

# WHY CRIME SCIENCE NEEDS BETTER FRAMEWORKS

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**DESIGN  
AGAINST  
CRIME**



# What is Crime Science?

- **It's not** about
  - merely tacking on hard science and technology to SCP, POP and criminal investigation
- **It is** about
  - Being applied – studying crime so as to prevent it or mitigate harm
  - Focusing on the near or proximal causes of criminal events such as opportunities and provocations, rather than traditional concerns with career criminality and more remote societal causes
  - Being ready to draw on evidence, theory & scientific method
  - Being interested in multidisciplinary applications, conceptions and methods of other sciences ranging from physics to ecology

# Challenges for Crime Science

- Working environment
- Organisational
- Operational
- Existential

Needless to say these all overlap, and all relate in some way to how we handle **knowledge** in research and practice

# Challenges – Working environment

- Roller-coaster funding and interest in crime science approaches
- Public/ political obsession with cops, courts, corrections
  - Saying ‘let me through, I’m a Crime Scientist’ doesn’t part the crowds
- Cultural resistance in police
  - Efforts to embed POP have had limited success
  - Are police the right organisation to deliver POP, civil or 3<sup>rd</sup>-party prevention?
- How far ahead of practitioners should the leading edge of Crime Science research and thinking be?
  - Ron Clarke – Not too far ... right or wrong?
  - Delivery managers have a patronising view of practitioners - ‘All they can ever understand is a few slogans’... right or wrong?
  - My view – risk of stagnation
    - Treat like medical science – home first aid guides to brain surgery manuals all based on same underlying frameworks
    - Use modern interactive media to tutor and to guide on-the-job with toolkits

# Challenges – Organisational

- Scaling-up communication & collaboration as discipline grows
  - Can ECCA take the strain?
  - Can all of Crime Science continue to be accessible to all its adherents or will there be subdivisions of knowledge domains?
- Handling continuity & change with next generation researchers
  - Inspiration doesn't seem to be a problem
  - But how about knowledge management?
- Training practitioners in diverse fields
  - Practitioners likely to be in post for shorter rather than longer periods
  - Handling simplicity v complexity issue – dumb down, long-haul professional training or get smart quick? How to get practitioners to progress beyond the nursery slopes?

# Challenges – Operational

- Addressing implementation failure
- Building reliable and durable What-Works knowledge
- Extending our competence
- Computability and simulation of Crime Science concepts – ontology

# Operational – Implementation failure

- Demonstration project ‘success stories’ in crime prevention/ community safety often fail to work when mainstreamed
- Problem-Oriented Policing continues to be hard to implement to high standard
- Underlying these challenges, *process knowledge* or *know-how* needs to be better captured, organised and transferred

# Implementation failure – Limited process model for prevention

SARA is a good easy-to-learn heuristic but rapidly becomes constraining

- Strong especially on Scanning, Analysis and Assessment, but
- Insufficiently detailed to capture, articulate and organise information for
  - **Selection** of prior interventions to emulate
  - **Replication** and (re)design in new contexts
  - **Innovation** where no prior evidence available
- ‘Response’ covers huge amount of vital knowledge but is amorphous
- Insufficiently flexible to handle messy complexity of preventive action
- Does not distinguish specific causal mechanisms, generic principles & practical methods



**...Like a wardrobe with too few shelves or hangers**



# Operational – What-Works knowledge

- Reliable What-Works knowledge is available in-principle, but not enough evaluations... *never* enough?
- Interactions with context challenging for evaluation & research as well as for replication of good practice
- What-Works knowledge (especially Campbell-style effect-size) is usually too narrow to use alone for selection and replication of practice customised to new contexts

# Operational – What-Works knowledge

- What-Works knowledge is a wasting asset
  - Arms race with adaptive offenders
  - Social/ technological change
- Need to keep operational knowledge up-to-date – weed and regenerate
- Need to distinguish perennial, generic knowledge from evanescent ‘here-and-now’ knowledge and to know how to distil and test the former via the latter

# Operational – What-Works knowledge

## Causes and interventions

- Are the 25 Techniques still serviceable?
  - Need to accommodate Precipitation more fully – provocations and excuses somewhat tacked on
  - How well do the different technique boxes reflect theoretical mechanisms or are they merely a natural history of methods?
  - Risk, effort, reward are an interchangeable currency – does Access Control work by increasing the risk or by causing offender to have to make more effort?

# **Operational – extending our competence in theory, research and practice**

- Crime science started with SCP and POP (plus some research on police investigation and forensics)
- Has begun to address terrorism, wildlife crime
- Should we be planning to extend it more deliberately?
  - Cyber crime
  - Defence security (asymmetric warfare resembles crime)
  - Civil security
- Implications
  - New theory?
  - More, and more diverse, knowledge to manage

# Challenges – Existential

- Establishing claim to be science and to be distinct from conventional criminology
  - Should we bother about defining ‘crime’?
  - Should we rebuild bridges with criminology, whilst avoiding dilution? Sociological *and* psychological?
- How does Crime Science relate to
  - ‘Security’ (whatever that is – crime, defence)?
  - Positive perspectives (as with sickness > health, mental illness > happiness) – community safety and quality of life?
  - Wider science of cooperation and defection? To understand what crime is and how to prevent it, surely we must relate to this wider frame? (See Schneier, *Liars and Outliers*)
- Terminology
  - ‘Vulnerability’ used in 4 distinct ways
  - ‘Risk’ and ‘opportunity’ weakly defined
  - In practice, loose talk of ‘guardians’ meaning any kind of preventer, ‘deterrence’ meaning any kind of preventive mechanism
- Theories in crime science...

