

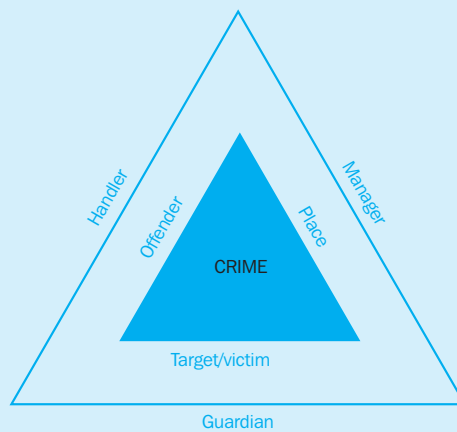
# **Become a Problem Solving Crime Analyst**

**In 55 small steps**



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## **John Eck**

John Eck is Professor of Criminal Justice at the University of Cincinnati. He has contributed to the development of problem-oriented policing since 1984 when he studied the first full scale attempt to implement the concept in the United States at Newport News, Virginia. He helped to develop a number of now standard techniques in problem solving, including the SARA model and the crime analysis triangle. He was a cofounder of the International Problem-Oriented Policing Conference held annually in San Diego. Dr Eck has served as consultant to the London Metropolitan Police and since 1999 has been a judge for the Tilley Award for Excellence in Problem-Oriented Policing. He can be reached at: [john.eck@uc.edu](mailto:john.eck@uc.edu)



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## Prepare yourself

1. Read this first
2. Rethink your job
3. Be the local crime expert
4. Know the limits of conventional policing

## Learn about problem-oriented policing

5. Become a POP expert
6. Be true to POP
7. Be very crime specific
8. Be guided by SARA – but not led astray!

## Study environmental criminology

9. Use the crime triangle
10. Never forget opportunity makes the thief
11. Always ‘think thief’
12. Expect offenders to react negatively
13. Don’t be ground down by the displacement pessimists
14. Expect diffusion of benefits

## Scan for crime problems

15. Say Cheers! when defining a problem
16. Know what kind of problem you have
17. Study the journey to crime
18. Know how hot spots develop
19. Learn if the 80–20 rule applies

## Analyse in depth

20. Formulate hypotheses
21. Diagnose your hot spot
22. Know when to use high-definition maps
23. Pay attention to daily and weekly rhythms
24. Take account of long-term change
25. Know how to use rates and denominators
26. Identify risky facilities

27. Be ready for repeat victimisation
28. Consider repeat offending
29. Know which products are CRAVED by thieves
30. Look for crime facilitators
31. Check you have answered the five 'W' (and one 'H') questions

### **Find a practical response**

32. Accept your key role at response
33. Increase the effort of crime
34. Increase the risks of crime
35. Reduce the rewards of crime
36. Reduce provocations
37. Remove excuses for crime
38. Find the owner of the problem
39. Choose responses likely to be implemented

### **Assess the impact**

40. Conduct a process evaluation
41. Know how to use controls
42. Consider geographical and temporal displacement
43. Examine displacement to other targets, tactics and crime types
44. Watch for other offenders moving in
45. Be alert to unexpected benefits
46. Expect premature falls in crime
47. Test for significance
48. Calculate costs

### **Communicate effectively**

49. Tell a clear story
50. Make clear maps
51. Use simple tables
52. Use simple figures
53. Design powerful presentations
54. Become a good presenter
55. Contribute to the store of knowledge

You who read this manual are more important than perhaps you think. Crime analysts are not well-known to the general public. You don't star in peak-time TV series or big-screen movies as do behavioural profilers or forensic scientists. Even some of your colleagues in the police aren't sure what you're about. But you are the new face of policing.

For years the police have contented themselves with chasing individual crimes after they have taken place. Crimes have been regarded as episodes to be detected, and if they result in a conviction the case is thought to be 'solved'.

This is manifestly mad. So mad, in fact, it is astonishing that society hasn't rumbled it, complained very loudly and demanded a smarter approach. Running after crooks relentlessly is too late, like catching the horse (if you're lucky) after it has bolted for the hundredth time rather than learning how to lock the stable door. It is as though when aircraft crashed we contented ourselves with finding someone to blame rather than changing procedures or amending designs.

When people do consider causes of crime they tend to talk of distant issues that cannot be changed quickly (like parenting or poverty); they neglect the more immediate causes – things that it is often quite easy to influence. Indeed, it is no exaggeration to say that answers to crime are lying all around us waiting to be picked up. That is what this manual is all about.

But who will champion this new approach when almost all those in the crime industry have a vested interest in the status quo? The media prefer to see crime as a series of individual human dramas which every now and then reward them with juicy headlines. Lawyers are steeped in traditional ways of doing things (indeed they are taught that precedence is a virtue) and are broadly content with a system which puts them at the centre and feathers their nests. Most politicians, shuffling from one policy portfolio to another, reckon crime can be tackled intuitively which, for them, means being tougher if they're of conservative inclination, and softer if they're liberal. And many criminologists have been too interested in theorising to be of any practical value to anyone but themselves.

It has been left to a new breed of thoughtful police officers, plus a few diligent and unsung civil servants, and one or two enlightened politicians in high places, to recognise that a new approach is needed. This smarter way is based on the work of a precious minority of academics, many of whose names you will come across in these pages. They are mostly criminologists, but their brand of criminology is distinctive. For one thing it is intensely practical. It is concerned with outcomes. For another, it is much more truly scientific and evidence-driven than the impenetrable analysis that sometimes passes for good work in social science essays.

In short, they are consultants in crime reduction. Yet there has been nothing to distinguish these intensely practical people from the great majority of sociological theorists that populate schools of criminology and criminal justice. This led me to coin a term for them and for the new approach they champion: *crime science*.

Crime science has three features. Its sole purpose is to reduce crime and so reduce victimisation. It is scientific in its methodology, by which I mean it aims for the same high standards of evidence that would be accepted by physicists or aeronautical engineers. And thirdly it is multidisciplinary:





it recruits every possible skill towards its cause. That is why in the following pages you will see ideas that come from geography, psychology, mathematics, epidemiology (the study of how disease spreads), economics and many other schools of knowledge.

Not all the academics I admire call themselves crime scientists, though I hope one day they will, and as in any discipline there are healthy disagreements, not least about scientific methodologies. But the concept of crime science groups together those who *care* about hard evidence, who are concerned with how to change things, not merely theorise. Crime scientists look for patterns in crime so that they can find ways to disrupt it.

One of the most important breakthroughs has been in rethinking the role of the police themselves. It involves a change in emphasis from chasing criminals to outwitting them. The idea, developed by Herman Goldstein, is wonderfully simple: instead of being reactive to crime, concentrate on your biggest problems and seize the initiative. The name given to the idea is equally straightforward: problem oriented policing, or simpler still, POP.

In reality POP involves some pretty sophisticated stuff. It requires smart thinking. Crime science can create new tools to make POP possible, but who are the professionals who will do the analysis of data and identify patterns at the local level? Who will construct hypotheses on how to intervene and put those ideas to the test? Who will create strategies that the police and other crime reduction partners can then act on? Who can gently but firmly lead society away from being so reactive to the new smart way of detecting baddies quickly and heading off trouble before it starts? Need I say it? You.

Police analysts will become more important, indeed increasingly will be seen as crucial, if we are to tackle crime more intelligently. You are the brains, the expert, the specialist, the boffin.

Your role requires three qualities that do not always come naturally: application, scepticism, and persistence. *Application* because much of what follows on these pages has to be learned and understood; it is counterintuitive, or at any rate is only self-evident once you have worked your way through it. And application is essential in your day-to-day work because good science needs good evidence and good evidence usually means hard work in finding, understanding and processing the data. Cutting corners is almost certain to turn you from a crime scientist into a con artist. You will need *scepticism* because that is the very foundation of good science. Never take anything for granted. Beliefs come free, but evidence is costly, sometimes challenging our own prejudices. Be sceptical reading this manual, be sceptical about what colleagues tell you (how do they know, how reliable is their evidence, how much do they really understand the issues?), be sceptical about data (do they really tell you what they purport to tell you?) and remember that science is not a set of subjects like physics or biology, but a rigorous methodology for testing and re-testing things we believe to be true. And you must be *persistent* because these are early days in crime science; some people will disregard you, others will think you are meddling in things that don't concern you, most will need persuading.

Forgive us if you know much of this already. To those who are already well-versed in crime science this manual may seem simplistic. But the truth is very few people yet understand these concepts, and to most readers nearly all of what follows will be new. I hope it will be not only extremely useful to you as a handbook, but exhilarating too.

**Nick Ross**

*BBC Crimewatch UK*

Chairman, the Jill Dando Institute of Crime Science, UCL

This manual assumes that you are already working as an analyst and that you are accustomed to providing the kind of information needed to support police operations. This means that:

1. you know how to use modern computing facilities and how to access and manipulate comprehensive databases;
2. you know how to use software to map crime, to identify hot spots and to relate these to demographic and other data;
3. you routinely produce charts showing weekly or monthly changes in crime at force and beat level, perhaps to support Compstat-style operations;
4. you are accustomed to carrying out small investigations into such topics as the relationship between the addresses of known offenders and local outbreaks of car theft and burglary;
5. you have probably carried out some before-and-after evaluations of crackdowns, say on residential burglaries or car thefts; and
6. you have some basic knowledge of statistics and research methodology such as provided by an undergraduate social science degree.

This manual builds on this experience to prepare you for a different analytic role as a key member of a problem-solving team. Indeed, the latest writings on problem-oriented policing see crime analysts as central to this new way of policing communities. They argue that many of the weaknesses of current practice in problem-oriented policing result from the insufficient involvement of well-trained crime analysts at each stage of the problem-solving process.

The manual prepares you for this new role by providing you with a basic knowledge of problem-oriented policing and the related fields of environmental criminology and situational crime prevention. These fields are encompassed by the new discipline of crime science and you cannot adequately function as a problem-solving crime analyst without being conversant with them. Nor can you adequately function in this role unless you rethink your

job, and the early sections of the manual explain how you must take a more proactive approach. You cannot simply wait for your police colleagues to come to you with requests for information. Instead you must take the initiative at every stage of the project in defining the scope of the problem-solving effort, in trying to analyse the causes of the problem, in helping to find an effective response and in setting up the project so that it can be evaluated and the police can learn from the results.

The manual also assumes that analysts who take on this new role are interested in contributing to the development of their profession. Assisted by vastly improved databases and powerful computing hardware and software, crime analysis is on the verge of becoming an exciting new specialty. Indeed, it has already begun to attract a cadre of well-trained and highly motivated professionals who are vital to the development of policing in the twenty-first century. You can make your contribution by communicating the results of your work in professional meetings and in the journals. By doing so, you will not only help your profession and policing in general, but you will become a more informed and valuable resource to your own force.

