a design concept: school playgrounds which have separate areas in which younger children can feel safe, for example. Conversely, designers of public spaces or shopping centres might choose not to create areas where gangs or groups of youths can congregate.

Screen exits

Some design solutions increase the effort required for a criminal not just to commit a crime but also to leave an area undetected. This is commonly used in retail environments, where security tags on goods are triggered if someone tries to exit a store without the security tags having been removed or deactivated. It's also the principle used to ensure that books are not stolen from libraries as well as in car parks which ask customers to produce a ticket at the exit to prove they have paid.

Increasing risk

Offenders worry more about the risk of being caught than about the consequences if they are caught.

Before committing a crime, an offender will probably have considered:

- whether they will be seen
- whether they will be noticed
- if they are noticed, whether anyone will do anything about it
- if they are apprehended, whether they will be identified



Example:
Grippa clip

Grippa is a bag-hanging clip designed by the Design Against Crime Research Centre at Central St Martins College for use in bars and restaurants. Versions include a one-piece hook and a hinged gate design, both of which make hooking and unhooking of a bag easy for a user but hard to do and difficult to conceal for a thief. The clips are painted in bright colours to remind customers to use them, and a bag icon can be applied to the front of the clip to clearly communicate its purpose.²¹

Designers can do a lot to increase the risks of detection and identification, as well as increasing the offender's perception of these risks.

Natural surveillance

People naturally notice activities and situations that are different from normal, particularly if they seem to contradict what is considered acceptable practice in a society.

The design of a space or environment can help to ensure that the presence of offenders is visible to others. This can be as simple as including adequate lighting in streets or places like parks and car parks. Or it could involve a solution like the use of transparent bin bags at railway stations, which aim to ensure that terrorist explosive devices cannot be hidden in litter bins.

Extending guardianship

'Guardians' prevent crime by looking after the target of crime (as opposed to 'place managers', below, who look after a location.) Guardians in a potential crime situation can be professional security staff but are more likely to be members of the public looking out for their own property or employees looking for suspicious behaviour as part of their job. Design solutions that remind people to look after their own and others' property can be product-based – such as hooks for handbags used in bars, clubs and cafés. Or they can be communications-based: notices and announcements on public transport that remind customers to inform staff if they see suspicious bags or packages, for example.



Extending guardianship case study:

Researching service design opportunities for Neighbourhood Watch

Neighbourhood Watch is one of the biggest and most successful crime prevention schemes in the UK. It is based on the idea that people can help to reduce local crime and disorder, and make their areas safer places to live, work and play, by getting together with their neighbours. Around 170,000 groups of varying sizes across the UK cover six million households.

Neighbourhood Watch groups are largely autonomous. They follow no set programme, being owned and run by the people of their communities to meet that community's specific needs. That is their great strength, but it can also make it harder for the service to evolve, or for groups to share best practice. So far, too, the impetus to form watch groups has largely been found in low-crime areas and a high proportion of members have been elderly people. How could this already organised process of guardianship be further systematised to give it greater reach – without endangering the membership's valued freedoms?

In 2009 service design agency live|work was commissioned by the Home Office and the Design Council to look at service design opportunities for the Neighbourhood Watch and Home Watch schemes. The brief was to redesign Neighbourhood Watch, specifically, for the digital age. They worked with members, non-members and other stakeholders such as police liaison officers to understand service needs in three key areas:

- engaging with the next generation
- building on the Neighbourhood Watch Network
- supporting people in challenging areas

In many ways, live|work found that they could increase Neighbourhood Watch's reach by increasing the freedoms of those who engaged with it and the flexibility of the service in general.

The national website would be key to this. A barrier to entry for many prospective members had been that they felt they had to commit to membership immediately. live|work recommended Neighbourhood Watch give people the freedom not to join, but instead simply to engage at any level with which they felt comfortable. Via the website, people would now be able to search for the groups nearest to them, see what they were up to and either join or communicate online with group coordinators, as well as finding out lots about the organisation in general. They could join a specific group or simply register with the website, becoming a 'virtual member' of Neighbourhood Watch as a whole.

In summary, the organisation would move from being a closed network (you're either a member and you're in or you're not and you're not), to being open (you may not be a member, but you can still engage with the network). The increased reach this allows would work hand-in-hand with online technology to facilitate smooth communications across regional boundaries, ultimately allowing the organisation to extend its geographical capacity for organised guardianship.

live|work recommendations were used by the Neighbourhood and Home Watch Network, which represents members across England and Wales, to inform the development of the service, resulting in the new website, ourwatch.org.uk



NEIGHBOURHOOD WATCH



Reducing anonymity

Design solutions which draw attention to offenders so that they can be identified after the event are a key part of many service systems.

They are the reason car hire companies ask customers to provide a number of forms of identification. Simple solutions to implement this approach include the 'How's my Driving?' stickers on commercial vehicles, which invite members of the public to report illegal or antisocial road use back to the driver's employer. Taxis which prominently display the driver's photo ID and /or badge number are also making use of this technique.

Making use of place managers

'Place managers' are people whose role is designed or extended to include responsibility for looking out for the security of a location. Hotel door staff, parking attendants, and bus and train conductors often fulfil this role alongside their other duties. Brand owners thinking about reception areas and check-in processes, and designers working on retail, leisure and transport projects might want to consider whether the systems and spaces they are creating help or hinder place managers.

Strengthening formal surveillance

Much like the use of place managers, formal surveillance – whether by police, security companies or CCTV – is an often-used crime prevention option but one on which designers might think they can have little influence. There are opportunities here in the design of systems which include personal data. Service designers, for example, or those working with the public sector may be able to create systems which enable different agencies to cross-check the data that they hold on people

can be a weapon in the fight against fraud. The Department of Social and Family Affairs in Ireland reduced welfare fraud by more than €28 million in the first six months of 2009 through data-matching and cross-checking between agencies.²² Making this approach a reality may entail the redesign of whole systems to eradicate loopholes and improve cross-agency working and data-sharing. Similarly, tightening the loopholes in agencies like the DVLA could have significant effects on the reduction of vehicle theft fraud.

Reducing reward

Understanding the way in which an offender derives reward from their crime is the first step towards revealing how design can be used to reduce or remove such rewards.

Reward may be solely monetary (the resale value of a stolen mobile phone, for example) but may also take other forms, such as increased status in their peer group or internal feelings of excitement or exhilaration.

Conceal targets

Hiding or disguising valuable objects so that their value to offenders is not immediately obvious is a well known crime prevention technique. There are more sophisticated examples of this approach than hiding household cash in a safe disguised as a baked bean can, however. Unmarked cash and bullion trucks can reduce the risk of in-transit robbery, while gender-neutral listings in telephone directories and databases can reduce nuisance calls targeted at women living alone.

Remove targets

Simply taking an object or target of crime away from an offender's sight or reach is another well-known solution, and is particularly useful for designers of CRAVED products (see pages 24-25) to consider. Again, this is sometimes a solution that has to be implemented as a new system rather than simply a new product: the introduction of the 'exact fare only' system on buses, for example means that the cash on board (the target) goes directly into a secure container or safe. Implementing this approach may also need a communications design solution to persuade people to change their behaviour: because hundreds of sat-navs are stolen every month from the glove compartments of parked cars, many car parks now include signs warning motorists to take their valuables with them.

Deny benefits

This approach concentrates on removing the benefits of crime perceived by offenders, and thus making the targets of crime valueless. This might mean creating products that cannot be used after they have been stolen, or that have no resale value: systems that remotely block the use of stolen mobile phones are a classic example of this. As noted above, benefits are not always financial: other solutions that use this approach include the introduction of road humps to remove the benefit of cars breaking the speed limit. The New York subway 'clean car policy' in the 1980s, in which subway cars were removed from service and cleaned within 24 hours of being graffitied, removed the benefit for graffiti artists of having their tags seen travelling through the city.

Identify property

From cattle branding to ultraviolet security markers, there are numerous ways of marking property so that it is identifiable as obviously stolen or can be returned to its owners once recovered. Vehicle licensing, for example, identifies property as well as assisting the road tax and insurance system.

Disrupting markets

Cracking down on the markets that exist to re-sell stolen goods – through monitoring pawn shops, street vendors and classified or online advertisements – may well be a solution available only to local authorities and the police. Brand owners can play a part in these activities, however: introducing packaging which is clearly marked as 'not for resale' or by placing limits on how many items an individual can purchase at one time in order to limit the resale market.

Removing excuses

Offenders often rationalise their behaviour in order to avoid feelings of guilt and shame, making excuses such as 'He was asking for it' or 'Everybody does it, why shouldn't I?' The basic technique of reminding people that some behaviour is not acceptable can help prevent such rationalisations, and in doing so prevent the criminal behaviour from occurring at all.



Example

Orange projectors in schools

Becta, the former government agency that promoted the use of technology through learning, came up with a low-cost solution in response to continuing theft of projectors from schools. After 195 projectors were stolen from London schools in the first three months of 2005, and one local authority estimated that the cost of replacing projector equipment ran to £200,000 in a single year, Becta worked with ten equipment manufacturers to ensure all equipment sold to schools was bright orange in colour. This, coupled with additional security measures and series of posters warning would-be thieves about the distinctiveness of the projectors, reduced thefts substantially.

Many of these responses call for communication design responses: think of something as simple as 'No Parking' or 'Private Property' signage, or of information films and animations like those reminding DVD viewers that media piracy is illegal.

Design solutions that focus on removing excuses may also work to dispel the myth of the 'victimless crime', explaining the knock-on effects of crime in the form of higher insurance premiums and increased prices.

Set rules

Offenders who are willing to exploit any ambiguities in the rules about acceptable conduct set by organisations and communities can be publicly reminded of those rules. This can take the form of posters such as those on public transport which inform all customers that violence against staff is not tolerated and always prosecuted.

Or the approach can be implemented by asking for visible compliance, although this may prove unpopular. Requiring Anglers in California to wear their fishing licences 'visibly above the waist' was successful in getting more of them to comply with licence purchase rules, but the initiative was unpopular. Anglers complained that licences blew off in high winds when sea fishing, or got tangled in lines, and have campaigned successfully to have the rule repealed, arguing that it may actually increase compliance because, in return, anglers will expect to have their licenses examined by wardens.²³

Example
Speed camera lottery

Some creative ideas that work on the principle of encouraging compliance can be seen in Volkswagen's Fun Theory competition, created by advertising agency DDB, which asked for ideas that used fun to change people's behaviour.

The winner was a speed camera lottery, designed by Kevin Richardson and put into practice in Stockholm by the Swedish National Society for Road Safety. The lottery uses the speeding fine system (checking a car's speed at a certain point, photographing it and sending a fine to the registered owner) to reward drivers who obey the speed limit with cash prizes. In an area where the speed limit is 30km/h and average speeds were normally 32km/h, a three day test period saw the average speed drop to 25km/h. www.thefuntheory.com

Alert conscience

Reminding potential offenders at the point where they might be about to commit a crime that certain actions are unacceptable is a more targeted approach than general attempts to bring about changes in attitudes to law breaking. Signage which says 'Shoplifting is stealing' appeals to conscience where signs that say 'Shoplifters will be prosecuted' are reminding potential offenders about risk (see page 35). Another example of this approach is the use of roadside signs that flash a driver's speed back at them when they break the speed limit, without any attempt at prosecution.

Assist and encourage compliance

Designers have many opportunities to assist the public in complying with laws or community rules governing antisocial behaviour, from where litter bins in public areas are placed, to how crowds are directed to move through public spaces, buildings and transportation hubs. Wider applications of this approach might include designing portable public urinals for use in town centres on weekend nights to stop pub and club goers urinating in the streets, or the branded sponsorship that provides free public transport on New Year's Eve in many cities, in order to reduce drink driving and public order offences.

Example
Poster campaign to deter cosmetics shoplifters

Rachael Muli, a student at the University of East London developed a campaign to deter teenage girls from shoplifting as a response to the RSA Design Directions 'Design out shoplifting' brief.

'Ugly Face' is an advertising campaign aimed at teenage girls who steal from high street cosmetic retailers. It uses provocative images to convey the message that, far from making them more attractive, stealing cosmetics is ugly and socially unacceptable.

