

## Design, crime and social disadvantage

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### Abstract

A methodical approach to understanding how designers design began in earnest in the 1960's. Chris Jones, L. Bruce Archer and others applied scientific principles to the design process resulting in a coherent linear approach to creating new products. More recently these and other methods employed by designers in problem solving have been termed “design thinking” and appropriated elsewhere, in particular in the business and financial sectors. This paper demonstrates that complex social problems can also benefit from a design thinking approach. Since 2009 the Designing Out Crime Research Centre (DOC) has utilised a new design thinking method to resolve issues varying in context from struggling communities with high crime rates to alcohol related violence in the night time economy. The method has been utilised and refined in 100+ projects over a five-year period. The paper explains the new process in the context of two very different projects. The first is improving the writing and numeracy skills of high security prisoners and the second enhancing pedestrian safety in a disadvantaged, crime prone community. Evaluation of the new method has been principally through client and stakeholder feedback, which has been positive. A number of long-term appraisal studies are in progress.

*Keywords: Design Thinking; Social Design; Crime; Frame Creation, Design Methods*

Traditional approaches to reducing crime centre on law enforcement, protection of person or property and to a lesser extent social engineering through education and community

engagement. In 2009 the government of NSW chose to add to these practices by establishing a centre focussing on reducing crime from a design perspective. The Centre, staffed by a multidisciplinary team of designers, criminologists, architects, psychologists and planners was named the Designing Out Crime Research Centre (DOC) and is based at the University of Technology Sydney (Designing Out Crime research Centre, accessed Feb 2015, [www.designingoutcrime.com.au](http://www.designingoutcrime.com.au)). The Centre has three streams of activity. They are research, education and consultancy. Within the consultancy arm the intention was to create new products or new environments that diminished the risk of crime occurring. While this still remains a key aspiration, increasingly the Centre is tackling crime related issues that go beyond the design of objects and the built environment. This includes changing systems, structures and new ways of thinking about crime. The common process applied to all the projects undertaken at DOC is a design methodology developed at the Centre termed “Frame Creation” (Dorst, 2011). The reframing method has its roots in a study by Kees Dorst, director of DOC, investigating how many of the world’s leading industrial designers went about their business (Dorst, 2015). An analysis of this research, refined using DOC consultancies as case studies, resulted in a nine-step process suited to tackling issues of a complex nature. While the focus has been on problems related to crime and social disadvantage the method has application elsewhere where challenges seem intractable and inflexible. It is the contention of the author that the frame creation method has been demonstrated as a successful process in resolving “wicked” (complex) problems particularly when addressing crime related issues.

## **Design method**

It was not until the mid-nineteen sixties that serious thought was given to understand the process involved in designing products. Chris Jones and L Bruce Archer were early leaders outlining stages in designing and ways to manage and monitor what was previously seen as a highly creative activity more reliant on innate ability than learned skill (Jones, 1970; Archer, 1965). While their work created considerable interest in academic circles it had little immediate impact on design practitioners possibly due to the relative uncomplicatedness of design tasks when compared to creating new products towards the end of the last century. Serious attention to design methods returned in the 90’s when the information revolution gave access to a wealth of data and expertise that required new tools to manage, visualise and implement design decisions.

It is comparatively recently that formalised design methods have been appropriated by commerce to help with problems that have little to do with creating physical objects. Many of those methods can be traced back to the work of Archer, Jones, and more latterly Nigel Cross and others. The “Interaction Matrix” (Fig 1), produced for the Open University in in 1975 by Nigel Cross and Robin Roy identifies key design methods and their relationships. Most are current today, though some methods may use different terminology. In 1991, following his appointment as CEO of IDEO, David Kelley proposed a design thinking

approach to problems directed not only for design but also the business community (Kelley, 2009). Not long after Richard Buchanan argued that seriously difficult problems could be tackled with a design thinking method (Buchanan, 1992). Kelley and Buchanan's writings coincided with high profile companies claiming success built on their product design expertise. This link between innovation, design and profit encouraged businesses to examine these new approaches to problem solving. Over the last decade there has been a rash of books, lectures and courses promoting problem solving based on this design thinking approach. There are many versions of design thinking derived from processes employed by professional designers. Factors common to most include a user (or client) focus, a flexible non-linear process, multi participants involved in solving the problem and an emphasis on generating ideas outside conventional norms (Fast,1994). In cases where the problem is complex or contentious early steps concentrate on contextualising and framing the issues to be resolved. The primary purpose is to impart design skills to business managers, financiers or other professionals seeking new ways to generate income. Applying design thinking to criminal matters is, however, novel. In the context of design and crime the focus is less on profits and more on social issues.