The manual is short enough to get through in a weekend. It would be hard work and probably worth doing, but it was not designed to be read and then shelved. Instead, we hope that you will find it to be an indispensable reference source that you will keep near your desk, consulting it whenever you need in the course of a problem-solving project. This is why it is designed to be robust, allowing for continuous use. When open at a particular step it is designed to lie flat on your desk so that you can consult it easily when working at your computer.

We have arranged the steps to follow logically one from another, in line with the SARA model (Scanning, Analysis, Response and Assessment), though each is self-contained and deals with a specific topic. This should avoid your having to leaf through the manual, jumping from place to

place, when dealing with a particular topic. To get the best out of the manual you should be thoroughly familiar with the list of contents and you should have browsed through sections that interest you to get an idea of the coverage. But you need only study a particular step when you have an immediate need for the information it contains. In any case, this is the best way to learn: to seek and apply information when you have a practical need for it.

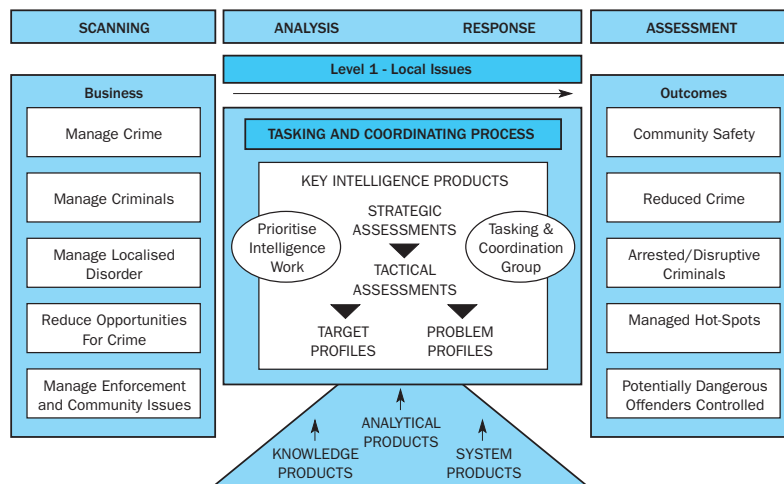
In some cases, we do deal with a particular topic in more than one place. For example Step 14 provides a general introduction to the concept of displacement, while Steps 42 and 43 explain how to check for various forms of displacement at the evaluation stages. The combined glossary and index at the end of the manual should help you find where a topic is mentioned in more than one place.

We have not referenced the manual as fully as would be needed for an academic publication. There are several reasons for this. We have already tried to distil the essentials of the literature at each step. We also doubt that busy crime analysts will have much time for academic reading. Lastly, few of you will have ready access to the specialised libraries that hold this material. But occasionally you will need to know more about a topic, and at each step we identify key articles or books that you should be able to obtain more easily. If you need help with references, feel free to email one of us at the addresses given earlier. We

would also be glad to receive any comments on the manual, especially suggestions for improvement, which could be useful if we prepare later editions. Don't be shy about suggesting your own analyses for inclusion!

**Embrace both SARA and NIM**

Policing is beset by new fads that follow hot upon one another and almost as quickly disappear when something new arrives. Many seasoned officers play along for a while, waiting for management to lose interest when they can get back to business as usual. Neither problem-oriented policing nor the National Intelligence Model should suffer this fate. The one provides a standard methodology for tackling specific recurring crime and disorder problems harming a community. The other is a standard approach to the collection, analysis and dissemination of intelligence that will ensure uniform practice across the country. Both models put the crime analyst at centre stage because they take it as given that policing must be evidence-led. The diagram below prepared by the National Criminal Intelligence Service shows how POP complements the National Intelligence Model. The Scanning, Analysis, Response and Assessment stages (SARA) of a POP project sit easily alongside the intelligence cycle promoted by NIM: Collection, Evaluation, Collation, Analysis, Recommendations and Review. Moreover, one of the four intelligence products that NIM identifies are 'problem profiles', which are analyses of specific recurring problems with recommendations for solutions. Sounds familiar, doesn't it?



Like most crime analysts, you probably think of your job in rather modest terms. You do not solve crimes single-handed. Nor do you take the lead in finding new crime patterns and persuading others to deal with them. Instead, you crunch data for those who do the 'real' work of finding better ways to arrest criminals. You respond to requests for the latest statistics on burglary or car theft from beat officers and sergeants. You map crime for weekly meetings so that the superintendent knows where to demand more effort. And you compile monthly statistics that others need for their reports. In other words, you sit in the back seat while others do the driving, asking for your help only when they need it.

This manual will help you rethink your role. Even someone sitting in the back seat can help the lost driver find direction. Control over information is crucial, and the ability to analyse it is all-important. The person who learns how to do so becomes an essential member of the team. But we are not talking here about power or status. We are referring instead to a challenge facing all police forces: how to solve enduring and repetitive crime problems. Think of yourself as a member of a team helping to solve these problems, with a particular role in that team. As you use this manual you will begin to see how to perform that role and you will also see how essential it is.

To play that essential role, you need to know more. Surprisingly, the most important knowledge you may need to add is not computer skills or mapping ability, important though these are. You need to learn more about crime itself, to become a resource to your department as an expert on crime in your local area. If there is a new burglary wave, you should be the first to know and the first to tell. Run the statistics, map them and get the basic facts yourself. If you wait, others will say what is happening without any factual basis. Once more you will be relegated to the back seat. You are the facts person and you must find things out as soon as possible, using the best means possible. This will often mean going

beyond police data, and this manual will tell you how to find and use other data sources, including interviews with victims and offenders and records of crime kept by businesses. Becoming a source of information is a first step. The ideal is to also be a source of advice. Whether you can do this depends on your supervisor's openness, but at least you can provide options or use the suggestions of others to inform decisions.

As a crime expert you should also know how best to control it. In particular you should know what works in policing and what does not. How effective is random patrol? How often do police come upon a crime in progress? How often are crimes solved later through patient detective work or forensic evidence? How productive are stakeouts and surveillance in terms of arrests? How much do crackdowns cost in officers' time? What are the arrest rates for different kinds of crimes? How many crimes of different kinds are even reported to the police? Knowing answers to these questions will tell you why even the most hard-working officers are relatively ineffective in preventing crime and why an increasing number of police forces are now turning to problem-oriented policing.

The main purpose of this manual is to tell you about problem-oriented policing and about the vital part you can play in its implementation. It helps you distinguish problem-oriented policing from other forms of community policing. It shows you how problem-oriented policing can become more effective by using environmental criminology and situational crime prevention (or more broadly crime science). It describes each of the four stages of a problem-oriented project – *scanning* for crime problems, *analysing* a specific problem in depth, *responding* to the problem by implementing solutions and *assessing* the results of the project – and gives examples of the data and information that you could provide at each stage.

These stages of a problem-oriented project will require you to remain working on a single

project much longer than in your traditional analytic role. You can expect to stay with a problem-solving project for weeks or months, rather than just the few hours needed to plot a burglary hot spot or provide a monthly report. Where a detailed assessment of results is needed, your involvement might even stretch over more than a year. You may have to explain this to officers who come to you for help. At first they may be surprised that you expect to stick so long with a project, but soon they will appreciate your commitment to making the effort worthwhile.

Your time has been wasted if you cannot communicate the results of your work. Later sections of the manual give some suggestions for communicating more effectively by telling a story using simple maps and tables. Your presentations should try to lead to a course of action, but you must always explain the limits of your data and tell officers where your recommendations are based on best guesses rather than facts.

This manual cannot tell you everything you must know to be a problem-solving analyst. You must seek constantly to enhance your professional skills and learn about the latest developments in relevant fields. You must read more widely and explore other sources of information. Additional readings are recommended throughout this manual, but you will also have to find material for yourself. A good way to do this is through networking with analysts in other departments and by attending professional meetings of analysts, police and

criminologists. And try to pass on lessons you have learned by making presentations at these meetings of valuable or novel analyses you have undertaken. In short, you should begin to see yourself as more than just a technician, skilled in manipulating and presenting data. You should become more like a researcher – albeit with a highly practical focus – one who is bringing the very best that science can offer to make policing more effective. By the same token, also recognise that you are part of an emerging profession, which you can help to develop.

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### Rethink your job

- Become a crime expert
  - Know what works in policing
  - Promote problem solving
  - Seek a place on the project team
  - Learn about environmental criminology
  - Hone your research skills
  - Communicate effectively
  - Enhance your profession
  - Become a crime scientist!
- 

#### Read more

Anthony Braga (2002). *Problem-Oriented Policing and Crime Prevention*. Monsey, New York: Criminal Justice Press.

How often have you been asked the following kinds of questions in your work?

- What are burglars taking from shops?
- Where do thieves fence their goods?
- Which are the most troublesome pubs?
- Which cars do joyriders favour?
- Do better-lit streets have less crime?
- What is the street price of heroin?
- Where do men find prostitutes?
- Who is victimising Asian shopkeepers?
- Is crime declining on any council estate?

Some you may not have been able to answer, others only after a special analysis. But suppose you had the answers to them and many more at your fingertips? Suppose you were the expert on crime in your force area? In fact, nobody else can fill that role:

- The individual officer on the beat is too busy with local crime.
- The detective has specific cases to solve.
- The sergeants and inspectors are supervising their own officers.
- The superintendents are providing leadership for their units.
- The chief and deputies are busy with the bigger picture.

In short, nobody can see the whole picture. But if you could become the expert on local crime that would give you an important chance to make your department more informed, efficient, and capable of using its resources to reduce crime. It would provide more chance to warn citizens, to detect offenders, and to institute prevention efforts. In short, you could help a lot of people by gathering the right information.

But to become the local crime expert you must try hard to become more informed than others. You must talk to officers about what they are seeing. Remember the late shift might not see officers on the early shift, and those on one side of town might not see officers on the other. They often talk about exceptions, not the rules, about what made them angry, not about the routine. Yet the routine is the bread and butter of crime analysis.

Go out on patrol with officers as often as time permits. Not only will you get to know more of the officers in your force, but you will also get a much better 'feel' for their work and the problems they face on the street. You will also get early warning about any new problems they are encountering. Sitting in regularly with dispatchers provides the same sort of benefits and will give you fresh perspective on your work.