Top tips for designers
Effort, risk and reward


Think about:

- using this approach to think widely about preventing or dissuading offenders by increasing their perception of effort and risk or by reducing reward
- using role play to think creatively about how an offender might approach a crime
- look at other experiences and interactions for inspiration. How do designers help to change the behaviour of consumers or public service users?



Post-crime impact, response and detection



 What happens immediately after a crime has been committed, the actions of the offender, the victim and any bystanders, can affect:

- likelihood of intervention by a third party
- likelihood of the offender being identified, caught and prosecuted
- physical and emotional impact on the victim
- psychological impact on the offender
- potential for the crime to escalate

Knowing that an offence has taken place can prevent more serious harm: a customer able to detect that packaged food has been tampered with, for example, would not go on and consume that food. The early detection of offences is also important, affecting how quickly stolen bank cards and mobile phones can be put out of use.

Designers wanting to use this approach to build anti-crime features into a product, service or environment need to consider who might

Top tips for designers *Post-crime impact, response and detection*

Think about:

- how a design feature could enable offences to be detected as early as possible. This might mean creating a system such as that used by banks to combat card fraud, where unusual credit card activity or bank account transactions cause a card to be stopped and the customer alerted
- how design features can help support witness testimony and provide valid physical evidence?

detect an offence, and what action they might take. Technological systems such as alarms are only effective if the offender abandons the crime or is apprehended.

Successfully prosecuting offenders

When an offender is caught by the authorities, successful prosecution requires robust witness testimony and valid physical evidence. Design features or systems that identify property or remove anonymity, which we saw in the section on reducing reward (page 37), can support prosecution in both of these areas.

Designers considering introducing elements that help to support prosecution by identifying offenders and property, in the way that UV security markers or forensic marking liquids do, should consider pairing this approach with preventative communications which warn would-be offenders that these products are in use. Residential communities which have used forensic marking liquids coupled with signage in the area explaining that the product is in use have reported reductions in residential burglary of 94%.²⁴



Example IMEI numbers

The IMEI (International Mobile Equipment Identity) is a 17 or 15 digit code used to uniquely identify individual mobile phones. As well as enabling mobile phone owners who have their phones stolen to get mobile network providers to disable the phone, a recovered stolen phone can be identified by the IMEI number and this can help to prosecute an offender.

Example Forensic marking

Forensic marking is a colourless liquid solution that is simply dabbed onto valuables and can be used to code all sorts of items. It contains a unique chemical 'code' which is registered to the owner conclusively proving ownership. It cannot be easily seen by the naked eye and is almost impossible to remove. The liquid can be identified by the police using ultra violet light.



Offenders' predisposition and the long-term consequences of crime

 Crimes happen for a wide range of reasons, only some of which a designer can realistically hope to address with the design of a product, service or environment. The likelihood of an individual turning to crime will be affected by their life history and circumstances, including their financial situation, and educational background.

And while crime has long-term effects on victims and their families, it also affects offenders and co-offenders, communities and the wider society. These long-term consequences can reinforce an offender's predisposition to crime, lead to repeat offending, and contribute to the emergence of a cycle of crime.

Individual designers have fewer opportunities to address social issues like poor housing, limited education, drug use or unemployment, which can contribute to the likelihood of an individual turning to crime or reoffending. But there are opportunities for service designers, designers working in the public sector

and creative working on social innovation projects to think about longer-term crime prevention solutions. Projects that create spaces for younger people to socialise safely, for example, or that engage communities in co-design may be able to incorporate elements that ultimately contribute to a reduction in crime.

The Design Council's Designs of the Time (DOTT) project, for example showcased design as a tool to stimulate community engagement and participation. Focused on the Pengegon estate, one of the most deprived estates in the UK, it worked with the community to shape what they would want from a new community centre on the estate, should it be built. The idea was to engage them early in what it should look like, what activities it would host and how it might be run, in order that the residents took ownership of the building, before a brick was laid. This way, it was less likely to become a focus for vandalism and graffiti.

Example Piloting new youth services

Social design agency Participle has worked with the Aldridge Foundation, Brighton and Hove Council and Croydon Council to pilot a new ways to engage young people with their communities and help them develop new capabilities. Research with young people suggested that they spent most of their time in youth-only services and settings isolated from their communities, and this prevents them from developing important attributes like agency, a sense of possibility and purpose and control over their decision-making.

The pilot service, Loops, provides young people with new types of experiences where they spend up to a day in a field that interests them, shadowing an adult or visiting a workplace, say, and are helped to reflect and learn from these experiences. Rather than being shut away in youth centres being told not to do drugs, Loops enables young people to broaden their range of experience and engage with risk.²⁵



Design strategy and futures



Tactics and strategies

As society changes, so too do crimes and the offenders that commit them. This evolution can happen because of technological innovation, social change and the adaptivity and creativity of offenders themselves.

As we have already seen, the development of new categories of portable consumer products such as mobile phones, MP3 players and sat-navs have brought with them new crime risks for users. History shows us, too, that large-scale social changes can bring with them new exposure to the risk of crime: when more women began working outside the home in the 1960s and 70s, for example, this meant homes and sometimes whole streets became empty during the day, making them more vulnerable to residential burglary.²⁶ Designers need to consider how future social changes might contribute to changing crime patterns.

Product features or systems that effectively combat crime today may also become irrelevant as crimes change or obsolete as offenders learn to defeat them.²⁷

Example

Hulme Park sees falling but changing crime

The £2.2 million Hulme Park project in Manchester was completed in 2000. Landscaping which maximised sight lines across the park and security features that were effective but not fortress-like helped reduce crime in the area. The period between April 2006 and March 2007 saw a 22.5% reduction in key crime compared to the previous year.

But since the park was built new social issues – such as gun crime and gang violence – have developed. Now the park has to contend with crime and anti-social behaviour in forms that were not a problem when the park was designed, such as nuisance from illegal riding of mini motorcycles, a problem designers have sought to combat by introducing gates based on traditional kissing-gates into the park, which the mini motorbikes cannot get through.²⁸

Hulme Park

Designers and clients need to work hard to create systems and processes to help them anticipate how crime will evolve, and ensure that new products, services and environments can be as safe as possible from future crimes.

Professor Paul Ekblom of the Design Against Crime Research Centre at Central St Martin's College has outlined some tactics and strategies that can help designers think about these issues.²⁹

Design Tactics

Consider and anticipate offenders' countermoves

Offenders will always try to get round crime prevention features. In anticipating this it may help to consider countermoves as either tactical or strategic.

- *Tactical countermoves*: what happens if a bank robber, confronted with a security screen in a bank, takes a customer hostage?
- *Strategic countermoves*: how long will it take for an offender to design a new computer hacking procedure or learn how to pick a new lock? Might a particular crime prevention solution push offenders towards organised crime?

Block countermoves in as many ways as possible

This might mean considering security as a holistic package – for example there is little point in fitting strong locks if burglars can simply kick in a weak doorframe.

Build in the possibility of remedy

If retrofitted solutions are going to be inevitable, think about taking inspiration from the versioning and upgrades systems used by the software and hardware industries. Consider the modular design of products, which will enable upgrades.

Act on several fronts simultaneously

This could mean hardening the target of crime while rendering it less attractive for resale by increasing its ability to be identified and cracking down on the marketing of stolen goods. In this, prevention by design can be integrated with other preventive approaches.

Devise problems which are difficult to solve

Offenders can share information via the Internet in the same way that the rest of us do. Consider that the information about how targets are vulnerable (including 'back door entries' used by maintenance engineers to gain access to software or hardware) and ways of getting round security systems may be shared. Focusing on problems that are difficult for offenders to solve, even if they know how the preventative measure works, is one approach to combating this – for example, some encryption systems rely on offenders not possessing massive computing power for the foreseeable future.

Design Strategy

Engage producers and users in anticipating misuse

Users of products that are potential crime targets could be encouraged and helped to spot new threats, suggest new features or identify usability issues and report these back to producers and manufacturers. Brand owners can incorporate feedback from customer service, maintenance and repair departments.

Help clients to understand and share learnings about crime

Clients who have access to the right kind of crime incident information (for example, how a lock was broken or a security code was obtained or circumvented) can speed up the process by which they develop and improve their products. Corporate victims in particular may need encouragement to share information as they may feel they are admitting to vulnerabilities in their systems.

Force offenders to become more specialised

If offenders need to have specific knowledge, skills and equipment, being confined to a specific niche may make them more easily personally identifiable (as with old-time safecrackers) If offenders are viewed as illicit entrepreneurs, an approach can be to price them out of the market in terms of the cost/difficulty of obtaining equipment in relation to the risks and rewards of offending.

Understand the legal context

The legal context of a crime can influence the design of a crime prevention system or feature. There may be opportunities in the current trend for customisation and personalisation, for example, that can help demonstrate proof of ownership. Or can laws or the rules of evidence be made more helpful to prevention in particular circumstances?

Help crime prevention practitioners and criminologists

Crime prevention practitioners, as users of designs and customers of designers, can be helped to understand the principles behind designing out crime, rather than relying on and repeating fixed recipes from a few success stories. Similarly, criminologists who can be helped to understand more about design will be more able to assist designers by analysing the cost/benefit of a Design out Crime approach and provide insight and guidance in suitable formats.

Design strategy case study:

Interaction design to help small retail businesses prevent retail crime



These personas were used in the design of the online tool, to ensure that the website developed met the needs of a range of different types of retail owners.

A+B Studio designed the user interface and worked with Professor Martin Gill to prioritise the questions allowing for business owners to focus quickly identify opportunities for improving their security.

The tool allows businesses to self-assess their risks to crime and to consider their current crime prevention activities. It looks at how small business owners can address security concerns in seven areas:

- Outside Area
- Security Measures
- Surveillance
- Management
- Strategies and Techniques
- Store Layout
- Staff Dishonesty

A series of questions help SMEs to find out what it is that they need and which simple security fixes they can utilise to minimise their exposure to risk. It also includes a series of guidance notes in downloadable PDFs which can help business owners to implement changes to their practices and policies.

More than two thirds of small businesses are affected by crime every year. Although the 2010 Retail Crime Survey reported a reduction in offences like shoplifting, employee theft, criminal damage, robbery and burglary, there is some evidence smaller retailers are seeing an increase in criminal activity, particularly within the Metropolitan Police area.³⁰

In 2010 the Home Office and the Design Council commissioned design agency A+B Studio to create an online tool to help small businesses implement appropriate crime prevention solutions and procedures.

Research conducted by Sense Worldwide into why and how small businesses were affected by crime established that many small retail business owners didn't know about available solutions, or where they could go to look for help. Sense Worldwide talked to a cross section of small businesses to find out more about the crime challenges they face, and developed a series of personas of different types of business people who are affected by crime.



You can find the toolkit at www.designoutcrime.org.uk/toolkit

Understanding systems and stakeholders

As we have seen by looking at the Crime Lifecycle model, an individual crime event is the conjunction of a number of different influences, circumstances and individual actions. This is one of the reasons why crime is such a complex issue for designers.

Another area of complexity is the way many crimes are part of a system. They may be bound up with the way society works and linked to the systems used to help society run smoothly. The vehicle licensing and registration system, for example, has a role to play in combating car theft. Crimes can also be inextricably linked to other criminal activities and networks. An individual offender shoplifting to pay for an illegal drug habit and selling goods through an illegal market, for example, is part of a wider and more organised criminal system. This means that tackling crimes and introducing crime prevention products, product features or services may entail taking a whole-system approach.

Understanding stakeholders

Take, for example, the desire to introduce safer pint glasses and other drinking vessels into the UK's pubs. (You can read more about this on page 86.) Developing a new product in the form of a new type of pint glass is only the start of the process – there are a number of other stakeholders involved in getting such a product to be used successfully in pubs. Glass is only the start of the process – there are a number of other stakeholders involved in getting such a product to be used successfully in pubs.



Designers or brand owners working to introduce safer drinking glasses into pubs would need to understand not only all these stakeholders' needs, but also to engage them in order to implement the use of the glass.

The design process can be particularly helpful in engaging stakeholders. A co-design approach can create a safe space within which experts can collaborate equally, while visualisation tools and prototyping techniques can turn ideas into reality quickly so that they can be tested, iterated and refined. Using creative problem solving techniques with clients and stakeholders can be crucial in developing and implementing the solutions needed to tackle complex crime problems.

