

# Thinking Thief: Crime Frameworks for Design Against Crime

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**DESIGN  
AGAINST  
CRIME**



# NOTE

- This presentation communicates work done for 'Bike Off 2 – Catalysing Anti Theft Bike, Bike Parking and Information Design for the 21st Century', supported by AHRC/EPSRC grant.
- The presentation originated as a brief to the MA Industrial Design students at CSM for an **indoor bike parking project**, and was delivered on 7 Nov 2007. This has come and gone but I have continued to modify the presentation in light of feedback. The approach developed here can readily be modified for any other DAC brief.
- The presentation is also available in text notes form, and is taken further and complemented in the presentation *Risk analysis design guide: Using theory to analyse crime risks and generate design guidance for secure bike parking*, also on this website.
- I am grateful for their inputs to Chris Campbell, Shane Johnson, Lorraine Gamman, Aiden Sidebottom, Adam Thorpe and Marcus Willcocks.

For designers and design decisionmakers, thinking thief (or robber, or terrorist, or antisocial nuisance) is primarily a matter of **mindset** –  
but all too often this is missing

**A receptacle  
for grime?**



**Wrong  
mindset for  
design: failure  
to *think thief***

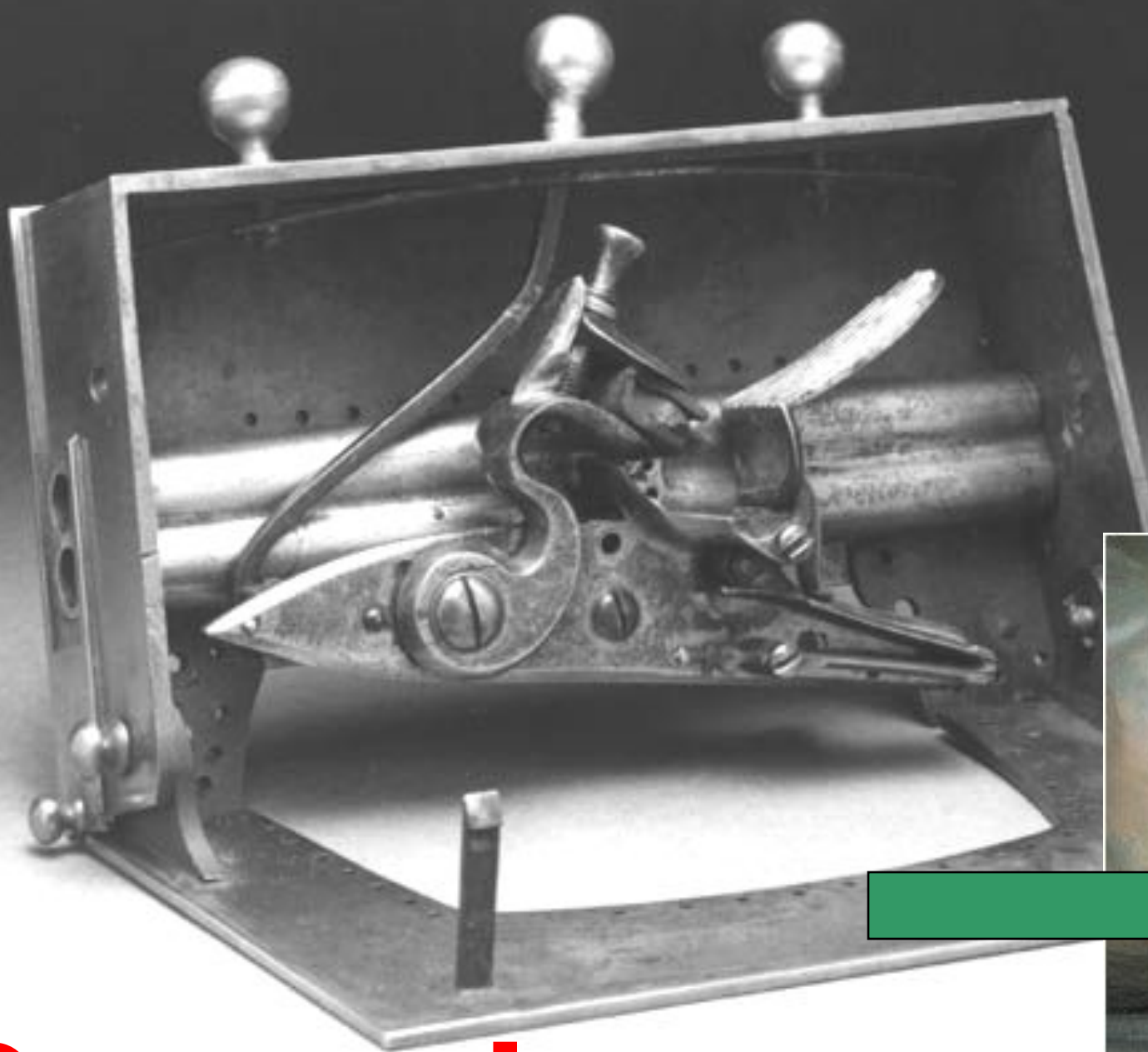
**Or a tool  
for crime?  
A ladder into  
every back  
garden**

# Failure to 'Think Drug User'

**Surveillance  
blocked by  
advertising**



**But don't go over the top  
with crime...**

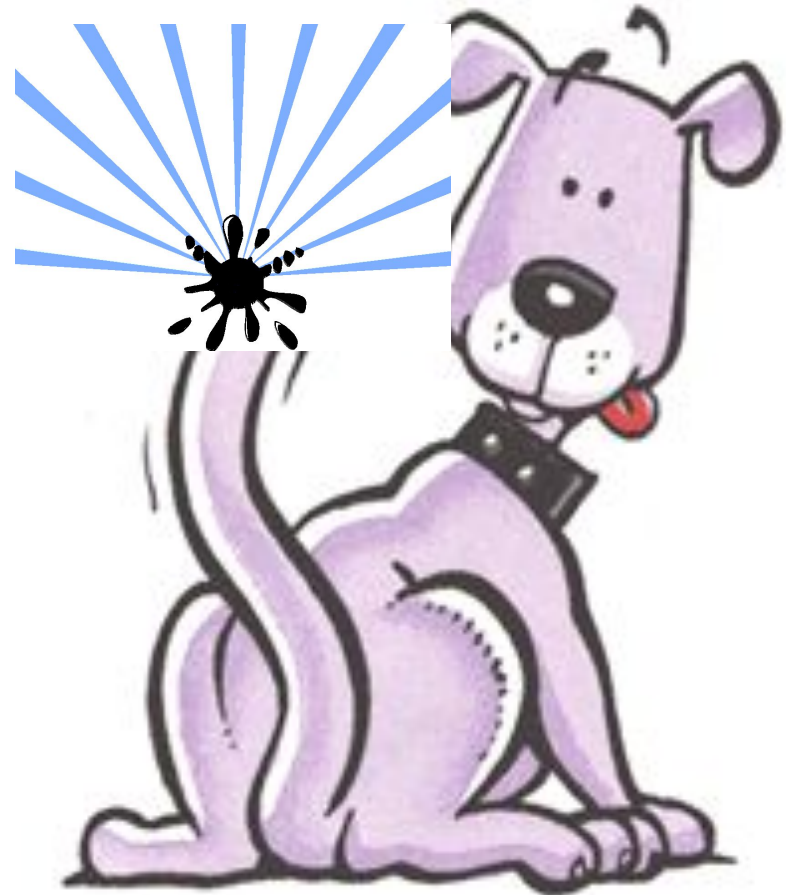


**Danger!**



# *So think thief, but remember:* design should primarily be *user-centred*

- Don't let the abuser-unfriendly tail wag the user-friendly dog!
- Try to develop frameworks that apply to **users** as well as offenders/ abusers





# The challenge of DAC: toasters don't fight back



# The challenge of DAC – Offenders do fight back

- Tactical countermoves
  - in situ
  - return better tooled
- Counter-exploitation
- Strategic counter-design
- Reverse engineering



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- too expensive?