Crime scenes receive a good deal of attention in serious crimes, but ordinary crime scenes are too often neglected. You may not have the time to visit these often, but you can look closely at crime reports. Make a practice of pulling a batch each week and going through them to see if there is anything new. Reviewing crime data in automated systems, whether calls for service data or crime reports, can also be very productive. Pay particular attention to failed crime attempts. Some offenders have a trial and error process, as they try to find new ways to get something for nothing. Those trying to cheat ticket machines or ATMs do not always find a method that works. But when they find it, the word will spread. You should provide an early warning system to the police and other local officials, as well as the main network.

Very often a local crime problem is also found elsewhere. Your force may begin to experience a rash of thefts from building sites when this has never been a problem before. But you can be sure that somewhere else has suffered this problem. That's why it is important to be alert to changes in crime targets and *modus operandi*. The Internet is a good source of information about what crime others are seeing. You should also ask your colleagues in other forces, especially nearby forces. They may be experiencing exactly the same problem, with perhaps the same group of offenders involved.

Do not limit yourself to police, for many other people know a lot about particular crime problems. Housing officers often know what drug problems are growing or fading. City engineers can see blight developing and notice indications of crime before they are apparent to others. Publicans know about underage

drinking, poor serving practices and sloppy management (in other pubs, of course!). Bus companies keep records of assaults, vandalism and other crime problems that plague them. Head teachers know all too well about bullying and vandalism on school premises. Small business owners are especially likely to note problems involving their premises. For example, a chemist knows what is being stolen from his shop or whether intoxicated people are hanging out nearby. Private security guards are often the first to know about a crime. Unfortunately, most of their contacts with police are about single incidents. But they often have information that can contribute to your understanding about general patterns of local crime, including changes in those patterns.

Offenders themselves are surprising sources of information. Although they might not want to admit doing anything themselves, they usually are willing to talk about ‘how it is generally done’. Many offenders are actually quite talkative about the craft of offending, and will tell you exactly how they pick targets, fence valuables, what offenders are looking for these days, and the like. Asking your police colleagues to obtain this information from offenders can sometimes be very useful.

Lastly, victims often know a good deal about crime circumstances. For non-contact offences, they cannot usually give a precise time of offence. But you can still learn from a burglary victim where an offender broke in, what they know to be missing, what room or floor was left alone, etc. And talking to other victims can be equally revealing.

## How to become expert on crime in your area

- Talk to officers about what they are seeing.
- Look closely at crime reports and visit crime scenes.
- Go regularly on patrol with officers and sit with dispatchers.
- Check failed attempts at crime to learn exactly what happened.

- Talk to other local officials about specific crime problems.
- Exchange information with business and private security.
- Explore sources outside your area for changes in crime targets and methods.
- Ask officers to question offenders about their methods.
- Ask officers to talk to victims about exactly when, where, and how.
- Get away from your computer!

## Thinking ahead and learning from unsuccessful attempts

Crime analysts in Chula Vista, California, knew that the building boom in their city could worsen the residential burglary problem. The houses being built were intended for affluent couples that would be out for most of the day. Daytime burglaries were already the predominant type of residential burglary for the city. The analysts decided to examine the effectiveness of existing security precautions to see if any of them could be built-in to new homes or suggested to homeowners. First, they compared completed burglaries with unsuccessful attempts for an 18-month sample of 569 homes throughout the city. This indicated that deadbolts should be installed on the side doors of new houses as well as on the front doors. Second, they interviewed 250 victims and 50 burglars and discovered that not one burglar attempted to enter a house by breaking a double-glazed window. This led to the recommendation that all windows in new housing be double-glazed and meet strict forced-entry standards.

	Completed Burglaries	Unsuccessful Attempts	Effective?*
Dusk-to-dawn light	28%	29%	NO
Indoor light on	26%	29%	NO
Indoor timer light	9%	11%	NO
Deadbolt only on front door	28%	25%	NO
Deadbolt on front and side doors	15%	29%	YES
Outdoor motion detector	23%	36%	YES
Radio/TV left on	9%	18%	YES
Alarm company sign	19%	36%	YES

\* ‘Yes’ means present in a larger proportion of unsuccessful attempts than completed burglaries

One of the most important functions of policing is to prevent crime and you should know the research on how effectively they do this.

Conventional policing uses three strategies to reduce crime:

- 1. General deterrence** endeavours to create the public perception that the risks and penalties of offending are high, so anyone considering such behaviour will refrain.
- 2. Specific deterrence** attempts to communicate a perception of high risk and penalty to specific individuals, so they will refrain from committing crimes.
- 3. Incapacitation** tries to remove active offenders from society. This prevents crimes that they would have committed if they were not locked up.

Though police often supplement these crime control strategies with other programmes, these add-ons play a secondary role. This is unfortunate, as there is strong and convincing evidence that conventional policing is not very effective, while some of these add-ons are highly effective. Indeed, a comprehensive examination of scientific research on policing by the United States National Academy of Sciences underscores the limited crime reduction utility of conventional policing and the greater effectiveness of a problem-oriented policing.

Conventional policing relies heavily on patrolling, rapid response, and follow-up investigations. Considerable research has been conducted on the effectiveness of these tactics. Though they can be effective under some restricted circumstances, the evidence shows that they are not particularly effective as general, all-purpose procedures. Policing that relies largely on these tactics is less effective than it could be if it used a broader set of tools to achieve a greater range of crime prevention effects.

The famous Kansas City patrol experiment, as well as some early Home Office research,

showed that random patrolling has little or no effect on crime. This is because crime is still a relatively rare event and the chances of random patrols being in the right place at the right time to prevent a crime are very small. However, focused patrolling of hot spots can have a large impact on crime for short periods of time because hot spot patrols apply policing to where it is most needed. It is important to note that these patrols cannot be maintained for long periods and hot spot patrolling acts as a short-term palliative, not a long-term solution.

Rapid response to reports of crime has a negligible effect on arrests. That is because citizens often delay reporting crimes to the police, if they report them at all. Most property crimes are discovered long after offenders have left, so rapid response is extremely unlikely to result in an apprehension. Further, the first impulse on being victimised or witnessing a crime is not to call the police, but to seek comfort or advice from a friend or relation. Research in the 1980s in the United States found that people involved in a crime delayed five minutes or more in half the cases before calling the police. These delays in reporting give offenders a head start in escaping. So, only when offenders are still very near crime scenes will rapid police response have a meaningful chance of securing an arrest. These circumstances are rare.

Follow-up investigations by detectives are not much more effective at producing arrests. When there are no witnesses, as is usually the case with burglaries, car thefts and most other property crimes, the chances of detecting offenders are very small. Even when offenders confront victims, they often protect their anonymity so that the usefulness of the victim reports is often limited. By focusing on cases with considerable evidence, or on highly active offenders, police may be more effective at producing arrests, but again, most cases and most offenders do not fit into these categories.

Overall, there are four main reasons why conventional policing is so ineffective:



1. Police are spread thinly and would be even if their numbers were substantially increased. To be effective police need to stimulate crime prevention by others. Unfortunately, conventional policing does little to stimulate protective actions by citizens or other organisations.
2. As discussed, police are given little useful information in most cases. Many criminal events are not reported and those that are have very little information useful for identifying suspects. However, this same data can be used to identify crime patterns and identify situations that provoke crime.
3. Penalties imposed through the criminal justice system are not immediate. Offenders pay more attention to the risks closely attached to crime opportunities, than to risks that will take months to become apparent. Offenders usually live in the 'here and now' rather than in the 'there and then'. Offenders are more likely to consider risk at the moment they are deciding to commit a crime, based on the circumstances immediately in front of them. But they consider a number of other things as well: How difficult is it to commit this crime? What will I get from it? And can this behaviour be excused? (See Steps 28 to 33.)
4. Over-reliance on the criminal justice systems clogs it and makes it less effective. In addition, there is a large-scale attrition of cases through the system. It therefore does not present a credible threat to determined offenders.

The limitations on conventional policing stem from the overuse of enforcement and the neglect of other effective approaches – in short, conventional policing is too narrowly based and inflexible. It operates too much like a factory production line making a standard product rather than like a professional service that tailors its product to the particular needs of clients. Problem-oriented policing supplies police with a method of responding to the diverse nature of crime problems and helps them to become more effective at preventing crime than they have in the past.

### Read more

Lawrence Sherman and John Eck (2002). Policing for Crime Prevention. In *Evidence-Based Crime Prevention*, edited by Lawrence Sherman and colleagues. London: Routledge.

National Research Council (2003). *Fairness and Effectiveness in Policing: The Evidence*. Committee to Review Research on Police Policy and Practices. Edited by Wesley Skogan and Kathleen Frydl. Committee on Law and Justice, the Division on Behavioral and Social Sciences and Education. Washington DC: The National Academies Press.

When a serious crime occurs, the police are expected to react immediately. They must provide help and reassurance to victims and move fast to arrest offenders. Yet we have seen that many times the police are not able to arrest the culprits and may not be able to secure a conviction when they do. We have also seen that random patrolling, which the public expects, is not an efficient way to apprehend criminals, even when guided by crime analysis to focus on high-risk times and places. This means that much police work done to meet public expectations is of limited value in controlling crime.

If they knew these facts, people would not be content for police to abandon patrol or downgrade their response to serious crimes. Rather, they would expect the police to find new and better ways to control crime, while continuing their traditional work. In fact, this is what the police leadership has been trying to do by experimenting with Compstat, 'zero tolerance', community policing and problem-oriented policing (or problem solving as it is often called). While crime analysts have a role in all these innovations, problem-oriented policing (POP) thrusts them into the limelight and gives them an important team function. That's why you should learn about it.

Herman Goldstein originated the concept of problem-oriented policing in a paper published in 1979. His idea was simple. It is that policing should fundamentally be about changing the conditions that give rise to recurring crime problems, and should not simply be about responding to incidents as they occur or forestalling them through preventive patrols. Police find it demoralising to return repeatedly to the same place or to deal repeatedly with problems caused by the same small group of offenders. They feel overwhelmed by the volume of calls and rush around in a futile effort to deal with them all. To escape from this trap, Goldstein said the police must adopt a problem-solving approach in which they work through the following four stages:

1. Scan data to identify patterns in the incidents they routinely handle.
2. Subject these patterns (labelled problems) to in-depth analysis of causes.
3. Find new ways of intervening earlier in the causal chain so that these problems are less likely to occur in the future. These new strategies are not limited to efforts to identify, arrest and prosecute offenders. Rather, without abandoning the use of the criminal law when it is likely to be the most effective response, problem-oriented policing seeks to find other potentially effective responses, alone or in partnership with others, with a high priority on prevention.
4. Assess the impact of the interventions and, if they have not worked, start the process all over again.

