Designing products and places against crime

Some tools for thinking and innovation

Paul Ekblom

University of the Arts London Central Saint Martins

DACRC is funded by

Arts & Humanities Research Council

DESIGN AGAINST CRIME

DaC

Meeting the challenge of Design Against Crime

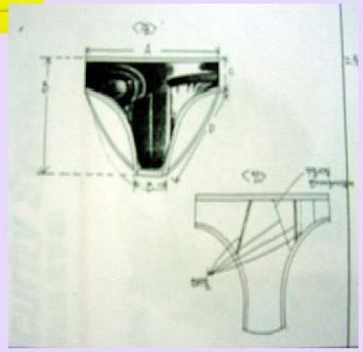
- We must innovate faster than offenders, whilst adapting to
  - the changing social and technical context of the legitimate use of products and places
  - the changing nature of crime
- This needs
  - Mindset
  - Motivation
  - Collaboration between Preventers and Designers
  - Developing practical and conceptual capacity of designers to handle current problems and anticipate future ones
  - Technology of visualisation of designs

Mindset – getting designers to *Think Thief*

Mindset:

Failure to ‘Think Drug User’

…But beware those paranoid products, and vulnerability-led designs!



Criminogenic products – Who is responsible? Are designers complicit in causing crime?

- Replacement of stolen goods benefits industry…and the owner too
- Obsolescence may be deliberately designed-in
- Fashion – *must* get new model, new style
- Leading architect: ‘crime is not the fault of the design of the building, but of the people that misuse it’
- Crime is a hidden cost or tax – but should the polluter always pay?

Motivating designers – and design decision-makers

- Ethics and values – security is a good thing
- Challenge/ stimulation from the design task
- Incentives – tax, reduced insurance premium
- Naming and shaming… or praising – corporate social responsibility – ‘polluter pays’ approach
- Regulations and laws
  - Urban planning
  - Vehicle design
- Government procurement of its own products/places/services

Collaboration

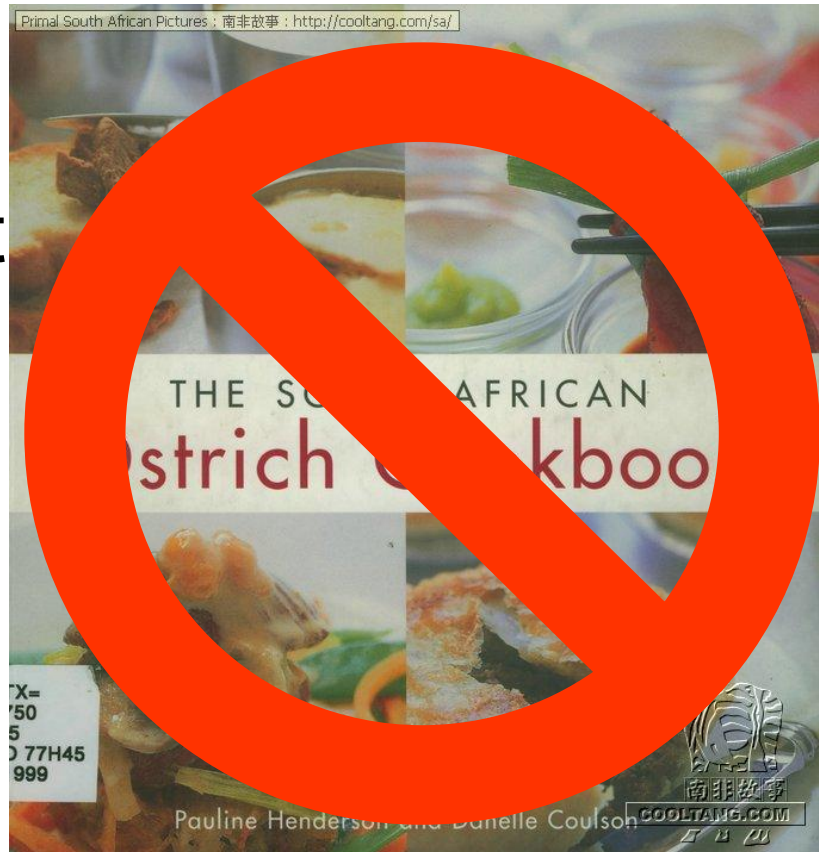
- Importance of **co-design**
  - Local people have expert knowledge of crime problem and its context
  - Their commitment is often vital for success
- Getting crime prevention practitioners in police, government, industry and community to use design in their own work
- This means not just getting them to use the **products** of design, but to employ **design thinking** and **design processes**

Design – product or process?

Is design what we make, how we make it, or both?

Importance of process knowledge –

- Many practitioners like to copy ‘success stories’ – but they do this too literally and too rigidly
- Research shows that ‘cookbook copying’ doesn’t work
- So we should throw away the cookbook!



Throwing away the cookbook

- Practitioners, and designers, should
  - Be adaptable, subtle, alert to tradeoffs e.g. between security and convenience or aesthetics
  - Be aware that every replication of a ‘success story’ must be customised to a new context
  - Be innovative, capable of creating plausible proposals for new circumstances and new problems
  - Be able to handle uncertainty and a lack of complete knowledge of what works against crime
  - Anticipate & allow for change – out-innovate offenders
- To collaborate with designers, this needs practitioners more like expert consultants than technicians