# Existential – Theories in Crime Science

Basic theories continue to inspire research & practice, but

- RAT
  - Is it a theory or an ecological *truism*, a mini-story defining the criminal event and its essential ingredients? Does that matter?
  - Do true theories reside in *how* these come together & how they interact?
  - Same applies to CCO but arguably not to Situational Action Theory?
- RCT
  - Is it an economic *discourse* as much as a theory?
  - Emotional mechanisms may underlie rational choice
- Pattern theory
  - All theories explain patterns! Needs a new name to reflect what it's about
- CPTED
  - Out on a conceptual and empirical limb
  - Concepts are very muddled and overlapping

# Existential – Theories in Crime Science

- The individual CS theories are poorly integrated
- Each has own terminology and discourse (RAT ecological, RCT economic, Precipitation psychological, PT geographic) and often these are not very precise
- They overlap and don't quite join up, not good for handling interactions and emergence
- How clear are they for computability – ontology issue?
- Don't seem to be generating new theory (or are they?)
- While individual theories are simple, whole corpus is a tangle



# Existential – Theories in Crime Science

- **Practitioners** (and novice researchers) are dropped into this tangle and left to cope by inventing their own makeshift interpretations
- The **Problem Analysis Triangle** tries to bring things together heuristically for practitioners – easy to communicate and learn but
  - Under-emphasises Offender factors – important even for designing Situational interventions
  - Not clear on methods/mechanisms distinction
  - Misses out on important elements of crime problem/ event
  - Tacks on the preventer roles in an inflexible way
  - Not easy to expand it to organise progressive detail (eg PAT > PAT + preventers... > + supercontrollers)
- These characteristics constrain how researchers and theorists think too, and are not 'leading edge'



# Knowledge as a cause of the problem

- Many causes of implementation failure, but interested in those centring on **knowledge**
- Limitations of **practice knowledge** and how it's captured, consolidated, evaluated and transferred, has implications for practice, delivery, policy
- Fragmentation of **CP field** into Situational and Offender-Oriented interventions, implemented through very different **institutions**
- Fragmentation **within** domains such as SCP, with 3 poorly-integrated theories and suites of terms
- Failure to address rich, messy **complexity** of crime prevention, extreme **context-dependency** of what works, and Heraclitean world of social/technological **change** and **adaptive offenders**
- Instead, several alternative strategies, equally **maladaptive**
  - Pervasive faith that **simplicity** is all you need to get practitioners doing it right; and all that practitioners can take – so slogans, checklists, limited career paths
  - Rigid adherence to procedures and prescriptions – **programme fetishism**
  - Surrender to **ineffability** of crime prevention

# Organising our Knowledge

- Have shown problems with current ways of organising our knowledge
- As our knowledge grows, we need even better ways to store and retrieve it for research and practice
- Alternatives being *designed* and developed – in an explicit way and for an explicit purpose

# Organising our Knowledge

The purpose of crime prevention knowledge in an applied context is

- Improving, sustaining and extending performance
- Feeding, extending and testing theory and research

# Knowledge – strategic concepts

- **Appropriate complexity**
  - Theories as simple as possible but no simpler (Einstein)
  - Add a little, structured complexity to help practitioners handle vast complexity of real world (Ashby) which they daily have to address
  - Add underlying structure to live with complexity (Norman)
- **Articulating knowledge & concepts**
  - Tacit knowledge (Polanyi, Tilley) hard to transfer
  - Unclear or conflicting discourses are blunt tools for thinking and communication nationally/ internationally
- **Backwards compatible with existing frameworks, but improving on them**
  - e.g. SARA, Crime Triangle
- **Integrated approach**
  - Incorporating full range of interventions - situational and offender-oriented – and institutional contexts
- **Supporting both impact and process evaluation**
  - What **works**.... and what is **workable/deliverable**
- **Supporting both capture and application of practice knowledge**
  - ‘Record’ and ‘Playback’
- **Replication as innovation**
  - Every context is different (Tilley)
  - Copy the process not the product (Blackmore)
  - Importance of causal mechanisms – how it works (Pawson, Tilley)
- **Practitioners as consultants not technicians**
- **Investing to deliver** (Homel)
  - Better education, guidance, career structure, infrastructure based on more sophisticated concepts leads to better performance