**SARA** is the acronym used to refer to these four stages of problem solving – **Scanning, Analysis, Response** and **Assessment**. Later sections of this manual will discuss these in detail, but you can already see why you have a central role in POP. You are the person most familiar with police data and you know how best to analyse and map that data to identify underlying patterns. You may know better than anyone else in the department how to use data in evaluating new initiatives. If you make it your business to become the local crime expert, you will also know where to find other relevant information about problems; where to find information on the Internet and in specialist literature about successful responses used elsewhere; how to use insights from environmental criminology in developing a problem analysis; and how to anticipate and measure any possible displacement. Without your day-to-day involvement at all four stages, the POP project will not achieve a substantial and sustained reduction in the problem.

Many commentators have criticised the quality of POP projects undertaken to date, even though the concept has been widely welcomed by police. The greatest problems are

## LEARN ABOUT PROBLEM-ORIENTED POLICING

found at analysis and assessment, precisely where you could make your greatest contribution. Indeed, from the very first, Goldstein has argued that problem-oriented policing depends crucially on the availability of high-level analytic capacity in the department – an argument repeated in his most recent publications. In fact, he has been very supportive of the idea of writing this manual that is addressed directly to the role of the crime analyst in problem-oriented policing.

You might agree that you have a substantial role in problem-oriented projects, but you might ask how you could ever succeed in that role given the realities of your job. How could you devote the time needed for the kind of careful analyses required? How could you make a long-term commitment to a project, when you are continually being asked to produce statistical reports and maps immediately, if not before? How would you ever be accepted as an equal member of the team, when you are a mere civilian? How could you function as an equal member when your boss wants to approve every analysis you suggest and wants to see all your work before it leaves the unit? How could you restrain the natural impatience of officers to move to a solution before the analysis is complete? How could you persuade them to consider solutions other than identifying and arresting offenders? How would you deal with criticisms that you are more interested in ‘research’ than practical action? In short, you may be wondering what planet we are living on because it certainly resembles nothing you have seen.

These are good questions, but we believe that policing is changing and that you can help speed up these changes. There is increasing pressure on police to become more effective and the time is long past when chief constables could say they would cut crime if only they had more resources. Now, they must make a detailed ‘evidence-based’ case for these resources and must explain precisely how they would use them. Their performance is being monitored more closely every day, and crime reductions achieved in New York and elsewhere have undermined excuses for failure. In short, there is no doubt that police will become increasingly reliant on data to acquire resources and manage them effectively. By providing these data you can ride this tide of change to a more rewarding career in policing, though you will have to work patiently to supply timely information in a form that is helpful to the organisation. If you do this, and you remain firmly focused on crime reduction, you and your profession will gradually move into a more central policing role – and problem-oriented policing provides you with the perfect vehicle.

### Read more

Herman Goldstein (1979). Improving Policing: A Problem-Oriented Approach. *Crime and Delinquency*, April: 234–58.

Herman Goldstein (1990). *Problem-Oriented Policing*. New York: McGraw Hill.

Some police managers attracted to problem-oriented policing hedge their bets by combining it with other strategies that enlist community help in dealing with problems, such as community policing, crime reduction partnerships and broken windows policing (or order maintenance). These managers are likely to claim that they are implementing 'community-oriented problem solving' (COPS) or 'problem-solving partnerships', or that their order maintenance activities are a form of community policing. In fact, these strategies are not really compatible and the attempt to combine them can produce a mess.

As explained, problem-oriented policing is a method for analysing and solving recurrent crime problems, while community policing represents a solution to what is defined as the central difficulty of conducting police business – gaining the support of the local community in helping to prevent crime and disorder. Community policing is therefore focused on the means not the ends of policing, and its starting point is a single highly general 'problem' of conducting police business. This 'problem' is defined *a priori* rather than emerging from a careful analysis of the everyday business of individual departments. Even the emphasis on working with communities, which the two approaches (and crime reduction partnerships) share, is not really something they have in common. This is because problem-oriented policing rarely seeks partners among the community at large. Rather, *it identifies specific partners whose help is needed in dealing with the problem in question*. If this is a problem of assaults around bus stops, a necessary partner in developing a response will be the local bus company. If the problem is shoplifting, then the cooperation of local shopkeepers will be needed. Sometimes the community's help may be needed in implementing solutions (for example, in fitting deadbolts or not giving money to beggars), but rarely can the community help in analysing specific problems or in developing solutions.

These distinctions are most easily confused when the focus of a problem-oriented project is a dilapidated neighbourhood. In this case, the project should proceed by identifying the collection of individual problems that together make up the greater one. Rather than attempting to build a relationship with the community at large, which would be the objective of a community policing project, the problem-oriented project should focus on solving the specific problems of, say, drug houses, commercial burglaries, and pub fights. To the extent that members of the community become productively involved in solving these discrete problems, they may be a rather different group of individuals in each case.

It is also important to understand the difference between problem-oriented policing and broken windows. Under the former, *specific* solutions to the variety of problems confronting the police emerge from careful and detailed analysis of the contributory causes of each. By contrast, 'broken windows' advocates the same *general* solution – policing incivilities and maintaining order – whenever crime shows signs of becoming out of hand. This approach is based on two principles, the first of which is that small offences add up to destroy community life. Thus, a large number of less serious offences, each of which is a minor irritant, together become a major one. For example, littering one piece of paper is nothing terrible, but if everybody does it the neighbourhood becomes a dump. The second principle of broken windows is that small offences encourage larger ones. For example, abandoned and boarded up properties often become the scene for drug dealing and can spawn many other crimes, even murders. This important insight has led New York City and other places to pay much more attention to policing against small offences.

All policing requires discretion, and broken windows policing requires some very important decisions to be made by officers on the street. (This is why it should not be confused with 'zero tolerance' which is a political

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slogan, impossible for the police to deliver because it would soon result in clogged courts and an alienated population.) One has to figure out which of the small offences multiply into more crimes and which do not. For example, New York City subway system managers learned that young men jumping turnstiles to travel free often committed robberies within the system. Controlling the minor crime helped reduce the major one. But the subway managers also learned that those painting graffiti did not normally commit more serious crimes. Although their efforts to control graffiti were very effective (see Step 11), they did not reduce robbery.

In helping to learn about these multipliers, your analysis can assist in deciding which minor offences warrant more attention. You can play a similar supporting role in attempts by your force to introduce community policing and crime reduction partnerships. But only problem-oriented policing offers you the chance to play a central role in initiating, implementing and assessing projects. This is because problem-oriented policing is data driven – and collecting, analysing and interpreting data is your business.

### Read more

James Q. Wilson and George Kelling (1982). Broken Windows. *The Atlantic Monthly*, March: 29–38.

### Differences between problem-oriented policing and other new strategies

	Focus	Objective	Rationale	Methods	First steps
Problem-oriented policing	Specific, recurring crime problems	Remove the causes of these problems	Prevention is more effective than enforcement	Undertake focused action-research (SARA)	Identify problems requiring attention
Community policing	Minority neighbourhoods	Enlist local communities in the fight against crime	Communities can be the eyes and ears of the police	Build trust through contacts with residents and regular community meetings	Identify a minority neighbourhood and appoint community police officers
Crime reduction partnerships	Local areas	Harness resources of entire community in reducing crime	Coordinated multi-agency action is the most effective way to deal with crime	Form partnerships with businesses, community groups and local government	Form a multi-agency partnership
Broken windows	Deteriorating neighbourhoods	Halt slide of neighbourhood into serious crime	Nip trouble in the bud	Policing incivilities/order maintenance	Identify a deteriorating neighbourhood

Your force will sometimes have a blitz on a particular crime such as car thefts or residential burglaries, and you may be asked to map these offences or provide other data to support the operation. But these categories are too broad for problem-oriented policing. They include too many different kinds of crimes, all of which need to be separately analysed. For example, 'car thefts' could include (in rough order of seriousness):

- Stealing hubcaps for resale or badges for collections.
- Breaking into cars to steal items left inside.
- Breaking into cars and stealing radios and other fittings.
- Joyriding by juveniles.
- Taking a car for temporary transport.
- Stealing a car for use in another crime.
- Stealing and keeping a car.
- Stealing cars for 'chopping' and sale of their parts.
- Stealing cars for resale.
- Stealing cars for export overseas.
- Car-jacking.

You can see these crimes are committed for a variety of motives, by different offenders, with varying degrees of organisation, knowledge and skills. Stealing hubcaps is the least difficult and daring and is committed by juvenile wannabes. Joyriding requires more courage and some basic knowledge about starting and driving cars. Stealing cars for export is a much more complicated crime requiring high levels of organisation, with many more stages and people involved. The offenders are as likely to be dishonest businessmen as career criminals. More ruthless, hardened criminals commit car-jackings.

These differences between crimes explain why the solutions to each cannot be the same. Joyriding can be reduced by better built-in security, which explains why immobilisers are

beginning to bring down overall levels of car theft. However, immobilisers cannot prevent car-jacking because victims can be forced to hand over the keys if these are not already in the ignition. In fact, some commentators believe that car-jackings have increased as thieves are now breaking into houses to steal car keys because newer cars with immobilisers are difficult to steal in the usual way. Immobilisers can also be overcome by those with sufficient technical skill and they may do little to reduce theft of cars for export. The solution to this problem may lie in better port and border controls and documents that are harder to forge.

Breaking down a larger problem of crime into smaller categories is merely the first step in tightening the focus of a POP project. For example, a recent POP project in Charlotte, North Carolina, originally focused on downtown thefts from cars, became progressively more specific as the analysis of the problem unfolded. First, it became clear that the problem was concentrated in the car parks. Only 17% involved cars parked in residences or on the streets. Then it was found, after counting parking spaces, that cars in surface car parks were six times more at risk than those in multi-storey car parks, which were generally more secure. This meant the project could focus on improving security in the surface car parks through better lighting and fencing, and more supervision by attendants. This would be much easier than trying to reduce the already low levels of theft in multi-storey car parks. Tightening the focus of a POP project in this way increases the probability of success and uses resources effectively.

There are few rules for determining precisely the level of specificity needed for a successful POP project. Tightening the focus too much could result in too few crimes being addressed to justify the expenditure of resources, though this depends on the nature and seriousness of the crimes. If only a few hubcaps are being stolen, then this problem would not merit a full-blown POP project. On the other hand, a POP project to reduce corner store robberies

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could be worth undertaking, even if only a few such robberies occur each year, because these can escalate into worse crimes such as murder, and because they increase public fear.

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‘Because so much effort has been concentrated on crude groupings of crime types, such as burglary, robbery or auto theft, it has been virtually impossible to find truly common facts about the conditions which lead to each of these groups of crimes. This implies that we have to be very patient and try to solve the problems of crime gradually and progressively, piece by piece.’

