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# Breaking the Cycle: Fundamentals of Crime-Proofing Design

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by

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**Abstract:** *"Design Against Crime" aims to embed crime prevention within design through education and professional practice, and reflects the widening agenda for design professionals. This paper considers design as an essential contributor to product experiences, including that related to crime and fear*

*of crime. This paper argues that crime issues must be considered within design and new product development processes. Four fundamental principles of design against crime are presented: consult, develop, test and deliver. As part of the development and testing stages, ideas and concepts need to be generated that address causes of crime, as identified by criminologists. This paper presents the Design Policy Partnership's Crime Life-Cycle Model to help designers understand and effectively address causal mechanisms. The authors conclude that further design-centred resources are required to promote a more empathetic and holistic approach to crime prevention.*

## INTRODUCTION

Our material world is created through a design process, frequently through the employment of designers. Such designers employ their professional skills to understand the needs of the consumer or the user, and the technologies available, and then to develop a product, place, system or service which satisfies consumer needs and desires (Press & Cooper, 2003). Crime certainly occurs within this environment. Indeed, there are some who argue that designers are contributors to crime in that they develop desirable products, or products that can be used to commit a crime (Design Council, 2003). It seems that designers are the best placed to address crime effectively, and have the skills to do so. Pease (2001, p. 27), observes that:

Designers are trained to anticipate many things: the needs and desires of users, environmental impacts, ergonomics and so on. It is they who are best placed to anticipate the crime consequences of products and services, and to gain the upper hand in the technological race against crime.

Among the design profession and manufacturers in many industrial sectors, crime prevention is often not considered until after a crime has occurred, rather than during the design stage of the development project (Learmount et al., 2000). This frequently leads to crime prevention solutions being "bolted on," after production, rather than embedded within the design. This is inconvenient, and neither an aesthetic solution nor a cost effective way of preventing crime (Town et al., 2003). In addition, once a product becomes subject to crime, it potentially increases fear of crime and thus consumers' decision to buy.

"Design-centred solutions" to crime are those approaches which centre around the design and development of the products. The designers are using their skills and knowledge of the crime and the situation to

develop "products" with "inherent" crime prevention aspects. Design-centred solutions are more focused on the role of human behaviour, attitudes and emotions in preventing crime and feelings of insecurity. Solutions can be tailored to their specific context and address crime problems in innovative, often subtle ways. The involvement of design professionals enables a more empathetic and holistic approach that considers not only the potential misuse and abuse of products and environments, but aesthetics and human sensory experience. For example, a subtle solution to young people congregating and "hanging out" around public amenities—a frequent cause of anxiety, especially for older people—has been the use of classical music played softly in problem areas. Unlike other solutions, such as fencing or removal of public seating, it does not harm the visual aspect, nor inconvenience legitimate users. Another more pro-active solution is the development of a "youth shelter" that provides a place where young people can gather safely, without causing distress to local residents (Town et al., 2003).

In product development, it is critical to ensure that all requirements of the product's use, management and maintenance have been considered at the "front-end," for it is here that 80% of all subsequent costs are committed (Farish, 1992). Clearly this infers that crime should be considered early in the design process as a potentially negative factor that may impact on the user's total *design experience*.

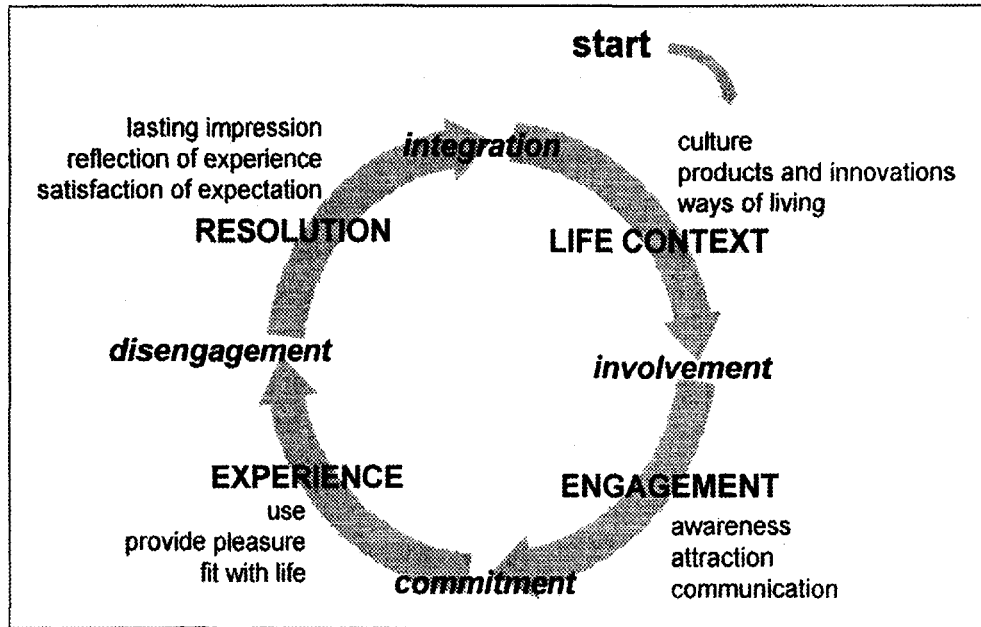
## THE DESIGN EXPERIENCE

The approach of design professionals to the activity of designing has broadened over the years, embracing concepts such as technology-led design, marketing-led design and consumer-led product development. Thus, we have "user-centred design," where extensive use of ethnography, anthropology and social science research methods is made to understand the user and inform the design process.