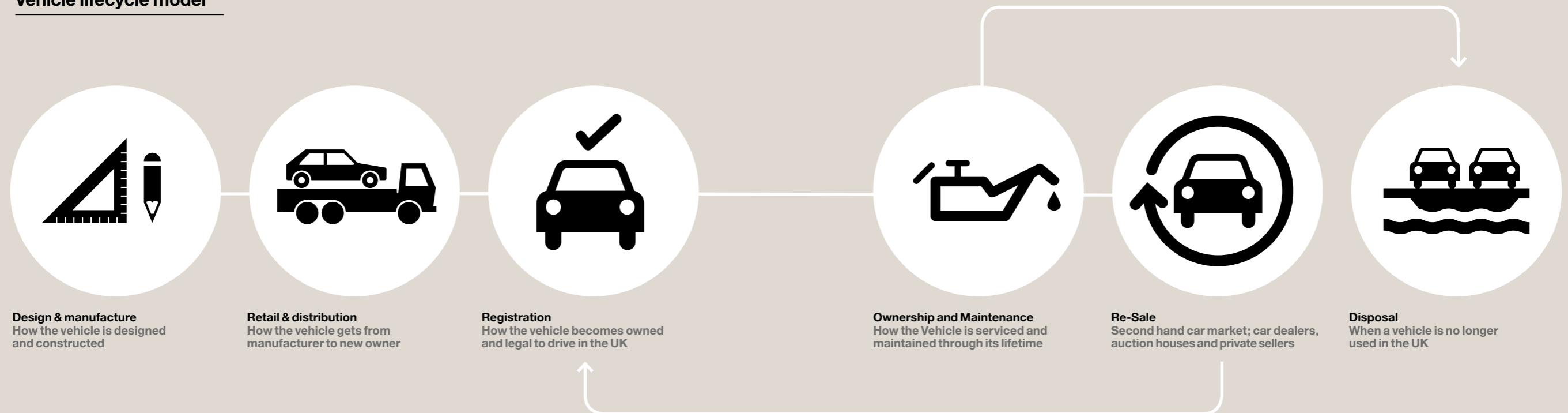
Understanding systems

Offenders use and abuse systems too. Organised vehicle theft and re-sale (either of whole vehicles or for parts), for example, depends on a series of actions by a number of individuals. Designers working to combat vehicle crime would need to understand the whole lifecycle of a vehicle, from manufacture to scrapping, as well as systems of vehicle registration, ownership and maintenance and the used car market. Breaking down these systems into their constituent parts can show where there are opportunities to make cars harder to steal or re-sell.

The vehicle lifecycle model helped to identify opportunity areas at a workshop held by the Design Council and the Home Office where representatives from car makers and traders, the vehicle licensing authorities and the police worked with designers to identify new ways to combat car crime. There are opportunities to design better crime prevention across the system of vehicle design, manufacture, trade and licensing but many would need the cooperation of agencies such as the DVLA or the implementation of new systems such as creating a used car brokering and checking service.

Organised vehicle crime can make use of a network of gangs, local thieves, cloners (who put the registration plates and Vehicle Identification Number from a legitimate car onto a stolen one), re-sellers and exporters.

Vehicle lifecycle model



Bringing stakeholders into the design process

As well as understanding users and abusers, designers working on crime prevention projects may need to bring together diverse groups of stakeholders at various points in the design process.

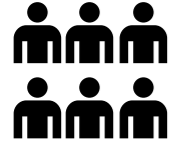
Engaging non-designers by asking, listening, learning and communicating can help to create solutions collaboratively. Bringing brand owners and clients together with end-users and customers, service deliverers, frontline staff and others involved in the whole lifecycle of a product or service can help identify new design opportunities and anticipate problems or usability issues.

Workshops, idea generation sessions or presentations with clients, stakeholders and other experts are most effective if they're run by an experienced facilitator. Many designers will have worked with researchers or other professionals who have these skills, or will have experience of running workshops themselves.



Tips on running stakeholder workshops

Conducting an insight phase



You'll get the most out of your assembled group of experts if you have conducted broad research well before you bring people together in a creative session.

This research will involve speaking to a wide range of interested parties, users and sceptics, in order to understand the edges of your design problem as well as the centre.



Presenting key themes



It is most helpful if you have a framework for playing back to your audience what you have learned in the insight phase. Making use of visuals as much as possible will help everyone in the room understand your key themes quickly.

These might be presented as a set of opportunity areas or topics, a product lifecycle, a service blueprint or a series of scenarios.



Running a workshop



A dedicated and experienced facilitator will help to keep the ideas on track. Splitting stakeholders into mixed groups (putting clients with users, for example) and giving each group a specific task will help generate ideas and get groups to concentrate on key questions. Ensure a designer is part of the group, too.

Creating a long list of ideas and organising some kind of voting or assessment of those ideas will help to refine and synthesise ideas as you go along.



Carry on collaborating



Keeping in touch with the experts or professionals you have been working with after the event can be useful to keep important clients and stakeholders engaged.

You may also want to reconvene some of the same people to help refine concepts further, test out prototypes or gather more user insight once you have agreed on a design direction.



Working with the police in the planning process

Architects and designers working in the built environment can help to design out crime by working in partnership with the police, Local Planning Authorities, developers, planners, Neighbourhood Policing teams, community safety teams and other specialist colleagues.

Opportunities for designing out crime, disorder and anti-social behaviour can sometimes have been missed by the time a development has gained planning permission. Crime Prevention Design Advisors (CPDAs) and Architectural Liaison Officers (ALOs) are specialist crime prevention officers, trained at the Home Office Crime Reduction College, who deal with crime risk and designing out crime advice for the built environment. In addition to physical security measures they will consider defensible space, access, crime and movement generators, all of which can contribute to a reduction in crime and disorder.

A CPDA can advise on a range of construction projects by using existing planning laws and guidance, together with Association of Chief Police Officers (ACPO) Crime Prevention Initiatives (CPI) who administer the Secured by Design scheme.

Secured by Design is a group of national police projects focusing on the design and security for new and refurbished homes, commercial premises and car parks as well as the acknowledgement of quality security products and crime prevention projects. www.securedbydesign.com

Many regional police forces have produced locally relevant guides and worked with local planning authorities on supplementary planning guidance. An example is the Thames Valley police crime prevention design team which has compiled The Compendium of Crime Prevention and Reduction in the Planning System. It aims to assist all those involved in the planning system to make sure that designing out crime is part of the process. It is divided into an introduction booklet, and five other booklets highlighting the definitions of crime, primary and supporting planning policy, designing out crime and crime prevention advice. www.thamesvalley.police.uk/crprev/cpdt-compen.htm



Design Out Crime as a catalyst for innovation

Looking to the future and anticipating people's needs and desires has always been part of the designer's role. Using a Design Out Crime approach, designers can think strategically about how future products and systems might be abused, and create solutions that prevent some of these future crimes from happening.

M-commerce and mobile phone theft

Approximately four billion people worldwide have mobile phones – twice as many as have credit cards. According to the British Crime Survey, a mobile phone is stolen in half of all robberies in the UK, and 80% of mobile phone users carry information on their handsets that could be used by offenders to commit fraud.

This problem could soon get even more serious. Very soon we will be able to carry virtual cash on our mobile phones – what is called m-commerce. Already, around 16% of us keep bank details on our phones. As handsets become increasingly sophisticated, we are also carrying more personal and business information around with us – much of it unsecured. Experts in cyber-crime believe that offenders will seize on this as a new opportunity – in much the same way that email and online banking spawned the phenomenon of 'phishing'.

In 2009 the Design and Technology Alliance Against Crime, the Design Council and the Technology Strategy Board challenged the UK's design and technology communities to come up with solutions to improve mobile phone security – both now and in the near future when credit on our phones will replace the cash in our wallets.

Three teams of designers and technologists came up with working prototypes of innovative solutions and are working with handset manufacturers, network operators and merchants to try to get their solutions adopted. All three teams point out that it is difficult to get the mobile ecosystem to adopt new technology.

A: Tie

Tie mobile phone security pairs two encryption systems; securing both the handset and the data stored on the phone.

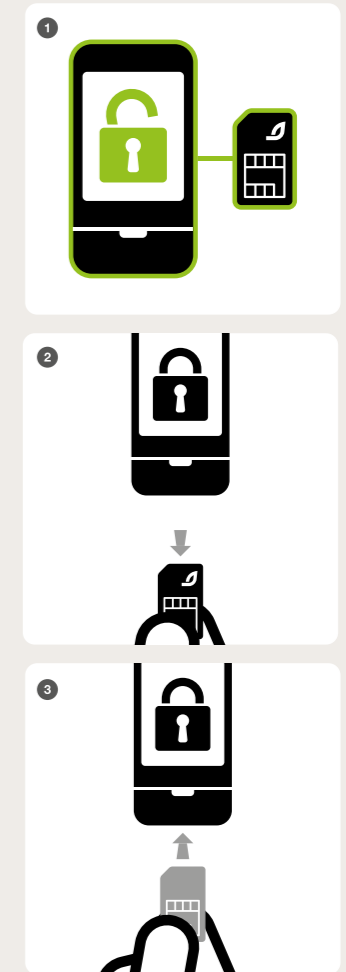
The handset is secured with a simple mechanism to tie-lock a phone to one or more SIM cards, using a combination of trust chaining, asymmetric cipher and public key infrastructure.

Data protection is applied with a user controlled PIN entry. Tie creates remote security by encrypting data on the phone with a 128 bit key that can be remotely erased.

Tie is created by Rodd, an award winning UK based product design and product development consultancy, and TTP, a leading technology and product development company.

www.rodd.uk.com
www.ttp.co.uk

- 1 SIM and phone paired using trust chaining, asymmetric cipher, and public key infrastructure
- 2 Without paired SIM, phone and data are locked
- 3 New SIM requires username, password and PIN to work



B: TouchSafe

TouchSafe is a single key card that secures mobile cash using NFC (Near Field Communication) technology in a discreet way. The key, which could take several forms, unlocks a phone's ability to take a payment by launching and validating the phone's m-commerce payment application. The solution provides ease of use and security for the customer and facilitates efficient and secure transactions for the merchant. At least one UK operator plans to launch NFC services in 2011.

www.minima.co.uk

- 1 RFID card key integrated into user's daily life
- 2 Phone payment application remains locked by default.
- 3 Touching NFC phone to RFID key opens and authenticates payment application.



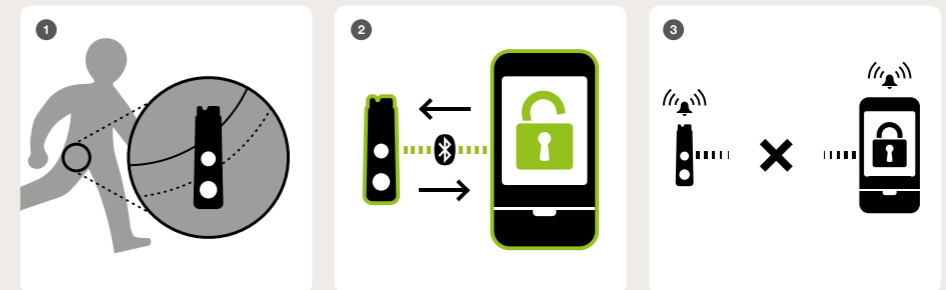
C: Sticky

The Sticky (formerly i-migo) Bluetooth mobile accessory helps protect against physical loss, theft or damage of data rich portable devices and more importantly the data stored within them using three simple functions – automatic synchronisation of data, proximity alert/warning and automatic immobilisation/lock.

Sticky is created by Data Transfer & Communications Limited, a technology and product development company, and PDD which provides integrated design and innovation skills

www.pdd.co.uk
www.stickytec.co.uk

- 1 Bluetooth accessory integrated into user's daily life.
- 2 When phone and Sticky key are in range (less than 10m) the phone operated as normal. Data is backed up on the accessory automatically.
- 3 When Bluetooth connection is lost, phone automatically locks and alarm sounds on both Sticky and phone.



Conclusion



Incorporating a Design Out Crime approach in your design work



- Like any user-centred design approach, designing out crime is most effective if it is incorporated into everyday design practice and considered from the start of all design projects and commissions.