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Source: Barry Poyner (1986). *A Model for Action*. In *Situational Crime Prevention*, edited by Gloria Laycock and Kevin Heal. London: HMSO.

Some serious crimes, such as school shootings, are so rare that they cannot be properly addressed at the local level by problem-oriented policing. This is because the methodology depends upon a certain level of repetition to permit underlying causes to be identified. For these kinds of crimes, police forces must ensure that routine security measures are in place and that they have a well-worked out plan for responding to incidents.

While one should avoid beginning with a solution, some solutions for specific crimes are so promising that they might help define the focus of a POP project. To return to the example of robbery at corner stores, there is good research showing that having at least two members of staff on duty can reduce late night robberies of these stores. You could therefore take a look at how many corner store robberies occur late at night in your area. If there were enough of them, you might persuade your department to mount a POP project focused on these late night robberies simply because you know that an effective solution exists.

Finally, as you learn more about a problem in the analysis stage, you might decide that it is so similar to a related problem that it is worth addressing the two together. For instance, when working on a problem of assaults on taxi drivers, you might discover that many of these are related to robbery attempts and that it would be more economical to focus your project on both robberies and assaults. In this way you may identify a package of measures that would reduce the two problems together.

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### **Being more specific about residential burglary**

Barry Poyner and Barry Webb have argued that preventing residential burglaries targeted on electronic goods requires quite different measures from those to prevent burglaries targeted on cash or jewellery. This is because they found many differences between these two sorts of burglaries in the city they studied. When the targets were cash or jewellery, burglaries occurred mostly in older homes near to the city centre and were apparently committed by offenders on foot. When the targets were electronic goods such as TVs and VCRs, the burglaries generally took place in newer, more distant suburbs and were committed by offenders with cars. The cars were needed to transport the stolen goods and had to be parked near to the house, but not so close as to attract attention. The layout of housing in the newer suburbs allowed these conditions to be met, and Poyner and Webb’s preventive suggestions consisted principally of means to counter the lack of natural surveillance of parking places and roadways. Their suggestions to prevent inner city burglaries focused more on improving security and surveillance at the point of entry.

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Source: Barry Poyner and Barry Webb (1991). *Crime Free Housing*. Oxford: Butterworth-Architecture.

Using POP police are required to: (1) closely define a specific, recurring problem, (2) conduct an in-depth analysis for a clear understanding of the contributory causes, (3) undertake a broad search for solutions to remove these causes and bring about a lasting reduction in the problem, and (4) evaluate how successful they have been. This is a form of ‘action research’, a well-established social science method in which researchers work alongside practitioners, helping to formulate and refine interventions until success is achieved. This can be contrasted with the usual research role, which is to work one step removed from the practitioners, collecting background information about problems and conducting independent evaluations of their work. In action research, however, the researcher is an integral member of the problem-solving team. This is identical to your role in a POP project because your analyses must inform and guide action at every stage.

You will find that SARA will help you and your team keep on track. This is the acronym formulated by John Eck and Bill Spelman to refer to the four problem-solving stages of Scanning, Analysis, Response and Assessment. By dividing up the overall project into these separate stages, SARA helps to ensure that the necessary steps are undertaken in proper sequence – for example, that solutions are not adopted before an analysis of the problem has been undertaken. This is a useful check on the tendency of police to jump straight to the response stage, while skimming on definition of the problem and analysis.

Some commentators have criticised SARA for oversimplifying the POP process and for encouraging the idea that crime and disorder problems are rather easily solved if SARA is applied. For these critics, SARA masks some real issues about the complexity of crime problems and the amount of thought and negotiation that typically goes into developing and implementing new responses to problems. We agree that many if not most POP projects reported by police lack rigour and that the analysis and assessment stages are often perfunctory. But these failures cannot be

laid at SARA’s door. Rather, they reflect the police lack of analytic and evaluative skills – which is exactly why your contribution to POP is so badly needed.

Nor do we agree with a second criticism, which is that SARA fails to make clear that if the response is found ineffective, the process must begin again. In action research the team is expected to persist until success is achieved, refining and improving an intervention in the light of what is learned from earlier failures. According to some critics, however, SARA suggests that the process is complete once the assessment has been made – and that the function of assessment is merely to document the successes likely to result from following the problem-solving process. This criticism can be rather easily answered by always indicating feedback from assessment whenever SARA is represented diagrammatically.

→ Scanning → Analysis → Response → Assessment →

However, SARA can mislead in suggesting that the four problem-solving stages follow one another in a strictly linear fashion. The police often think that once a stage is completed – usually the analysis stage – it can be put behind them and need not be revisited. In fact, projects rarely follow a linear path from the initial scanning and analysis stages through the stages of response and assessment. Rather, the process is iterative so that an unfolding analysis can result in refocusing of the project, and questions about possible responses can lead to the need for fresh analyses. The longer and more complicated the project, the more iterations of this kind are likely to occur.

One of us (Ronald Clarke) recently worked with Herman Goldstein on a project to reduce thefts of kitchen appliances from houses under construction in Charlotte, North Carolina. The housing developments were often in fairly isolated rural areas and were impossible to patrol effectively because there were so many of them. They were difficult to secure because the builders wanted to encourage prospective buyers to tour the sites in the evenings and weekends. Because so few



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offenders were ever caught, we could discover little about them and about how they disposed of the appliances. We considered a wide range of possible solutions, including the use of portable alarms and CCTV cameras, storing appliances in secure containers on site and concealing GPS tracking devices in them. Quite soon we hit on a solution being used by some small builders, which was to delay installation of the appliances until the day that the buyer took possession. In the language of routine activity theory, this would mean that the targets of theft would no longer lack guardians.

Many builders were hostile at first to the idea. Sales staff believed that having the appliances in place made a home more saleable, and that the absence of appliances, if attributed to theft, might alarm purchasers about the area they were moving into. Site supervisors felt that the logistics of delivering and installing appliances individually as houses were occupied were considerably more difficult than batch delivery and installation. Some erroneously believed that building inspectors would not certify the houses as suitable for occupancy unless appliances were in place. Others (again erroneously) believed this was a mortgage requirement. Finally, individual installation would mean that builders could no longer arrange for building inspectors to visit a site and issue certificates of occupancy wholesale.

At first, these objections prevailed, but we soon decided that the solution had so many advantages that we should see if answers could be found to the builders' objections. Here is the point of story, which is that seeking answers meant that we had to begin documenting more carefully the objections raised and the likely benefits of the solution we proposed. In other words, we had to revisit the analysis stage to find detailed information needed for implementation of the response. This information was useful in persuading builders to adopt the solution and thus reducing the number of appliance thefts.

This shows how problem-oriented policing is an iterative process, in which the gradual acquisition of data and information informs the project,

leading to more questions, to redefinition, and even to changes in focus as it moves along. As soon as a promising response is identified, its costs and benefits need to be analysed in depth. The alternative of comprehensively exploring all available response options runs the risk that the project will lose momentum and the support of those involved.

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### SARA and the '5Is'

Paul Ekblom of the Home Office has recently proposed the '5Is', a development of SARA, which aims to capture, organise, and transfer knowledge of good practice:

- 1. Intelligence** – gathering and analysing information on crime problems and their consequences, and diagnosing their causes.
- 2. Intervention** – considering the full range of possible interventions that could be applied to block, disrupt or weaken those causes and manipulate the risk and protective factors.
- 3. Implementation** – converting potential interventions into practical methods, putting them into effect in ways that are appropriate for the local context, and monitoring the actions undertaken.
- 4. Involvement** – mobilising other agencies, companies and individuals to play their part in implementing the intervention.
- 5. Impact and process evaluation** – assessment, feedback and adjustment.

The 5Is are supported by a wealth of other practical concepts and tools developed by Ekblom including his 'Conjunction of Criminal Opportunity' framework, a development of routine activity theory. A summary of the 5Is is at [www.crimereduction.gov.uk/learningzone/5is.htm](http://www.crimereduction.gov.uk/learningzone/5is.htm)

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#### Read more

Ronald Clarke and Herman Goldstein (2002). Reducing Theft at Construction Sites: Lessons from a Problem-oriented Project. In *Analysis for Crime Prevention. Crime Prevention Studies*, vol. 13, edited by Nick Tilley. Monsey, New York: Criminal Justice Press (and Willan Publishing, UK). (Download from: [www.cops.usdoj.gov](http://www.cops.usdoj.gov))

Criminological theory is of little help in dealing with crime in the real world because it finds causes in distant factors, such as child-rearing practices, genetic makeup, and psychological or social processes. These are mostly beyond the reach of everyday practice, and their combination is extremely complicated for those who want to understand crime, and do something about it. But you will find that the theories and concepts of environmental criminology (and of the new discipline of crime science) are much more helpful to everyday police work. This is because they deal with the immediate situational causes of crime events, including temptations and opportunities and inadequate protection of targets. You will be a stronger member of the problem-oriented team if you are familiar with these concepts.

The crime triangle (also known as the problem analysis triangle) comes straight out of one of the main theories of environmental criminology – routine activity theory. This theory formulated by Lawrence Cohen and Marcus Felson states that predatory crime occurs when a likely offender and suitable target come together in time and space, without a capable guardian present. It takes the existence of a likely offender for granted since normal human greed and selfishness are sufficient explanations of criminal motivation. It makes no distinction between a human victim and an inanimate target since both can meet the offender's purpose. And it defines a capable guardian in terms of both human actors and security devices. This formulation led to the original crime triangle with three sides representing the offender, the target and the location, or place (see dark shaded area in the diagram).

By directing attention to the three major components of any problem, the crime triangle helps to ensure that your analysis covers all three. Police are used to thinking about a problem in terms of the offenders involved – indeed, their usual focus is almost exclusively on how to identify and arrest them. But POP

requires that a broader range of solutions is explored and this requires information about the victims and the places involved.

The crime triangle is the basis for another useful analytic tool – a classification of the three main kinds of *recurring* problems that confront police:

1. Repeat offending problems involve offenders attacking different targets at different places. These are ravenous WOLF problems. An armed robber who attacks a series of different post offices is an example of a pure wolf problem.
2. Repeat victimization problems involve victims repeatedly attacked by different offenders. These are sitting DUCK problems. Taxi drivers repeatedly robbed in different locations by different people is an example of a pure duck problem.
3. Repeat location problems involve different offenders and different targets interacting at the same place. These are DEN of iniquity problems or hot spots. A drinking establishment that has many fights, but always among different people, is an example of a pure den problem.

Note that pure wolf, duck, and den problems are rare. Most problems involve a mixture. The question is, which is most dominant in a given problem, the wolf, duck or den?

