



Arts & Humanities
Research Council

Fighting crime through more **effective design**



*Can crime be reduced by
making it harder, more risky
and less rewarding?*

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This case study examines four AHRC grants awarded to the Design Against Crime Research Centre, Central Saint Martins College of Art and Design, University of the Arts London. These awards have facilitated the development/research of resources and implementation/testing of design exemplars to reduce crime: Grippa, a new bag-holding device to reduce theft in restaurants and bars; and Bike Off anti-theft bike stands, which have been licensed to Broxap Ltd.

The Design Against Crime Research Centre is an exemplar in the field of innovative, practice-led design solutions that respond to pressing issues around crime in society. The Centre works with the Jill Dando Institute of Crime Science (UCL), the UK's Designing Out Crime Association and Secured By Design - UK Police flagship initiatives supporting the principles of designing out crime in the built environment. It aims to reduce criminal activity through the effective design of places, products, communications and services, generating a greater understanding of how to tackle crime as part of the creative industries and contribute to an issue of concern for public policy by means other than the traditional, expensive, and not always effective 'police, prisons and probation' approach. New knowledge, conceptual and theoretical frameworks and design process and business models are developed and disseminated to designers (developing innovative capacity), while new products are developed and tested to address specific crime issues (providing operational capacity).

Previously, the concept of 'designing out crime' has been associated with big bolts, gates and 'fortress Britain'. The Centre's contribution to this field, based on evidence-based research and a business focussed innovation approach, has led to objects that are 'fit for purpose', but also provide beautiful benchmarks. It is difficult to quantify the visual contribution made by the Centre in catalysing and inspiring others, but it is starting to reinvent the genre of secure design. The Home Office has chosen objects developed by the Centre to be fore-grounded in current discussions of the Government's new anti-crime Design and Technology Alliance.

The Centre's commercial partners and sponsors include Broxap Ltd (who design, manufacture and install street furniture), Bosch Security Systems, Dan Form (Danish

furniture manufacturer), as well as government bodies, such as the Greater London Authority, Government Office for London, Transport for London and local councils, including Camden, Islington, Westminster and Brighton & Hove.

Grippa – reducing bag theft from bars and restaurants

An initial research grant of £49,450 from the AHRC Innovation Awards Scheme was made in 2004 to develop design solutions to reduce bag theft and to prove the concept (Grippa 1). This project also received funding from Westminster City Council (£20,000) and Islington Council (£7,000). A second research grant of £366,060 from the AHRC in 2006 seeks to rigorously evaluate the impact of the design interventions and to develop operational and innovative capacity (Grippa 2).

Investigators:

Grippa 1 was led by Professor Lorraine Gamman, with Marcus Willcocks and Jackie Piper; Grippa 2 is led by Professor Paul Ekblom, with Professor Lorraine Gamman and Dr Kate Bowers.

The British Crime Survey shows that there are around 576,000 personal thefts per annum. The total cost of such offences is in the region of £410 million per annum. Home Office statistics suggest that around 11% of these crimes occur within a pub or bar.

Grippa 1 focused on proving the concept of a new bag-holding clip, designed to help reduce bag theft from restaurants and bars. This project involved partnerships with Camden, Westminster and Islington Borough Councils, as well as the All Bar One restaurant chain. Incorporating user experiences into the design process (while also addressing the behaviour of the criminal), created new situational crime prevention design models and design modifications.

The research team also developed international links, showing their anti-theft device at the 'Safe – Design Takes on Risk' exhibition at the Museum of Modern Art, in New York. This attracted American press interest, leading to a meeting with the Manhattan Robbery Squad, new relationships with US Designing Out Crime Association, and an enquiry from Starbucks - who subsequently liaised with Central Saint

Martins' Innovation Centre and arranged for Gamman and Thorpe to fly to New York in 2007 and to present to Starbucks Senior Management, the Grippa as well as anti theft chair designs. DACRC is currently in discussion with Starbucks about use of its anti-theft designs and an announcement is anticipated in 2009.