The active participants in attempting to resolve crime related problems would likely have knowledge in criminology, psychology, welfare and policing and probably less in business expertise. In this social context the aim of the design thinking approach is to provide a mechanism that leads to positive change and ultimately a reduction in crime.

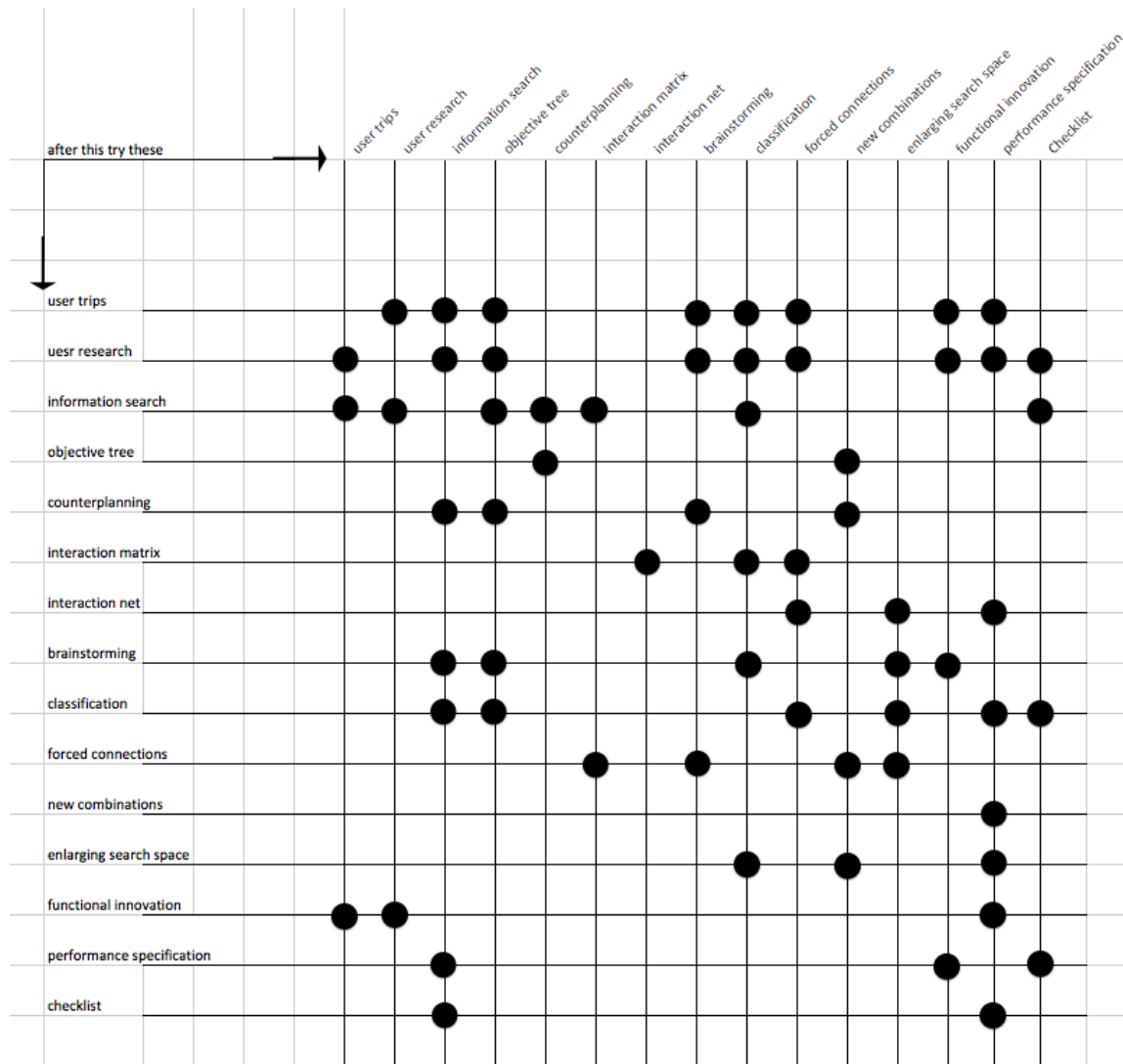


Figure 1 Interaction Matrix (Cross and Roy,

Common to most design thinking approaches the DOC reframing method has its genesis in the way professional designers tackle problem solving. However the strategy differs from other methodologies by the importance it places on changing the way the stated problem is expressed. The goal is to open up new avenues from a fresh, and hopefully positive perspective where solutions are more likely to be forthcoming. To reach this point of problem reframing a number of ordered linear steps are proposed. This approach tends to contrast with the more circular, flexible systems outlined in design thinking methods elsewhere. The new method has been termed “Frame Creation” and is based on a study by Kees Dorst exploring the way many leading designers think when tackling problems and by the approach DOC take to reducing specific crimes. His investigation concluded with a synthesis of techniques resulting in a nine-step linear progression from problem definition to evaluating solutions (Dorst, 2013). The resulting frame creation method is particularly suited to multidisciplinary teams ideally including one or more designers. Over a period of five years the process has been utilised (and refined) on projects ranging from the design of