The latest formulation of the crime triangle (see light-shaded area in the diagram) will help you to think about the response as well as the analysis. This adds an outer level of 'controller' for each of the three original elements:

For the target/victim, this is the **capable guardian** of the original formulation of routine activity theory – usually people protecting their own belongings or those of family members, friends, neighbours and co-workers.

## The crime triangle



For the offender, this is the **handler**, someone who knows the offender well and who is in a position to exert some control over his or her actions. Handlers include parents, siblings, teachers, friends and spouses.

For the place, the controller is the **place manager**, a person who has some responsibility for controlling behaviour in the specific location such as a bus conductor or teacher in a school.

The addition of the outer level of controllers turns the Wolf/Duck/Den classification into a *theory* of how these recurring problems arise:

**WOLF** problems occur when offenders are able to locate temporarily vulnerable targets and places. The controllers for these targets and places may act to prevent future attacks, but the offenders move on to other targets and places. It is the offender-handler breakdown that facilitates wolf problems.

**DUCK** problems occur when victims continually interact with potential offenders at different places, but the victims do not increase their precautionary measures and their guardians are either absent or ineffective. The handlers may prevent the offenders from engaging in more of these events, and the managers may improve how they regulate conduct at their places, but the victim encounters other offenders at other places.

**DEN** problems occur when new potential offenders and new potential targets encounter each other in a place where management is weak. The setting continues to facilitate the problem events, even though handlers suppress offending, and guardians suppress victimisation.

Understanding how these recurring problems arise will help you think about what might be done not just to arrest offenders, but also to prevent them from re-offending by making better use of handlers; what victims can do to reduce the probability of being targets; and what changes could be made to the places where problems occur, be these schools, taverns or parking lots. In short, right from the beginning, it helps you to avoid collecting data about every conceivable aspect of the problem, but to focus instead on those aspects most likely to lead to practical solutions.

### Read more

John Eck (2003). Police Problems: The Complexity of Problem Theory, Research and Evaluation. In *Problem-Oriented Policing: From Innovation to Mainstream*. Crime Prevention Studies, vol. 15, edited by Johannes Knutsson. Monsey, New York: Criminal Justice Press (and Willan Publishing, UK).

For environmental criminologists, ‘opportunity makes the thief’ is more than just a popular saying; it is the cornerstone of their approach. They believe that if opportunity increases so will crime. More important, they also believe that if opportunity is reduced crime will decline, which is why they advocate the situational prevention measures discussed later in this manual. To see if you agree that opportunity (and temptation) is a cause of crime, consider the situation suggested by Gloria Laycock and Nick Tilley:

*Suppose all situational controls were to be abandoned: no locks, no custom controls, cash left for parking in an open lot for occasional collection, no library check-outs, no baggage screening at airports, no ticket checks at train stations, no traffic lights, etc., would there be no change in the volume of crime and disorder?*

If you answer that, of course, crime and disorder would increase, then you too think opportunity is a cause of crime. Incredibly, most criminologists would not agree. They believe that opportunity can only determine when and where crime occurs, not *whether* it occurs. In their view, whether crime occurs is wholly dependent on offenders’ propensities and these propensities collectively determine the volume of crime in society.

In fact, crime levels are as much determined by the opportunities afforded by the physical and social arrangements of society as by the attitudes and dispositions of the population. This is difficult to prove without conducting an experiment, but it would be unethical to create new opportunities for burglary or robbery, then sit back to see what happens. However, experiments have been undertaken with more minor transgressions. In America in the 1920s, researchers gave schoolchildren the opportunity to cheat on tests, to lie about cheating, and to steal coins from puzzles used. Other researchers have scattered stamped/addressed letters in the streets, some containing money, to see if these were posted. In a third group of laboratory experiments, subjects have been instructed to ‘punish’ others for disobeying

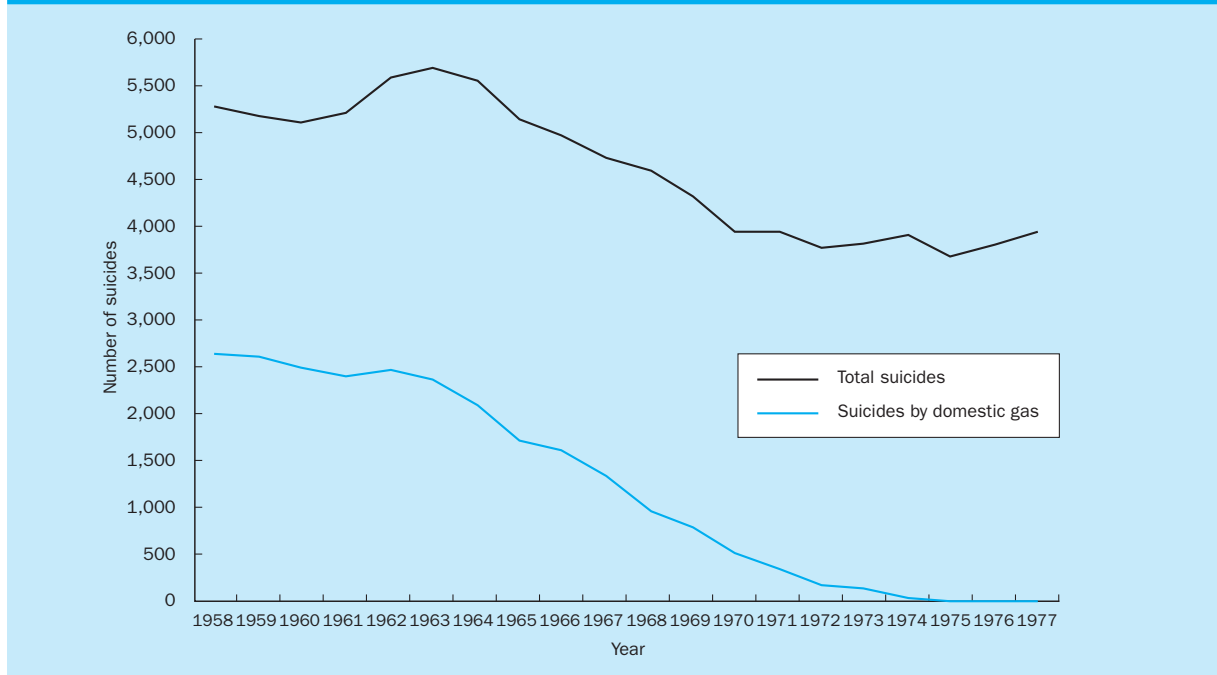
test instructions by delivering severe electric shocks through the test apparatus. (In fact the ‘victims’ were part of the research team and no shocks were delivered.)

The results of these experiments support the causal role of opportunity. Most of the subjects, even those who generally resisted temptation, took some opportunities to behave dishonestly or aggressively – opportunities they would not have encountered but for their participation in the studies. However, the transgressions studied were relatively minor and you cannot generalise from them to crimes of robbery or car theft. We therefore must turn to some less rigorous but still convincing studies to show the importance of opportunity in causing crime.

**Suicide and opportunity.** Suicide is not a crime, but like much crime it is generally thought to be a deeply motivated act. However, suicide trends in this country show a strong and surprising opportunity component. In the 1950s, almost 50% of people killing themselves did so by domestic gas, which contained lethal amounts of carbon monoxide. In popular parlance, they put their heads in the gas oven. During the 1960s, gas began to be made from oil not coal. The new gas had less carbon monoxide and the number of gas suicides began to decline. By 1968, only about 20% of suicides involved gas. This is when a second change began: the replacement of manufactured gas with natural gas from the North Sea. Natural gas contains no carbon monoxide and is almost impossible to use for suicide. By the mid-1970s, less than 1% of suicides used this method.

What is deeply surprising is that gassing suicides did not displace wholesale to other methods. Between 1968 and 1975, total suicides dropped by one third from 5,298 to 3,693 (see figure). (This was during an economic depression when suicide could have been expected to increase and, indeed, was increasing in other European countries.) People did not turn to other methods because these all have significant drawbacks. Overdoses require sufficient pills to be amassed and, in any case,

## Suicides in England and Wales 1958–1977



these are much less lethal than carbon monoxide. Hanging requires more knowledge as well as courage. Not everyone has a gun, and these can result in disfiguring injuries not death. Domestic gas, on the other hand, is readily available in most homes. It is bloodless and painless and was highly lethal. It is not surprising that it was the preferred method for so long. Nor is it so surprising that when the opportunity to use it was removed, the overall suicide rate declined.

**Murder and opportunity.** Opportunity plays an important causal role in murder, one of the most serious crimes, as shown by a comparison made a few years ago of homicide rates here and in the United States. Crime rates, including those for assaults, differ little between the countries, with the glaring exception of murder. For 1980–84, the period covered by the study, the overall homicide rate in the United States was 8.5 times greater than here. The gun homicide rate was 63 times as great and the handgun homicide rate was 175 times as great. In the whole of England and Wales in this period (with about 50 million people), only 57 murders were committed with a handgun. In the United States, with a

population of about 230 million (less than five times greater) a total of 46,553 people were murdered with a handgun.

The difference in the homicide rates between the two countries has narrowed during the past few years, as their overall crime rates have converged, but there is still a much higher rate of murder in the United States. This is because many more people there own guns, especially handguns. When they fight someone is more likely to be shot. In other words, gun availability, an opportunity variable, plays an important causal role in murder.

Understanding the arguments in this section, and accepting that opportunity causes crime, does not mean you must deny the importance of other causes, such as broken homes and inconsistent discipline. But it will help direct your attention to practical means of preventing crime, and help you defend them from criticism.

### Read more

Marcus Felson and Ronald Clarke (1998). *Opportunity Makes the Thief*. Police Research Series, Paper 98. London: Home Office.

Whenever you analyse a problem or think about solutions, try to discover the reasons why the crimes are committed – not the distant social or psychological causes, but the immediate benefits of the crime for the offenders involved. A radical critique of criminology pointed out 30 years ago that bank robbers are not propelled through the door of the bank by their genes; they rob banks because they want to get rich.

In many cases of theft and robbery the benefits will be obvious, but they may not be clear for gang violence or so-called 'senseless' vandalism and graffiti. In fact, graffiti can mark the territory of a juvenile gang, can indicate where drugs can be purchased or can simply be a way to show off. Knowing which of these reasons is dominant can help to define the focus of a problem-solving project and unravel the contributory factors. It can also help the project team identify solutions. Thus, the New York City subway only succeeded in eradicating graffiti when it understood the motivation of the 'taggers': in the words of George Kelling and Maryalice Sloan-Howitt who helped solve the problem, this was to 'get up', to see their handiwork displayed day after day as the trains travelled around the system. This insight led to a programme of immediate cleaning of graffiti, which brought the problem under control.