In addition to this widening design philosophy, there has been a move away from the product as the focus of attention for designers and their clients, to designing and delivering for the total experience (Press & Cooper, 2003).

The cycle of experience (see figure 1) starts at *life context*—the cultural and social background to any new design. This includes people's behaviour, patterns of living and working, shared cultures, concerns and beliefs, together with all the other products and innovations that help to form that

**Figure 1: The Design Experience Model.**



Adapted from: Rhea, D. (1992). A new perspective on design: Focusing on customer experience. *Design Management Journal*, 9(4), 10-16. Reprinted in M. Press & R. Cooper (2003), *The design experience*. Ashgate: Aldershot.

context. Our life context helps determine our responses to any design, and the different ways in which we may use or experience it. The central importance of life context explains why global companies increasingly commission extensive cultural lifestyle studies to ensure their designs adapt to changing values and meet the needs of emerging patterns of behaviour. In the *engagement stage*, the product must make people aware of its distinctive presence and attract people to it. The *experience stage* is where the product is used and becomes part of the user's life experience. This experience relates not just to the product's functionality and aesthetics, but also to the brand values and through them our own self-image. The user's design experience will embrace the entire product system and service—from the purchasing experience of the store, through to product ownership and service support. The *resolution stage* deals with the user's decision to "disengage" from the product, perhaps by upgrading, replacing or even recycling (Press & Cooper, 2003).

Crime and fear of crime is generally a negative factor in a user's design experience. As well as affecting life context, attraction to a product

and attitude to purchase may be affected by perceptions of crime. The experience of the environment in which we purchase the product, whether that be retail or virtual, and the risk of crime when using the product, will colour our attitude toward both the product and the company.

## THE WIDENING DESIGN AGENDA

Designers are increasingly being asked to consider issues outside of their traditional remit. This is moving them from dealing with merely economic and aesthetic issues and on to addressing complex social problems, including environmental and ecological issues, inequality and social exclusion. In response, specific design approaches have emerged, such as eco-design (Simon, 1999). This focuses the designer on the environmental impact of the materials used in the design, its manufacture and use. Indeed, current social and political pressures are encouraging designers to consider social responsibility and sustainability issues (Collings, 2003).

Crime and fear of crime is an area that designers must begin to address as a matter of course, and steps have been taken to raise awareness and support designers in designing against crime. In 1999, a national programme of research and policy initiatives emerged, with the aim of embedding crime prevention within design through education and professional practice. The programme was entitled *Design Against Crime* (DAC). Initiated by the U.K. Home Office, Design Council and Department of Trade & Industry, a major investigation of best practice was conducted (Learmount et al., 2000) and new design concepts developed. Institutions involved included the University of Cambridge, Central St. Martins College of Art & Design and the Design Policy Partnership—a multi-disciplinary team of researchers at the University of Salford and Sheffield Hallam University.

The Design Policy Partnership conducted research into design-led crime prevention, developing case studies (Cooper et al., 2002; Davey et al., 2002) and professional development materials. The Partnership also ran a national design competition for student designers and developed educational materials for school children that integrate with the National Curriculum ([www.designagainstcrime.org](http://www.designagainstcrime.org)). With funding from the European Union (EU) Commission (Hippokrates programmes 2001 and 2002 and AGIS programme 2003),<sup>1</sup> the Design Policy Partnership has conducted wider research in Europe and established an international network of partner organisations. This paper uses a synthesis of the results of this work.

The focus of the Design Against Crime program is "design thinking," the design process and design practice—in all its forms. Design Against Crime draws attention to the role that product, communication, interior, environmental and even fashion design can have in crime prevention. It highlights some of the more subtle and innovative ways in which designers can tackle crime and fear of crime. Consequently, Design Against Crime extends the scope of Crime Prevention through Environmental Design (CTPED) and national Secured by Design schemes into the wider arena of design practice, helping to bring design professionals from a range of disciplines into contact with established crime prevention networks, such as the U.K. and European Designing Out Crime Associations (DOCA-UK and E-DOCA).

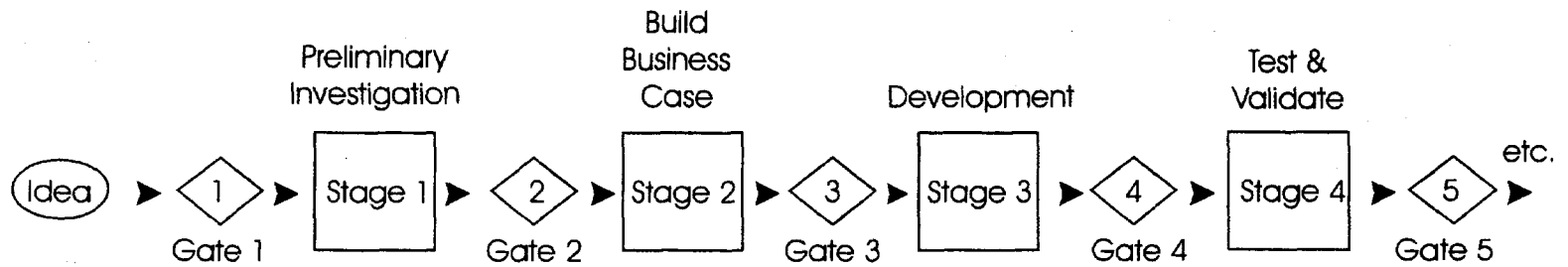
For designers, crime is just one issue amongst many that must be addressed during a project. For Design Against Crime to be effectively integrated within design practice, its interface with the design process must therefore be understood.