Capturing  
Knowledge

# Domains of Crime Prevention Knowledge

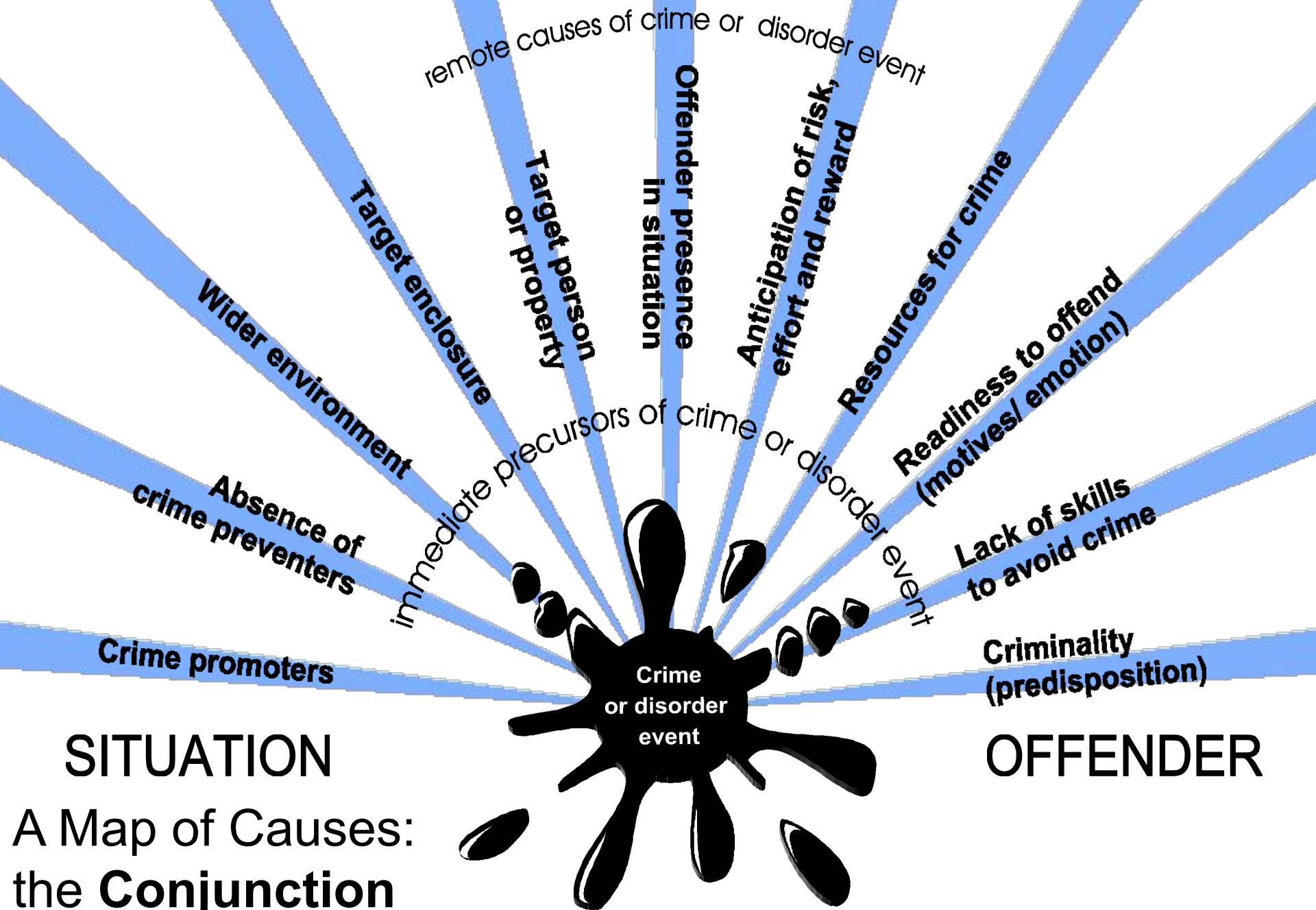
- **Know crime** – definitions of offences
- **Know-about** crime problems – causes, consequences, context
- **Know-what** works to reduce crime
- **Know-who** to involve
- **Know-when** to act – relative to other initiatives
- **Know-where** to distribute resources
- **Know-why** – symbolism, values, politics, ethics
- **Know-how** to put into practice

# Conjunction of Criminal Opportunity

## Know-about, know-what works

- Analytic/synthetic – an attempt to organise causes and interventions by Principles reflecting mechanisms, and Methods
- Unifies the classic theories – albeit still an ecological truism
- Covers *agents* and *entities* and formers' perceptions and interactions with each other and with the latter
- Generalises and offers more flexibility eg *preventer* roles cover handlers, guardians, managers, designers, installers and more
- Richer
  - Adds more roles eg promoter, and entities eg resources for offending, enclosure
  - Covers offender side in greater depth
- Tighter terminology – more computable
- Organises knowledge around principles





A Map of Causes:  
the **Conjunction**  
of **Criminal Opportunity**

# Extending our reach – CCO in Cyberspace

- Target
  - Information, IT system*
- Target enclosure
  - Firewall*
- Environment
  - IT/ financial system*
- Preventer
  - Intelligent software*
- Offender resources
  - Malicious software*
- Offender presence
  - Remote hacker*

Currently working up research on insider threats in ICT systems

# Know-about –

## The roles people play in crime situations

eg bike theft from student housing

### ‘Civil’ roles

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

### Crime-specific roles

- Offender
- Preventer
- Promoter

### Civil roles & crime roles **overlap**, eg

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

# Capturing dynamics – know-about

## –Developing Cornish Scripts concept

- CCO = anatomy of causes, we also need physiology
- In situations which people repeatedly encounter – eg parking/storing bike – they learn which actions work best
- Result of this learning is a **script** – structured sequence of things to **attend to**, and things to **do/avoid**, in achieving some **purpose** or **goal/s**
- Scripts may be associated with particular **roles** – with crime, these are **offenders** (the familiar approach – but also) **preventers, promoters**
- **User/preventer** script:

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

- **Abuser/offender** script:

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

# **Even more dynamic – script *clashes* – Know-about and know-what**

- Roles may have conflicting goals, causing tactical script clashes – archetypical pivots
  - Surveill v conceal
  - Exclude v permit entry
  - Wield force v resist it
  - Challenge suspect v give plausible explanation
  - Surprise/ambush v warning
  - Pursue v escape...
- Preventer's task is to arrange the situation to favour the user over the abuser in each of these clashes in terms of the shifting dynamics of risk of harm, effort, reward – so the story ends with the bad guy losing!