**User-Friendly, Abuser-Unfriendly**





# DAC requires *high performance design*

- All this demands **high-performance designs** & therefore **high-performance design capability**
- ...so help is needed
  - To **define** crime **problem** and user-friendly **solution**
  - To **fill the gap** between problem and solution
    - By supplying various **frameworks** giving an understanding of crime in terms of 1) **cause and effect**, and 2) people taking **active roles** and **pursuing goals**
    - By supplying a suite of **discourses** to describe the **characteristics of designed products & places** which **raise or lower risk of crime**
    - By setting out a **procedure** to take designers through the frameworks in an appropriate sequence

# **Defining crime problems**

# Defining crime

- **Crime is:**
  - **Conflict** between **individuals** over
    - Ownership of property
    - Integrity of person
    - Acceptability of behaviour...
  - That violates **law** and thus places offender in conflict with the **state** and its institutions

# Defining community safety

- A wider aspect of **quality of life** centring on **harm reduction/mitigation**, **Community Safety** covers:
  - Freedom from and/ or reassurance about a range of real and perceived risks of **harm** relating to **crime, antisocial behaviour, drug abuse & terrorism**
  - **Ability to cope** with the consequences of those incidents they nevertheless experience
  - **Help to cope** if unable to do so alone
  - **Confidence** in the police, CJS & other agencies to stop or remedy problem
  - **Trust** – within and across cultural/ ethnic boundaries

All this enables individuals, families, communities to:

- Pursue **necessities** of cultural, social & economic life
- Receive adequate **services**
- Exercise **skills**
- Enjoy **well-being**
- Engage in **community life** and develop/maintain **social cohesion**
- **Create wealth** in the widest sense



# Defining crime *problem* for designers

- **Be problem and context specific...**
  - Not just crime, but theft
  - Not just theft but theft of bikes
  - Not just theft of bikes but in
    - 1-family home, communal hall, shed...
    - By other resident, visitor, intruder, burglar...

# Defining theft *problem* for designers

- **Theft is:**
  - The **illegitimate permanent possession** of the target object, information, services etc
  - The **criminal intent** of the offender – ie the act is goal-driven, not inadvertent
  - The **illegal transfer event or process** that brings illegitimate possession about; which may lead to a further transfer in **sale of stolen goods**
  - The **stealthy** nature of the transfer (unlike robbery)
- Theft from indoor bike parking might need to take account of additional characteristics of **burglary**:
  - The **entry into a building**
  - As **trespasser**
  - With **intent to steal** (whether or not anything gets stolen)

# **Defining crime solutions**

# Defining *whole solution to design task*, incorporating theft prevention requirement

- **Ideal final result** (from **TRIZ**):
- **An indoor bike parking arrangement which is simultaneously user-friendly and abuser-unfriendly:**
  - Economical
  - Easy to manufacture/install/maintain
  - Aesthetic
  - Effective at supporting bike
  - Convenient and clean for all inhabitants/other users
  - Easy for user to employ
  - **At reduced risk of abuser stealing bike**
  - **At reduced risk of user, abuser or others damaging bike and/or fittings and building** in course of theft

# Fundamental strategy to meet theft prevention requirement

- Both legitimate owner/user and thief/abuser want **possession and/or use** of the bike
- Maybe also want **entry to building** where bike kept
- Designers' task is to **discriminate between them**  
**without interfering with the rest of the design**  
**requirements that serve users**

# Contradiction

- The **TRIZ** approach suggests that the **more sharply-expressed the contradictions** in the design requirement, **the clearer the design task** in seeking to resolve them
- The fundamental theft prevention requirement of **discrimination** between user and abuser is such a contradiction...
- As are the **Troublesome Tradeoffs** between crime prevention and other requirements

# **Crime frameworks – spanning the gap between crime problems and solutions**



# Designers could proceed on this brief:

“Discriminate between legitimate owner/user and thief/abuser over possession and use of the bike, and entry to building where parked, without jeopardising the rest of the design requirements”

- But a ***huge gap*** lies between problem & solution
- In trying to span the gap designers may **reinvent the wheel...**
- Or make false assumptions, & **reinvent the flat tyre**
- So can we narrow this gap *without* stifling **creativity**?

# Frameworks – giving structure to design freedom?

- The frameworks that now follow, seek to aid creativity without stifling it, by progressively **structuring** the **analysis** of the **problem** and the **generation & testing** of alternative **solutions**
- This means visiting and revisiting the same crime situations, examining them in greater depth each time, using a range of different **discourses**
- We also have to flip between exclusive focus on **crime** and focus on **user and abuser together**
- No single discourse is the best
  - They all give different angles on the same problem
  - They may each suit
    - Different styles and levels of experience in design, including tolerance of complexity
    - Possession of different amounts of knowledge of the specific crime problem being tackled, and of pre-existing types of solution
- But there is a logical progression from one to the next

# Frameworks coming up

1. The **Crime Situation** & its individual elements
2. The situation as a complex whole – the **Conjunction of Criminal Opportunity** (CCO)
3. The dynamics of interaction between the people, the products and the places involved in the CCO – **Scripts and Stories**
4. Getting more specific about crime - the **Misdeeds & Security Framework** – for anticipating the generic kinds of crime possibilities, & crime prevention opportunities, facing designed products and places
5. Mobilising agents to act as crime preventers: **CLAIMED**

# **Framework 1**

## **The crime situation**

# Focus on *crime situations* & their elements

- The **situation** is the immediate causal context of **criminal events**
- The situation comprises **entities** (things – eg bike, bike stand, bike park), and **agents** (people) acting in various **roles** (eg owner, thief)
- The **nature, presence and state** of the entities and agents together make crime *more* or *less* likely to happen (eg bike in front hall, nobody around, unlocked front door)
- **Changing the situation** can prevent crime
- Designers can prevent crime by **changing the entities in the situation**
- Designers' task is
  - to modify, remove or create the **entities** in the crime situation
  - In order to influence and constrain the behaviour of the **agents**
  - In order to reduce the risk of **criminal events** and improve **community safety**
- They therefore need to:
  - Know about the **entities** typically found in the crime situation
  - Understand the people involved as **agents**
  - Understand the **roles** they play in causing or preventing crime

# The entities involved in crime situations

- **Entities** typically comprise
  - **Target** of crime – eg bike
  - **Environment** – eg immediate setting where bike is parked
  - **Enclosure** – a particular feature of many environments, eg a room, a building, a compound containing the target
  - **Material resources** – eg physical/electronic tools, weapons brought along or found in situation, usable by
    - user acting as crime preventer (eg bike lock, bike stand or other furniture eg lamp post)
    - site guard or manager acting as crime preventer (eg alarms, CCTV)
    - offender (eg bolt croppers)
  - **Communications** – eg signage – rules, warnings etc
- Entities will have characteristics that make them more or less susceptible to crime or supportive of prevention
  - **Functional/causal properties** (eg strength, weight, size)
  - **Structural features** (eg anchorages, alarms) and **materials** both of which confer specific properties

# The roles people play in crime situations

## ‘Civil’ roles

- Owner/user of bike
- Flatmate
- Other user of building
- Landlord
- Visitor
- Meter reader
- ...?

## Crime-specific roles

- **Offender = abuser**
- **Preventer**
  - makes crime **less** likely, by acting, or merely being present, before or during crime
  - after first crime, preventer makes **next** crime less likely (eg wiser victim installs lock)

Preventer could act as

  - **Guardian** of target
  - **Manager** of place (environment or enclosure)
  - **Handler** of offender
  - **Passer-by** undertaking casual surveillance
- **Promoter**
  - makes crime **more** likely
  - **Inadvertently, carelessly** or **deliberately** (eg buys very expensive bike for use in risky area, forgets to lock it properly, knowingly buys/sells stolen bike)

## Civil roles & crime roles overlap, eg

- User, flatmate, visitor, landlord could be preventer or promoter
- Visitor or neighbour could be offender...