In this way the approach has parallels with other methodologies such as inclusive design and sustainable design, both of which are becoming embedded in the day-to-day practice of forward-thinking designers and companies.

Inclusive design calls for the design of mainstream products and/or services which can be used by people with the widest range of abilities and within the widest range of situations, without the need for special adaptation. Taking this approach, companies and designers can make products easier for all consumers to use. Good inclusive design not only excludes fewer people but can also reduce the frustrations or difficulties that many able-bodied people experience using everyday products.

In the same way, considering crime and security issues at the start of a project can make services and environments that are safer for everyone to use, and products that are simple to use and easily recovered if lost.

Inclusive design, particularly designs for disabled and older people, also enables large sections of the population to retain their independence and remain active participants in society for longer. Designs that anticipate crime and reduce or prevent it can similarly improve society for everyone. Sometimes this can have

positive impacts beyond increased feelings of safety or a reduction in crimes committed. For example, reductions in bicycle theft could encourage more people to use cycling as a form of transport (which is good for both their health and the environment) without being put off by the fear of having a bike stolen.

Sustainable design, which seeks to lessen the impact of products and services on the environment, is a philosophy that can be applied to fields including architecture, product design, urban planning, engineering, landscape architecture and interiors, among others. As such it has parallels with a Design Out Crime approach which can similarly be applied across a wide range of design disciplines. Sustainable designers often take a holistic approach in order to assess the full environmental or social impact of a building, product or process: anticipating what will happen at a product's end-of-life, for example, or calculating the trade-off between specifying materials/ production-intensive design elements which will ultimately improve energy efficiency or longevity. In the same way, designers working on crime prevention solutions may have to convince clients of the long-term benefits that will be gained from initial investment in new systems, or consider how the design of a new product can anticipate and prevent counterfeit versions being created and sold.

Appendix

Example Briefs

Here you will find more details on three sorts of crimes – residential bicycle theft, retail crime and assault using pint glasses – together with sample briefs that can be used for teaching purposes or simply for inspiration



1

Example brief 1

Residential bicycle theft

Most cyclists lock their bikes when leaving them on the street; however the same cannot be said when they return home – research shows that more than half of bikes are not locked when stolen from in or around a residence.³¹

There are a number of reasons for this – from a lack of secure storage to the inconvenience of properly securing a bike that is in regular use.

2/3

of all bicycles stolen in the UK are taken from people's homes

17%

of cyclists experience bicycle theft. Of these, 24% stop cycling altogether and 66% cycle less often

£300

Average price paid for an adult bike. 6% of bikes purchased in the past 12 months cost more than £1,000

4m

bicycles sold in the UK in 2010

£2.1bn

UK market for bicycles and cycling goods. It is expected to pass £3bn by 2015

There were 109,851 reported bicycle thefts in England and Wales in 2009/10, but the 2009/10 British Crime Survey suggests the real figure for incidents of bicycle theft is 485,913.

Interviews with cycle theft victims suggest that few report cycle theft to the police because they believe the police are unlikely to apprehend an offender or recover their stolen bicycle. More than one in every 100 homes in England and Wales had a bicycle stolen from it in 2009/10.

Brief

Develop secure, affordable and easy to use home bike storage for one or more locations around the home. These locations are:

Immediately outside

Design a secure cycle parking/storage solution for use outdoors in:

- A front or back garden/yard
- A driveway or passageway between houses
- A public or semi-public space in front of the home (e.g. the street, a shared pathway or front steps)

Outbuildings

Design a secure cycle parking/storage solution for use in an outbuilding such as a garage or garden shed.

Shared indoors

Design a secure cycle parking/storage solution for indoors in a private or semi private hallway (such as those found in shared houses, maisonettes and blocks of flats).

Background information

Some basic specifications and things to think about when designing your residential cycle storage/parking solution:

Furniture design

- Furniture should accommodate and support a wide range of bicycle types and sizes without damaging them
- Furniture should facilitate and promote best locking practices. It should provide multiple locking points, permitting the bike frame and both wheels to be locked to the stand with common lock types (D locks, cable locks and chain locks). [See 'Locking techniques' box]
- Design a secure cycle parking/storage

Locking technique

The best kinds of bike storage encourage good locking technique. There are 180 different ways in which a bike can be secured to parking furniture using two locks.

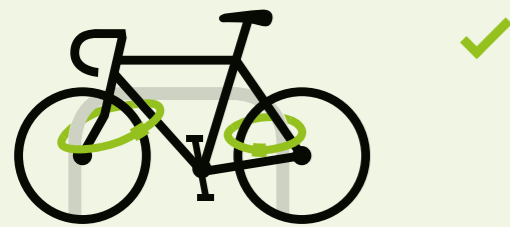
To be most effective, locking should secure both wheels and frame to the parking furniture. Locking a bike by one wheel and the frame is ok, but only securing a bike by its frame or by one wheel is considered bad practice and makes the bike more vulnerable to thieves.

Bikes locked using two different types of locks are most secure against theft: using, say, a strong D-lock and a sturdy chain lock means that a thief will need different tools to break each lock. Typically coil or cable locks with a diameter of less than 15mm are the least secure. These locks are easily defeated using basic hand tools such as pliers or wire cutters.

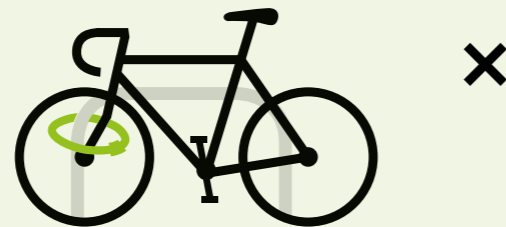
The best locking furniture can accommodate multiple locks of different types.³²

- Furniture must be robust, hardwearing, and resistant to breaking that could remove the bike.
 - Furniture that incorporates moving parts or integral locks must be robust, easily maintained and resistant to tampering and breakage with available hand tools.
 - The method of fixing the furniture to the ground, wall or ceiling must withstand attempted theft.
 - Furniture design should facilitate resistance to the common theft techniques; namely a) lifting; b) levering; c) striking/picking; d) unbolting; e) cutting.
- (See 'Common bicycle theft techniques' box).

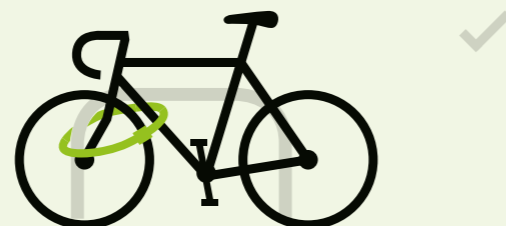
Good locking practice



Bad locking practice



OK locking practice



Common cycling theft techniques

1

Lifting

Thieves lift the bicycle and lock over the top of the furniture to which the bicycle is secured. Thieves may remove part of the furniture if possible to lift the bicycle clear. If the furniture itself is not anchored securely it may be lifted clear of the bicycle and the lock or carried away with the bike still attached.

Try and ensure that the storage/parking furniture is immovable and has no open ends that a lock and bicycle could be slid or lifted off.

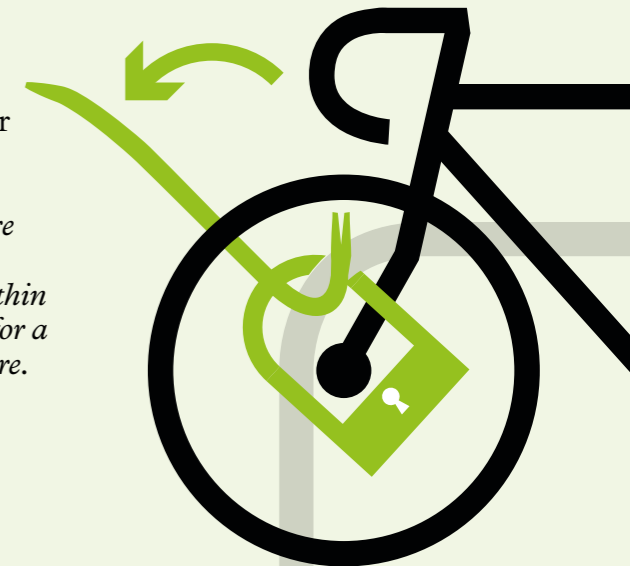


2

Levering

Thieves will use the gap between the furniture and the bicycle left by a loosely fitted lock to insert tools such as jacks or bars to lever the lock apart. Thieves will even use the bicycle frame itself as a lever by rotating it against the furniture to which it is locked if it is possible to do so. Either the bicycle or the lock will break.

Bike parking furniture needs to ensure that there is no space to insert tools between the bike and the lock, nor within the furniture itself, making it harder for a thief to lever apart the lock or enclosure. Also, try and ensure the bike cannot be rotated when it is stored/parked.



3

Striking

If a cyclist locks a bicycle leaving the chain or lock touching the ground, thieves may use a hammer and chisel to split the securing chain or lock.

Try and ensure that locks do not rest in a place that allows them to be struck without moving thus absorbing maximum impact of any blow.

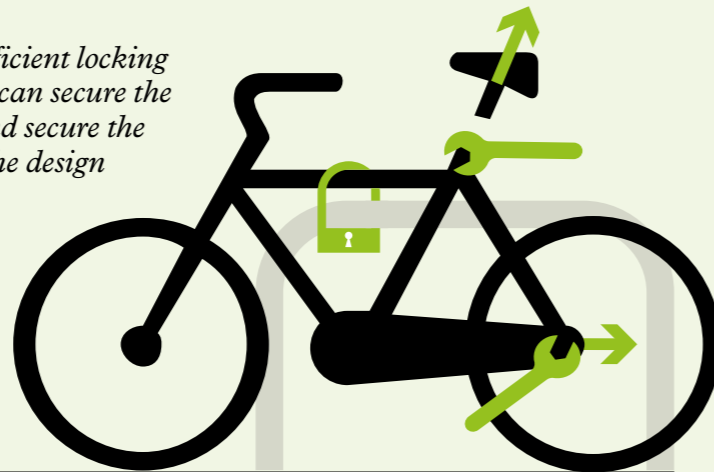


4

Unbolting

Thieves know how to undo bolts and quick-release mechanisms. If a cyclist locks a bicycle by the wheel alone, then it may be all that is left when they return to their stored bike. If a cyclist locks only the frame, then a thief may remove a wheel or wheels.

Try and provide either sufficient locking opportunities so the cyclist can secure the frame and wheels or try and secure the frame and wheels within the design of the storage system itself.



5

Cutting

Thieves use tin snips, bolt cutters, hacksaws, and angle grinders to cut their way through locks and chains to steal bicycles. Thieves will also cut through the furniture to which a bicycle is locked if this is the 'weakest link' in the locking scenario.

Try and ensure that those parts of a design that are vulnerable to cutting are difficult to get to with cutting tools.

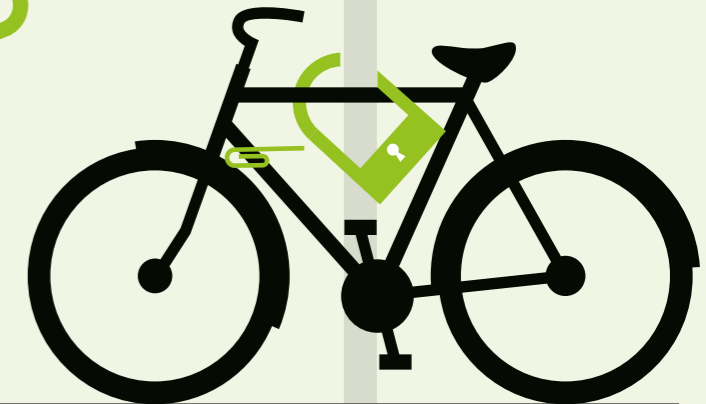


6

Picking

Thieves can insert tools into the keyhole itself and pick the lock open.

Try and ensure that the locking mechanism is not easy to get to with tool that may be used to pick it.



Cost

The cost of your solution should be appropriate to the replacement cost of the bike it is protecting. Typically cost per bike of cycle storage is around 10% of cost of bike(s) to be stored. The typical replacement cost of a residential bike theft is between £100 and £500. Consider any additional costs associated with installation and maintenance.