**Intervention  
in cause**

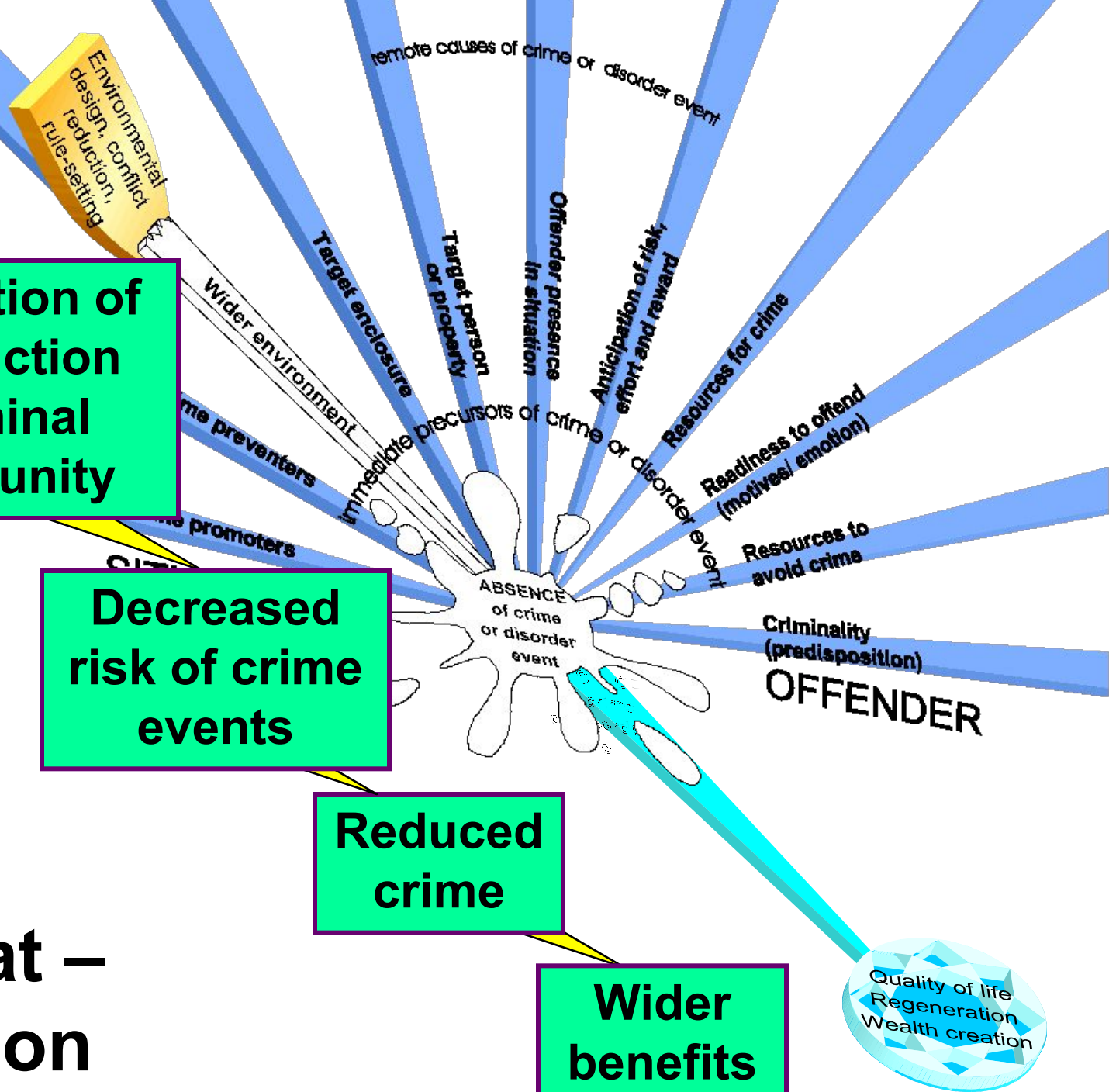
**Disruption of  
Conjunction  
of Criminal  
Opportunity**