# Understanding the *people* playing the roles in crime situations

- **Parallel discourses** are needed to understand people whether they act as users, offenders, preventers or promoters:
  1. We are to a significant extent rational, planning, goal-oriented agents, actively **causing** events through our behaviour – seeking **instrumentally** to apply our resources to achieve positive goals (**reward**) & avoid negative ones (**harm, effort, cost, wasted time**)
  2. But our **perception, emotion, motivation & goals** are caused in their turn by our **predispositions** and who/what we encounter in our **environments** (eg **temptation, provocation**)
- Humans are therefore best viewed as **Caused Agents**
- Designers' task is to influence both aspects – **instrumentality** and **causation**



# **Prevention – influencing the crime situation**

# Influencing offenders and other agents by influencing the entities in the crime situation

Designers' task in preventing crime is to:

- **Directly** influence **instrumental** situation so offenders as **agents** are simply unable to exploit it (eg high wall surrounding bike park) – disrupting their plans, blocking their goals
- **Directly** influence offenders **causally**
  - Influence offender **perceptions** (via manipulation of semiotics, explicit communications)
    - **Deterrence** – theft seems too **risky**
    - **Discouragement** – theft seems too much **effort/cost/time** (bike lock looks robust), not enough reward (bike looks old/ low value)
  - Alter entities so they don't **alert, motivate or empower** offenders (eg sticky tape disguises expensive bike; poster doesn't provoke graffiti, fence post can't be used to break lock)
- **Indirectly** influence instrumental/causal properties – **mobilise** or **constrain** the people playing **other roles** so that *they* in turn can act as preventers (eg sticker alerting users to crime risk), or cease being promoters (eg self-closing front door)
  - May involve helping preventer A to mobilise preventer B (eg help *parking attendant* alert *bike park users* to risk of theft)
  - Or helping preventer A to convert or constrain promoter C (eg influence landlord to fit self-closing front door...)
  - Some of this is done via **communications design**

# Realising the theft prevention principle of *discrimination* by differentially altering the *instrumentality* of the crime situation

## Being *user-friendly* whilst *abuser-unfriendly*

**User-friendly** = helping user achieve positive *legitimate* goals, whilst preventing crime & not promoting it

- Maintaining **value** of target property to user, and ...
- Reducing input of **time, effort, cost** to user of protecting it
- Reducing risk of **harm** to user from protecting it
- Reducing/avoiding increasing any **fear** inappropriately associated with crime or its prevention (eg paranoid signs/equipment)
- Increasing **time, effort, cost** to user of **promoting** crime (eg bike stand that guides user away from locking bike insecurely)

**Abuser-unfriendly** = hindering abuser from achieving positive *crime* goals & avoiding negative ones

- Reducing **value or reward** from target to abuser (discouragement), and ...
- Increasing input of **time, effort, resources, cost** to abuser when attempting to acquire target or realise its value (discouragement)
- Increasing risk of **harm** to abuser when attempting to acquire target or realise its value (deterrence – generally via law enforcement)

*Note that influencing **perception** of these instrumental considerations is as important as influencing the **reality** – hence **perceived** risk etc –*  
*slide 36*

# Clarke lists 15 techniques of *instrumental* situational prevention – manipulating effort, risk, reward

Increase the Effort	Increase the Risks	Reduce the Rewards
<b>1. Target harden</b> <ul style="list-style-type: none"> <li>Steering column locks and immobilisers</li> <li>Anti-robbery screens</li> <li>Tamper-proof packaging</li> </ul>	<b>6. Extend guardianship</b> <ul style="list-style-type: none"> <li>Take routine precautions: go out in group at night, leave signs of occupancy, carry phone</li> <li>"Cocoon" neighborhood watch</li> </ul>	<b>11. Conceal targets</b> <ul style="list-style-type: none"> <li>Off-street parking</li> <li>Gender-neutral phone directories</li> <li>Unmarked bullion trucks</li> </ul>
<b>2. Control access to facilities</b> <ul style="list-style-type: none"> <li>Entry phones</li> <li>Electronic card access</li> <li>Baggage screening</li> </ul>	<b>7. Assist natural surveillance</b> <ul style="list-style-type: none"> <li>Improved street lighting</li> <li>Defensible space design</li> <li>Support whistleblowers</li> </ul>	<b>12. Remove targets</b> <ul style="list-style-type: none"> <li>Removable car radio</li> <li>Women's refuges</li> <li>Pre-paid cards for pay phones</li> </ul>
<b>3. Screen exits</b> <ul style="list-style-type: none"> <li>Ticket needed for exit</li> <li>Export documents</li> <li>Electronic merchandise tags</li> </ul>	<b>8. Reduce anonymity</b> <ul style="list-style-type: none"> <li>Taxi driver IDs</li> <li>"How's my driving?" decals</li> <li>School uniforms</li> </ul>	<b>13. Identify property</b> <ul style="list-style-type: none"> <li>Property marking</li> <li>Vehicle licensing and parts marking</li> <li>Cattle branding</li> </ul>
<b>4. Deflect offenders</b> <ul style="list-style-type: none"> <li>Street closures</li> <li>Separate bathrooms for women</li> <li>Disperse pubs</li> </ul>	<b>9. Utilize place managers</b> <ul style="list-style-type: none"> <li>CCTV for double-deck buses</li> <li>Two clerks for convenience stores</li> <li>Reward vigilance</li> </ul>	<b>14. Disrupt markets</b> <ul style="list-style-type: none"> <li>Monitor pawn shops</li> <li>Controls on classified ads.</li> <li>License street vendors</li> </ul>
<b>5. Control tools/ weapons</b> <ul style="list-style-type: none"> <li>"Smart" guns</li> <li>Disabling stolen cell phones</li> <li>Restrict spray paint sales to juveniles</li> </ul>	<b>10. Strengthen formal surveillance</b> <ul style="list-style-type: none"> <li>Red light cameras</li> <li>Burglar alarms</li> <li>Security guards</li> </ul>	<b>15. Deny benefits</b> <ul style="list-style-type: none"> <li>Ink merchandise tags</li> <li>Graffiti cleaning</li> <li>Speed humps</li> </ul>

But note that effort, risk, and reward are **'interchangeable currency'** to adaptable offenders:

- To reduce risk I can take less reward or put in more effort
- To increase the reward I can put in more effort, spend more time, deploy more sophisticated resources...
- Taking more time to overcome resistance increases risk of harm, and increases opportunity cost
- More effort may require more resources, greater time/cost/risk of harm in obtaining them (arrested for 'going equipped' with tools for theft), perhaps more risk of physical injury

# Realising the theft prevention principle of *discrimination* by differentially altering the *causal influences* of the crime situation on the users and abusers

Designers must influence **users'** action via their

- **Perception**
  - Awareness of risk of theft – what in immediate situation **prompts** security thinking and behaviour?
- **Readiness**
  - Motivation and emotion – what **provokes, permits, pressures** them to act securely? To control territory?
- **Resources**
  - **For prevention** – tools, security products, knowhow, awareness of perpetrator techniques and how to counter them
- **Decision**
  - Secure the product v don't bother, attend to other priorities

Designers must influence **abusers'** action via their

- **Perception**
  - Awareness of target, risk of stealing it – what in immediate situation **prompts theft**?
- **Readiness**
  - Motivation and emotion eg desire, fear, guilt – what in immediate situation **provokes, permits, pressures** them to steal?
- **Resources**
  - **For crime** – tools, weapons, knowhow, perpetrator techniques, knowledge of prevention/enforcement techniques and how to overcome them
- **Decision**
  - Steal v not steal
  - Take bike v take bus