artefacts prone to be associated with crime to reducing crime in socially disadvantaged communities.

In brief the nine steps in the frame creation process as it relates to reducing crime are:

Step one: Archaeology – A deep understanding of the issues surrounding the crime or criminal context, identifying the main protagonists, how the problem is formulated and any unsuccessful attempts to positively impact the issues.

Step two: Paradox – Many complex problems contain contradictions, this is the stage to identify seemingly irreconcilable competing interests standing in the way of a solution.

Step three: Context – The context step involves identifying the decision makers who have power or real influence over reducing or eliminating the crime and finding out what is important to them.

Step four: Field – Widening the knowledge base to provide and an overview to include associated systems, roles, demands and influences. Also included in this stage are stakeholders that are influenced by the crime problem but do not have the power to change the situation.

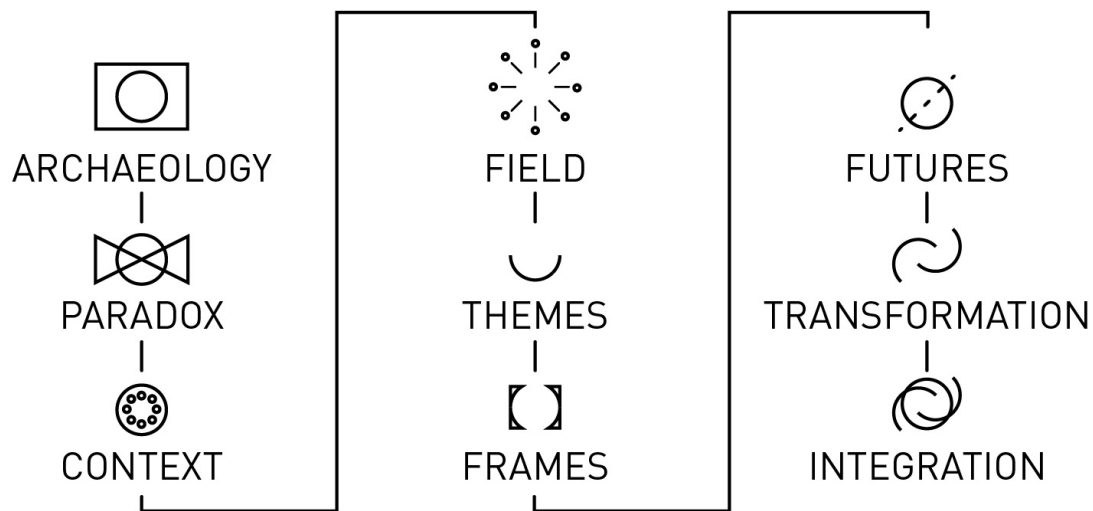
Step five: Theme - A creative step that unifies positive elements uncovered in previous steps. In the context of frame creation, themes express human values and basic needs such as autonomy, belonging, and social harmony as they relate to the particular issues under investigation.

Step six: Frame – Building on the theme and benefiting from the knowledge gained in all previous stages, including paradox, the objective of frame is to formulate a metaphor that places the problem in a new, positive light. Methods developed to encourage creative thinking support this key step.

Step seven: Futures – The frame provides the foundation for a new future that resolves the original problem. It may take the form of a designer’s brief, a new system or an alternative direction.

Step eight: Transformation - To secure the new future it is essential to unite the participants behind the new approach. While many of the key stakeholders maybe sympathetic to the change transformation is unlikely without appropriate systems in place.

Step nine: Integration – Once secured the “solution” whatever the form it might take will need to be embedded into an existing infrastructure. A key to successful integration can be a champion with the enthusiasm to see the process through to completion.