## **THE DESIGN PROCESS**

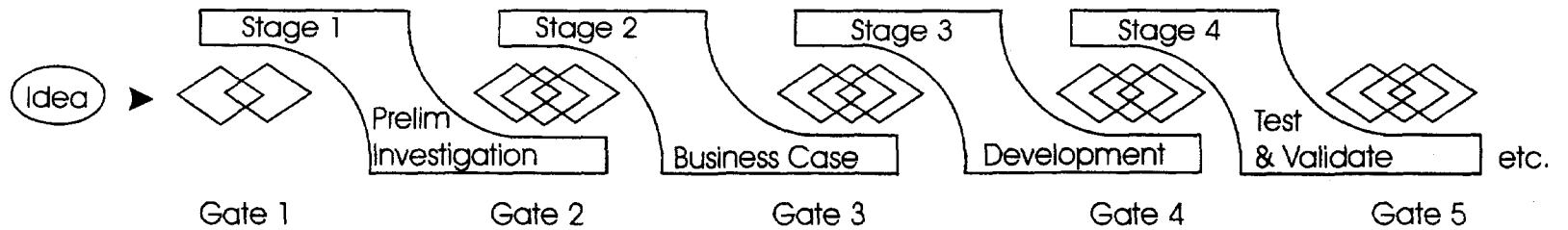
The design process has been extensively documented (Cooper & Press, 1995), as have models of the way in which designers think (Lawson, 1990). Generally, the design process entails four steps: Brief, Design, Test, Produce (Walker et al., 1989), which commonly sit within the new product development (NPD) process. This is described by Cooper (1994), as a stage-gate, structured process and latterly as a more fluid system (see figure 2).

Each stage in the process includes activities undertaken by a number of organisational disciplines such as marketing, production and finance. NPD theory proposes that designers work with the marketing function during the research and launch stages, and with production during the manufacturing stage. This increases the designer's understanding of market and user needs and technology and manufacturing processes available. The designer can therefore be considered central to decision making in terms of the overall product concept and its realisation. Clearly, this places the designer in the best position to address issues of crime prevention within the NPD process. To do this, the designer must have a grasp of crime issues and criminal causality. The Design Policy Partnership has developed a Life-Cycle Model to help designers understand criminal causality and develop solutions. However, for maximum effectiveness, Design Against

**Figure 2: Stage-gate NPD Process Model.**



Today's stage-gate process.



Tomorrow's Third Generation Process, with overlapping, fluid stages and "fuzzy" or conditional Go decisions at gates.

Cooper, R. G. (1994). Third generation new product processes. *Journal of Product Innovation Management*, 11, 3-14.

Crime should be integrated within the product development process. The following section outlines the *fourfundamentals* to designing against crime (Cooper et al., 2003; Design Council, 2003).

## **THE FOUR FUNDAMENTALS OF DESIGN AGAINST CRIME**

From analysis of extensive case study research, four fundamental steps have been identified that enable design against crime thinking to be embedded within the New Product Development process (Design Council, 2003; Cooper et al., 2003). These four steps are briefly outlined below, and are described in more detail in the Design Council's (2003) publication *"Think Thief: A Designer's Guide to Designing Out Crime."*

### **Stage 1: Consult**

There is a growing awareness within organisations of the necessity to adopt a more responsible approach to the way in which they develop, manufacture and market products. However, there are still those in industry who are uncertain as to how they can effect change both within their organisation and its wider social environment. Organisations will not be fully committed to Design Against Crime unless they can see the benefits. This stage of Design Against Crime involves winning support for, and gaining input into, the design process from people both inside and outside the organisation. Design Against Crime strategies can reward organisations in a number of ways. For example:

- Enabling competitive advantage
- Protecting their brands
- Cutting the cost of theft
- Reducing crime against employees and customers
- Supporting local communities.

Designers, other team members and senior management need to be committed to the process of Design Against Crime. When the needs and requirements of stakeholders are fully understood, the opportunities for Design Against Crime can be identified and communicated.

In developing a Design Against Crime strategy, the following questions may help identify the constraints and opportunities.

- What are the emerging crime trends related to your products or services?
- Have there been any technological developments that could make your products or services more vulnerable or secure?
- Do your customers have any suggestions as to how you might crime-proof your products or services?
- Have you gathered feedback regarding crime and fear of crime from other information sources, such as maintenance staff and insurance companies?
- Do you undertake crime risk assessments as part of the NPD process?
- Do you gather information about crime?