Building the Innovative Capacity of designers

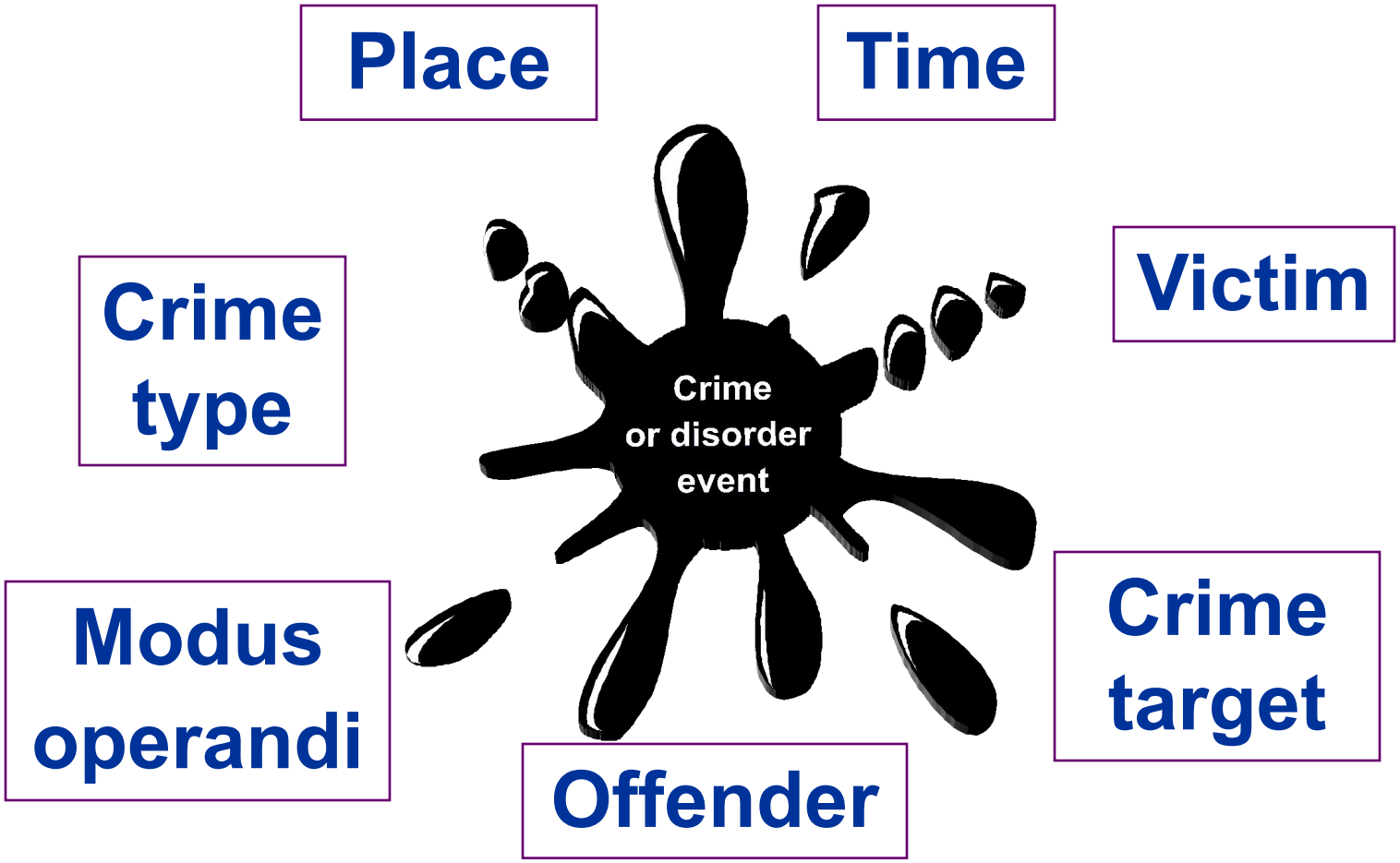
Giving designers maps and frameworks for thinking and communicating about crime prevention

Building Innovative Capacity

Importance of *Rationale* for design

- What's the crime problem?
- What are its causes, consequences and context?
- How to intervene?
  - In principle – mechanisms of prevention
  - In practical detail