Grippa 2, which is an ongoing project, has the twin purposes of providing evidence of crime reduction and developing the capacity of designers and crime scientists to jointly create and implement design solutions. Designers, in addition to academic publications of the design process have also so far generated four new bag holding objects, which are being user-tested in London and Barcelona before final designs are modified and rolled out in 10-14 bars as part of the evaluation. A strategic business/research relationship has been developed with JD Wetherspoon, who identified a range of London bars with an acknowledged bag theft crime problem where the Centre could test their clips. JD Wetherspoon are contributing £20,000 to this work, highlighting the commercial interest and possibilities of this project.

The evaluation element of this project is an unusual adjunct to a practice-led piece of work. However, it provides an exemplary model for others, as it helps to test whether the project makes a tangible contribution to the problem of bag theft from bars. There are 27 bars involved in the study; up to 14 of these will have the new clips installed, and the remainder will act as 'controls'. With the assistance of three police forces, crime data is being collected for 12 months before and after installation. Stakeholders are particularly positive about this aspect of the work, noting the importance of quantifiable evidence to underpin their decision making and convince external audiences of the value of this type of intervention.

Public Benefits

Although the public benefits arising from this research are currently being assessed, existing evidence indicates that a 10% reduction in crime levels could be achieved. On a national scale, it is estimated that this would represent a benefit of £2.1 million per annum in avoided costs and emotional impacts on the victim.

Human Capital

The designs and learning arising out of these projects also generate human capital through academic and professional training. Central Saint Martins College utilises this research in degree and higher degree courses, including MA Industrial Design, MA Communication Design, and BA Product Design. Importantly, the Design Against Crime Research Centre uses 'theory into practice' projects, in which students respond to design briefs by drawing on research findings. This activity maximises the teaching and learning benefits from the research and can eventually enable students to make a greater contribution in their chosen professions. The benefits of these skills will be reflected in higher levels of economic productivity and earnings. Furthermore, these teaching benefits, taking the form of innovative capacity, are multiplicative; once the skills and learning are absorbed they can then be passed on to others.



Grippa Poppy – table clips for bags



Grippa Snail – table clips for bags



KeepSafe accessory for Starbucks



Dan Form – anti-theft chair design

The Centre plays an important role in educating students and professional designers to 'think thief' in order to innovate new design ideas. Such activities could not be supported without dedicated external funding for research, which creates design resources for training and skills development. For example, the anti bag theft design resource www.inthebag.org.uk originally produced in 2001, updated by Professor Gamman in 2004, has attracted £10,000 funding from the Home Office for further updating, and has drawn upon the latest research from the Grippa projects to create a website that teaches designers how to get smart quick about bag theft. It received 5000 hits in April when the web link was published by the Design Council connected to their Home Office Design Out Crime from Hot Products promotion, which Professor Gamman was included in. Additionally, Dr. Kate Bowers and Professor Gamman (with Dr. Shane Johnson) have been commissioned by the Centre for Problem Oriented Policing (US) to produce a guide on bag theft to be published in 2010 for police users. The knowledge developed within these projects is also passed on through professional training courses for the police. Since 2001 the Jill Dando Institute at UCL has delivered 20 five-day short courses incorporating materials from the AHRC-funded research to over 300 practitioners. It has also held 'master classes' for senior police officers and policy makers.

Contributions to Design

Exhibitions, publications and lectures arising from these projects have been recognised as making important contributions within the wider design community. Contributions to the design field are evidenced through numerous design awards.

Student Awards:

Sara Bellini won first prize in the 2007 Design Innovation in Plastics award and Liberty Fearn won the Audi Designer of the Year 2004 prize, both with bag security designs. One of these awards emerged from the Centre's 'theory into practice' projects.

The Centre also received a 'top nomination' for INDEX Awards (Denmark) in 2005 and the 2006 Misha Black Award for Innovation in Design Education. Finally, Professor Gamman was a Silver Award winner in the British Female Inventor and Innovator of the Year Awards, 2006.