There are a wide variety of stakeholders who can provide crime-related information that informs NPD strategy and practice. Stakeholders should be identified at an early stage. They will include internal stakeholders, such as research, design, marketing and sales staff, and external stakeholders, such as customers, end users, suppliers, the police, crime prevention agencies and statutory agencies. It is particularly important to gain an understanding of offenders' motivations and *modus operandi*. Those dealing with offenders, such as police and probation officers, will be particularly useful in this respect.

### **Stage 2: Develop**

Design Against Crime solutions must be tailored for their specific context. This phase of Design Against Crime involves research to gain an in-depth understanding of potential crime risks and problems associated with the product, environment or service being designed. The risks of different crimes occurring need to be assessed, including theft, burglary, criminal damage, violence, fraud, forgery and robbery. Information should also be gathered regarding the proposed design solution in relation to the environment where crimes might occur and the characteristics, behaviours and motivations of potential offenders.

Designers must consider the potential for their designs to be misused or abused. So they need to think not only about the *user*, but also about the *abuser* or *misuser*. To achieve this, designers need to learn to *think thief*—to anticipate potential crimes and offenders' actions, understand their tools, knowledge and skills and incorporate attack testing into the

design process. This means not just thinking thief, but considering all types of crime (Town et al., 2003). Offenders typically ask a number of key questions, when preparing to commit a crime: Can I be seen? If I am seen, will I be noticed? If I am seen and noticed, will anybody take any action? Do I have an easy escape route?

The design under development may become a target for criminals. This will largely depend on its design attributes. For example, in the case of theft, a product is more likely to be stolen if it is CRAVED; that is Concealable, Removable, Available, Valuable, Enjoyable and Disposable (Clarke, 1999). It is particularly important that crime issues are considered in relation to high-risk products and environments.

The design of products, places and messages impact on actual crime and the fear of crime by influencing the attitudes and behaviours of:

- Potential offenders
- Formal guardians, such as police officers and private security personnel
- Informal guardians
- Potential victims and targets of crime
- Victims of fear of crime.

Information is available that details good Design Against Crime practice, such as guidelines (Town et al., 2003; ODPM, 2004) and case studies (Davey et al., 2002). Nevertheless, solutions applied elsewhere, however successfully, will need to be tailored to the context and requirements of the current situation. Designers should also think about the potential counter-measures offenders may adopt as a result of a design intervention. The aim is to *out-think* the offender and develop design solutions that "short-circuit" the potential offender's behaviour, but without reducing the design's value to legitimate users, increasing fear of crime, creating social problems, or causing the seriousness of the crime to escalate (Town et al., 2003).

The Design Policy Partnership have developed a Crime Lifecycle Model to assist designers in developing concepts and ideas that address the causal factors that underpin crime, and also to think about issues that may occur after a crime has been committed. The Crime Lifecycle Model also enables designers to test their design solutions against criminological ideas of causality (Ekblom & Tilley, 2000). This is described in more detail later in the next section.

### **Stage 3: Test**

All design solutions must be fully validated in terms of addressing appropriate crime issues and "short-circuiting" specific causal factors before they are made available for use. Traditional techniques for product assessment, such as SWOT (Strengths, Weaknesses, Opportunities, Threats) and cost-benefit analyses, should be given a crime perspective. User trials and performance testing need to encompass both use and potential misuse of the design solution. Focus groups to test fitness for purpose might include crime prevention experts, such as police architectural liaison officers, crime prevention design advisors, criminologists, community representatives, potential offenders and ex-offenders. In addition, designers should compare their solutions to existing good practice, and consider "what if?" future scenarios.

### **Stage 4: Deliver**

Design Against Crime offers tangible commercial benefits—crime resistance can be a good marketing tool. Crime-resistant design features offer a "double win," in that they can not only reduce the incidence of crime, but also provide users with a sense of security, reassurance and peace of mind that positively impacts on the design and brand. Vehicles for promoting Design Against Crime solutions include specialist magazines and journals, national and local newspapers, television, radio and participation in conferences and exhibitions. Accreditation schemes exist for organisations and designers wishing to formally demonstrate their commitment to addressing crime (e.g., Secured by Design, in environmental design sector).

In addition, building in resistance to crime can reduce maintenance costs and increase the longevity of a design. The response of users and the public to crime-related issues can vary, however, and this must be carefully assessed when developing any delivery and marketing strategies.

The impact of crime on a design solution should be evaluated over its life, and changes in the type of criminal activity perpetrated against it monitored. Unforeseen use of the product for criminal ends may emerge once it is in the market. Such information should be fed back to the organisation and designers to inform design decisions relating to later versions of the product, environment or service design.

The next section of this paper will describe in more detail the approach to design-led crime prevention developed by the Design Policy Partnership to help designers understand and address the causes of crime.

## MODELS OF CRIMINAL CAUSALITY

Good design reduces criminal opportunity—the main cause of crime. Denying opportunities to potential offenders increases a crime's difficulty, and decreases its attractiveness and potential reward (Felson & Clarke, 1998). Criminologists have written a great deal about the causes of crime. In general, *causal factors* for particular crimes have been offender-focused and can be divided into two main areas:

- those factors relating to the attributes of the offender who commits the crime; and,
- those factors relating to the attributes of the situation in which the crime happens.