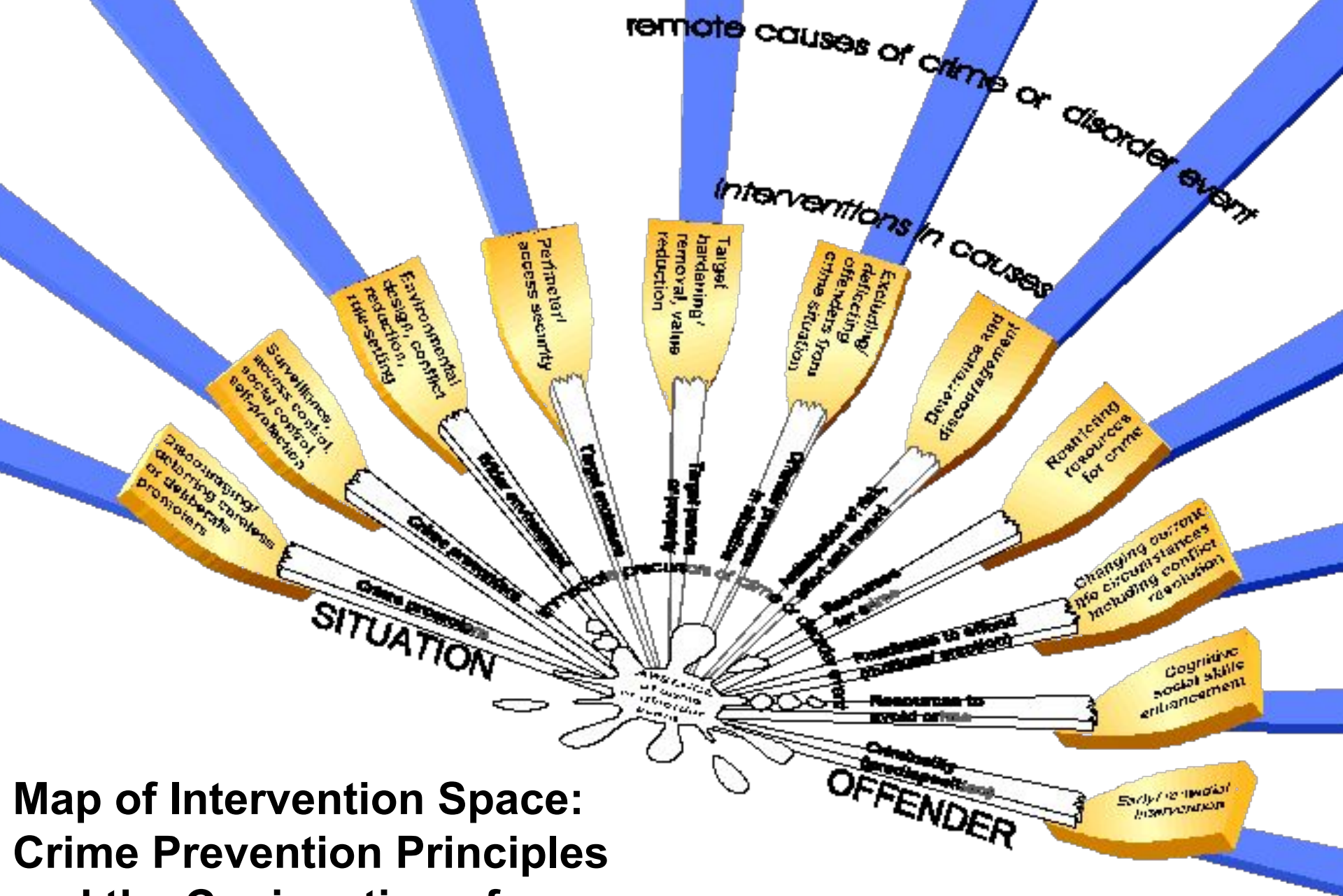
**Decreased  
risk of crime  
events**

**Reduced  
crime**

**Wider  
benefits**

**Know-what –  
Intervention**





**Map of Intervention Space:  
Crime Prevention Principles  
and the Conjunction of  
Criminal Opportunity**







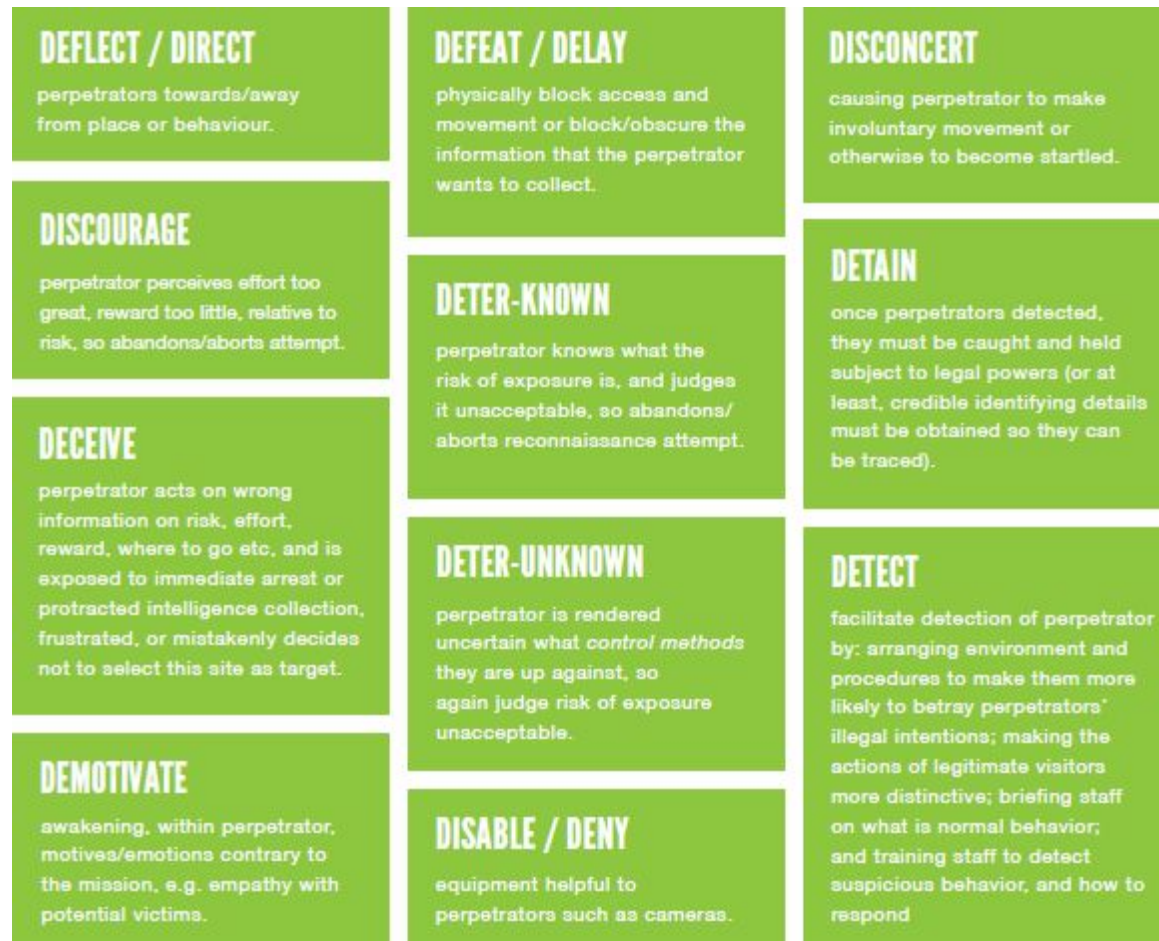
# **Further Applications for the Conjunction of Criminal Opportunity**