Location

Consider the specific intended location (in or around the home) of the storage/parking you are designing and think through the context associated with this location. Furniture within open-access areas in and around the home is typically required to be more robust, and offer a greater level of security, than furniture located within controlled-access areas. Storage/parking designed to be located in more 'risky' locations or for storage of more expensive cycles may justifiably be more demanding in use but more secure.

Scale

How many bikes does your proposal accommodate? Is there likely to be more than one installation of your solution within the location you are targeting e.g. several hooks, one per bike? If so you will need to pay particular attention to layout and spacing.

Is it possible to consider the increased demand that is likely to result from a secure and convenient cycle parking provision and plan for expansion?

Length of stay/ frequency of use

Residential cycle storage/parking is typically required overnight or 24+ hours. However residential provisions are often also required for repeated shorter stay storage/parking, while residents go about their business during the daytime. Consider how your design can accommodate both these requirements.

Access and egress

Convenience of access and egress is key to ensuring that your solution is used as intended. It is useful to consider access and egress at a macro, meso and micro level.

Macro

How will your solution be accessed from the street?

Meso

How will the bike(s) be placed onto or into your storage/parking solution? Is the cyclist required to lift the weight of the cycle in order to store/park their bike? If so can your design assist them in doing so?

Micro

How will the bike(s) be secured into or onto your proposed solution? Furniture may offer different locking opportunities to accommodate a diversity of users and cycle designs.

Signage and communication

Is it obvious how to use your design as intended? It may be worth considering signage or communication that ensures the cyclist understands how to install and use the furniture effectively. Visual iconography is typically more conspicuous and universally comprehensible than text.

Layout and spacing

Residential cycle storage/parking should aim to be as space efficient as possible, maximising the density of cycles parked without unduly compromising ease of access and egress. The scale of parking provision has an impact on the desirable layout and spacing of bikes stored/parked in or on it. Offset layouts of parking furniture – i.e. high/low or fore/aft configurations – allow denser spacing of cycles, with typically a minimum 300mm between centres of two cycles parked side by side. Non-offset layouts can typically permit a minimum of spacing 500mm between two cycles.

Surveillance/guardianship/lighting

It is desirable for storage/parking to be out of sight of opportunist thieves but easily visible to users when in use.

Maintenance

Residential storage/parking solutions should require minimal maintenance.

Resources

A comprehensive resource on bicycle theft can be found at www.bikeoff.org

Example brief 2

Retail crime

Business crime cost the UK £12.6 billion in 2008. In the same year, 63.5% of small businesses experienced crime, at an average cost of £13,354 per small business.³³

£1m

thefts from shops in the UK every year

2/3

of people have been victims of criminal damage

68%

increase in employee theft in the past year

16%

of known shoplifters are under 18

Retail crime in particular cost UK retailers £1.1 billion in 2009/10 – equivalent to 52,000 full-time retail jobs. The most recent British Retail Consortium Crime Survey (2010) reports that customer theft accounted for 74% of all theft and damage losses by value; the survey recorded 482,831 incidents but the real level of customer theft is thought to be in the region of 750,000 to 1 million thefts, as retailers estimate that half of all customer theft goes unreported.³⁴

Items most likely to be stolen by shoplifters include cosmetics, perfume and skincare products, razor blades, alcohol, womenswear, designer goods, fashion accessories, DVDs/CDs, video games and small electronic items.³⁵

Types of retail crime

Shoplifting

Where shoplifting offenders are known, 16% are found to be younger than 18. Young shoplifters surveyed said their reasons for shoplifting included lack of money (50%), wanting the goods (40%), boredom (26%), being bullied in to theft (25%) and excitement (21%).³⁶

36.4% of the total amount stolen in the UK was through employee theft, with employees responsible for high value theft, averaging £1595.66 per theft incident compared to £80.31 for external shoplifters.³⁷

Robbery/till snatches

Retail robbery incidents account for 2% of all retail crime, by value. On average, robbery costs £847 excluding damage to property. Nearly half of all criminal damage reported by shops was associated with attempted burglaries and robberies.³⁸

Violence against retail staff and antisocial behaviour

At least 18,000 staff were reported to have suffered physical or verbal attacks or threats. The overall level of recorded incidents in 2009 was running at 14 per 1000 staff. Verbal abuse of staff has increased in the last year and now makes up 70% of all incidents. Smaller shop formats, in particular convenience stores, are the most vulnerable to violence and antisocial behaviour against staff and account for nearly half of incidents per 1,000 employees.³⁹

In areas where there is a greater fear of violence and intimidation, retailers report a greater turnover of staff and higher incidents of sickness/absence.



Brief



Can the design of shop furniture, products, packaging, retail space large and small, display areas, security procedures, retail management and the myriad of other factors in this environment – even the experience of shopping itself – reduce shoplifting and improve ambiance?

- Is there a way to build security into stores, products and packaging to prevent retail crime, and to integrate retail crime prevention into the customer experience?
- Can a store environment be developed to improve staff performance in countering retail crime? For example, what incentives might inspire staff to be more aware of shop thieves and what might deter them from shoplifting themselves?
- Could the shopping experience itself be redesigned? Could the touchpoints and the process of shopping from product handling to trying out products or trying on clothes be redesigned to prevent the way retail crime is executed?
- How could new ways to review overstock management and stock tracking help to ensure staff do not have incentives to steal? Many current approaches fail because they are not ‘designed in’ to the working experience of those who are operational – can these issues be identified and addressed?

Background information

Understanding more about how shop thieves steal

Why do thieves choose a store to steal from?

What makes the store attractive to potential thieves and how can it be made less conducive to theft?

On entering the store, does the potential for shoplifting look easy?

Store layout; how can design make it look more threatening to thieves while retaining an appeal to shoppers and retailers?

On searching for goods to steal, can a thief avoid attracting attention?

Thieves say that they generally wander around a store unobtrusively while they weigh up the risks.

How can designers make offenders feel that shop theft is unwise?

On stealing the goods, can the thief avoid being seen?

How can design make the act of shop theft more visible? (See ‘Common retail theft techniques’, page 82)

On getting away, can the thief be sure no one is following them and no one will apprehend them?

Thieves say the getaway is crucial, a priority consideration, although it is clear that retailers have not given the same priority to this issue. How can design respond?

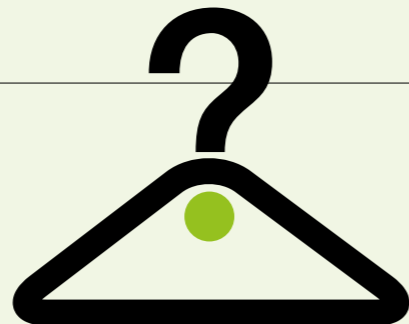
On selling the stolen goods, how will the thief get his/her money and avoid being tricked?

Is there a design-led strategy that could increase the risk of being caught? If thieves believe they will get caught they are much less likely to commit offences.

1

Hiding merchandise

This is the most common method of shoplifting. Items are concealed in the clothing of the shoplifter, in handbags, buggies, umbrellas or inside purchased merchandise. Bold shoplifters may grab an item and run out of the store. Other methods include price label switching, short changing the cashier and phony returns.



2

Bagging

The bagging tactic refers to instances where a shoplifter surreptitiously hides an item inside a bag that they have brought into the store (for example, a shopping bag from another store or a purse). Metal-lined clothing or containers Metal-lined backs, containers, or clothing (such as aluminum foil-lined undergarments) allow a person to shield the RFID tags attached to merchandise concealed on his/her person from the scanners at the door of a store.



3

Accidental stealing

This refers to the situation where a thief takes their place in the queue and pays for only one item while holding the item they intend to steal in full view (to cause confusion), or placing the item in a pocket. In the event of being caught, the thief can simply pass off the attempt at stealing as accidental. This method is also referred to as 'left handing,' a reference to the stolen item being held in the left hand while payment is made with the right.



4

Walk out technique

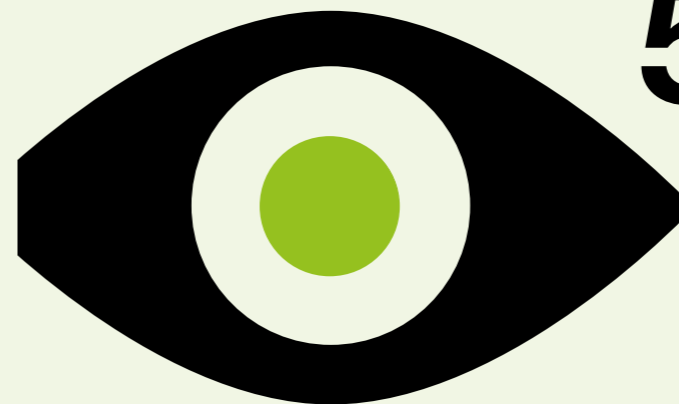
The walk out technique is the process of browsing the store, collecting the target items, and simply walking out of the store with items in hand. This technique can potentially be very effective if the shoplifter's appearance and attitude are not of a suspicious nature.



5

Distraction

A group of two or more will enter a store and try to distract as many employees as they can. The thieves engage targeted customers, sales employees and security guards in different ways to keep them occupied. They are persistent and will take all the time they need. One or more will ask for help while another will be near the items of choice. The accomplice nearest the merchandise/target wait until they perceive it is the right time to commit the theft.



6

Fake returns

The shoplifter picks up an item from the selling floor and tries to receive money for it at the return station. Typically the shoplifter will state that they have lost his receipt. They may threaten the cashier in wanting to talk to the employee's supervisor and to avoid confrontation the cashier will ring up the return and give the shoplifter the value of the merchandise.



Existing retail crime solutions

The easiest way for retailers to prevent retail crime is by taking away opportunities to steal or by discouraging opportunities for criminal activity.

There are many new and existing interventions and technologies that could be introduced, or adapted to deliver on anti-retail crime strategies but many small businesses cannot afford them or see little value in doing so.

Closed Circuit Television (CCTV)

Closed-circuit television (CCTV) monitoring is an important and popular retail crime prevention technology. Retailers focusing on loss prevention often devote most of their resources to this type of solution. Using CCTVs to apprehend or deter offenders requires dedicated monitoring of the cameras. Sophisticated CCTV systems discriminate the scenes to detect suspicious behaviour from numerous screens and to enable automatic alerting. However, the attentiveness of the surveillance personnel may be threatened by false reliance on automatics. CCTV is more effective if used in conjunction with electronic article surveillance (EAS) systems.

Electronic article surveillance

EAS employs security tags that are attached to merchandise and cause an alarm to sound on exiting the store. This technique generally applies to larger retailers that allow customers to handle merchandise themselves. Electronic article surveillance (EAS) is second only to CCTV in popularity amongst retailers looking for inventory protection.

Signage

Signs and posters can be used to reinforce security messages; signs such as 'Shoplifters Will Be Prosecuted' can be posted in clearly visible locations.

Loss prevention personnel

Loss prevention personnel patrol a store acting as if they are real shoppers. They may try on merchandise and browse the racks, all the while looking for signs of shoplifting/customer theft and looking for possible perpetrators.

Many large retail companies use this technique, and will watch a shoplifter conceal an item then stop them after they have exited the store. These types of personnel must follow a strict set of rules because of very high liability risks.

Security staff

The presence of security staff or uniformed guards acts as a deterrent to retail criminal activity, a technique is largely used by larger retail establishments. Shoppers in some stores are asked when leaving the premises to have their purchases checked against the register tape.

Lock and key

Small, expensive items are often locked in cabinets or behind a counter to allow for controlled access. Alarms are also sometimes used on unlocked exits and closed or unused checkout aisles.

Store design

Store layout can be designed to ensure that there are limited or no blind spots in the store and to ensure customers pass the register area and staff to exit the store. Careful layout can ensure cash registers are never left unlocked or unattended and merchandise is not displayed near store exits.

Mirrors

Mirrors can be used to eliminate blind spots in corners that might hide perpetrators and allow for better overall store visibility.

Display hooks

New hook designs deter 'sweeping' (where all merchandise from a display hook is stolen) by forcing customers to remove one item at a time from the hook.



This brief was set by the Design and Technology Alliance Against Crime as part of the 2010 RSA Design Directions awards scheme.