The aim of categorising the causal factors that underpin crime is to enable criminologists to better understand the influences and choices affecting offender behaviour in a crime situation. One such causal framework, developed by Ekblom (2001) at the U.K. Home Office, has been simplified and extended for use by designers.

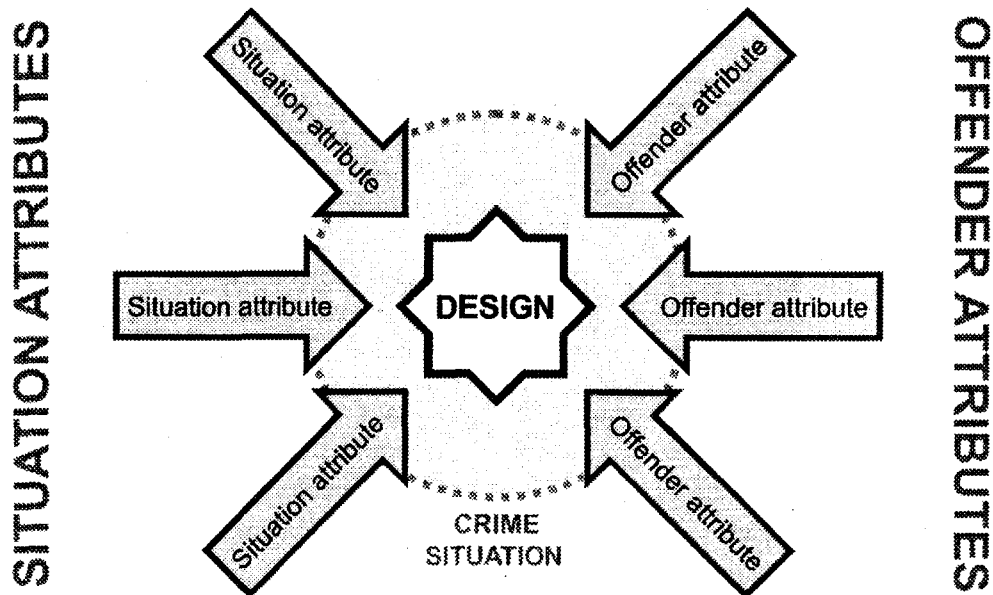
### ***Active versus Passive Design***

When crime is not considered during the design process, the designed product becomes passively subject to offender-related attributes and situation-related attributes that lead to crime (see figure 3).

When designers consider crime effectively, aspects of the product being developed are designed to counter or *block* the offender- and situation-related attributes that lead to crime (see figure 4).

Of course, not all crime can be prevented by design. Criminals are becoming ever more creative in the countermeasures they employ against crime prevention measures. So given that some crime will "get through" any design-led prevention, it's sensible for designers to embody measures within their designs that consider issues beyond the crime event, including: helping identify, apprehend and prosecute offenders and mitigating against the short- and long-term effects of crime—both for the victim and the offender. This paper will go on to discuss a crime lifecycle model and design process that has been developed for designers and product developers to consider the wider issues related to design against crime.

Figure 3: Passive Design.



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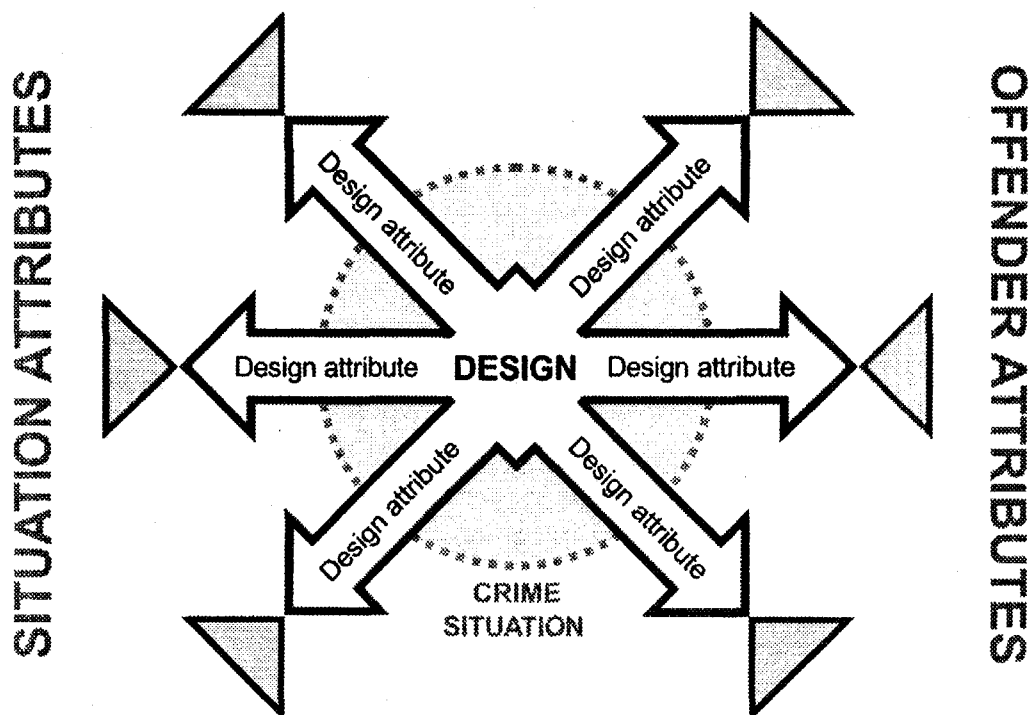
## THE CRIME LIFECYCLE MODEL

Based on the thinking outlined above, a *lifecyde* model for crime has been developed (Wootton et al., 2003) to help design professionals address crime issues during the development of design concepts (see figure 5).