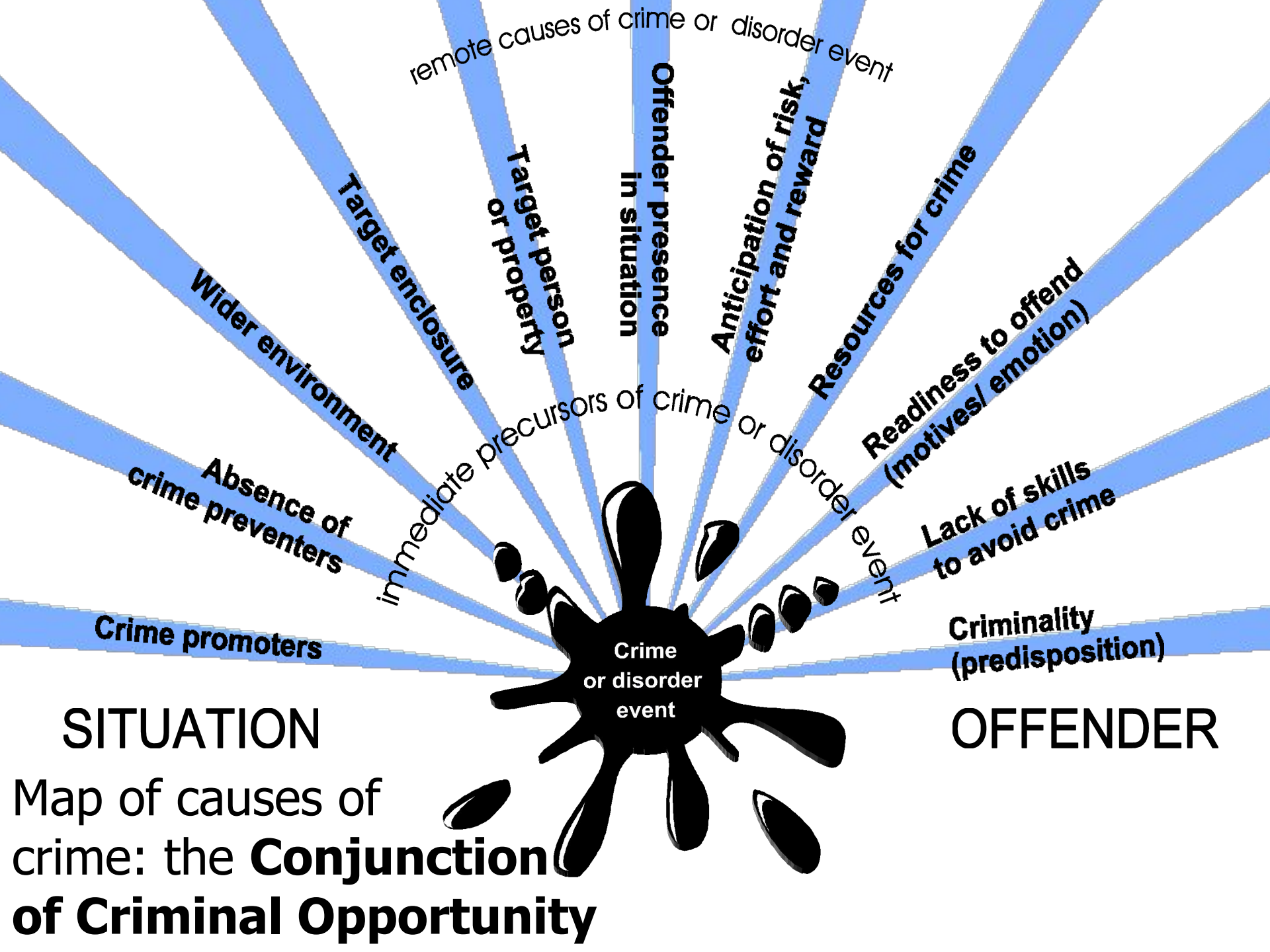
Crime problem – key dimensions



Understanding causes of crime

We can use the Crime Triangle

But I prefer…

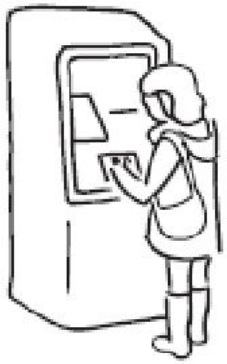


Map of causes of crime: the **Conjunction of Criminal Opportunity**

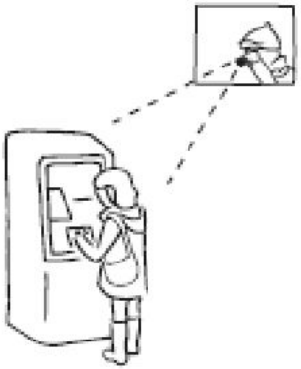
The dynamics of crime – Modus Operandi

Human Centred MO's

ATM Machine Use



Obtaining PIN Number

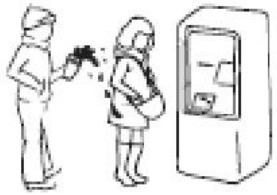


Remote Observation

Shoulder Surfing

Obtaining Card – Distraction

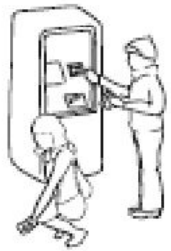
Distraction using other money



Distraction by spillage on victim

Victim distracted by being bumped into – Tag Team technique

Obtaining Card and/or Cash – Acquisition



Taking cash and/or card from machine while victim distracted

Bag dipped for cash and/or card while victim distracted

Victim robbed using threats or force for cash and/or card

Capturing dynamics of crime events – Scripts

- In situations which people repeatedly encounter – eg getting cash out of an ATM – 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 associated with particular **roles** – with crime, these roles are **offenders, preventers, promoters**
- A **user/preventer** script:

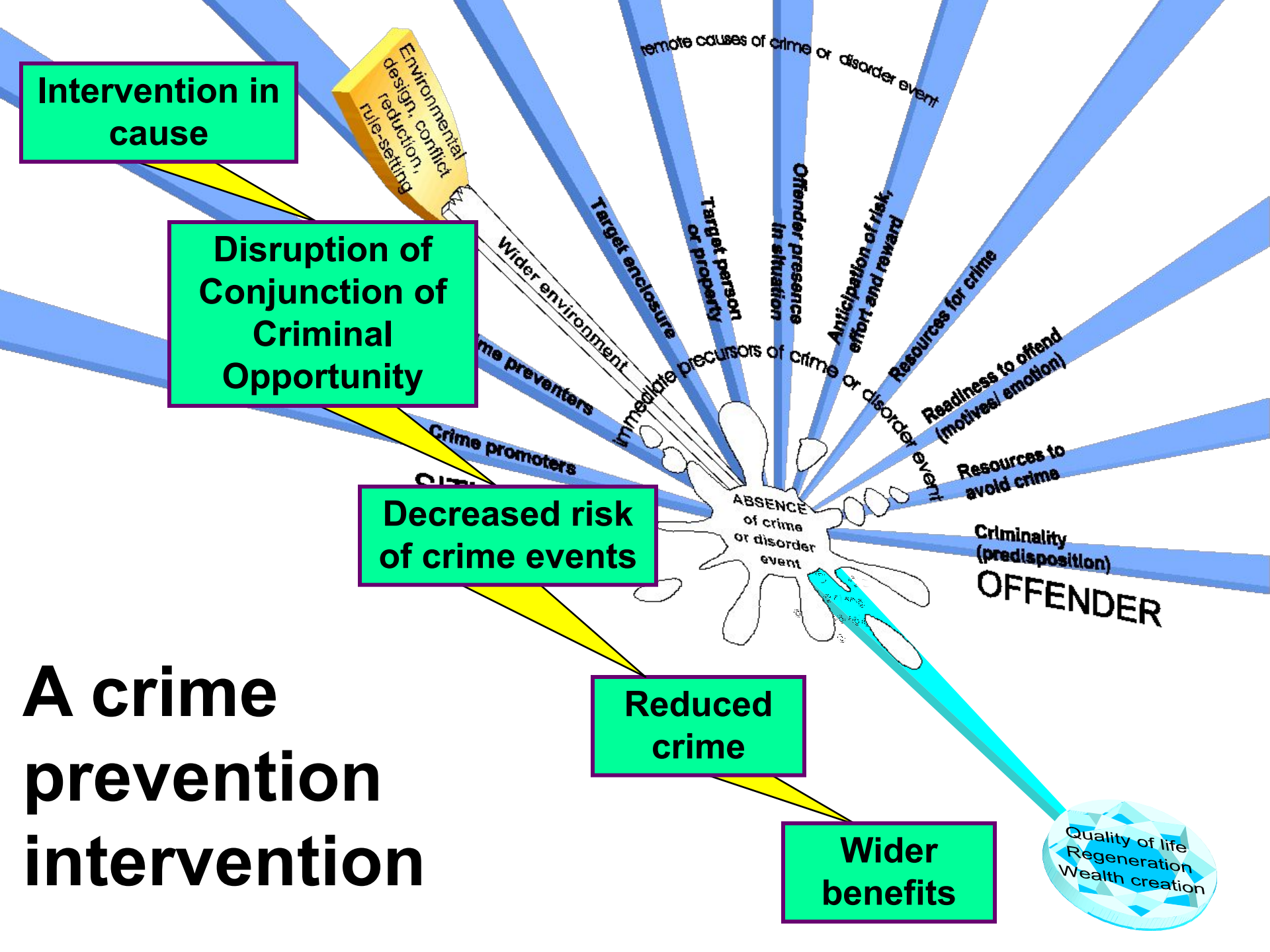
  Find ATM, get out card, use card/ATM, recover card, take cash, leave
- An **abuser/offender** script:

  Find ATM, find ambush site, await ATM user with money in hand, snatch money, flee

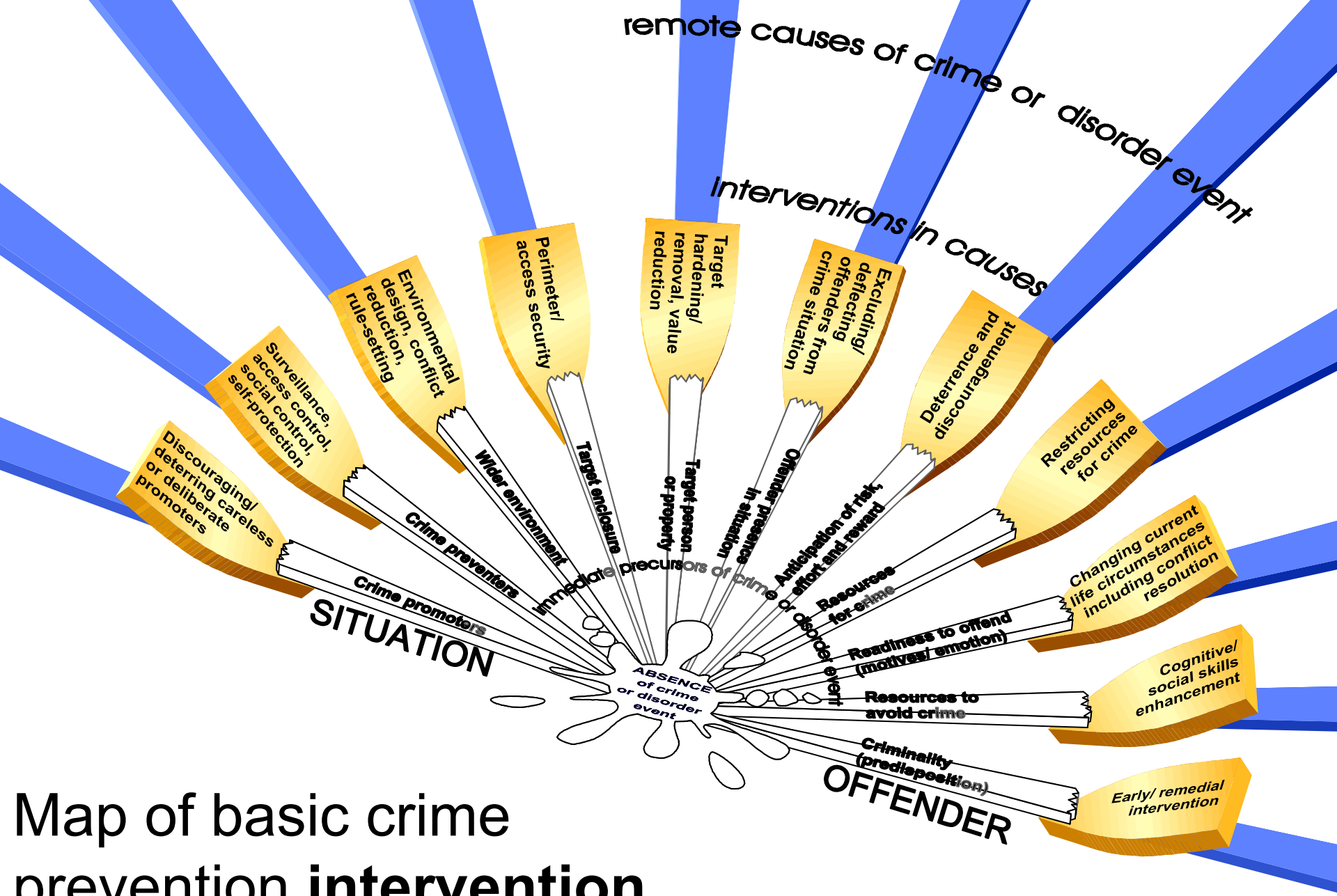
Script *clashes* – the pivots of design

- Offenders and users 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
  - 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

From understanding crimes to intervention in their causes



A crime prevention intervention



Map of basic crime prevention **intervention principles or mechanisms**

Describing designed interventions – *Security Function Design Framework*

- Purpose

What crime problem/s does the design address?

- Niche

How does the design fit within the ecology of security?