Even in the case of theft the benefits are not always obvious. For example, the most commonly stolen items from American drug stores include painkillers, decongestants and antihistamines. These are taken because their ingredients can be used to obtain or enhance a 'high'. Knowing that addicts are responsible for much of the shoplifting in drug stores is helpful in crafting a response, and your problem-solving work will always be helped by understanding the motives of the offenders involved.

As important as knowing *why* offenders commit the crimes is knowing *how* they commit them. Rational choice theory, another tool of environmental criminology, can be helpful in thinking about these questions. The name is misleading because the theory does not assume that offenders plan their crimes carefully; it assumes only that they are seeking

to benefit themselves by their crimes, which is rational enough. The theory does not even assume that offenders succeed in obtaining the benefits they seek. This is because they rarely have all the information they need, they do not devote enough time to planning their actions, they take risks and they make mistakes. This is how we all behave in everyday decision-making and is what theorists call limited or bounded rationality.

Offenders must often decide quickly about how to accomplish their goals and how to get away without being caught. Interviewing them can help you understand how they make these decisions (see the Boxes). So long as you confine yourself to the general nature of the problem you are trying to solve, and avoid specific questions about crimes they have committed, you will be surprised how freely they will talk. After all, we all enjoy talking about ourselves and about the work we do.

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Martin Gill of Leicester University tells a story of interviewing an experienced offender in prison. When dealing with the crime that had led to his arrest, Gill asked: 'Did you think you'd get caught?' The prisoner leaned back in his chair and gave him a long look before saying: 'I never expected to hear someone from a university ask such a stupid question. Do you think I'd have done it, if I thought I'd get caught?'

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Quite often, however, you can get a long way with your own imaginative construction of the course of a crime. What must be done at each stage? How are targets selected? Victims subdued or tricked? Witnesses avoided? The police escaped? The goods disposed of? Even if you cannot answer all these questions about *modus operandi*, your attempt to enter the offender's mind can help you think about responses. This is what Paul Ekblom means when he advises problem solvers to 'think thief'.

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Pickpockets on the Underground told Paul Ekblom that they would stand near signs warning passengers that pickpockets were operating. The signs caused passengers to reassuringly pat whichever pockets contained their wallets. This considerably simplified the task for pickpockets.

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Another rational choice theorist, Derek Cornish of the London School of Economics, has developed a second concept that will help you unravel the sequence of decisions involved in any crime. This is the 'crime script'. The underlying idea is that any particular category of crime requires a set of standard actions to be performed in a particular order, just as in the script of a play. The scenes are the sequential stages of the crime, the criminals are the actors and the tools they use are the props. Using this framework shows that even an apparently simple crime, like stealing a car for temporary use from a parking lot, requires the offender to make decisions at each step about how to proceed. Studying this sequence reveals many possible points of intervention and the more completely you understand the crime script, the more help you can provide in identifying possible responses.

As well as conducting your own interviews, you can also search the literature for reports of interviews with similar groups of offenders. Environmental criminologists have greatly expanded our knowledge about the methods criminals use by interviewing car thieves, muggers, commercial robbers, residential and commercial burglars, shoplifters and even EU fraudsters. Even though the offenders may not be quite the same group as your own, carefully looking at the results of published interview studies can help you understand your problem, especially if you round out the picture by examining the details of crime reports or the distribution of the crimes concerned in time and space. Knowing that residential burglars generally enter houses through rear doors or windows, and that they often return quite soon to burgle the same house again, not only gives you insight into their decision making, but also immediately suggests some interventions.

### Armed robbers talking

#### Motives

'You are sitting there alone and you feeling light in your pocket, your rent is due, light and gas bill, you got these bill collectors sending you letters all the time, and you say, "I wish I had some money. I need some money." Those are the haints. [You haint got this and you haint got that.] Your mind starts tripping cause you ain't got no money and the wolves are at the door... [After my last stickup] I gave my landlord some money and sent a little money off to the electric company, a little bit off to the gas company. I still had like twenty or thirty dollars in my pocket. I got me some beer, some cigarettes, and [spent] some on a stone [of crack cocaine]; enjoy myself for a minute. I let the people know I'm trying to pay you and they ain't gonna be knocking on my door. Now I can do me legitimate hustles until the crunch comes again.' (pp.43–44)

#### Advantages of robbery

'Robbery is the quickest money. Robbery is the most money you gonna get fast... Burglary, you gonna have to sell the merchandise and get the money. Drugs, you gonna have to deal with too many people, [a] bunch of people. You gonna sell a fifty-dollar or hundred dollar bag to him, a fifty-dollar or hundred-dollar bag to him, it takes too long. But if you find where the cash money is and just go take it, you get it all in one wad. No problem. I've tried burglary, I've tried drug selling... the money is too slow.' (pp.51–52)

#### Choosing the victim

'See, I know the places to go [to locate good robbery targets]. Usually I go to all the places where dope men hang out... but I [also have] done some people coming out of those instant tellers.' (p.78)

'That's all I done robbed is drug dealers...they not gonna call the police. What they gonna tell the police? He robbed me for my dope? They is the easiest bait to me. I don't want to harm no innocent people, I just deal basically with drug dealers.' (p.64)

#### Violence

'Well, if [the victim] hesitates like that, undecided, you get a little aggressive and you push them...I might take [the] pistol and crack their head with it. "Come on with that money and quit bullcrapping or else you gonna get into some real trouble!" Normally when they see you mean that kind of business they...come on out with it.' (p.109)

Source: Richard Wright and Scott Decker (1997). *Armed Robbers in Action*. Boston: Northeastern University Press.

#### Read more

Derek Cornish (1994). The Procedural Analysis of Offending and its Relevance for Situational Prevention. In *Crime Prevention Studies*, vol. 3, edited by Ronald Clarke. Monsey, New York: Criminal Justice Press. (Download from: [www.popcenter.org](http://www.popcenter.org))

Almost all crime prevention involves changing offenders' *perceptions* of the opportunity for crime. As the figure shows, prevention schemes sometimes work directly on perceptions, as when police inform offenders that they are being closely watched. But most prevention schemes work through one or more intermediate steps as in property marking schemes, for example, where residents apply window stickers showing participation. Changes in offender perception influence offenders' behaviours that, in turn, alter crime patterns.

In many cases, the preventive measures will deter offenders from further criminal activity. They can also have the unintended effects of (1) reducing crime beyond the focus of the measures, which is known as 'diffusion of benefits' (see Steps 14 and 41) and (2) reducing crime before they have actually been implemented, known as 'anticipatory benefits' (Step 46). However, preventive measures do not always achieve the desired effects, sometimes because offenders are quite unaware of the interventions in place. For example, covert enforcement may change the risks to offenders, without offenders being aware of it. Consequently, they

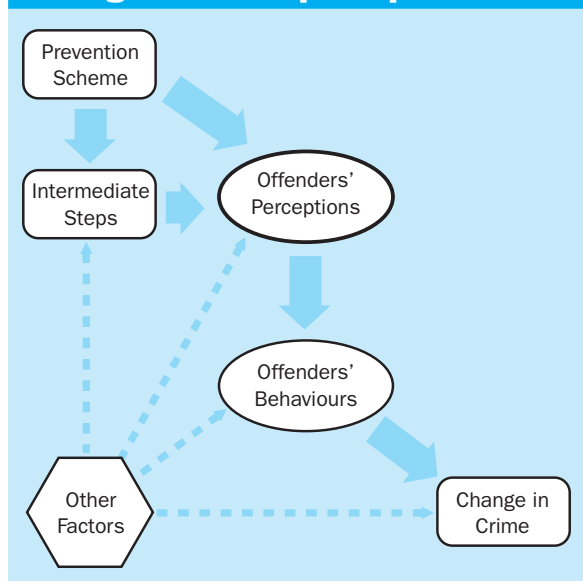
will continue to offend. In other cases, offenders may adjust negatively to the preventive measures. These negative adjustments include defiance, displacement and adaptation.

**Defiance** occurs when offenders challenge the legitimacy of prevention efforts and commit more offences rather than fewer. It has been suggested that some offenders act this way in response to being arrested for domestic violence. Defiance is more likely when the police are perceived to be unfair and heavy handed and there is evidence that people are more law abiding when police treat them fairly, even if the outcome is not what people desire.

**Displacement** occurs when offenders change their behaviour to thwart preventive actions. Displacement is the opposite of diffusion of benefits and both come in five forms, as the table illustrates. Displacement is a serious threat, but it is far from inevitable. Reviews show that many situational prevention programmes show little or no evidence of displacement, and when displacement is found, it seldom fully offsets the prevention benefits (Step 14).

**Adaptation** refers to a longer-term process whereby the offender population as a whole discovers new crime vulnerabilities after preventive measures have been in place for a while. Paul Ekblom, Ken Pease and other researchers often use the analogy of an 'arms race' between preventers and offenders when discussing this process. So, in time, we can expect many crimes that have been reduced by preventive measures to reappear as criminals discover new ways to commit them. A perfect example is credit card fraud (see the Box). But not all preventive measures are so vulnerable to criminal ingenuity. For example, Neal Shover has argued that technology has brought a lasting respite from safecracking, which is now very rare though it was once quite common.

### All prevention schemes work through offender perceptions





## STUDY ENVIRONMENTAL CRIMINOLOGY

### Displacement and diffusion of benefits: burglary of flats

Type	Definition	Diffusion	Displacement
Geographical <sup>(1)</sup>	Geographic change	Reduction in targeted building and in nearby buildings	Switch to another building
Temporal <sup>(1)</sup>	Time switch	Reduced burglaries during day and evening	Switch from day to evening
Target <sup>(2)</sup>	Switch object of offending	Reduced burglaries in flats and houses	Switch from flats to houses
Tactical <sup>(2)</sup>	Change in procedures for offending	Reduction in attacks on locked and unlocked doors	Switch from unlocked doors to picking locks
Crime type <sup>(2)</sup>	Switch crimes	Reduction in burglary and theft	Switch from burglary to theft

(1) See Step 42 (2) See Step 43

STUDY

### Offender adaptation and credit card fraud

In a series of papers, Michael Levi and his colleagues have described how a partnership between the police, the Home Office and the credit card issuers led to successful action in the mid-1990s to reduce credit card frauds. The measures introduced include new lower limits for retailers seeking authorisation of transactions and greatly improved methods of delivering new credit cards to consumers via the mail. As the table shows there was a resulting marked reduction in fraud losses. In recent years, however, credit card losses have begun to climb again. This is due principally to a growth in losses resulting from 'card not present frauds' (due to the rapid expansion of Internet sales) and in counterfeiting of cards (said to be the work of organised gangs in East Asia).