# Clarke lists 10 additional techniques of *causal situational prevention* – provocation, excuses

Reduce Provocations	Remove Excuses
16. Reduce frustrations and stress <ul style="list-style-type: none"><li>▪ Efficient queues and polite service</li><li>▪ Expanded seating</li><li>▪ Soothing music/muted lights</li></ul>	21. Set rules <ul style="list-style-type: none"><li>▪ Rental agreements</li><li>▪ Harassment codes</li><li>▪ Hotel registration</li></ul>
17. Avoid disputes <ul style="list-style-type: none"><li>▪ Separate enclosures for rival soccer fans</li><li>▪ Reduce crowding in pubs</li><li>▪ Fixed cab fares</li></ul>	22. Post instructions <ul style="list-style-type: none"><li>▪ “No Parking”</li><li>▪ “Private Property”</li><li>▪ “Extinguish camp fires”</li></ul>
18. Reduce emotional arousal <ul style="list-style-type: none"><li>▪ Controls on violent pornography</li><li>▪ Enforce good behavior on soccer field</li><li>▪ Prohibit racial slurs</li></ul>	23. Alert conscience <ul style="list-style-type: none"><li>▪ Roadside speed display boards</li><li>▪ Signatures for customs declarations</li><li>▪ “Shoplifting is stealing”</li></ul>
19. Neutralize peer pressure <ul style="list-style-type: none"><li>▪ “Idiots drink and drive”</li><li>▪ “It’s OK to say No”</li><li>▪ Disperse troublemakers at school</li></ul>	24. Assist compliance <ul style="list-style-type: none"><li>▪ Easy library checkout</li><li>▪ Public lavatories</li><li>▪ Litter bins</li></ul>
20. Discourage imitation <ul style="list-style-type: none"><li>▪ Rapid repair of vandalism</li><li>▪ V-chips in TVs</li><li>▪ Censor details of modus operandi</li></ul>	25. Control drugs and alcohol <ul style="list-style-type: none"><li>▪ Breathalyzers in pubs</li><li>▪ Server intervention</li><li>▪ Alcohol-free events</li></ul>

[www.popcenter.org/25techniques/](http://www.popcenter.org/25techniques/)



# Wortley's alternative causal techniques take this further – influencing situational *precipitators* of criminal events

Controlling Prompts	Controlling Pressures	Reducing Permissibility	Reducing Provocations
<i>Controlling triggers:</i> <ul style="list-style-type: none"> <li>• gun control</li> <li>• pornography restrictions</li> <li>• environmental self-management</li> </ul>	<i>Reducing inappropriate conformity:</i> <ul style="list-style-type: none"> <li>• dispersing gang members</li> <li>• screening children's associates</li> <li>• bolstering independence</li> </ul>	<i>Rule setting:</i> <ul style="list-style-type: none"> <li>• harassment codes</li> <li>• staff inductions</li> <li>• "shoplifting is stealing" signs</li> </ul>	<i>Reducing frustration:</i> <ul style="list-style-type: none"> <li>• inmate control of comfort settings</li> <li>• improved wet playtimes</li> <li>• efficient road design</li> </ul>
<i>Providing reminders:</i> <ul style="list-style-type: none"> <li>• warning signs</li> <li>• symbolic territorial markers</li> <li>• litter bins</li> </ul>	<i>Reducing inappropriate obedience:</i> <ul style="list-style-type: none"> <li>• support for whistle-blowers</li> <li>• participatory management</li> <li>• semi-independent units</li> </ul>	<i>Clarifying responsibility:</i> <ul style="list-style-type: none"> <li>• server intervention</li> <li>• assigning discrete tasks</li> <li>• encouraging sense of ownership</li> </ul>	<i>Reducing crowding:</i> <ul style="list-style-type: none"> <li>• limiting nightclub patrol density</li> <li>• regulating nightclub patron flow</li> <li>• use of colour, windows, light, etc.</li> </ul>
<i>Reducing inappropriate imitation:</i> <ul style="list-style-type: none"> <li>• rapid repair of vandalism</li> <li>• controls on television content</li> <li>• supervisors as exemplars</li> </ul>	<i>Encouraging compliance:</i> <ul style="list-style-type: none"> <li>• persuasive signs</li> <li>• fairness of request</li> <li>• participation in rule-making</li> </ul>	<i>Clarifying consequences:</i> <ul style="list-style-type: none"> <li>• copyright messages</li> <li>• public posting</li> <li>• vandalism information brochures</li> </ul>	<i>Respecting territory:</i> <ul style="list-style-type: none"> <li>• identifiable territories for residents</li> <li>• privacy rooms for residents</li> <li>• avoiding intrusions into inmates' cells</li> </ul>
<i>Setting positive expectations:</i> <ul style="list-style-type: none"> <li>• pub gentrification</li> <li>• domestic prison furniture</li> <li>• fixing "broken windows"</li> </ul>	<i>Reducing anonymity:</i> <ul style="list-style-type: none"> <li>• restricting uniform use (perpetrators)</li> <li>• school dress codes</li> <li>• low-profile crowd management</li> </ul>	<i>Personalizing victims:</i> <ul style="list-style-type: none"> <li>• victim co-operation</li> <li>• humanising conditions for prisoners</li> <li>• concern with employee welfare</li> </ul>	<i>Controlling environmental irritants:</i> <ul style="list-style-type: none"> <li>• smoke-free nightclubs</li> <li>• air conditioning</li> <li>• noise control</li> </ul>

## **Framework 2**

# **The Conjunction of Criminal Opportunity**

# Thinking holistically – the opportunity for crime

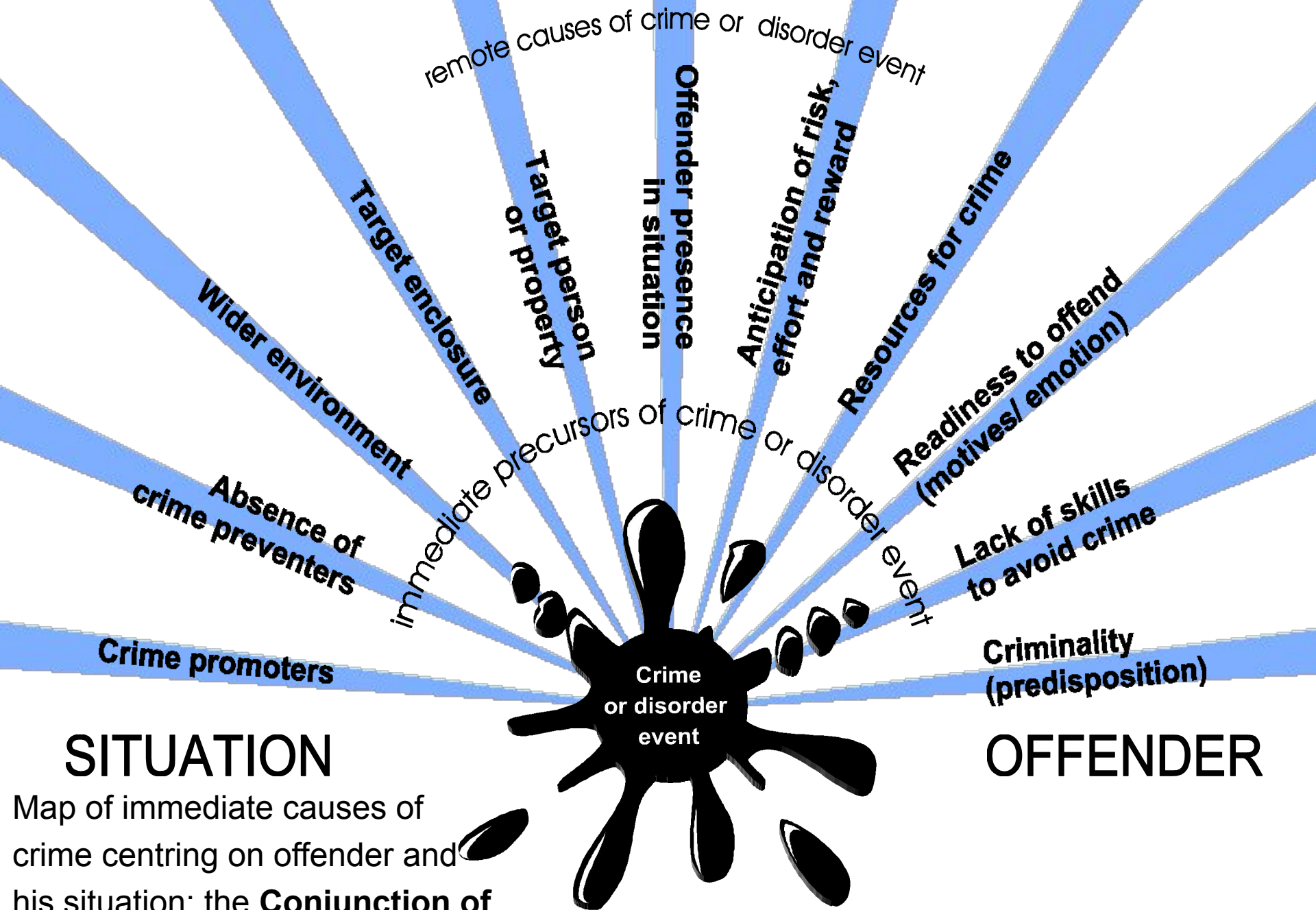
- So far, we have considered the causes of criminal events, and the scope for intervening in those causes or alternatively disrupting offenders' goals, on a **one by one** basis
- But it is important for designers to think **holistically** about the **entire set of circumstances** ('preconditions') preceding a crime
- This is because
  - All the agents will be thinking holistically too – including offenders, who may sooner or later work their way round a single, simple intervention – this is known as **tactical displacement**
  - All the circumstances interact – change one aspect, it changes others, sometimes in unforeseen ways – we are injecting a **perturbation** into what may be a **complex adaptive system** in which all the agents involved will make their own adjustments
- The key concept is **opportunity**