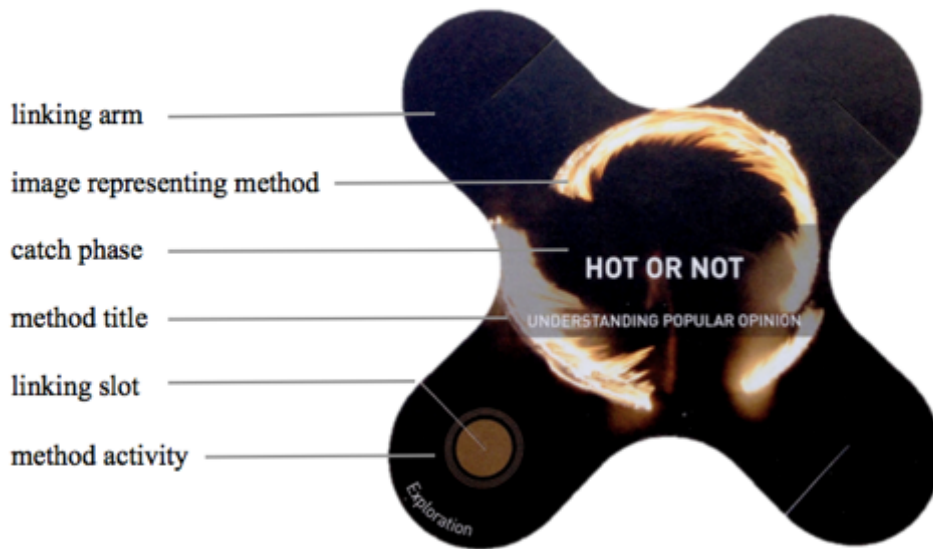


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Figure 2 Frame Creation diagram (Klippan, 2015)

The DOC team have over 30 “method tools” to aid this process. Some are designed to assist with workshops, (particularly useful in creating new frames) others to ensure the analytical work is concise and focused (Tomkin and Watson, 2013). The tools have been expressed in the form of cards, not dissimilar to those developed by IDEO in 2002. The DOC team uses the method cards when planning new assignments jointly with clients to determine the most appropriate tools to be employed at various stages in the project. The playful nature of the cards and the informative details contained on the reverse assist in demystifying the process to those less familiar with tackling problems in this way. The cards have also proved helpful in agreeing timelines and costs on consultancy projects and have been shown to aid students gain insight into process and selecting the appropriate tool for the assignment they are undertaking.

Front view of card



Back view of card

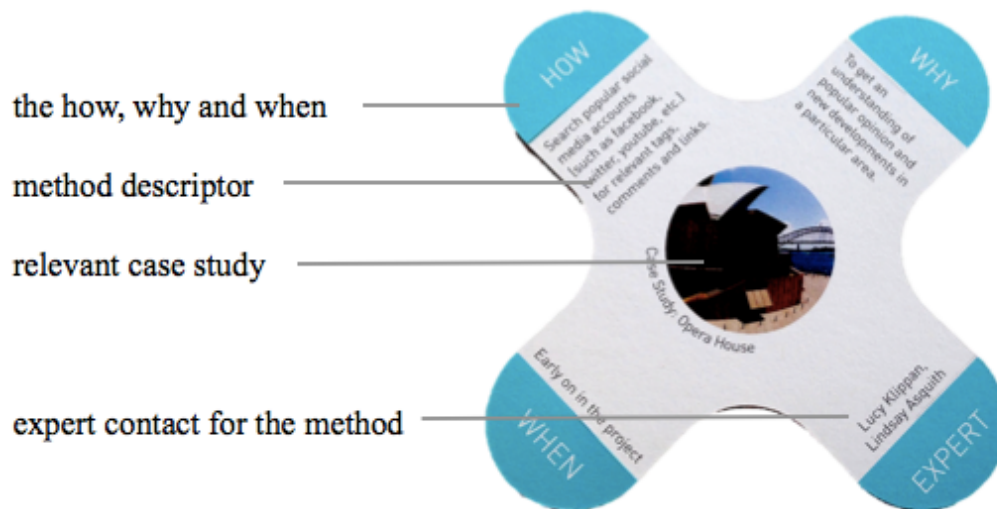


Figure 3 DOC method card example

## Crime and design

The relationship between design and crime was formalised with the introduction of CPTED (Crime Prevention Through Environmental Design) in the 1970's. An architect, Oscar Newman, developed a theory on preventing crime in neighbourhoods (Newman, 1973).