Economic Impacts

Commercialisation of the Grippa designs, which could be worth **£1.5 million in the first year.**

£2.1 million p.a. of potential public value benefits in avoided cost and emotional stress from implementing the Grippa measures nationally.

A marginal share of human capital benefits from £595,000 of income from teaching short courses and £160,000 in labour costs by those attending them.

Economic impact calculations were undertaken by PricewaterhouseCoopers.

Bike Off – Reducing Bike Theft

An initial investment of £5,000 from the AHRC Small Grants Award Scheme was made to conduct a design review and visual documentation of bicycle parking provision. This was followed by further practice-led research funding from Transport for London and the London Borough of Camden. A research grant of £323,918 was later made from the joint AHRC and EPSRC 'Designing for the 21st Century' programme, in 2006.

Investigators:

Bike Off 1 was led by Adam Thorpe, with Professor Lorraine Gamman and Marcus Willcocks (who replaced Jackie Piper). Bike Off 2 was led by Adam Thorpe, with Professors Lorraine Gamman and Paul Ekblom, Dr Shane Johnson and Marcus Willcocks.

Design Solutions to Reduce Bike Theft

At a national level, the British Crime Survey estimates that in 2006/07 there were 482,000 'thefts of a pedal cycle' in the UK. The total economic and social costs of this crime in the UK are estimated to be in the region of £260 million per annum.

Cycling is often seen as an important alternative form of urban transport, helping to tackle the problems of congestion and pollution. Yet bicycle theft is a significant deterrent to urban cycling and, according to the Transport Research Laboratory, 24% of victims of bicycle theft do not replace their bicycle and 66% cycle less often.

These research projects aimed to bring about a 'design revolution' in secure cycling for the 21st century, overcoming the adverse effects of bicycle theft in achieving sustainable transport objectives within European cities.

When bicycle theft occurs, it is often because the bicycle has not been locked securely, if at all, and so communication design was developed to address this problem (see anti-bike theft sticker image). During the Bike Off research projects, the locking practices of cyclists were observed at sites in London and Brighton, suggesting that between 60-70% of cyclists secure only one element of their bike (frame or wheel) when parking, leaving the remainder vulnerable to theft. Interventions tested through the Bike Off research projects (including the introduction of the Bike Off stands and supporting communication strategies) have demonstrated that the number of individuals locking their bikes in this least secure manner could be reduced to 10%.

Commercialisation

As a direct output from the projects, six secure cycle parking stands have been designed and prototypes have been developed by Broxap Ltd. The stands have been evaluated for effectiveness and the best designs have been licensed to Broxap for manufacture and distribution in the UK. 140 of these stands are already on the streets in Camden and the designs have also been introduced in York, Shoreditch and Brighton & Hove. There is also interest in purchasing or licensing the designs in Poland and Spain. It is estimated that the net financial benefit of these commercialisation activities could be £3.2 million over the next ten years.

An indication of the potential value of this market comes from the statement by the Mayor of London that he intends to invest £2 million in secure cycle parking in the next 12 months as part of £55 million pledged to investment in cycling. Nationally, the Government is making £140 million available for cycling promotion in the next three years, of which a significant portion will be spent on secure cycle parking.

Public Benefits

Potential benefits also include health and environmental enhancements, reductions in traffic congestion and highway maintenance costs, and the reduction of other externalities, such as noise pollution.

The knowledge and experience of the senior research team has enabled them to make a significant contribution to public policy groups. Professors Gamman and Ekblom regularly contribute to four significant public policy groups, including the Home Office's Design and Technology Alliance, the Designing Out Crime Association and the US National Institute of Justice Research Planning process on Situational Crime Prevention.