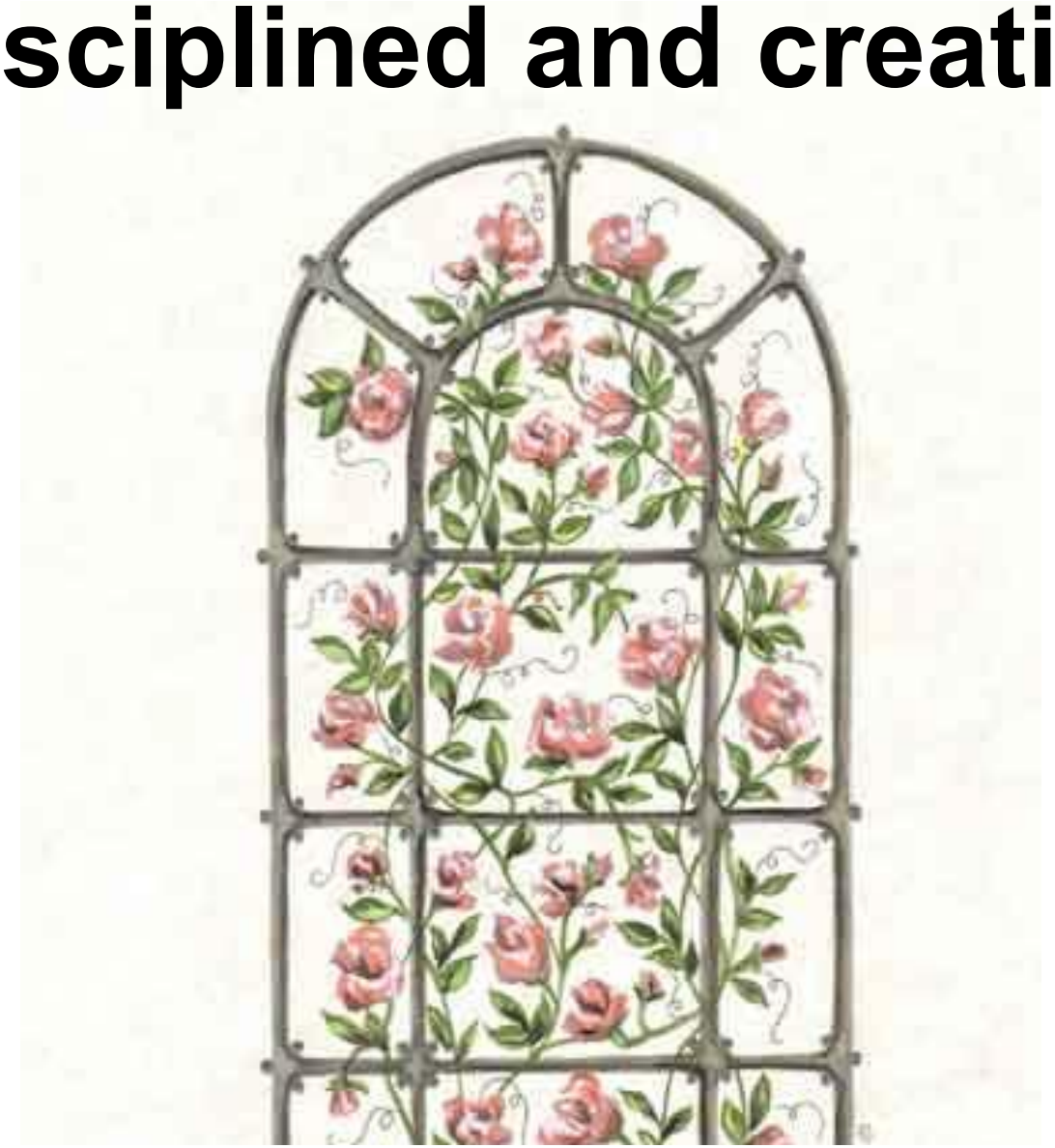
- Mechanism

How does the design work in preventing crime?

- Technology

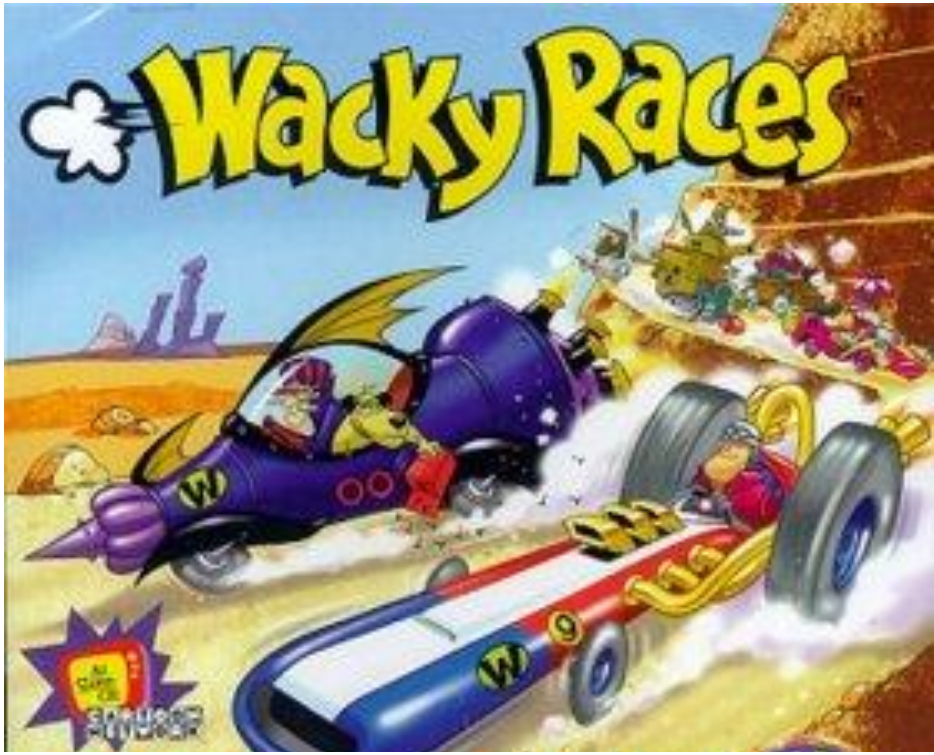
How is the design realised through materials, construction and operation?