- Organised crime/ drug dealing
- Terrorism
- Design Against Crime – crime proofing of products
- Crime Impact Assessment/ Risk Assessment
- Horizon scanning
- Offender interviews
- Investigation of crime
- Understanding / describing Modus Operandi

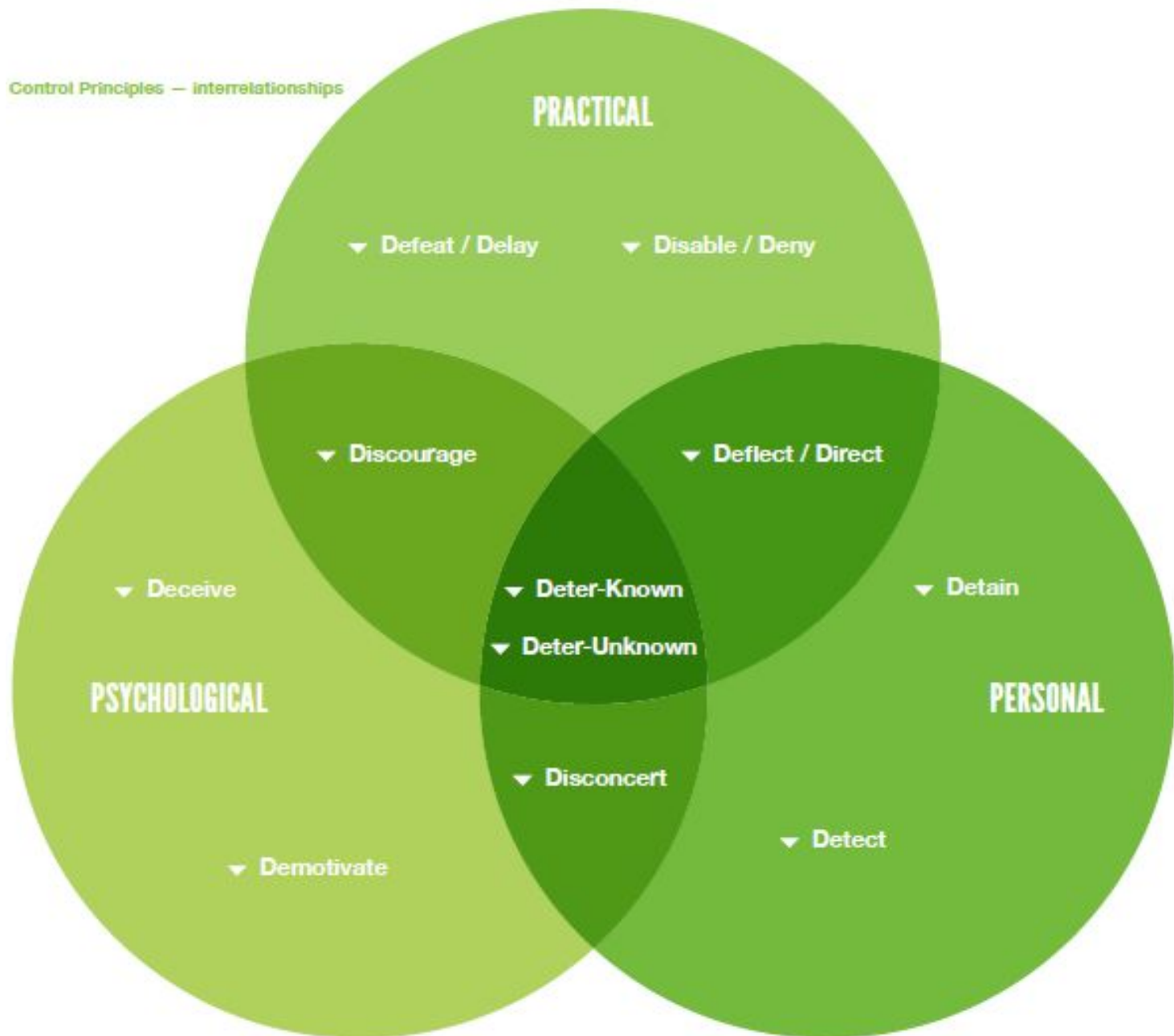
# Complementary know-what mechanism focus