You can browse through the entries at:

www.rsadesigndirections.org/design-directions/2009-10/exh/project/index.php

Or download an illustrated PDF at:

www.designcouncil.org.uk/Documents/Documents/OurWork/Crime/DesignOutShoplifting_RSAAentries.pdf



Example brief 3

A safer pint glass

Glasses and bottles used as weapons can intimidate victims, bar staff or bystanders and cause serious injuries.

As a blunt weapon, for instance in an intact bottle, glass can cause significant physical damage. But when glass is broken and used as a sharp weapon the potential damage is hugely increased. Glass-inflicted injuries to the eyes and face often require stitches or surgery and can result in heavy blood loss and even loss of sight.

973_k

incidents of alcohol-related violence each year in the UK

£2.7_{bn}

cost to the NHS each year from alcohol-related harm, including assault injuries

87_k

violent incidents involving glass every year, including an estimated 5,500 glassings

1000

people suffer serious facial injuries from drunken assaults. 18,000 young people are scarred for life each year.⁴⁰

Sample briefs



Brief 1

Glass and more

Design an improved glass vessel that incorporates an additional design feature (branded or otherwise) that makes it appealing to the consumer but increases safety by reducing the opportunity for the vessel to be used as a weapon.

Brief 2

Under-the-radar safety

Design a new safer glass by modifying the properties and features of glass itself to make it less easy to break and use as a weapon. This will be a behind-the-scenes solution where the new design will not provide a significantly different user experience.

Brief 3

I love plastic

Design a new plastic/composite drinking glass that harnesses material properties to give added benefits to the consumer (and brands) and address negative consumer attitudes to plastic. The new proposition should include consideration of a creative campaign to create positive attitudes towards the plastic glass.

Brief 4

The 21st century pint

Design a new safe drinking glass that goes back to the drawing board to set the new standard for drinking vessels for the 21st century. It should make the most of current advancements in manufacturing and material science to deliver a credible alternative to glass in its user experience while presenting a powerful business case to industry.

Background information

To design a safer pint glass that is less likely to be used in glassings, designers need to understand how abusers use glasses in violent attacks. By talking to emergency services and victims of glassings it emerges that attackers tend to use one of four main techniques:

- *Slapping*: the perpetrator slaps his or her hand across their victim's face while holding a glass
- *Smashing*: the perpetrator smashes a drinking glass then swipes or stabs at their victim
- *Stabbing*: the perpetrator thrusts an intact glass towards their victim in a stabbing action
- *Throwing*: the perpetrator throws an intact glass at their victim

As well as understanding how abusers could misuse a product and create a problem, designers consider how legitimate users will be affected by any changes. Pint glasses affect customers who drink beer, but they also affect bar staff that serve, collect and wash them, pub landlords who buy them and beer brands which can promote their products on them.

Understanding materials

Glass vs plastics



Glass

Key strengths

- User research suggests drinkers perceive it to be higher quality than plastic.
- Glass is inert, so food, drinks, medicines or cosmetics remain untainted by contact.
- Good recycling infrastructure is already in place for glass.

Key weaknesses

- Glass has low impact resistance.
- It breaks into potentially dangerous shards
- Glass pint vessels are made from either annealed or toughened glass.



Glass

Glass pint vessels are made from either annealed or toughened glass.

Toughened glass

Toughening involves the controlled, rapid cooling of glass during manufacture with the aim of deliberately inducing compressive surface stresses into the glass. The compressive energy stored in the glass influences how it reacts to breaking, so that as soon as a fracture develops it continues throughout the glass in all directions causing it to fragment into small pieces that are safer.

In 1997 the Brewers and Licensed Retailers Association (now the British Beer & Pub Association) recommended the use of toughened glass to all members. Since then there has been a steady increase in the use of toughened glass drinking vessels in response to concerns over the safety of annealed glass (see opposite).

The amount of toughened glass currently in circulation is difficult to judge, partly because of a lack of recognisable labelling. Despite a handful of studies documenting the positive impact of toughened glass, research also points to a number of failings.

The curvaceous form of drinking glasses currently renders the toughening process uneven and unreliable, particularly in relation to more delicate stemware. Toughened glass has also been widely reported to ‘spontaneously shatter’. A six-month study of 1,229 bar workers reported that toughened glassware significantly increased the number of accidental injuries to staff.⁴¹

The toughening process does not necessarily ensure longevity, and scratches and knocks that occur with use quickly compromise the glass’s impact resistance. British Glass says the term ‘toughened glass’ is misleading and a better description would be ‘brittle glass’ because toughened glass breaks into little pieces when impacted or scratched.

Annealed glass

Annealing is a process of slowly cooling glass to relieve internal stresses after it was formed. Glass which has not been annealed is liable to crack or shatter when subjected to a relatively small temperature change or mechanical shock. Annealing glass is critical to its durability. If glass is not annealed, it will retain many of the thermal stresses caused by quenching (rapid cooling) and significantly decrease the overall strength of the glass. However, by comparison, toughened drinking vessels have substantially higher impact strengths than annealed glass – over a period of extended use (3-6 months) in licensed premises, toughened glass was still shown to retain a level of strength equivalent to that of new annealed glassware.

Plastic

A number of manufacturers already offer plastic drinking glasses. At the top end of the quality scale are polycarbonate vessels, manufactured by injection moulding. Virtually unbreakable in normal everyday usage, polycarbonate is used as a shatter-resistant substitute for glass. A number of other materials such as styrene acrylonitrile, polystyrene and polypropylene are also widely available, but do not offer the same qualities as polycarbonate. Styrene acrylonitrile and polystyrene, both hard wearing plastics, are also brittle and can crack easily. Polypropylene glasses, commonly seen at outdoor events, are flexible to the touch and often cause excessive spillage as well as being susceptible to splitting.

As with toughened glass, there is currently no recognised standard, so the quality of polycarbonate glasses varies greatly between manufacturers.

Benefits & barriers

Nationally, a growing number of initiatives encourage the adoption of safer glasses. In Glasgow the city council tried to make the use of polycarbonate drinking glasses mandatory in city centre pubs and bars. But, as in the rest of the UK, they did not meet with universal approval. Connoisseur drinkers insist that plastic glasses adversely affect the taste of their pint.

Price

Although glass is cheap compared to plastic, due to the manufacturing process, the tooling is more expensive. A cheap tempered pint glass might cost around 40p, and this doubles to 80p if the glass is toughened. A quality polycarbonate glass will typically cost

approximately £1.00, around 20% more than the more expensive glass alternative. However, these costs need to be considered in light of the life of the glass - data that is not readily available. Improved toughness and resistance to breakage may offset higher costs.

Recycling

The recycling infrastructure for glass is well established. The relatively low number of glass variants in circulation (mainly different colours), the widespread usage, and the high density of glass make this practical. Plastics, on the other hand, are used in many more variants, making recycling more of a challenge. One opportunity to overcome this problem may be to use the well-defined nature of the supply chain to the drinks industry, and the very high value of polycarbonate (£2,100 per tonne). If the grade of polycarbonate used for glasses could be standardised, local schemes could be set up to recycle them into other applications. Looking further ahead, developments are underway to recycle plastics at a polymer level. This would overcome the problems of mixing different grades of plastic, possibly making the recycling of plastic much more practical.

Polycarbonate vs. glass

Longevity

A tendency to 'cloud' after a number of washes, and to scratch easily, has led to questions about the longevity of polycarbonate compared to glass. In a series of recent tests the Institute of Materials and Mining also found polycarbonate glasses tended to lose strength with repeated exposure to dishwashing cycles.

Perceived quality

Central to many industry brand managers' argument against polycarbonate glasses is that they would compromise the quality of the product and hence the drinking experience.

Taste

Many of the drinkers interviewed were concerned about how polycarbonate glasses affected the taste of the drink. This view is shared by the Campaign for Real Ale. 'Plastic glasses taint the taste of the beer. The drinkers least affected by introducing plastic containers will be the ones who drink to get drunk and don't care about quality. As this is the group that is responsible for almost all pub related violence it means that the licensing board policy isn't just punishing the innocent along with the guilty, it is punishing the innocent instead of the guilty'.⁴²

Weight

There is a dramatic difference in weight between glass and polycarbonate. Conditioned to associate quality with weight, the drinker is suspicious of the lightweight polycarbonate glass. Most polycarbonate glasses currently on the market are a close visual match for glass, but this can leave the user feeling cheated, and often sceptical, when on closer inspection they realise the vessel is plastic.

Temperature

Almost all drinkers are concerned about the temperature of their drink when served in a polycarbonate glass. They also say the lack of condensation on the glass is off-putting, even though drinks stay cooler for longer in a polycarbonate glass due to better insulation from body heat.



Plastic

Key strengths

- High impact resistance
- Little or no injury risk

Key weaknesses

- Drinkers dislike plastic glasses
- Flexible plastic glasses, when full, are difficult to carry without spillage
- Anecdotal evidence suggests excessive fizzing when beer is poured into the glass, resulting in wastage
- Plastic is seen to have poor environmental implications in disposal and there may be more littering when disposable glasses are used
- There are growing concerns over Bisphenol A (BPA) leaching from polycarbonate glasses
- Plastic is seen by some to be less inert than glass and many believe it changes the taste of the drink as a result
- Plastic is prone to scratching

What the clients say

The UK's largest nightclub operator, Luminar Leisure, says it saved an estimated £200,000 after it started using polycarbonate glasses because there were no more insurance claims from customers getting cut feet from walking barefoot on broken glass.

'The introduction of polycarbonates is cost-neutral: polycarbonate costs a bit more than glass, but lasts longer.'

—*Steve Thomas, Director, Luminar Leisure*

'Plastic substantially compromises the quality of the drinking experience. We take the view that in some cases, polycarbonates are a necessary measure in ensuring customer safety, and we'll implement them – even if doing so reduces the level of customer satisfaction associated with visiting the venue. But there are other types of operations where to ask customers to drink out of a polycarbonate glass would fatally compromise their experience, and they will simply not come back.'

—*Simon Kaye, Commercial Director, Regent Inns*

'However good the beer tastes when it leaves the brewery, it's the experience when people drink it in the pub that really determines whether people like it. It's all about surprising and delighting people at the pumps. It's about what it tastes like but we also want to make sure that it looks great. It's how it feels in the hand. We would be delighted to use a safe glass if the drinking experience was as great, or better, than with a normal glass.'

—*Paul Hegarty, Director of Communications, brewer Coors*

Research ideas

What does safety mean and how have things been designed to be safer? Research can reveal how others have been making their products safer. Some techniques include:

- *Defence*: Wee-Go baby bottles are made from glass so plastic can't taint their contents. They are encased in a contemporary silicone sleeve which stops them breaking if they topple and makes them easier to hold.
- *Reinforcement*: strength can be added to materials by reinforcing them with stronger and more flexible materials.
- *Containment*: safety razors have been designed to make sure sharp blades are contained by wire so they can't inflict serious injuries.

Search for appropriate materials and technologies

Designers rarely restrict themselves to looking for inspiration in the market they are designing for.

When producing a new pint glass they might ask:

- What is done to glass on car windscreens that means they don't break on impact? Could its manufacturers also make drinking glasses?
- Why don't polycarbonate headlights on cars get scratched and go dull like polycarbonate glassware? What is it coated with? Is the coating food grade?
- Why do the leading glassware manufacturers develop so many new ideas each year without a route to market?

- Could common labelling, decoration and strengthening processes be used to make pint glasses safer and create branding opportunities?
- Plastic shrink sleeves are already used to brand glass bottles. Could this process be applied to drinking glasses, making them safer while simultaneously offering branding opportunities?

Find out more

Design Bridge was commissioned by the Design and Technology Alliance Against Crime to create prototypes of safer pint glasses, one of which has entered trials in pubs. Find out more at www.designcouncil.org.uk/our-work/challenges/Security/Design-out-crime/Alcohol-related-crime/

Writing a brief that incorporates design out crime issues

Clients and brand owners who want to ensure crime prevention and reduction solutions are incorporated into design projects can use this checklist to ensure a design brief presents as much useful information as possible.

Crime prevention objectives

As with all objectives, these should be SMART – Specific; Measurable; Achievable; Realistic; and Time-based

Background information about the problem

This should summarise the nature and scale of the actual security problem, and highlight any potential security problems that might occur in the future. Further details about the cost of the problem – including cost to anticipate crime, costs incurred as a consequence of crime and the cost of responding to crime – should also be included where possible.