But… designers must be both disciplined and creative



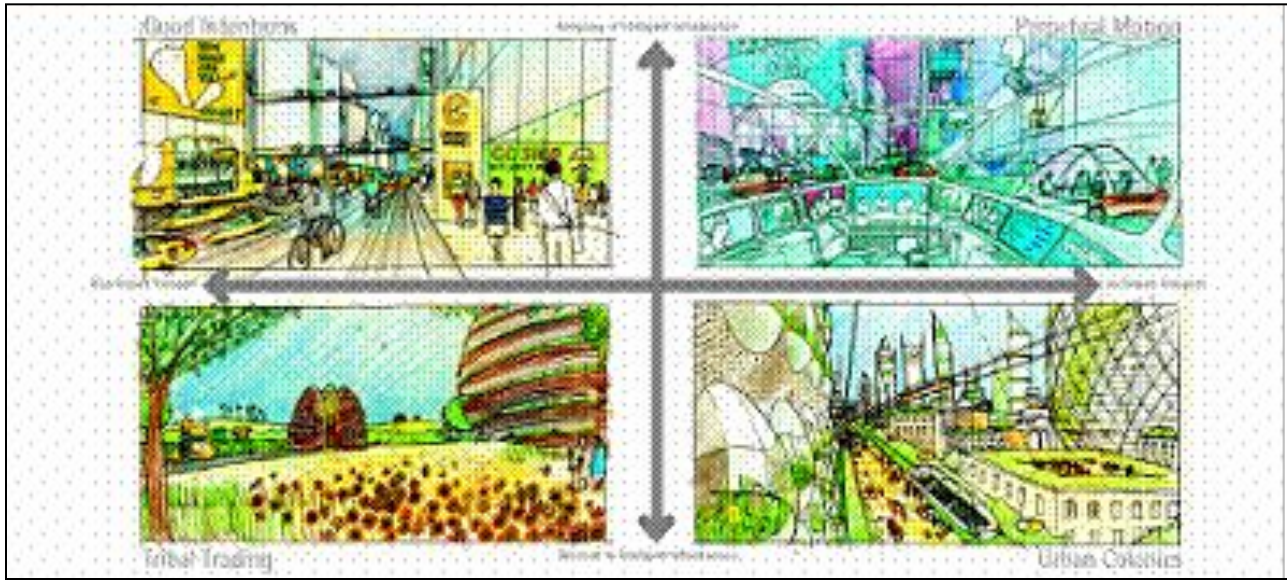
The **Anticipation** dimension: **Every design is a bet on the future**

- Can product be made?
- Will it work?
- Will it last or fall to bits?
- Will it sell at a profit – what's the competition?
- Will people use it as intended?
- *Will it be involved in crime?*



Crime and design - futures

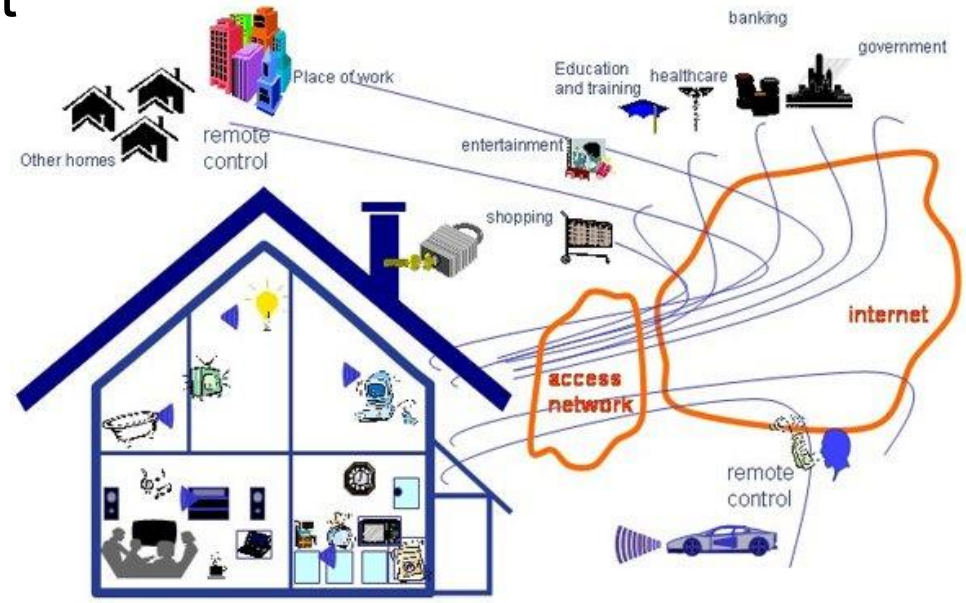
- Changing crime – new tools, new targets
- Changing priorities
  - Sustainability
  - Low energy
  - Resilience to climate shift, terrorism
  - Privacy/freedom v security



Crime and design - futures

Changing context on all scales – crime threats and CP opportunities

- New land uses
- Blur between products, places, systems
- Intelligent homes/products linked to internet
- Automobiles v public transport
- Cameraphones – changing nature of ‘eyes on street’
- Intelligent CCTV, multimodal alarm systems
- New materials – sensitive, resilient, anti-graffiti?



Most elementary approach to future is *Risk*

Crime risk has 3 aspects

Possibility – nature of criminal event

Who does what illegal act to whom/what?

Probability of event

How likely is it to happen?

Harm from event

What is the harm?

When does it happen – immediate or knock-on?

To whom and/or to what?

Design Against Crime seeks to

Eliminate possibility of crime

or if not

Reduce probability of criminal events

or if not

Reduce or mitigate harm when they do happen - including propagation of crime

Harm information used for

Setting **priority** in design requirements

Guiding **avoidance** or **mitigation** by design

What kind of crime risk do designed products and places face?
Misdeeds & Security framework

Mistreatment (damage)

Misappropriation (theft)

Mishandling (e.g. fraud)

Target of crime

Misuse (e.g. as tool)

Misbehaviour (nuisance, conflict)

Contributor to crime

Mistake (false alarm)