## – How interventions act on *offender*

- Experience with Hostile Reconnaissance toolkit suggests 25 Techniques and more can be organised in terms of principles centred on the offender
- Could call this the offender's eye view of CCO



Control Principles — interrelationships



# Impact – beyond effect size

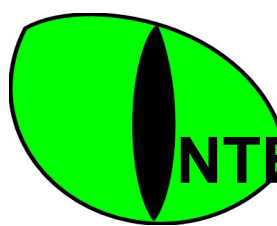
## Know-what works

- To help program delivery managers and practitioners select actions to replicate, a **multi-dimensional evaluation** needed:
  - Are actions effective or cost-effective?
  - Do anticipated benefits significantly outweigh costs/ risks?
  - Are there any serious undesirable side-effects?
  - Are actions responsive? - Can they be efficiently targeted on causes of crime problem? Can they be efficiently prioritised on basis of harm from crime, needs of victim & wider society?
  - Are actions legitimate and acceptable to community?
  - Are actions sustainable in effectiveness, financial, and human resource terms?
  - Are actions adaptable – proofed against social/ technological change and adaptive offenders?
  - Are actions implementable with acceptable level of risk, given context and available resources?
- To aid replication and innovation:
  - Realistic evaluation of impact
  - Detailed process evaluation considering tradeoffs and interactions with context – which leads us to....

**Know-How**

# Crime prevention practice knowledge

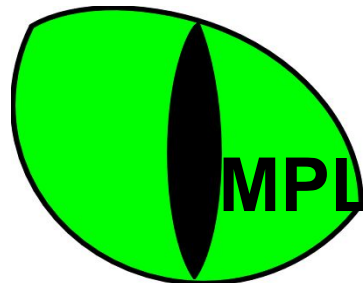
- Practitioners need guidance on
  - defining problem
  - selection
  - replication and
  - Innovation
- Trying to improve on SARA