The Crime Lifecycle Model embodies three key principles:

1. *Offending behaviour can breed further offending behaviour, so the real key to sustainable crime prevention is to break this cycle*—The initial and final phases of the model are linked, as basic "readiness to offend" is fuelled largely by a potential offender's life circumstances and the extent to which they believe criminal behaviour to be acceptable and a valid option for them. The longer-term consequences of criminal activity will affect an offender's readiness to offend. For example, the difficulties of finding employment experienced by those with a criminal record may encourage further criminal behaviour. In addition, being locked up with a large number of other criminals may provide an education in criminal skills, and access to resources for future activities.

Figure 4: Active Design.



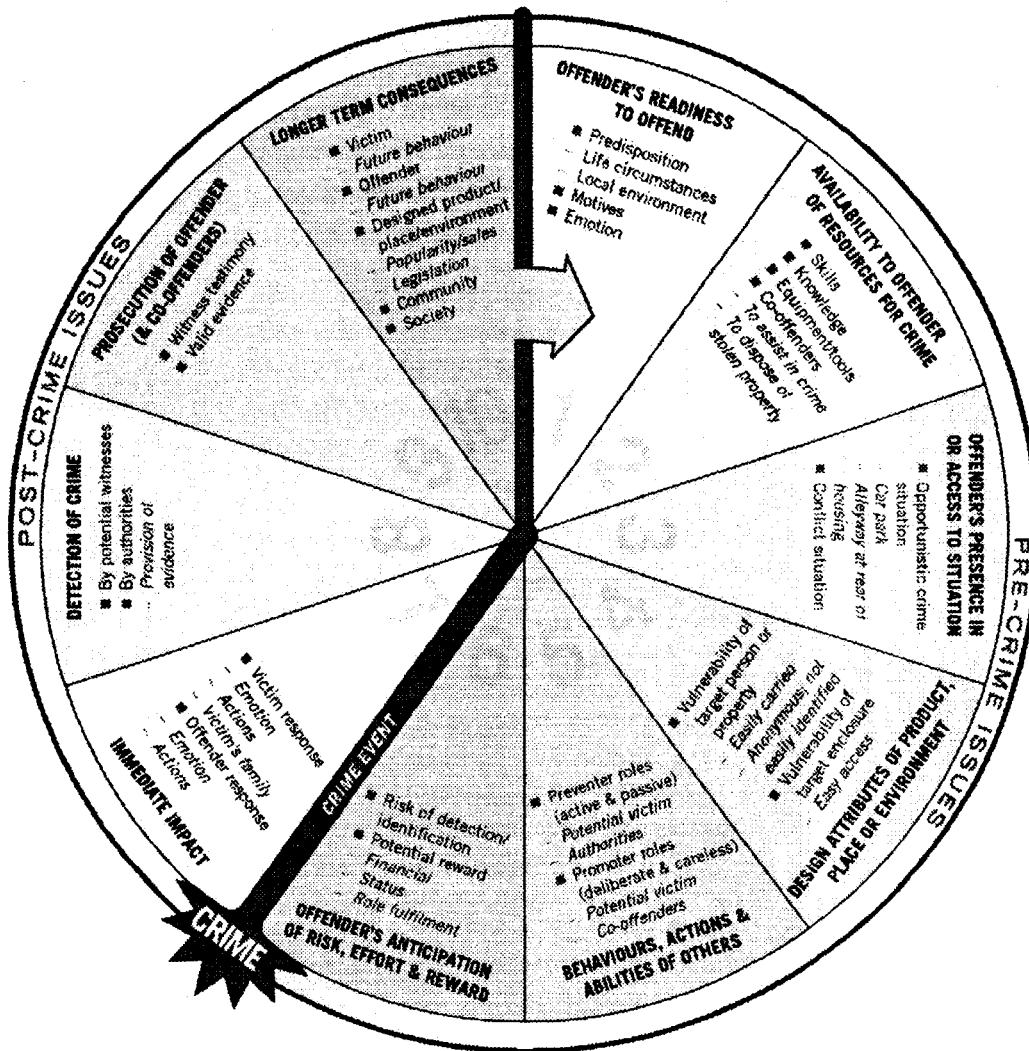
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2. *All six pre-crime issues (Phases 1 to 6) are prerequisite to a crime event occurring—By comprehensively addressing any one of these issues, the crime event can be prevented from occurring.*
3. *Post-crime issues should also be considered—As already mentioned, it's unlikely that any measure will be 100% effective. Therefore it is important to consider how the product, service or environment might be designed to address issues that arise after the crime event (Phases 7 to 10).*

**Phase 1: Offender's readiness to offend**—This relates to aspects of a potential offender's life circumstances, including his or her:

- Financial situation
- Employment situation
- Family circumstances

Figure 5: The Crime Lifecycle Model.