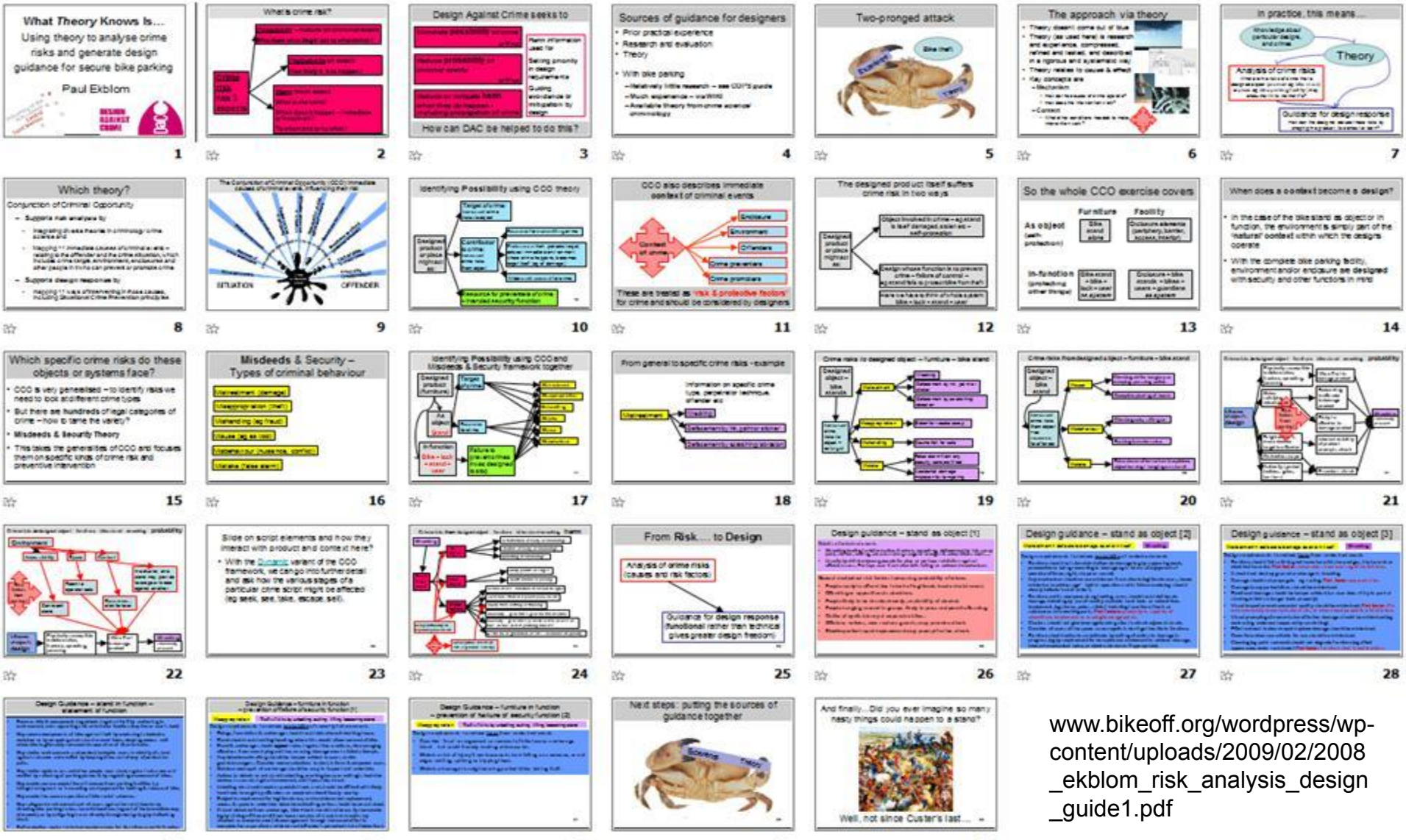
Downside of prevention

Risk factors for Misappropriation

Hot Products

- **C**oncealable
- **R**emovable
- **A**vailable
- **V**aluable
- **E**njoyable
- **D**isposable

Putting it all together: From risk analysis to design guidance



www.bikeoff.org/wordpress/wp-content/uploads/2009/02/2008_ekblom_risk_analysis_design_guide1.pdf

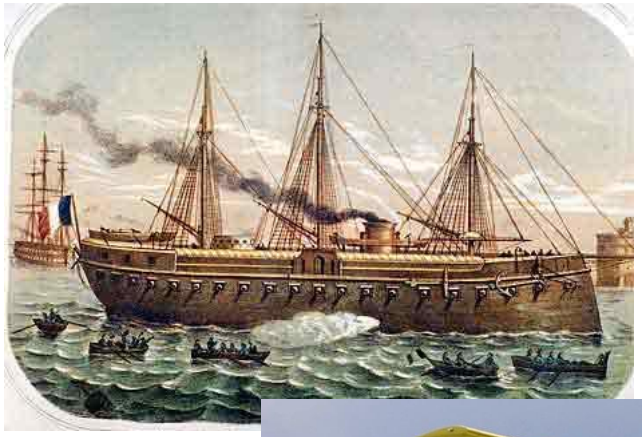
Anticipation has its limits

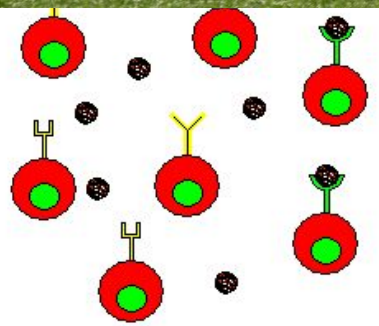
Gearing up against crime: A dynamic strategy for arms races

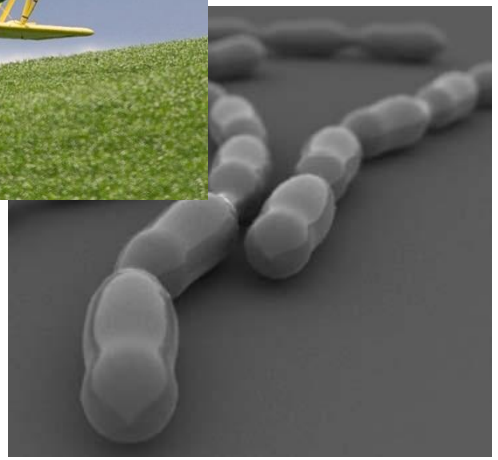
- Encourage variety
- Design to performance standards/ generic principles
- Study offender resources – current and future – what new tools and weapons will criminals have?
- Exploit new technology for prevention
- Avoid rigidity – crime changes but your security can't
- Future proofing
- Pipelines
- Learn from other **evolutionary struggles**

Gearing up against crime
Learning from other coevolutionary struggles

- Military
- Predator-prey
- Pest-farmer
- Bacteria-antibiotic
- Immune system-virus