# Opportunity – combining causal & instrumental views

- **Opportunities** are configurations of **circumstances motivating and enabling particular people to achieve particular goals** – the time is right!
- Eg a **party** – the people, the place, the booze, the music, the mood, the lights low; the absence of parents or party-poopers
- Opportunities involve presence of some **agents** and absence of others; presence of particular **entities**; entities or agents being in certain **states** (switched on/off; motivated, angry, relaxed)
- Opportunities exist when particular **preconditions** combine
  - **Causally motivating** or **instrumentally facilitating** agents' behaviour
  - Allowing an **event** to occur which some people desire (and maybe which others want to avoid – parents or neighbours!)

# Conjunction of *Criminal* Opportunity

- Opportunities for **crime** can be described by a notation focusing on the **offender in his/her situation** – the **Conjunction of Criminal Opportunity**:
- A criminal event occurs when
  - A ready, willing and able **offender**
  - Perceiving an acceptable risk of **harm, effort/cost/time, reward**
  - Properly-equipped with **tools** and **perpetrator techniques...**
  - Encounters a valuable and insecure **target** (eg a bike)
  - In the *absence* of people who can act as ready, willing and able **preventers** (eg careful bike owner or some other guardian)
  - In the *presence* of people who can act as **crime promoters** (eg careless owner, other resident who leaves door unlocked)
  - In an **environment** whose properties favour offender over user/preventer
  - That perhaps features an **enclosure** eg a house, room or cupboard



## SITUATION

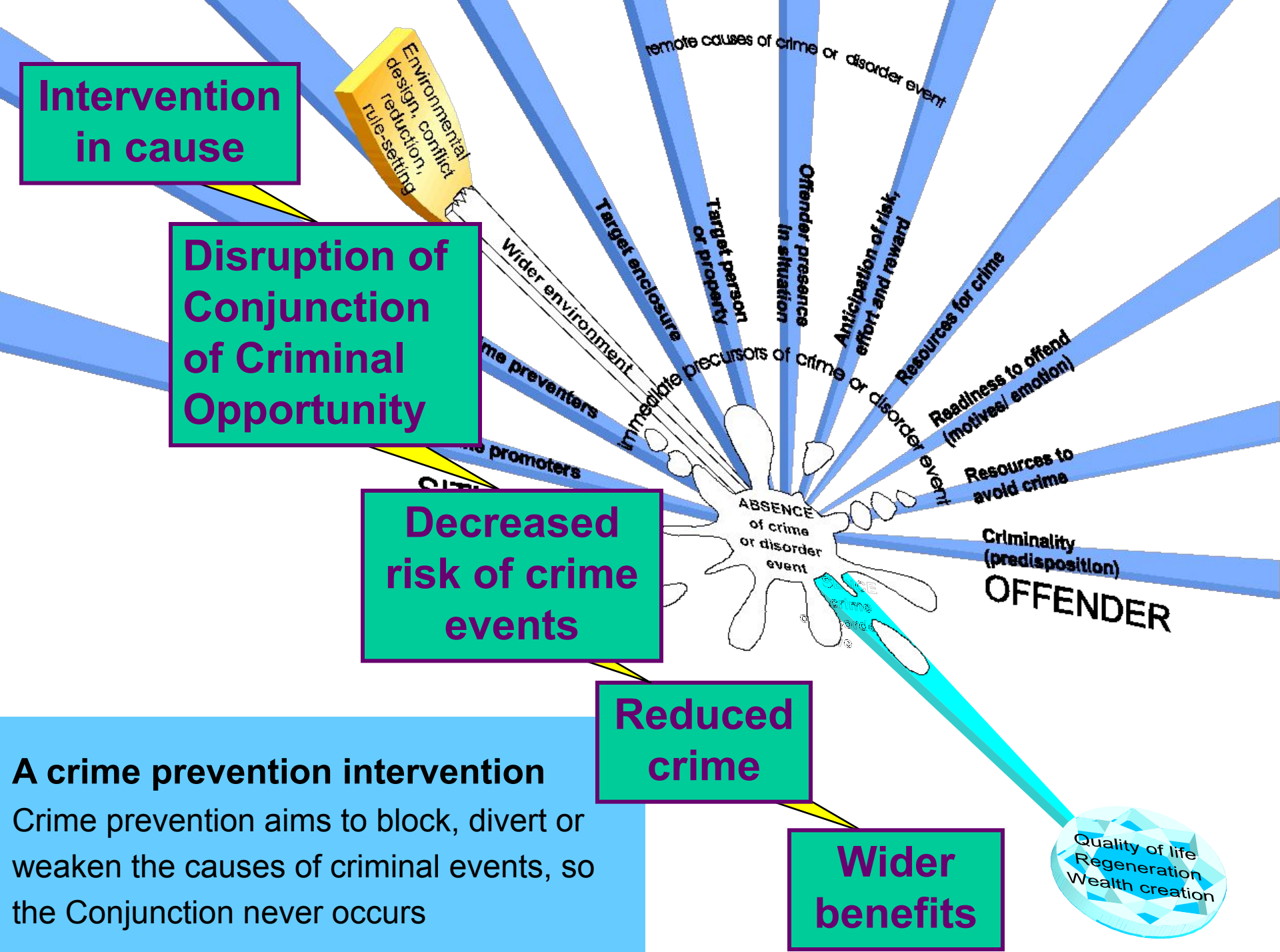
Map of immediate causes of crime centring on offender and his situation: the **Conjunction of Criminal Opportunity**