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- Personal relationships
- Education
- Beliefs
- Motivations.

One example of how design can tackle this issue is through the regeneration and redevelopment of poorly designed areas. An example of this is the Royds Community Association case study (Davey et al, 2002), where

not only were local residents involved in the planning and design process, but local people were employed on its construction. Such involvement significantly improves feelings of community, shared ownership and responsibility for the built environment. This residential area in the North of England suffered high levels of unemployment and alcoholism, as well as drug addiction and burglary. Innovative methods had to be used to engage local residents in the consultation process, as many residents were too fearful of crime to attend public meetings. (Figure 6 shows a meeting between designers and planners and local people). Engaging the users in the design can be undertaken with most products and services.

In addition, this pre-crime issue includes negative emotions such as anger and hate. Such emotions can motivate particular offending behaviour.

**Phase 2: Availability to offender of resources for crime**—This issue relates to the resources that an offender will employ to commit crime. Such resources include physical items such as tools and equipment, but often the main resource in the offender's knowledge, skills and abilities to commit a particular offence. The more experienced the offender, the more skilled he or she becomes.

Co-offenders may also be considered a resource in so much as they:

- assist before or at the time the offence is committed (for example, assisting in a burglary); and/or,

Figure 6: Royds Community Association Involvement in Regeneration.



Reprinted with permission of the Royds Community Association.

- assist after the offence has taken place (for example, buying stolen goods).

Designers should be aware that offenders may use their designed product to resource their criminal behaviour—and should design against this. An example of this is given in the AlphaBar case study (Davey et al., 2002), where the use of toughened glass prevents the use of beer glasses as weapons in bar fights. Toughened glass shatters into many hundreds of tiny pellets when broken. Conventional glass, by contrast, serves as an offensive weapon because it leaves large, potentially lethal pointed edges.

**Phase 3: Offender's presence in or access to situation-**The focus of phase is the presence—purposeful or opportunistic—of a potential offender in a crime situation or conflict situation. Regarding offenders presence in conflict situations, the Wendover public house case study (Davey et al., 2002) gives an example of pub interior that was redesigned to reduce the incidence of arguments that led to crimes of violence. Bar stools were removed from the bar area to decrease crowding and reduce the likelihood of drinks being spilt—a frequent cause of fights breaking out in pubs, bars and clubs. The toilet entrance was relocated further into the pub lounges, away from the main entrance, where bar staff could better observe customers. This meant that the presence of bar staff deterred those engaged in drug dealing from using the pub toilets for their transactions.

**Phase 4: Design attributes of product, place or environment—**The issues in this phase relate directly to the vulnerability of the designed product, place or environment to crime. In the case of product design, this includes whether the product is CRAVED (concealable, removable, available, valuable, enjoyable and disposable).

Perhaps the most vivid examples of designing against crime in this phase are the various measures taken by automotive manufacturers in recent years. According to recorded crime figures, car crime increased steadily from 1979 to a peak in 1992, and has since been reducing at a reasonably steady rate. Currently, the figures are at their lowest levels since 1989. Much of this decline has been attributed to the increased security now being designed into new vehicles, such as alarms, immobilizers and tracking systems (Learmount et al., 2000).

**Phase 5: Behaviours, actions and abilities of others-**This phase considers the actions of others in a crime situation—either as preventers

or promoters. Preventers can be either active (for example, a resident who challenges a stranger acting suspiciously in their neighbourhood) or passive (for example, the mere presence of other people may deter an offender from mugging someone). Similarly, crime promoters can be either deliberate (for example, the accomplice who keeps watch while the offender burgles a house) or careless (for example, the person who forgets to lock their car, or leaves their mobile phone on the desk in the office).

Communications design can challenge attitudes, empower victims and generate support for those targeted by offenders. A poster campaign was developed to raise awareness of domestic violence—a much under-reported crime affecting one in four women from all social backgrounds. This was undertaken by Creative Medialab—a partnership between Creative Input Limited and Buckinghamshire Chilterns University College—working to a brief from Wycombe Women's Aid. The posters created are both hard-hitting and provocative, and primarily aim to increase crime reporting by victims and witnesses.

**Phase 6: Offender's anticipation of risk, effort and reward**-Phase 6 concerns the offenders' immediate motivations for committing an offence, including:

- their perception of the risk that they may be detected;
- their perception of the risk that they may be identified; and,
- their perception of the potential reward the offence offers. This may be financial, but may equally well be about status within their peer group.

**Phase 7s Immediate impact**—This phase is concerned with the immediate consequences of the crime event. Designers should think about the potential impact on both the victim and the offender, how they may react, and if negative reactions can be modified in any way by design. It is here that potential negative results of design interventions during the pre-crime phases should be considered, and steps taken to ensure that impact of crime for the victim is not inadvertently made worse.

**Phase 8: Detection of crime**-Phase 8 is concerned with the detection of crime by witnesses and ultimately by the police. Such detection should provide adequate evidence to enable prosecution of the offender. Examples of how this issue can be addressed include the use of CCTV, and marking

property with the owner's postcode using ink that is visible under ultra-violet light.