Criminologist C. Ray Jeffery progressed the view that criminal behaviour can be deterred by changes to the environment. (Jeffery, 1971) Some practical proposals of their work used widely today include controlling entry points into housing estates, the idea of “passive surveillance”- directing pedestrian traffic on the safety in numbers principle, and smaller scale details such as the positioning of shrubbery in parks to reduce surprise attacks. CPTED principles are now commonly used by planners and councils around the world and are often mandatory for new schemes. Studies show that CPTED has had a positive influence on reducing crime in open spaces though an occasional unintentional side effect is a heightened fear of crime through the installation of high walls and other indicators that criminals might be about. (Cozen’s, 2005; Doran and Burgess, 2005; Breetzke and Cohn, 2013) CPTED does however have its limitations. It does not address internal spaces where violence might occur or the design of objects that might discourage crime. Nor are underlying causes such as social disadvantage, mental issues and drug addiction part of the CPTED framework. An important milestone in widening and developing the relationship between design and crime reduction was the establishment of the Design Against Crime Research Centre (DACRC) at St Martin’s School of Art in London in 1999. DACRC publish important papers on design and crime on topics ranging from shoplifting to terrorism (Design Against Crime Research Centre, accessed Feb 2015, [www.designagainstcrime.com](http://www.designagainstcrime.com)). The success of DACRC was noted by the Justice Department of the NSW Government, Australia. In partnership with the University of Technology Sydney (UTS) the government funded a design/crime centre differing from DACRC in that it has a local focus, a strong consultancy arm, and a formal teaching commitment in addition to research. The Designing Out Crime Centre (DOC) explores ways of reducing crime in areas such as retail, transport, housing, and public spaces. Where possible the Centre seeks to go beyond outward manifestations to underlying causes. With a multi-disciplinary staff (designers, criminologists, planners, psychologist) DOC has undertaken over 150 live projects; introduced new teaching programs and contributed to the academic discourse on the relationship between design and crime (Designing Out Crime research Centre, accessed Feb 2015, [www.designingoutcrime.com.au](http://www.designingoutcrime.com.au)). The case studies below illustrate two very diverse DOC projects and how the “frame creation” process facilitated the eventual outcomes.

## **Case study one**

### **Reducing recidivism**

The problem.

Many criminals return to crime after release from prison. The recidivism rate in NSW is high. The re-conviction rate within ten years in NSW is 52 per cent for non-Aboriginal people, and 88 per cent for Aboriginal people (Broadhurst, 1997). There are numerous causes but common for most ex-prisoners is the difficulty in finding gainful employment on release. Employment is a key to building confidence, self-sufficiency and social acceptability, all



vital in preventing a return to anti-social behaviour. Unfortunately high proportions of inmates in Australian prisons not only lack work-ready skills but also lack basic numeracy and writing expertise. Common to most is a history of social disadvantage, often coming from unstable families, lacking education and work opportunities. Addressing these issues is particularly difficult in high security centres where facilities are limited, motivation can be lacking and contact with the outside world is at a minimum. The problem faced by Correctional Services NSW was how to effectively provide high security inmates with educational opportunities at levels sufficient to become self sufficient in reading, writing and numeracy and ultimately to open work prospects on release.

### The process

The key participants: prison overseers, educators, inmates, correctional service and industry managers worked with the DOC team through the frame creation process in workshops, interviews, meetings and informal discussions. The aim was to overcome the underlying paradox identified early on. By their very nature prisons are highly institutional with an overriding priority on security and control. This imperative leads to regimentation, a discouragement of freethinking and an imposed uniformity. On the other hand learning entails opposite attributes such as freedom of thought, individuality, exploration and investigation. The task needed to be “reframed” in a way that satisfied the three primary stakeholders, the prison staff (overseers), the teachers and their clients (inmates). The theme, or unifying idea, leading to the eventual outcome was one word “oasis”. A place well within the prison confines and thus secure but radically different from the existing structures and systems. The oasis frame encouraged all stakeholders to describe an environment in which they could best achieve their responsibilities and desired outcomes. By working together through the early stages of the process, (particularly archaeology and context) a mutual understanding and empathy developed thus ensuring none of the ideas put forward contradicted the primary requirements.

### The outcome

The result was the Intensive Learning Centre (ILC). The ILC includes a library, office, kitchenette, toilet, and four learning spaces fitted with retractable walls offering the ability to work outdoors. Equipped with up-to-date electronic white boards and computers, the furniture in the rooms was designed to facilitate a range of learning methods, small groups or more formal gathering. The resulting assembly of airy modules surrounded by extensive timber decking, garden and small trees are in marked contrast to the adjacent austere cellblocks with overseers contained in reinforced glass control centres. Some of the more notable features of the ILC proposed by the inmates were outdoor spaces for contemplation and meal breaks, naturally lit teaching places, a running track, a yarn circle (an indigenous location for exchange of views) and connection with the natural environment. From a security perspective the arrangement of the structures, view lines and open access minimises the need for overseers to interrupt teaching for mandatory checks. A notable achievement was that the building modules and furniture were constructed in a low security facility in a

program designed to build work-ready trade skills on release. The ILC is now being formally evaluated, reports so far are positive and additional centres at other high security correctional centres are being considered.