Adam Thorpe has contributed research findings to public sector initiatives including Transport for London Anti-Bike Theft Working Group, Brighton and Hove Cycle Theft Steering Group, Brighton and Hove Operational Crime and Disorder Reduction Partnership, Secured by Design Park Mark Standards, Government Transport Green Paper; Government Office for London Counter Terrorism and Transport Consultation, Cycle Touring Club General Assembly and Home Office and Design Council anti crime initiatives as well as the Designing Out Crime Association and the Royal Institute of British Architects' "Building Futures" seminar forums.

In 2007, the public sector contribution of the Bike Off Research Initiative was acknowledged when it received London's Sustainable Transport Award for Best Cycling Initiative.

Human capital

As with the Grippa projects, the designs and learning have been used for academic training, as modules within courses (MA Industrial Design, BA (Hons) Product Design), and within professional training courses for the police.

The Bike Off project has also developed a website www.bikeoff.org that provides open access to interactive tools and resources for cycle theft prevention and design, implementation and management of secure parking infrastructure. The project also delivers seminars for professionals involved in the provision of secure cycle parking infrastructure and schemes, including designers, architects, property developers, cycling officers, local government officers, crime prevention design advisors and anti terrorism/crime prevention officers. These dissemination activities have transferred researched knowledge to practitioners and developed the capacity to tackle cycle theft



M-stand on the street



Anti-theft sticker



Reinventing the bike shed exhibition



Stand – front wheel enclosure “butterfly” design



Magnus Pettersen bike stand design

amongst public sector personnel and their organisations. In October 2008, a TfL sponsored seminar at the Barbican London, introduced the final funded iteration of these resources to the stakeholders listed above.

Additionally, the project has supported a national design competition linked to the 'Reinventing the Bike Shed' exhibition, curated by Adam Thorpe in 2006 (several products designed for the competition are now in production). The project also supports a national competition with the Royal Society of the Arts in 2008-9: Design against bicycle theft – don't give thieves an easy ride – see www.rsadesigndirections.org/projects/projects4.html, linked to the exploitation of an open access online design resource, which seeks to transfer knowledge into the national academic curriculum.

Researchers Dr Shane Johnson, Aiden Sidebottom and Adam Thorpe were commissioned by the Centre for Problem Oriented Policing (US) to produce a Problem Oriented Policing (POP) guide to bicycle theft. This guide summarises the key findings from the project, providing a useful reference guide to help police officers decide how to interpret and resolve local crime problems. The guide, which will be published in hard copy, will also be available online as part of an existing series of crime prevention manuals that currently attract around 2 million hits per month. Feedback from the editors indicates that the significant design focus of the guide, and the visual material it contains, has made a unique contribution to knowledge. This provides the opportunity to generate further public value benefits, as well as commercialisation opportunities.

Contribution to design

Exhibitions, publications and lectures have enabled the work of the DACRC to be recognised as making a significant contribution within the design community. This is reflected by coverage in the design press, including Blueprint Magazine, Icon Magazine and Design Week. Additionally, the Design Council has used Bike Off 2 stands and the associated methodologies in national press as an exemplar case study.

Student awards:

Bikeoff has informed and catalysed several design responses and competition entrants, amongst them Anthony Lau's Cyclehoop, which won the Reinventing the Bike Shed competition (this design also made him a semi-finalist in the 2008 HSBC UniPreneurs Awards) and are now in production and being trialed in Southwark, London. Also, Magnus Pettersen who won the first prize in the 2008 D&AD competition, 'Social Design' component, for his student project on bike theft, which was linked to the Central Saint Martins' Bike Off project 'Holborn Unlocked'.

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Anthony Lau was amongst the winners of the 2006 international 'Reinventing the Bike Shed' competition, co-organized by Bike Off, for his Cyclehoop.

Economic Impacts

- Commercialisation of the Bike Off designs, which could be worth **£3.2 million (Net Present Value) over 10 years.**
- **£2.6 million p.a.** of potential public value benefits in avoided cost and emotional stress from implementing the Bike Off measures nationally.
- A marginal share of human capital benefits from £595,000 of income from teaching short courses and £160,000 in labour costs by those attending them.

Economic impact calculations were undertaken by PricewaterhouseCoopers.



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