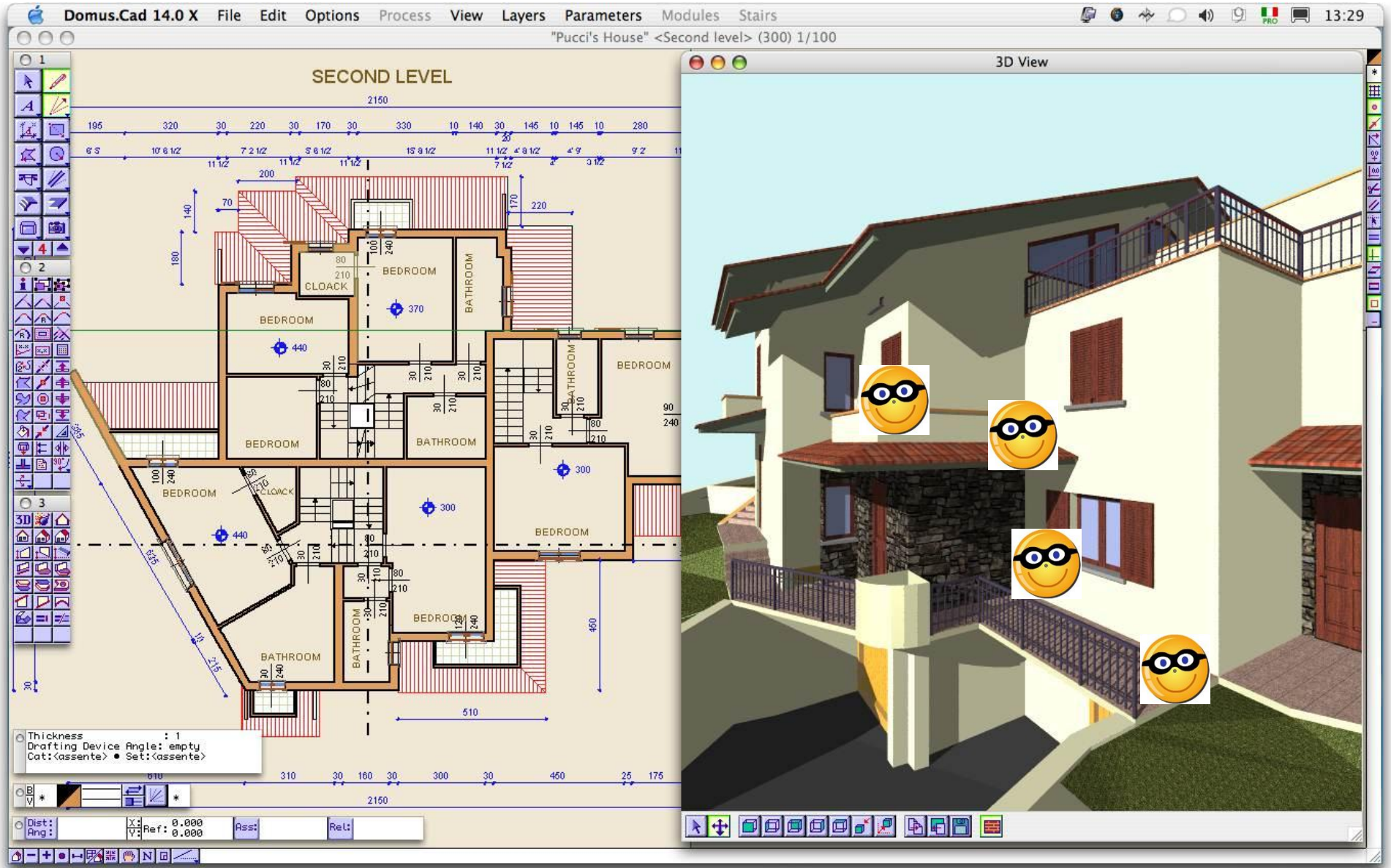




Technology of design visualisation

Helping designers, clients and users with virtual reality design aids

Computer aided design



Virtual Reality for lighting design

- Enables designers to visualise lighting before implementation
- Provides a means of communicating design ideas to different interest groups


millets
Going Places
Thornton's
CIRO CITTERIO
Going Places


millets
Going Places
Thorntons
CIRO CITTERIO
Going Places


millets
millets
Going Places
CIRO CITTERIO
Going Places

Contact us at

Design Against Crime Research Centre

p.ekblom@csm.arts.ac.uk

www.designagainstcrime.com

Security Function Framework Case study – the Stop Thief Chair

Stop Thief Chair – Security Function Statement

Purpose

- *Principal* purpose to serve as a fully functional chair
- Subsidiary purpose to reduce risk of *theft* of *customers' bags* in *bars and restaurants*
- *Desire requirements* – stylish, economical, protects reputation of venue as safe, caring place
- *Hygiene requirements* – physically safe, sustainable

Security niche

- A *securing* product

Stop Thief Chair – Security Function Statement

Mechanism

- Supplies physical *anchorage* of target bag, that is differentially easier to release by bag-user
- Mobilises people to *use the security function of the chair,* and consequent *surveillance and reaction*
- Protects bag within user's 'personal defensible space'
- *Deters* through increasing offender's perception of risk of being detected and caught in the act

Technicality

- *Twin notch feature* cut in leading edge of seat, over which the bag handle is placed
- Bag then anchored by its handle being enclosed between seat and back of user's knees

Boosting inventiveness to cut crime whilst respecting the tradeoffs

- **TRIZ** – a theory of inventive principles
- Based on analysis of **oodles** of patents
- 40 generic **Inventive Principles**
  - Including the comb-over?
- 39 **Contradiction Principles** – the sharper-expressed the contradiction, the easier the problem to solve…link to troublesome tradeoffs and the fundamental contradiction at the heart of crime prevention (user-friendly, abuser-unfriendly)
- **Lookup tables** – what inventive principles solved what contradictions in past?
- Analysis of **evolutionary trends** of invention (solid > segmented > flexible > field) – look for what's likely to be next to limit search for next solution