## OFFENDER

# Prevention: blocking the crime opportunity

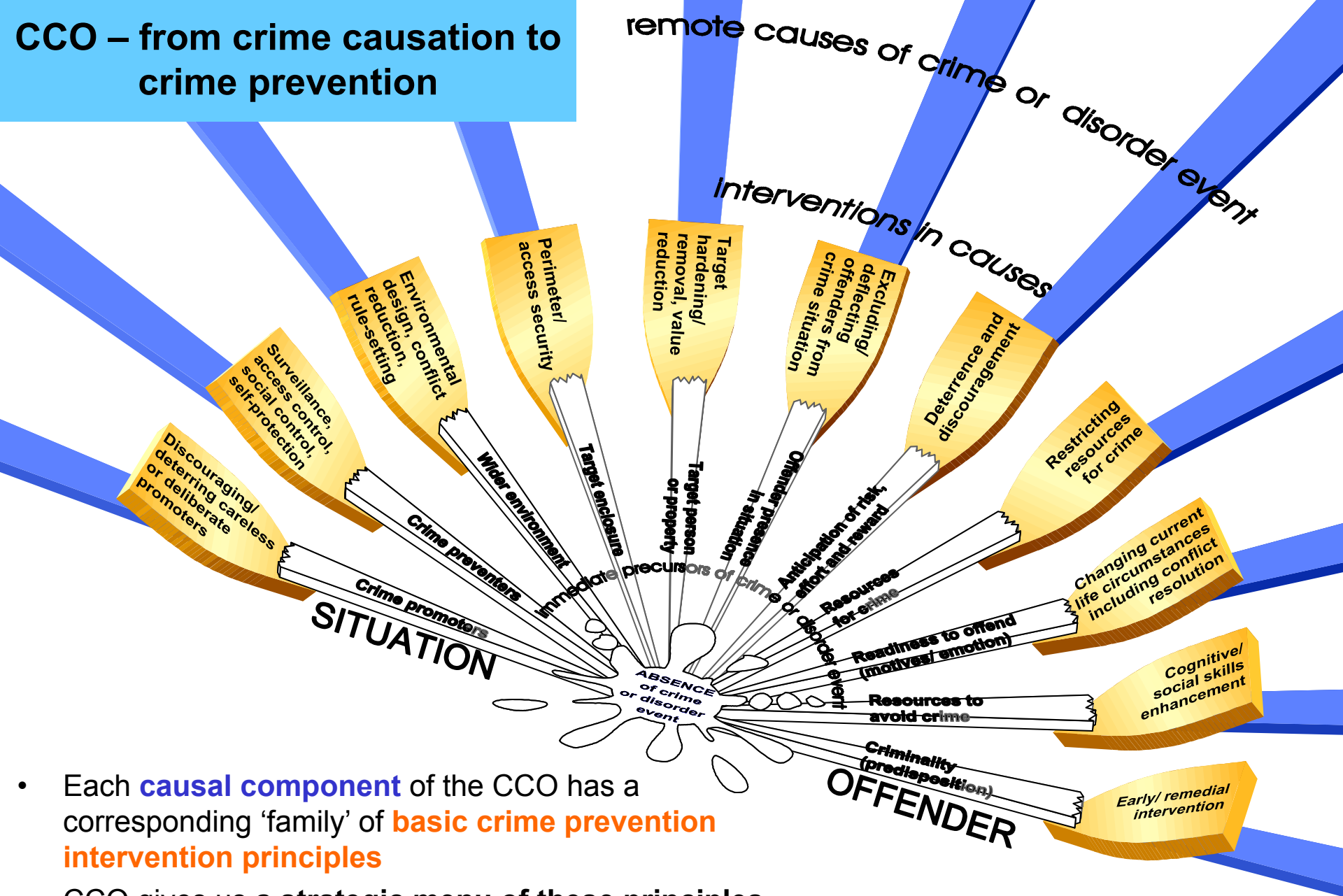
- The designers' task is to reduce the risk of the criminal event happening by **stopping these preconditions coming together to form an opportunity**
- Disruption of the Conjunction of Criminal Opportunity is done by **blocking, weakening or diverting** one or more of the preconditions in a strategic way, by influencing the agents and entities it contains
- This requires understanding and manipulating the **causal mechanisms** underlying criminal events and their prevention. Mechanisms are best conceived as interactions between the properties of the entities in the crime situation, and the properties, perceptions, goals and choices of the agents.
- This can't always be done in a simplistic. 1 : 1 way – rather, the agents and entities have to be considered as a **complex adaptive system** where interventions may have unforeseen effects as each agent perceives and adjusts to, initial changes. Interventions need to be subtle and attuned to context







# CCO – from crime causation to crime prevention



- Each **causal component** of the CCO has a corresponding 'family' of **basic crime prevention intervention principles**
- CCO gives us a **strategic menu** of these principles, to enable designers to make appropriate choices in the manipulation of the agents and entities described



## **Framework 3**

# **Scripts and Stories – The Dynamics of the Conjunction of Criminal Opportunity**

# Understanding the *Dynamics* of the criminal event

- We have already seen how crimes are caused, or prevented, by processes involving **instrumentality** *for* agents pursuing their goals and making choices, and **perception, motivation and emotion** *of* agents as causally affected by other people and things in their environment, and noted that design can influence crime risks via both routes
- We have also seen how it is important to consider the CCO **as a whole** rather than its individual elements in isolation
- While ‘**opportunist**’ offenders merely **exploit opportunities** that they encounter accidentally or seek out deliberately, ‘**professionals**’ may actively try and **bring the elements of CCO together**, *making* crimes happen
- Users as crime preventers may sometimes play a similarly active role, striving to **keep the elements of CCO apart**
- It is these **dynamic, interacting mechanisms** which may make or break an intervention method, which on the surface looks very plausible
- While these discourses help to span the ‘design gap’ between problem and solution they are still not **subtle or lively** enough to capture what is going on *within* a criminal event – designers may get left behind by unfolding process
- A more subtle and dynamic framework for designers extends CCO through the additional concepts of **scripts, stories and script clashes**
- *Now read on...*

# Capturing dynamics – Scripts

- In situations which people repeatedly encounter – eg parking/storing bike – they learn which actions work best
- Result of this learning is a cognitive **script** – a structured sequence of things to **attend to**, and things to **do/avoid**, in achieving some **purpose** or **goal**
- Scripts may be **flexible** and branching (plan A, plan B)
- Scripts may be associated with particular **roles** – with crime, these roles are **offenders, preventers, promoters**

- **A user/preventer script:**

**Find house, park bike, go to room, return, find bike, exit, use**

- **An abuser/offender script:**

**Seek house with bike, see, gain entry to hall, release bike, take bike, escape, sell**

# Scripts generate *Performances* 1

- Scripts are instrumental **competences**, used to generate **performances** in particular times and places – with **improvisation** & exploitation of materials to hand
- Performance usually results in an **event**
  - eg a **successful crime** – which is the offender's goal to *achieve*, the user's/preventer's goal to *avoid* or *disrupt*
  - or a safe and successful **bike parking** episode, which is the user's goal to *achieve*, the offender's goal to *disrupt*
- Designer's task is to block/disrupt offender's performance of their scripts without blocking/disrupting that of preventer

# Scripts generate *Performances* 2

- Performances involve **perception, anticipation, choice and behaviour**
- **Performances can be instrumental** (a means to an end), **expressive** (communicating image or emotion) or **both** (eg presenting an image that avoids suspicion, winning esteem from friends by stealing)
- Performances are influenced by
  - **Motivation/emotion** eg need, stress, fatigue, fear
  - **Resources** available to players – planned/ improvised
  - **Opportunities** the players encounter or engineer in their environment – **reward, risk of harm, effort/time/cost**
- These factors interact – **resources make opportunity** (an open window 3 floors up is only an opportunity to someone with courage, agility or a ladder)



# Stories – interacting performances

- The performances of two or more agents, following & improvising from their scripts, causing and being caused, may **interact** – generating **stories** which culminate in a **crime completed**, or a **crime prevented** and a legitimate user goal achieved
- Understanding these stories is vital for designers to get to grips with the **dynamics** of real crime situations, **fully meet the user-friendly/abuser-unfriendly contradiction** and **optimise on Troublesome Tradeoffs** with other values/requirements
- Stories can involve these (and other) kinds of interaction between agents:
  - Collaboration
  - Care
  - Control
  - Competition
  - Conflict
  - Conflict resolution
- Each interaction involves dynamic interplay of risk of harm, effort/cost/time and reward, as opportunities open or close, are created or happen to come together
- Of particular interest here are conflicts – **oppositional goals** (eg owner wants to keep bike v thief wants to take bike) & **clashing scripts** in the service of those goals