While the process provided the new frame it was the project team, chiefly the architect and designer, who transformed the “virtual” oasis into a practical reality. Their involvement in the process from start to completion cannot be underestimated. While design thinking might be transferable, design skills are less so. Rohan Lulham led the project. The architect of the scheme, Kevin Bradley emphasised light and openness while the Industrial Designer, Tasman Munro designed the furniture for flexible multi use.



*Figure 4 Typical yard in a high security correctional centre NSW*



*Figure 5 Learning modules with “yarn circle”*



*Figure 6 Learning Centre exterior*



*Figure 7 Learning Centre interior*

## **Case study 2**

### **Community safety in crime prone places**

#### **The problem**

Outlying west of Sydney is a group of ten social housing estates built in the 1960's based on what was then a radically new model (Radburn) placing multi-storied buildings in open park like surrounds.

A key component of this approach was the inclusion of numerous underpasses separating pedestrians from traffic. Over time the lack of investment resulted in the district becoming a place where drug abuse, vandalism, graffiti, illegal dumping and antisocial behaviour has become the norm. In particular the underpasses are a focus for crime and vandalism. Crime statistics confirmed that high rates of assaults and drug dealing centre in and around the underpasses. Nearby tenants are for the most part unemployed, belonging to a marginalised ethnic group, recently released from prison or incapacitated in some way. Consequently social problems are common and complex. While addressing the long-term issues the immediate problem facing the local council was what to do with the underpasses and the spaces leading to their entry and exit points.

#### **The process**

This project demonstrated the importance of the early stages in frame creation. The extensive list of stakeholders including among others: tenants, schools, churches, local businesses, police, local and state government imposed an early priority on consultation and mutual engagement of this diverse group. Considerable effort was spent in identifying

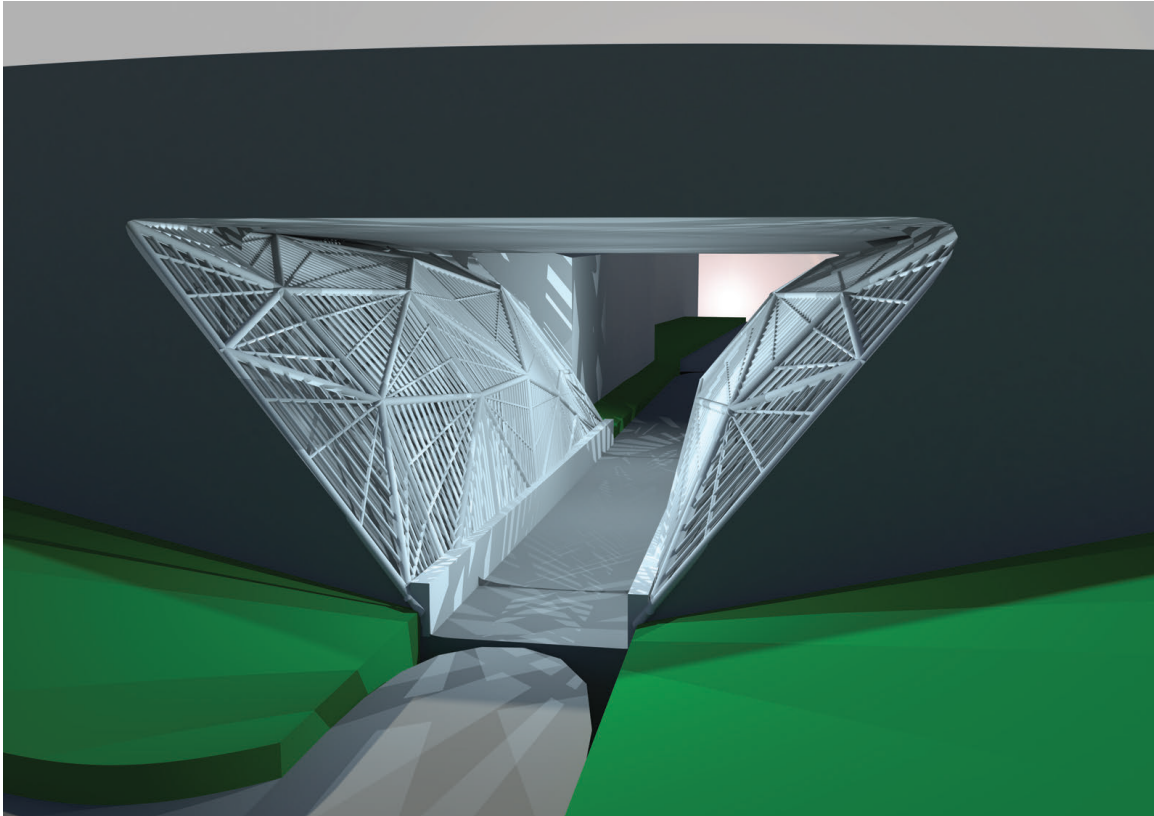
participants who best represented their constituents and could follow up and assist in implementing outcomes. A “tool” DOC usually exploits late in a project was brought forward – locating and encouraging champions. An early working group of stakeholders helped in identifying a number of champions within the housing department and the community. Based on a robust understanding of the context surrounding the underpasses a number of themes were developed on which to base design frames. The themes reflected human needs – Caring and Nurturing, Connection, Belonging and Identity. Inspired by these themes design frames were created. Three frames were “a camp” “swapping” and “nourishing”. These frames are aimed at encouraging activities that support living skills by sharing family, community and cultural everyday practices. These were the frames that inspired the design solutions.