**Phase 9: Prosecution of offender (and co-offenders)**-This phase is concerned with the successful prosecution of the offender and any co-offenders. To address this issue, designers should think about how their designs might support the provision of witness testimony and valid evidence. Examples of design interventions in this phase include the use of fingerprint sensitive paints and permanent dyes and markers to link offenders to crime scenes. SmartWater is a forensic coding system, which can be applied to valuable possessions, safely and discreetly. The unique formula allows possessions to be forensically identified. Forensic profiling can directly link offenders to a crime (see website: <http://www.smartwater.com/news/fom.html>).

**Phase 10: Longer-term consequences**—This phase is concerned with alleviating the longer-term consequences of crime such as increased fear on the part of victims and their families. Participation in crime prevention can empower individuals and communities, as well challenge the legitimacy of offending behaviour. New legislation is placing greater onus on Local Authorities for crime prevention.

## CONCLUSION

This paper showed that designers have a key role to play in crime prevention. They have the skills to both anticipate crime risks (Pease, 2001), and develop innovative solutions to crime. Furthermore, the design process focuses on identifying and fulfilling user needs and requirements through an understanding of human behaviour, attitudes and emotions in relation to a particular design objective, enabling designers to adopt a "human-centred" approach to preventing crime and feelings of insecurity. Good design solutions are tailored to their specific context and often address crime problems in subtle, creative ways. The involvement of design professionals supports more effective integration of crime prevention within design solutions, enabling a move away from the simple retro-fitting of security devices (Town et al., 2003).

With growing interest in sustainability and social responsibility and their focus on the user's total experience, it is timely for designers to consider crime as an integral part of the new product development process.

Design Against Crime encourages an empathetic, human-centred and holistic approach that considers not only the potential misuse and abuse of products and environments, but aesthetics and overall sensory "design experience."

Over the last decade there has been a shift towards "cyclical thinking" in both design and crime prevention. The "Design Experience" Model developed by Press and Cooper (2003) reflects this approach. In terms of the former, the shift has been driven by the need to consider how design influences all aspects of the consumer experience, from life context and lifestyle, through brand identification, usability, and brand allegiance. In terms of the latter, the crime lifecycle has developed as a useful model to consider the inter-relationships between interventions and actions targeted at the causes, conditions and consequences of crime events (Wootton et al., 2003). It is an extremely useful framework for considering how design thinking can focus at the various dimensions of crime.

We have also sought to develop our thinking, and the outcomes of the research, from an emphasis on process to that of strategy. Over the course of our research there has been a significant increase in awareness of the role of design and designers, and through the research initiative we now have tools and techniques to apply within the design process. Yet "crime proofing" will not be embedded in the product development process until all the agencies understand the significance of using these concepts and the designers have the knowledge and skills to do it.

This paper has outlined the fundamental stages of designing against crime: consult, develop, test and deliver. These stages of Design Against Crime can be easily superimposed onto those of the wider new product development process (Cooper, 1994; Farish, 1992), making the adoption of Design Against Crime by design professionals relatively uncomplicated. It is shown that some activities within the design process, such as focus group research and cost-benefit analyses, need to address crime issues and to involve crime prevention experts. For this to occur, designers will require access to appropriate data sources and knowledgeable contacts.

When it comes to developing design solutions that address the causes of crime, however, designers need access to design-centred resources that draw more deeply on criminological theory and practice. As an example, this paper presented the Crime-Life Cycle Model, based on Ekblom's (2001) work on the causes of crime. The authors believe that further resources are required to help designers address crime effectively during the design process.

Finally, safety is a key quality of life issue, and must be considered alongside other sustainability issues such as environmental quality, economic diversity and social inclusion. The next step must be to bringing together multiple disciplines to take a holistic perspective to bring science, technology, social science and design together in pursuing research which includes safety as part of the sustainable design agenda.



**Acknowledgments:** The Design Policy Partnership would like to thank its funders: European Commission AGIS 2003 Programme, Design Council, Home Office, Department of Trade & Industry and the Engineering and Physical Sciences Research Council (EPSRC).

This paper reflects the views of the authors. The funding bodies are not liable for any use that may be made of the information contained here in.

**NOTE:** To support the furtherance of this research agenda, the University of Salford is leading a Sustainable Urban Environments consortium—comprising University College London, Sheffield Hallam University and London Metropolitan University—in a groundbreaking research project entitled *VivaCity2020*. The aim of this five-year, EPSRC-funded project is to support and enable sustainable and socially responsible urban design through the development of innovative, inclusive and practical decision-making tools and resources. These will be derived from an in-depth understanding of the patterns of human/environment interaction, and will resolve practical urban design, operation and management problems, particularly in relation to the twenty-four hour city. *VivaCity2020* will bring together multiple disciplines to address issues of social responsibility and sustainability, including science, technology, social science and design.

## NOTE

<sup>1</sup> Hippokrates is a European Union funding programme intended to provide support for the European crime prevention strategy by encouraging cooperation among interested public and private-sector organizations. AGIS is a framework programme to help police, the judiciary and professionals from the EU member states and candidate countries cooperate in criminal matters and in the fight against crime.

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