# The bootyful game – script *clashes*

- Roles may have conflicting goals, causing tactical **script clashes**:
  - Surveill v conceal
  - Exclude v permit entry
  - Wield force v resist it
  - Conceal criminal intent v detect criminal intent
  - Challenge suspect v give plausible response
  - Surprise/ambush v warning
  - Trap v elude
  - Pursue v escape...
- Designers' task is to arrange the situation (manipulate entities)
  - to favour the user over the abuser in each of these tactical clashes in terms of the shifting dynamics of risk of harm, effort, reward – so the story ends with the bad guy losing! Alternatively,
  - to arrange the wider environment to avoid the clashes happening at all

# Script clashes – complications

- Outcome of clashes is complex and not fully predictable – as in any game – hence we are reducing *risk* of crime, not its certainty
- Not always straightforward as to **who does what**
  - Eg preventer can surveill, offender can conceal
  - or vice-versa
- Clashes can **flip** at each stage of script – eg the **concealability** of an iPod:
  - **reduces crime risk** at **seek** stage (user hides it from thief)
  - **raises crime risk** at **escape** stage (thief hides it from user/pursuer)

# Design Against Crime – a Succession of Performances



# **Framework 4**

## **Getting more specific about crime**

**The Misdeeds & Security Framework –**  
for anticipating the generic kinds of crime possibilities, & crime prevention opportunities, facing designed products and places

# Getting more specific about crime

- We have so far focused on theft. But to generalise the approach, we need to move from understanding the basic, immediate causes of crime in general, as just set out in the CCO framework, to consider the **particular kinds of possible crime risk** that the designed products or places may be involved in in one way or another
- There are hundreds of different criminal offences, but these can be organised into a limited number of archetypes – **Misdeeds**
- These archetypes also serve to organise the possibilities for **preventing** crimes – **Security**

# Misdeeds & Security Framework

<b>Misdeeds (Ms) –</b> products & places at risk of being:		<b>Security (Ss) –</b> products & places designed to be:	
Misappropriated – stolen		Secured against theft	
Mistreated – damaged		Safeguarded against damage	
Misused – tool/weapon for crime		Shielded against misuse	Supporting justice/ crime reduction/ community safety
Mishandled – fraud, counterfeit		Scam-proofed	
Misbehaved with – disorder/ASB		‘Sivilised’	
Mistaken – false alarm		Slip-proofed	
Mistrusted/ Misunderstood		‘Sertain’ to report/ understand	
Misaligned – adverse side effects		Straightening adverse side-effects	

# Zooming in on specific crime possibilities

- Each of the Misdeeds can then be further expanded into specific crime types using offence and perhaps even perpetrator techniques to focus on the very particular 'risk possibilities' facing the designed product or place
- Putting together all frameworks so far, we have something like this:

**Design focus** – product/place that's designed

**Causal roles it plays in crime – Situational Prevention & CCO** entities – target, resource for crime, environment/ enclosure

**Generic kinds of crime risk – M&S**

**Specific crime and perpetrator technique** – the *detailed possibilities* of criminal events

For each ***possibility*** of crime, how its risk – ***probability*** and ***harm*** – are influenced by design of product and/or the physical/social context in which the product or place is located, using the agents and other entities within CCO and if necessary higher, emergent levels eg markets and networks

# The pinnacle of understanding – and prevention

- We have spanned the gap between **problem & solution** through a succession of **frameworks**
- Understanding how scripts & causes interact in the story of a criminal (or legitimate) event builds on *all prior frameworks*:
  - Agents eg offenders perform scripts when pursuing their goals of maximising reward and minimising their risk of harm, effort, cost and time, which may be in opposition to the goals of other agents
  - This performance requires each agent to engage with all the other aspects of the situation – the interacting entities and agents of the CCO, which must be considered as a whole
  - Besides this instrumental engagement, the agents are subjected to various causal influences from the same Conjunction – operating via perception, motivation and emotion – which prompt, provoke, pressure or permit them to act in committing, preventing or promoting the crime
  - *The instrumental engagements, and the causal influences, may be different for each step of each script, and each stage of the unfolding story; as will be the tradeoffs, contradictions, constraints on and possibilities of designed interventions*
- This complex, layered & dynamic picture is what designers must **research, understand, and manipulate**
- **Manipulation** is achieved by **modifying or creating entities** in the **crime situation** to address the various **contradictions** in DAC – the fundamental **discriminatory task of theft prevention, & Troublesome Tradeoffs** between theft prevention & other user requirements or wider values
- This can be done by focusing on instrumental engagements, causal influences or both.



# **Discourses for Design Against Crime**

# Discourses for Design Against Crime

- Before this understanding can reliably lead to successful intervention, we need to set out some **discourses** for DAC
- These discourses organise, articulate & communicate what we know about the **characteristics** of the entities (products, places and communications) which affect **crime risk** in the situations where they occur...
  - ie which make them increase the **probability** of crime (**criminogenic**) or decrease it (**criminocclusive**)
  - and/or increase, decrease or remedy **harm** (**criminally harmful, harmless or mitigating**)...and which are manipulable through **design**
- The main discourses covering these characteristics are
  - **Functional design** – purpose (eg *reducing risk of theft...*)
  - **Mechanism design** – with two subsidiary discourses
    - **Causation** (eg *...by blocking access to offender, ...by not provoking offender, ...by forcing user to park securely*)
    - **Instrumentality** (eg *...by frustrating offender's script goal of getting access to bike*)
  - **Structural/ technical design** – form, materials & operation (eg *...by high wall*)

# **Mechanism discourse of DAC – Properties of entities that influence users & abusers, causally & instrumentally – *Environment* as example**

- Properties of environment **to be designed, that help or hinder goals of user/abuser, influence their perception/ motivation/ emotion, and affect outcomes of social interaction**
  - Space
  - Movement
  - Manipulation/force
  - Perception/prospect
  - Shelter/refuge
  - Understandability
  - Information
  - Motivation/emotion (territoriality, fear)

# **Structural/technical discourse of DAC – features of entities that influence users & abusers causally and instrumentally – eg form & content of *Environment***

- **Structural Features  
(and their operation)**

- Nodes (destinations)
- Paths
- Barriers (physical, visual)
- Screens
- Enclosures
- Furniture (stands, hooks...)
- Lighting
- Signage
- Surfaces - decoration

- **Movable content** eg

- Vehicles
- People's bodies
- Containers
- Coats on hooks

- **Materials**

- Surfaces – inherent
- ?

# Perception and Prospect – how do **properties** and **features, content & materials** of environment influence *Vision for Surveillance*?

## Sightlines

Who/ what can be seen from where

**Structural features** affecting this property of environment:

- Bends, screens, barriers, recesses, enclosures

**Content** affecting this property:

- Human/vehicular presence, plants, containers

**Materials** affecting this property:

- Transparency, ...