Causal factors

Manufacturers and brand owners may already know about vulnerabilities in existing designs, particularly if they collect feedback from customers and retailers. When outlining the factors that cause crime it's important to remember that user behaviour can contribute to crime as well as offender techniques and situational elements like where and when crimes happen. (The Crime Lifecycle Model on page 16 explains this in more detail.)

Potential solution directions

This should contain information about solutions already on the market. In some cases, potential strategies for addressing the problem might also be presented.

Trade-offs and priorities

The process of designing out crime brings with it inherent tensions and there will often be trade-offs to consider. Designs should be able to prevent crime, but products also need to be easy to use, attractive to users and easy to manufacture. Client or brand priorities should be highlighted here.

Sources of information

Clients, manufacturers and brand owners may have resources that designers can use, including research with users and customers, images from CCTV footage, accounts of crimes from the police or from victims, and information from crime prevention experts.

Selection criteria

Clients may be looking for designers who can demonstrate experience of addressing crime or related social issues.



Appendix

Methodologies and academic research

A number of respected research centres and universities have been working in the field of crime and design for some years and have developed robust methodologies for design in this area

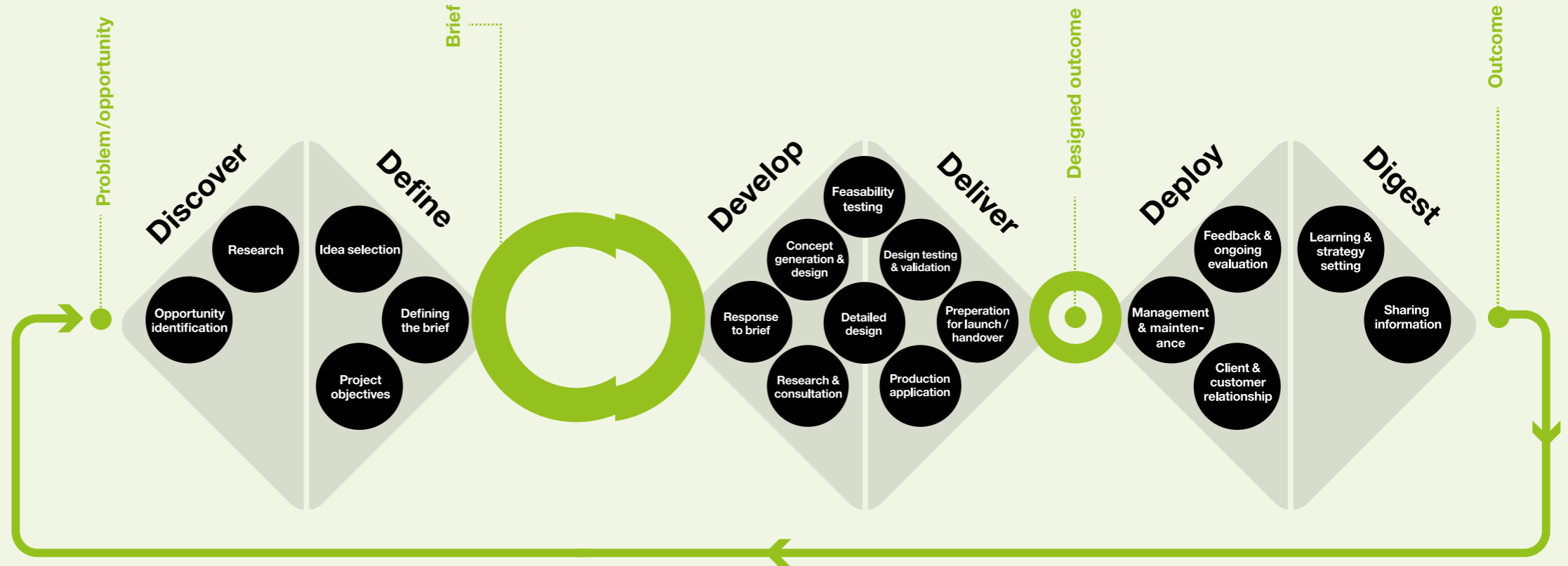


2

The triple diamond

Design Against Crime Solution Centre

University of Salford



The Design Council's double diamond identifies four periods of alternating divergent and convergent thinking in the design development process – discover, define, develop and deliver.

The Design Against Crime Solution Centre, University of Salford has extended this model, adding a third diamond formed by the two phases,

deploy and digest. This third diamond covers with the period when a designed product, service or environment is has been launched or opened and is in active use. At this point, feedback and ongoing evaluation processes, procedures and activities will help clients and designers to understand how the designed outcome is performing. Sharing any learning arising from this – for example relating to

performance shortfall, unexpected user behaviour, or potential improvements – within the business and with relevant external partners and stakeholders could provide insights which might lead to a new development cycle, either for incremental improvements to the design or for entirely new product development opportunities.

Evolved twin track model of the Iterative Design Process

Design Against Crime Research Centre

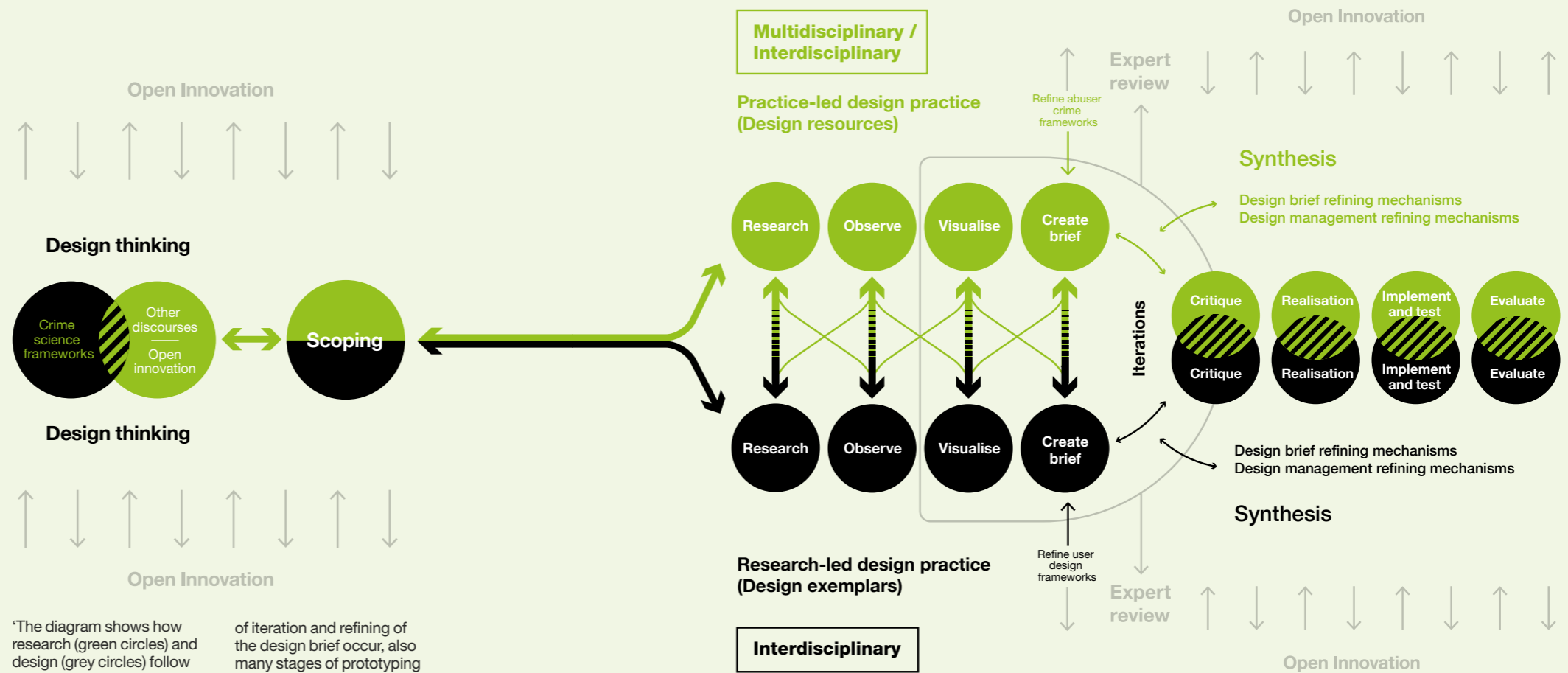
Central St Martin's College,
University of the Arts, London

'Secure design does not have to look criminal', says the Design Against Crime Research Centre (DACRC) at Central St Martin's College, University of the Arts, London. The DACRC's practice-led socially responsive design research agenda is based on the understanding that design thinking as well as design practice can and should address security issues without compromising functionality and other aspects of performance, or aesthetics.

The DACRC's methodology has nine stages of activity in a model that can be summarised as iterations that:

- scope and consult
- research and create
- create and consult
- create and test

DACRC adopts a 'twin track' approach, engaging with research-led design and design-led research, and iterating at every stage, drawing on the expert advice of stakeholders.



'The diagram shows how research (green circles) and design (grey circles) follow a twin-track approach. The green circles show how the research phase is delivered, and the grey circles show how the process is creation of specific design realisations or exemplars for specific contexts. This process can be applied to the creation of the design of objects, or resources that teach others how to design out crime, as well as to the realisation of many types of design briefs. Many stages

of iteration and refining of the design brief occur, also many stages of prototyping occur, before we actually realise, or create a product, resource, system or designed service. The depth of our approach is perhaps more common to what is traditionally called 'service design' but involves crucial user and abuser focus and the following specific stages.'

Design Against Crime Methodology, DACRC, February 2009

 Design researchers, criminologist, others
 Design researchers, designers, others

You can find an in-depth explanation of DACRC's methodology on its website at www.designagainstcrime.com/methodology-resources/design-methodology



Organisations

Design Council

www.designcouncil.org.uk/crime

Home Office

www.homeoffice.gov.uk/crime

The Home Office's Crime Reduction website, which aimed to provide information and resources for people working to reduce crime in their local area has been archived to webarchive.nationalarchives.gov.uk/20100413151441/http://www.crimereduction.homeoffice.gov.uk/

The Sorrell Foundation

The Sorrell Foundation was set up in 1999 with the aim of inspiring creativity in young people and improving the quality of life through good design. www.thesorrellfoundation.com/designing_out_crime.php

Technology Strategy Board

The Technology Strategy Board is a business-led executive non-departmental public body, established by the government. Its role is to promote and support research into and development and exploitation of, technology and innovation for the benefit of UK business, in order to increase economic growth and improve quality of life. It is sponsored by the Department for Business, Innovation and Skills (BIS). The Small Business Research Initiative (SBRI) is a programme run by the TSB which helps to match innovative solutions to specific government needs, by engaging a broad range of companies in competitions that result in short-term development contracts. www.innovateuk.org

Commission for Architecture and the Built Environment

CABE is the government's advisor on architecture, urban design and public space. www.cabe.org.uk/

Crime statistics

The User Guide to Home Office Crime Statistics is a reference guide with explanatory notes regarding the issues and classifications which are key to the production and presentation of Home Office crime statistics, including commentary about appropriate interpretation of these statistics.