**INTELLIGENCE**



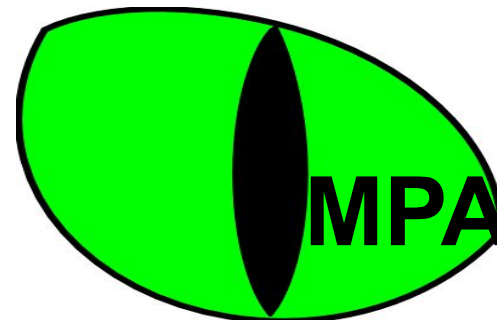
**INTERVENTION**



**IMPLEMENTATION**



**INVOLVEMENT**



**IMPACT**

**5Is**

**Know-how – The task  
streams of the Preventive  
Process**

# From SARA to 5Is

SARA

5Is

Scanning

Intelligence

Analysis

Intervention

Response

Implementation

Assessment

Involvement

Impact



# 5Is – Zoom Structure – Intelligence

**Message:**

Intelligence

**Map:**

Causes, Risk &

Protective Factors

**Methodology:**

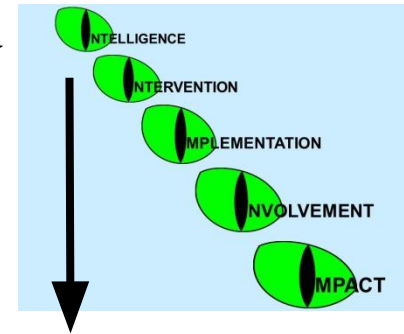
Criminal Opportunity

Conjunction of  
framework

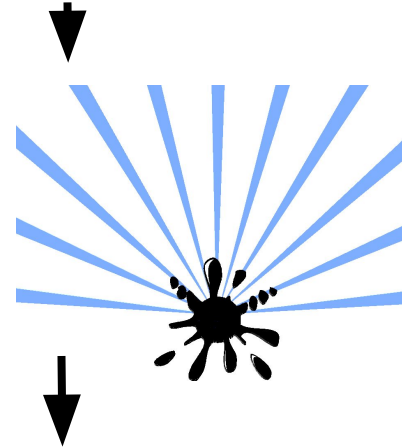
**Meat:**

of knowledge -  
causes

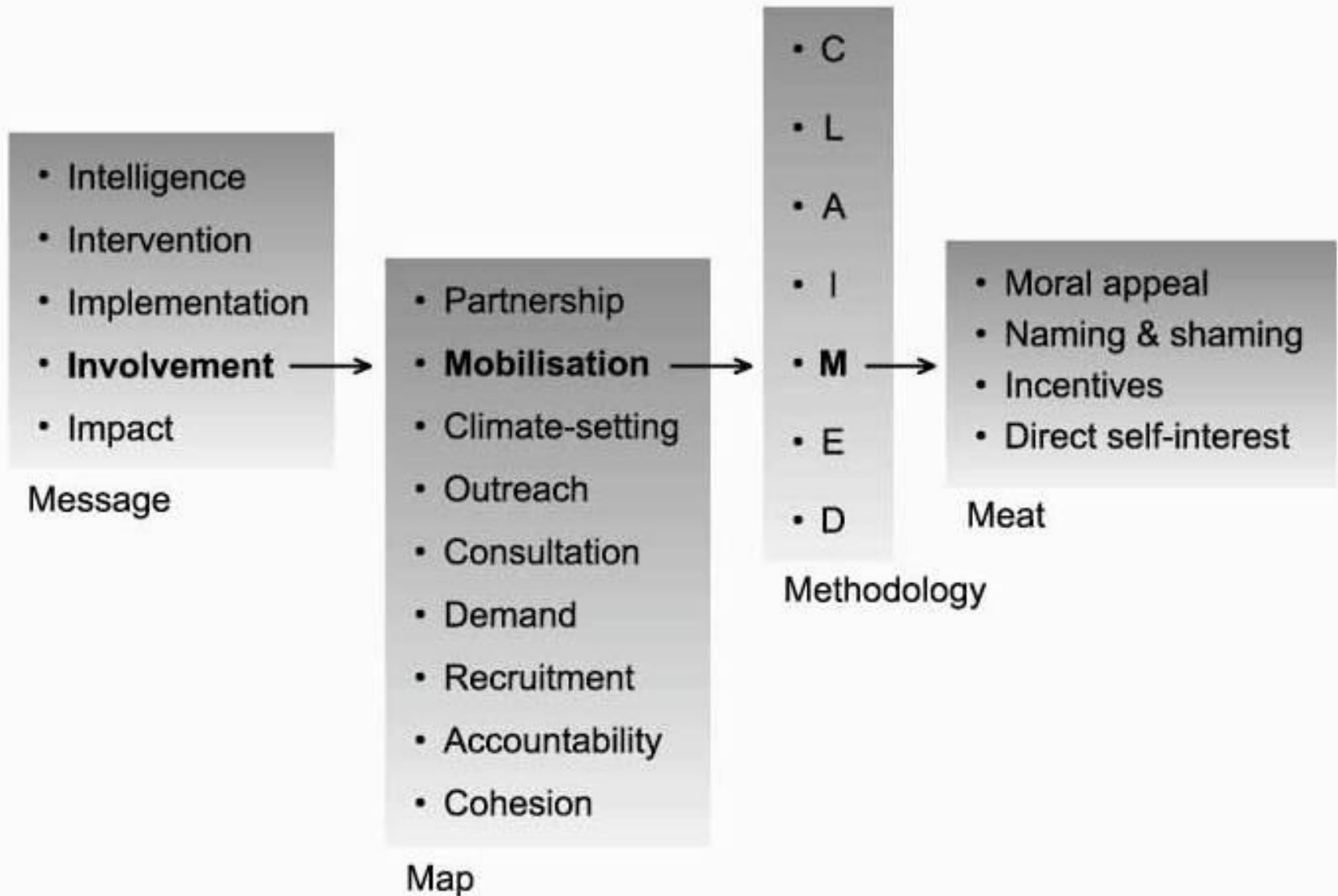
Specific content  
particular  
of crime problem



- General social/geographical context
- Evidence of crime problem – sources of information and analysis
- The crime problem/s tackled - pattern, trend, offenders, MO
- Wider crime problems
- Consequences of the crime problem/s
- Immediate causes, risk & protective factors, criminal careers



# 5Is: Zoom structure – Involvement



# Wider uses for 5Is project information

Beyond capturing good practice examples:

- Synthesis/testing of principles and theories
- Toolkits and training
- Failure-mode analysis at each 'I'
- Supporting gap analyses for research, and strategic overviews for policy and delivery
- **Prospective** business-planning/appraising tool, for project development and implementation – 'playback' as well as 'record'

# The Question of Simplicity in these frameworks

- Simplicity preferred, but...
- Crime prevention/ community safety are *complex*
- Einstein – As simple as possible but no simpler
- Ashby's Law of Requisite Variety – to understand complexity in reality, you have to have sufficient complexity in your model.
- So: *It's futile dumbing down to communicate with practitioners, if what you communicate can't deliver successful prevention. Or provide adequate foundation for research*
- Any complexity must be *appropriate* and *deliberate*
- *Language* must be sophisticated but communicable
- 5Is tackles this by Zoom Structure... and will use more communications design techniques for V.2
- Interactive graphical version a possibility
- 5Is is best learned as primary schema for prevention

# Equipping Practitioners – Technicians or Professional Consultants?

- Rather than supply practitioners with many *fixed solutions*, better to equip them with generic *principles* of community safety and knowledge of *process*
- Should help practitioners think *less* like *technicians* applying a simple prepackaged remedy; and *more* like *expert consultants/designers*, using principles to customise to context, to innovate, design and reconfigure diagnoses and solutions as they go
- But *both* kinds of practice valid in different circumstances according to simplicity/ complexity of crime problem tackled
- Need developmental pathway from heuristics to first principles

# Finally...

- *High investment* in training, guidance and other infrastructure and capacity building leads to *High return* in successful performance of crime prevention/ community safety/ Problem-Oriented Policing
- Leading-edge theory and research needed to feed this process – we can't hold ourselves back for practitioners, but we can make it easier for them to be more sophisticated

# Where to Find Information on Crime Frameworks

<http://5isframework.wordpress.com>

[www.designagainstcrime.com/crimeframeworks](http://www.designagainstcrime.com/crimeframeworks)

Ekblom, P (2011) *Crime Prevention, Security and Community Safety with the 5Is Framework*

Basingstoke: Palgrave Macmillan

*Please send comments, suggest improvements or participate in development!*

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