### The outcome

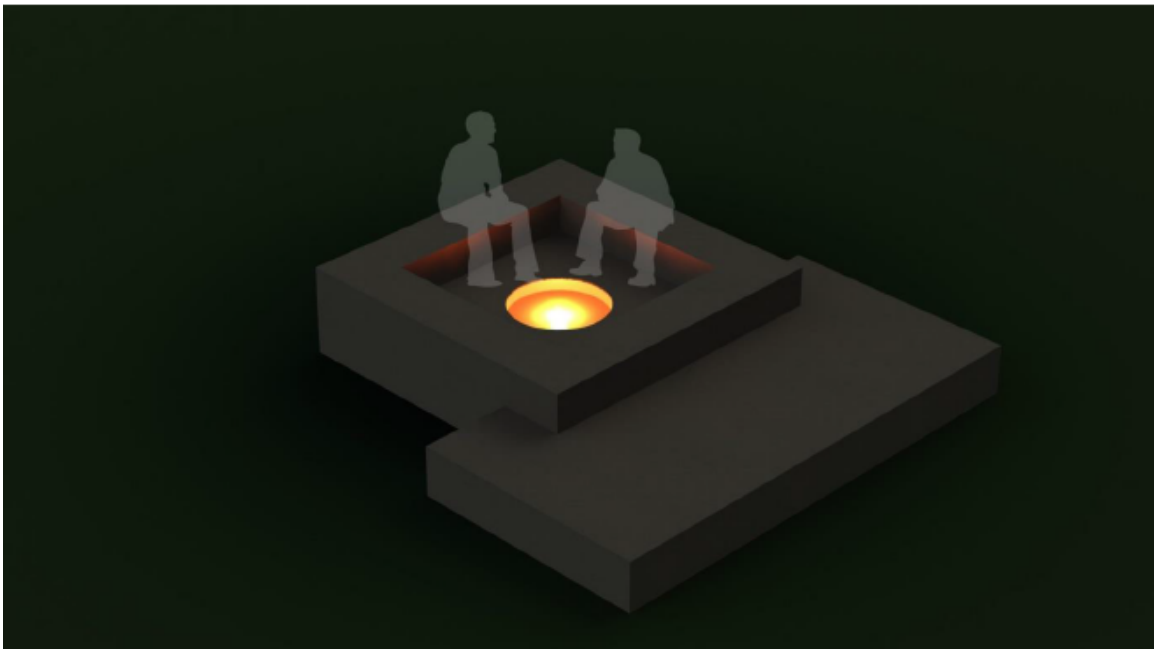
The proposed solutions reflected these frames, with structures to facilitate community activities such as arts and craft, gardening, goods swaps, bike repairs and cultural food events. The actual underpasses themselves were transformed into artistic focal points with the use of glass, lighting and metal screens. Special attention was given to ensure the changes and additions were resilient to the environment and vandalism. The intention is for the spaces, once considered no go areas, to become destination points for a demographic representative of local community at all times of the day and evening (Camacho-Duarte, 2013).