<http://rds.homeoffice.gov.uk/rds/pdfs10/crimestats-userguide.pdf>

Crime statistics including the British Crime Survey can be found on the Home Office Research, Development and Statistics site <http://rds.homeoffice.gov.uk>

The International Crime Victimization Survey (ICVS) was last published in 2007 www.rechten.uvt.nl/ICVS

The British Chambers of Commerce conducted a survey of business crime in 2008 www.britishchambers.org.uk/6798219244754360314/BCC_Business_Crime_Survey_.pdf

Building design and environments

CPTED

Crime Prevention Through Environmental Design (CPTED) is defined as a multi-disciplinary approach to deterring criminal behaviour through environmental design. The International CPTED Association supports local organisations, practitioners and communities that utilise CPTED principals to create safer communities and environments. www.cpted.net

Secured by Design

Secured by Design is a group of national police projects focusing on the design and security for new and refurbished homes, commercial premises and car parks as well as the acknowledgement of quality security products and crime prevention projects. www.securedbydesign.com

The Compendium of Crime Prevention and Reduction in the Planning System

The Thames Valley Police Crime Prevention Design Team has compiled The Compendium of Crime Prevention and Reduction in the Planning System which aims to assist all those involved in the planning system to make sure that designing out crime is part of the process. It is divided into an introduction booklet, and five other booklets highlighting the definitions of crime, primary and supporting planning policy, designing out crime and crime prevention advice. www.thamesvalley.police.uk/crprev-cpdt-compen.htm

RIBA Guidance on Designing for Counter-Terrorism

The Royal Institute of British Architects (RIBA) publishes guidance for architects and planners on designing for counter-terrorism, ensuring they are better equipped to think about designing in security features from the outset. www.architecture.com/Files/RIBAHoldings/Communications/Press/General/RIBAGuidanceoncounterterrorism.pdf

BROXAP

Broxap designs, manufactures and installs street furniture, cycle storage products and shelters. www.broxap.com

Businesses: crime information and prevention

Association of British Insurers

Information on insurance protection for small businesses. www.abi.org.uk/BookShop/ResearchReports/SME_Guide.pdf

Arson Prevention Bureau

Provides advice and information to help tackle the problem of arson nationally, including statistics on arson trends, information about arson and arson prevention, and more detailed research reports. www.arsonpreventionbureau.org.uk/

Business Link

Business Link's website has information on business crime, fraud and security. www.businesslink.gov.uk

Health and Safety Executive

The HSE website has information on safety and security including specific advice on tackling violence for people who work in pubs, clubs and shops www.ourwatch.org.uk/

National Counter Terrorism Security Office

The National Counter Terrorism Security Office (NaCTSO) is a police unit co-located with the Centre for the Protection of the National Infrastructure and provides guidance in relation to business continuity, designing out vehicle borne terrorism, the protection of crowded places and reducing opportunities for terrorism through environmental design. www.nactso.gov.uk

Consumers: crime information and prevention

Crimestoppers

Crimestoppers is an independent charity helping to find criminals and help solve crimes. www.crimestoppers-uk.org

Directgov

Information about crime and justice, including street level information about crime and anti-social behaviour across England and Wales www.direct.gov.uk/en/CrimeJusticeAndTheLaw/index.htm

Neighbourhood and Home Watch

The Neighbourhood & Home Watch Network (NHWN) represents Neighbourhood and Home Watch members across England and Wales. It is the only umbrella body for Watch schemes and members that works closely with the Home Office and the Association of Chief Police Officers (ACPO). Its vision is for a society founded on trust and respect where people live in communities that are safe and enjoy a good quality of life. They aim to improve community life by listening to and supporting grassroots members and ensuring their voices are heard at a national level. www.ourwatch.org.uk

Association of Chief Police Officers

ACPO brings together the expertise and experience of chief police officers from England, Wales and Northern Ireland, providing a professional forum to share ideas and best practice, co-ordinate resources and help deliver effective policing which keeps the public safe. www.acpo.police.uk

SME Self- Assessment Tool

www.designoutcrime.org.uk/toolkit

Research Centres

Design Against Crime Research Centre

The Design Against Crime Research Centre at Central St Martins College, University of the Arts London, is a socially responsive, practice-based research initiative, which uses the processes and products of design to reduce all kinds of crime and promote community safety while improving quality of life.

www.designagainstcrime.com

Design Against Crime Solution Centre, University of Salford

The Design Against Crime Solution Centre is a unique, multidisciplinary partnership coordinated by the University of Salford that brings together practitioners and academics in the fields of design, psychology, policing, crime prevention, urban planning and community safety from across Europe. The Centre promotes the role of socially responsible design

www.sociallyresponsibledesign.org in addressing crime, fear of crime and community safety issues, adopting an evidence-based, human-centred and systems-oriented approach

www.designagainstcrime.org

POPcenter

The US-based Center for Problem-Oriented Policing aims to advance the concept and practice of problem-oriented policing in open and democratic societies.

It does so by making readily accessible information about ways in which police can more effectively address specific crime and disorder problems.

www.popcenter.org/

UCL Jill Dando Institute of Crime Science

The UCL Jill Dando Institute of Crime Science is the first university department in the world devoted specifically to reducing crime.

It does this through teaching, research, public policy analysis and by the dissemination of evidence-based information on crime reduction.

<http://www.jdi.ucl.ac.uk/>

Royal Society for the encouragement of Arts, Manufactures and Commerce (RSA)

The RSA encourages public discourse and critical debate by providing platforms for leading experts to share new ideas on contemporary issues, through our public events programme, RSA Journal and RSA Comment. RSA projects generate new models for tackling the social challenges of today, and are supported by a 27,000 strong Fellowship - achievers and influencers from every field with a real commitment to progressive social change.

www.thersa.org

Retail crime

Association of Convenience Stores

ACS campaigns on all areas of crime that affect convenience stores and their communities.

www.acs.org.uk/en/lobbying/issues/crime/

British Retail Consortium

Trade association representing the whole range of retailers, from the large multiples and department stores through to independents. BRC works with government, law enforcement agencies and other key stakeholders on crime and security related issues and publishes an annual Retail Crime Survey.

www.brc.org.uk/brc_policy_master.d=48&spolicy=retail+crime

The Co-operative Group

Works to pioneer crime reduction techniques both in its trading premises and the communities it supports

www.co-operative.coop/Corporate/PDFs/Retail_Crime_Survey_2008.pdf

Federation of Small Businesses

The Federation of Small Businesses is the UK's largest campaigning pressure group promoting and protecting the interests of the self-employed and owners of small firms. Formed in 1974, it now has 210,000 members across 33 regions and 194 branches.

www.fsb.org.uk/

British Chamber of Commerce

The British Chambers of Commerce (BCC) is the national body for an influential Network of Accredited Chambers of Commerce across the UK; a Network that directly serves not only its member businesses but the wider business community.

www.britishchambers.org.uk

Bicycle theft

Bikeoff design resource

Bikeoff's practice-based design research aims to reduce bicycle theft by catalysing cycling products and services that consider users (cyclists) but also abusers (vandals and thieves).

www.bikeoff.org/design_resource

Transport for London

www.tfl.gov.uk

Endnotes

1. Flatley, J., Kershaw, C., Smith, K., Chaplin, R. and Moon, D. (2010). Crime in England and Wales 2009/10. Findings from the British Crime Survey and police recorded crime. Home Office Statistical Bulletin 12/10. <http://rds.homeoffice.gov.uk/rds/pdfs10/hosb1210.pdf>
2. The Invisible Crime: A Business Crime Survey, British Chambers of Commerce, April 2008. www.britishchambers.org.uk/6798219244754360314/BCC_Business_Crime_Survey_.pdf
3. Home Office Statistical Bulletin: Home security, mobile phone theft and stolen goods: supplementary Volume 3 to Crime in England and Wales 2007/08, Findings from the 2007/08 British Crime Survey, John Flatley (Ed.), Debbie Mon (Ed.), Stephen Roe, Phillip Hall and Sian Moley, 21 May 2009. <http://rds.homeoffice.gov.uk/rds/pdfs08/hosb0708.pdf>
4. www.inthebag.org.uk/wp-content/uploads/2010/11/camden.pdf
5. For further information on these and other examples see <http://extra.shu.ac.uk/dac/casdown.html>
6. Gamman, L. and Thorpe, A (July 2008) Less is More – What Design Against Crime Can Contribute To Sustainability. Changing the Change Conference, Turin and the Designing Out Crime Designing Out Crime Association (DOCA) AGM, Birmingham (November 2008).
7. www.thesorrellfoundation.com/designing_out_crime.php
8. You can read more about the Design Against Crime Research Centre's pioneering work in this area at www.designagainstcrime.com/methodology-resources/designmethodology/users-abusers
9. Wootton, A B & Davey, C L. 2003, 'The Crime Lifecycle: Guidance for Generating Design Against Crime Ideas', Design Against Crime Solution Centre, The University of Salford, Salford, UK ISBN 0 9555 23383 6
10. An interactive matrix of all 25 techniques with examples can be found at www.popcenter.org/25techniques
11. www.inthebag.org.uk/wp-content/uploads/2010/11/cashpoint-art.pdf
12. www.internetjournalofcriminology.com/Armitage%20Smithson%20-%20Alley-gating%20Revisited.pdf
13. Bennett, D.F.H., The Art of Pre-Cast Concrete (2005), Birkhauser Verlag AG, pp114-119
14. Clarke, Ronald (1999). Hot Products. Police Research Series. Paper 112. London: Home Office. www.popcenter.org
15. "Know the products that are CRAVED by thieves" in Ronald Clarke's "Crime Analysis for problem-solvers in 60 small steps", available at www.popcenter.org/learning/60steps/index.cfm?stepNum=28
16. British Crime Survey data 2007/08 as quoted in Hansard www.publications.parliament.uk/pa/ld200809/ldhansrd/text/91013-0008.htm



17. You can find out more about bag theft, including a list of common perpetrator techniques, at www.inthebag.org.uk
18. British Crime Survey 2009-10 rds.homeoffice.gov.uk/rds/crimeew0910.html
19. www.co-operative.coop/estates/Operational-Risk/Operational-Risk/Business-Crime-Partnerships/Classical-Music/. See also www.scottish.parliament.uk/s3/committees/petitions/petitionsubmissions/sub-10/10-PE1367A.pdf
20. <http://rds.homeoffice.gov.uk/rds/pdfs/hors182.pdf>
21. www.grippaclip.com
22. www.welfare.ie/EN/Press/PressReleases/2009/Pages/pr240709.aspx
23. www.saltwatersportsman.com/article/News/Californiagroup-launches-no-wearfishing-license-initiative
24. www.news.bbc.co.uk/1/hi/england/kent/8073648.stm
25. www.participle.net/projects/view/4/79/
26. Cohen, L. E. and Felson, M. (1979). "Social Change and Crime Rate Trends: A Routine Activity Approach." *American Sociological Review*. 44:588-605. www.popcenter.org/learning/60stepsindex.cfm?stepNum=40
27. Ekblom, P. Gearing up against crime, 2008 www.designagainstcrime.com/files/crimeframeworks/11_gearing_up_against_crime.pdf
28. www.designcouncil.org.uk/Case-studies/Design-Out-Crime/Hulme-Park
29. P. Ekblom, Gearing up against crime, 2008 www.designagainstcrime.com/files/crimeframeworks/11_gearing_up_against_crime.pdf
30. www.met.police.uk/crimeprevention/business.htm
31. Bikeoff residential bike theft survey December 2010
32. To learn about the different types of locks cyclists use visit www.bikeoff.org/design_resource/DR_locks_typology.shtml
33. The Invisible Crime: A Business Crime Survey, British Chambers of Commerce, April 2008 www.britishchambers.org.uk/6798219244754360314/BCC_Business_Crime_Survey_.pdf
34. British Retail Consortium Retail Crime Survey 2010 www.brc.org.uk/brc_show_document.asp?id=4189&moid=7233
35. Bamfield, J (2008) Global Retail Barometer. Nottingham: Centre for Retail Research. http://www.retailresearch.org/grtb_globaltrends.php
36. Centre for Retail Research, Young People and Shop Theft. <http://www.retailresearch.org/drugsfemaleandyoung.php>
37. Centre for Retail Research, The Global Retail Theft Barometer 2009 www.retailresearch.org/grtb_globaltrends.php
38. British Retail Consortium Retail Crime Survey 2010
39. Ibid.
40. Magennis P, Shepherd J P, Hutchison I, Brown A E (1998). Trends in facial injury. *British Medical Journal*;316:325-3256
41. Warburton, A, and Shepherd, J, Effectiveness of toughened glassware in terms of reducing injury in bars: a randomized controlled trial, *Injury Prevention*, Vol. 6, pp36-40, 2000.
42. 'Glasgow Licensing Board Policy on use of Plastic/Toughened Glass in Public Houses and Entertainment Licensed Premises' <http://www.camra.org.uk/> (Accessed 21 February 2009)

**For more information
on Design Out Crime visit
www.designoutcrime.org.uk**

Design Council
34 Bow Street, London
WC2E 7DL United Kingdom

Tel: +44(0)20 7420 5249
Fax: +44(0)20 7420 5300
Email: info@designcouncil.org.uk
www.designcouncil.org.uk

©Design Council 2011
Registered Charity Number 272099

Original research:
Design Against Crime
Solution Centre,
The University of Salford

**Additional research
and editorial:**
Billy Communications

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.