## Light

Intensity, colour, contrast, direction/glare, fluctuation etc

**Structural features** affecting this property of environment:

- Barriers, enclosures

**Content** affecting this property:

- Vehicle lights, trees/shrubs, containers

**Materials** affecting this property:

- surfaces – reflectivity

## Background

Discriminability – camouflage etc

**Structural features** affecting this property of environment:

- Surfaces – complexity

**Content** affecting this property:

- Vehicle lights, plants, containers, litter

**Materials affecting this property:**

- Surfaces – pattern, colour

# **A procedure for Designing Against Crime**

# From understanding to intervention – a procedure for designers

- Designers will each have their own Modus Operandi, their own preferred approach
  - Some will feel happier working with one or other aspect of the picture just set out, using one or other of the frameworks – or none at all
  - But in every case, an appreciation of the complex and dynamic nature of the crime situation they wish to intervene in and the functional and structural discourses of DAC should inform how they think, how they communicate and what they create
- The following is a suggested procedure for designers intent on using the full framework
- The iterative nature of design may mean coming in at different levels on different iterations

# What is the crime problem?

- What exactly is the crime problem?
  - Risk of crime
    - **Possibility** – nature of criminal event/s (eg theft of bike)
    - **Probability** of occurrence
    - **Harm to**
      - Product
      - User
      - Third party
      - Crime propagation
  - Wider community safety/ quality of life considerations



# What are the design requirements? What might the ideal solution look like?

- Specify the **ideal final result**, for relevant stakeholders, capturing all the values (eg security, aesthetics, fail-safe) and any detailed specifications (eg construction standards), that must be optimised and traded off, & any priorities among them
- Ensure the crime prevention requirement is clearly articulated, especially the **central contradiction** eg between legitimate and illegitimate possession
- But don't let abuser-unfriendly tail wag user-friendly dog – respect **troublesome tradeoffs with other values/requirements**
- Will probably need to return to this as deeper picture of problem, causes and agents emerges

# How to do DAC on one slide – from understanding to intervention – basics

## Understanding

- Having identified the **crime problem** and its **harmful consequences** in detail, look at its **causes**...
  - Consider how the probability of crime is increased by properties & features of **situational entities** within **CCO**
    - **Target**
    - **Enclosure**
    - **Environment**
    - **Resources**
  - interacting with the **agents** performing the **crime roles**
    - **Offender**
    - **Promoter**
    - **Preventer**
- whilst these act as
- **User**
  - **Passer-by**
  - **Guard**
  - **Manager/Landlord... etc**
- And consider how these conditions together form an **opportunity** which favours one or other of the crime roles in achieving their **positive goals** and avoiding their **negative goals** via
  - **The performance of each stage of their scripts**
  - **The outcome of script clashes**
- by influencing the
  - **Physical possibility of action**
  - **Perception, motivation, emotion of agents**
  - **Interaction between agents**

## Intervention – in strategic terms

- Then **reduce the risk of crime** (its **possibility, probability** and/or **harm**) by creating or altering the **functional and causal properties of the entities**, individually, in combination or configuration, via their
  - **Structural/technical form/features**
  - **Material composition**
- to influence the **agents** – **directly** or **indirectly**, both **causally & instrumentally**,
- tipping the balance of the conditions for performance **substantially, cost-effectively and sustainably** in the preventer's favour
- whilst **customising to context** and serving all the **other design requirements** with appropriate priority

**Building up the understanding to  
refine the intervention**

# Who are the agents involved & what roles do they play?

Who are the different **agents** in the bike parking situation?

What real-world **roles** do they play?

- What are their **goals/interests** –
  - **Positive** (want to *achieve*)
  - **Negative** (want to *avoid*)?
- Specifically for crime roles –
  - Which people might act as **preventers, promoters, offenders/abusers**?
  - Which are acting in the **immediate situation** (users and abusers, guardians), and which might shape that situation more **strategically**? (eg managers, designers, planners)
  - What are the **crime and crime-preventive goals** they want to achieve or avoid?
- What **resources** might each role player have at their disposal? eg tools, know-how/perpetrator techniques – are agents professional/experienced offenders, preventers; or casual/opportunist/amateur?

# What are the entities in the crime situation & how might their current design & configuration be influencing risk of crime?

- What are the **entities** in the immediate crime situation? Including ...
  - Targets
  - Enclosures
  - Environments
  - Resources in situ
- What functional/causal **properties**, structural **features**, **materials** and typical **content** might make them increase or decrease
  - **Probability** of crime? (criminogenic/ criminocclusive)
  - **Harm** from crime? (criminally harmful/ harmless/ mitigating)
- Do they influence crime **individually**, in **combination** or in **configuration** (eg arrangement of doors/ windows together)?
- How do they influence crime?
  - Causally
    - **Prompting, provoking, permitting, pressuring** offender, preventer or promoter via perception, motivation or emotion, stress, alcohol etc
  - Instrumentally
    - **Direct** influence on **objective** risk of harm, cost/effort/time, reward to offender
    - Influence on offender's **perception** of same
    - **Indirect** influence on either, via influencing **preventers'/promoters'** instrumental achievement of *their* goals or *their* causation

# Acting on the entities to influence the offender

- Directly increasing **objective** risk of harm, effort and prospect of reward to offender (*Offender just can't break lock, climb wall*)
- Increasing **perceived** risk of harm, effort and prospect of reward to offender via **discouragement** (*That lock looks too tough; if I damage bike I won't get much money for it*)  
**deterrence** (*that camera can see me*)
- Reducing the **prompting** of crime (*Draw attention away from target or enclosure*)
- Reducing **provocation** (*Avoid generating emotion/ motivation eg desire/jealousy*)
- Reducing **permission** (*It's **not ok** to steal/damage here*)

# **Framework 5**

## **Mobilising agents to act as crime preventers: CLAIMED**

# Indirect intervention – acting on the entities to mobilise preventers and promoters

How to mobilise **preventers** (*mind that crime risk – take care – here's how*)

- **C**larify crime prevention tasks/roles that others need to do (as above)
- **L**ocate appropriate agents (individuals, organisations) in and around crime situation capable of taking effective responsibility... then analyse what may be constraining/motivating preventers, enabling/motivating promoters...then identify methods (which may/may not involve forms of design eg communications) which
- **A**lert and
- **I**nform them about crime issue & their part in it as preventers/promoters
- **M**otivate them to take responsibility for prevention/ cease promotion
- **E**mpower them (with resources – eg knowhow, security kit, authority)
- **D**irect and constrain them (eg with regulations, standards eg for manufacturers, landlords; physical/electronic constraints to ensure correct installation/operation of design)

How to convert or constrain inadvertent, careless or deliberate **promoters**

- **CLAIMED in reverse!** (*eg 'don't let your flatmates down'; self-closing front door*)



# How do the immediate causes of the crime problem come together?

- Helpful to use CCO to systematically focus questions on the immediate **mechanisms** of influence, ie those present and potent within the agents and entities in the crime situation
  - Which of the CCO elements are likely to play a part in the generation of crime problem, instrumentally or causally?
  - How do the elements **interact**?
  - What factors bring the elements together? eg:
    - they **naturally occur together** in the situation
    - they **come together** via people's routine activities (places as **crime generators**), operation of markets and wider social structures and processes
    - the offender deliberately **brings them together** (places as **crime attractors**)
  - Which elements are **manipulable by design**, whether directly via entities themselves or indirectly via influencing agents?

# What scripts do the various agents use to achieve their goals in the crime situation?

For each agent seeking to achieve each of their goals

- What **script moves** are they likely to seek to execute?
- What factors, in the agents themselves and in their situation, affect their **performance** instrumentally and causally?
- What **script clashes** are there for this crime problem/context?
- How do the entities individually and collectively favour one or other side in these clashes?
- How to answer...
  - Evidence – research, interviews – perpetrator techniques etc
  - Imagination can be used both as a source in itself, and as a means of synthesising all sources of evidence in scenarios (Ideo-style)...
    - Imagine impact of your intervention on performance of each role/script
    - Create/ modify bike parking situation so in each script clash it favours users-preventers over abusers-offenders, without interfering with others
    - Imagine offenders' **countermoves** and users' or managers' adjustments...

# Doing the design – disciplined creativity

- Exploit **design freedom** in designing intervention but in a disciplined way, resolving contradictions (discrimination & tradeoffs) while customising to context
- Follow **Iterative Process** of generation, testing and improvement of designs
- Draw on any **design guidance** and **standards**
- Anticipate offender **countermoves** and **wider contextual changes** over lifetime of product in field; build in **adaptability** and **upgradeability** for longer-lived products
- Keep track of the **mechanisms** – how design works to influence the causes of crime, and to swing the instrumentality of the crime situation in favour of preventer – these mechanisms:
  - Guide what **feedback** to look for and apply during iteration (if preventers have to be aware of the locking function of the bike stand in order for it to work, are they so aware?)
  - Capture detailed **rationale** of design for **correlation** back to original design requirement, and for future application/transfer of knowledge