*Figure 8 Existing underpass, Mt Druitt*



*Figure 9 Proposed modification to underpass, Mt Druitt (Trieu, A. Hayek, R. and Li, J., 2013)*



*Figure 10 Gathering proposal “campfire” analogy with light intensity related to numbers (Trieu, A. Hayek, R. and Li, J., 2013)*

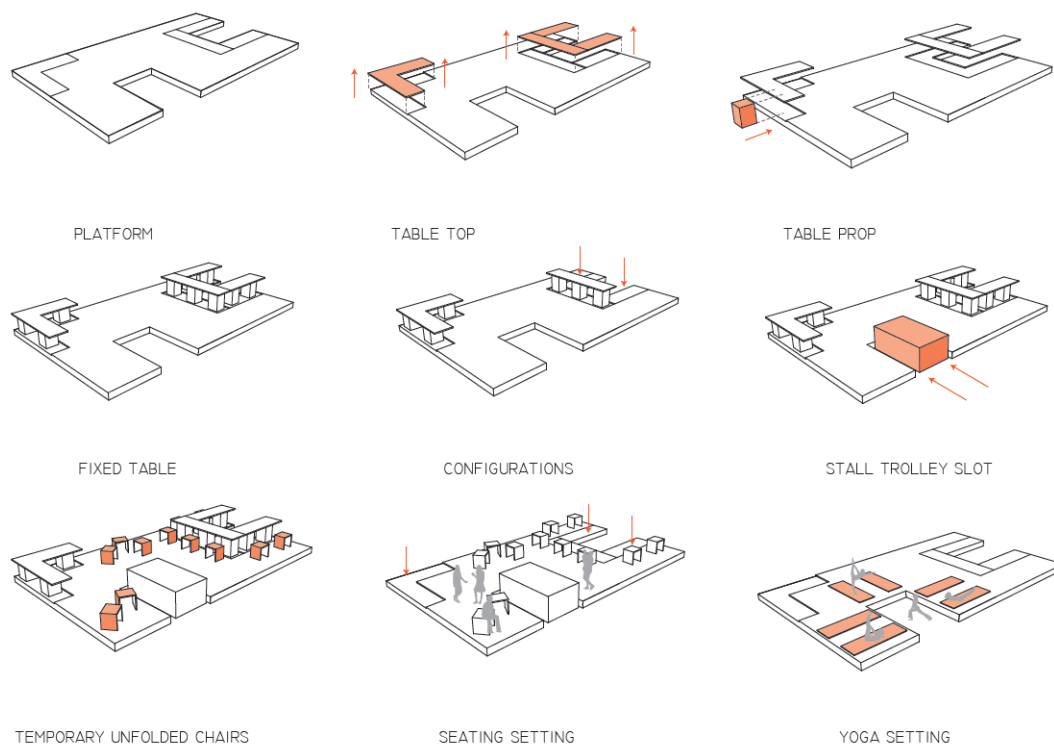


Figure 11 Options for engaging communities around an underpass (Wong, P. Seow, S. and Nasr, T (2013))

## Conclusion

The frame creation method has been applied to over 100 hundred projects, all of them dealing with current complex social issues, the majority involving crime or anti-social behaviour. Clients include local councils, state government, counter terrorist police, and retailers. Evaluating the success or otherwise of the method has been in the main confined to feedback from clients and stakeholders on completion of the reframing phase. The feedback has to date been positive. Some long-term studies are currently underway, one on the ILC (case study one above) another on a retail intervention to reduce shoplifting (Lulham, 2015). A difficulty in evaluating changes to complex situations is in part because they are so complex. Contexts can change, for example: introduction of new legislation, variations in the economy, personnel movements and funding alterations can all impact on proposals before or after they are implemented. Another likely complication is a lack of involvement by staff familiar with the process during the implementation phase. The final three stages in the process (futures, transformation, integration) normally extend over a considerable time period, may require funding and can involve changes in organisational structures. All are potential hazards to a successful outcome. A key component during this finishing period is “ownership” of the new frame by a champion within the client organisation. Ownership best occurs when key decision-making individuals are included in the team during the majority of stages one to six (archaeology, paradox, content, field, themes, frames). Skilling large bureaucracies coping with social disadvantage and anti social behaviour on frame creation

techniques would have the advantage of imparting this sense of ownership throughout the organisation, thereby increasing the realisation of change projects. Ultimately the success of design thinking processes to professions outside design rests in how well they are understood, their uptake and the positive outcomes that result in their use.

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## **Author Biographies**

### **Douglas Tomkin**

Douglas Tomkin has been at the Designing Out Crime Research Centre since 2009 involved in crime prevention projects ranging from retail theft to counter terrorism in addition to work for Correctional Services. Previously he was Head of the School of Design at the University of Technology Sydney. Douglas arrived in Sydney in 1992 following fourteen years working as a designer in Hong Kong. Earlier he spent eight years in London in research and development for the Home Office and Health Department at the Royal College of Art.