### Credit card fraud losses, UK, £ millions

	Other	Card not present	Application fraud	Counterfeit	Mail non-receipt	Lost and stolen	Total
1991	1.6	0.4	2.0	4.6	32.9	124.1	165.6
1992	1.0	1.3	1.4	8.4	29.6	123.2	165.0
1993	0.8	1.6	0.9	9.9	18.2	98.5	129.9
1994	0.5	2.5	0.7	9.6	12.6	71.1	96.9
1995	0.3	4.6	1.5	7.7	9.1	60.1	83.3
1996	0.5	6.5	6.7	13.3	10.0	60.0	97.1
1997	1.2	12.5	11.9	20.3	12.5	66.2	122.0
1998	2.3	13.6	14.5	26.8	12.0	65.8	135.0
1999	3.0	29.3	11.4	50.3	14.6	79.7	188.3
2000	6.5	56.8	10.2	102.8	17.3	98.9	292.5

#### Read more

Paul Ekblom (1997). Gearing up Against Crime: a Dynamic Framework to Help Designers Keep up with the Adaptive Criminal in a Changing World. *International Journal of Risk, Security and Crime Prevention*, 2: 249-265. Also [www.homeoffice.gov.uk/rds/pdfs/risk.pdf](http://www.homeoffice.gov.uk/rds/pdfs/risk.pdf)

Problem-oriented policing often tries to reduce opportunities for crime. For example, window locks may be fitted to prevent burglary in a block of flats, or CCTV cameras installed to prevent thefts in parking lots. These ways of reducing opportunities for crime often meet the same objection: all they do is move crime around, not prevent it. This theory of 'displacement' sees crime as being shifted around in five main ways:

1. Crime is moved from one place to another (**geographical**).
2. Crime is moved from one time to another (**temporal**).
3. Crime is directed away from one target to another (**target**).
4. One method of committing crime is replaced by another (**tactical**).
5. One kind of crime is substituted for another (**crime type**).

In each case, the theory assumes that offenders must commit crime, whatever impediments they face. The basis for the assumption is either that the propensity to commit crime builds up and must be discharged in the same way that sexual release is sought, or that 'professional' criminals or drug addicts must obtain a certain income from crime to maintain their lifestyles. Whatever its basis, the displacement theory neglects the important causal role of temptation and opportunity in crime (Step 10).

Even in the case of more committed offenders, the displacement theory fails to give enough importance to opportunity. Thus, research on drug addicts has shown that they adapt to variations in the supply of drugs. Nor is there any simple progression in drug use. Rather, addicts might be forced to use smaller amounts or less agreeable drugs because the supply of drugs has been cut.

As for professional criminals like bank robbers, there is no reason to assume that they must obtain a fixed amount of money from crime. They would surely commit fewer robberies if these became difficult and risky, just as they would commit more robberies if these became easy. Bank robbers, like everyone else, may sometimes have to adjust to reduced circumstances and be content with lower levels of income.

This does not mean that we can ignore displacement. Indeed, rational choice theory predicts that offenders will displace when the benefits for doing so outweigh the costs. For example, once steering locks were introduced for all new cars sold in Britain from 1971, older cars without these locks were increasingly stolen. Since these cars were easy for offenders to find, this displacement was not a surprising outcome. But numerous other studies have found that displacement did not occur at all, or only to a limited extent. For example:

New identification procedures greatly reduced cheque frauds in Sweden, with no evidence of displacement to a range of 'conceivable' alternative crimes.

Extensive target hardening undertaken in banks in Australia lowered robbery rates, but there was no sign that corner stores, petrol stations, betting shops, motels, or people in the street began to experience more robberies.

Crime was not displaced to a nearby estate when the council improved street lighting for a run-down housing estate in the Midlands.

When a package of security improvements reduced thefts in a multi-storey car park in Dover, there was no evidence that thefts were displaced to other nearby car parks.

When streets were closed in Finsbury Park and policing was intensified, there was little evidence that prostitutes simply moved to other nearby locations. According to the researchers, many of the women working the streets in Finsbury Park were not deeply committed to prostitution, but saw it as a relatively easy way to make a living. When conditions changed so did their involvement and many seem to have given up 'the game' (Step 44).

In these examples, the offenders' costs of displacing seemed to have outweighed the benefits and the examples bear out the argument that displacement occurs much less than commonly believed. This is the consensus of three different reviews of the displacement literature undertaken in Canada, the United States and the Netherlands. The Dutch review (the most recent one) reports that in 22 of 55 studies in which displacement was examined, no evidence of it was found. In the remaining 33 studies in which evidence of displacement was found, only some of the crime seems to have been displaced. In no case was the amount of crime displaced equal to the amount prevented.

To sum up, displacement is always a threat, but there are strong theoretical reasons for believing that it is far from inevitable. In addition, the studies of displacement show that even when it does occur, it may be far from complete and that important net reductions in crime can be achieved by opportunity-reducing measures.

### Claims of displacement often evaporate under closer scrutiny

London Underground officials believed that their success in modifying new ticket machines to eliminate 50p slugs had simply displaced the problem to £ slugs, which began to appear as soon as the 50p ones were eliminated. However, analysis showed that:

1. The scale of the £ slug problem (less than 3,500 per month) never approached that of the 50p slugs (95,000 per month at their height).
2. The £ slugs were found in stations not previously affected by 50p slugs.
3. Any schoolboy could make a 50p slug by wrapping a 10p coin in silver foil. Only people with the right equipment could make £ slugs by filling copper pipes with solder and then slicing them carefully.

We can see that the two problems involved different stations and offenders and that the claim of displacement is dubious.

Source: Ronald Clarke, Ronald Cody and Mangai Natarajan (1994). Subway Slugs: Tracking Displacement on the London Underground. *British Journal of Criminology*, 34: 122–138.

#### Read more

Rene Hesseling (1994). Displacement: A Review of the Empirical Literature. In *Crime Prevention Studies*, vol. 3, edited by Ronald Clarke. Monsey, New York: Criminal Justice Press. (Download from: [www.popcenter.org](http://www.popcenter.org))

Researchers looking for displacement have sometimes found precisely its reverse. Rather than finding that crime has been pushed to some other place or time, they have found that crime has been reduced more widely than expected, beyond the intended focus of the measures. This is a relatively recent discovery, but already many examples exist:

As expected, electronic tagging of books in a University of Wisconsin library resulted in reduced book thefts. However, thefts also declined of video-cassettes and other materials that had not been tagged.

When a New Jersey discount electronic retailer introduced a regime of daily counting of valuable merchandise in the warehouse, thefts of these items plummeted – but thefts also plummeted of items not repeatedly counted.

When ‘red light’ cameras were installed at certain junctions in Strathclyde, not only did fewer people ‘run the lights’ at these locations, but also at other traffic lights nearby.

The implementation of added security for houses that had been repeatedly burgled on the Kirkholt housing estate reduced burglaries for the whole of Kirkholt, not just for those houses given additional protection.

When street lighting was improved in a large housing estate in England, crime declined in both that estate and a nearby one where the lights were not changed.

When vehicle tracking systems were introduced in six large American cities, rates of theft declined citywide, not just for car owners who purchased the devices.

These are all examples of the ‘diffusion of benefits’ of crime prevention measures. It appears that potential offenders may be aware that new prevention measures have been introduced, but they are often unsure of their

precise scope. They may believe the measures have been implemented more widely than they really have, and that the *effort* needed to commit crime, or the *risks* incurred, have been increased for a wider range of places, times or targets than in fact is the case.

Diffusion of benefits is a windfall that greatly increases the practical appeal of situational crime prevention, but we do not yet know how to deliberately enhance it. One important method may be through publicity. A publicity campaign helped to spread the benefits of CCTV cameras across an entire fleet of 80 buses in the North of England, although these were installed on just a few of the buses. One of the buses with the cameras was taken around to schools in the area and the first arrests resulting from the cameras were given wide publicity in the news media.

We should expect the diffusion of benefits to decay when offenders discover that the risks and effort of committing crime have not increased as much as they had thought. This occurred in the early days of the breathalyser which had a much greater immediate impact on drunken driving than expected given the actual increase in the risk of getting caught. However, as drivers learned that the risks of being stopped were still quite small, drunken driving began to increase again. This may mean that ways will have to be found of keeping offenders guessing about the precise levels of threat, or quite how much extra effort is needed if they are to continue with crime.

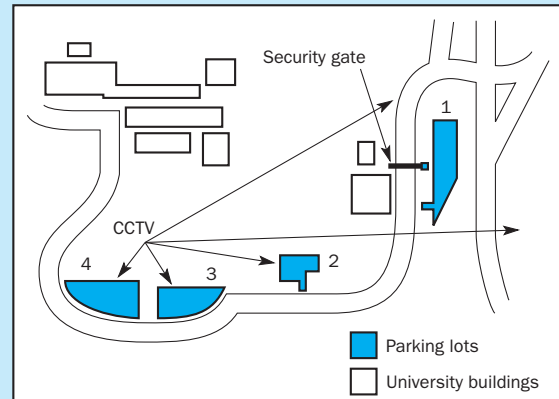
At a practical level, diffusion is important as a counter argument about displacement from those resisting the introduction of preventative measures. And you will certainly encounter many of those! Secondly, it is important that you plan your evaluation to take account of diffusion. Otherwise, you might find that people question the effectiveness of the preventive measures on grounds that crime fell more dramatically than expected.

## Diffusion of benefits and CCTV in a university parking lot

A new head of security at the University of Surrey decided to deal with a plague of thefts in the university's car parks by introducing CCTV. He installed a camera on a mast to provide surveillance of the car parks. As shown by the diagram, the camera could not provide surveillance equally for all four car parks because its view of car park 1 was obscured by buildings. It might have been expected, therefore, that if the CCTV had any value in preventing crime this would only be for the car parks it covered adequately. It might also have been expected that crime would be displaced by the camera from these car parks to the one not given proper surveillance. In fact, in the year following the introduction of the CCTV, incidents of theft and vandalism in the lots were cut in half, from 138 in the year prior to 65 in the year after. Incidents declined just as much in car park 1, not covered by the cameras, as in the other three car parks. This diffusion of the benefits of CCTV probably resulted from potential offenders being aware that it had been introduced at the University, but not knowing its limitations. Many probably decided that it was no longer worth the risk and effort of going to the university car parks to commit crime.

Source: Barry Poyner (1997). Situational Prevention in Two Parking Facilities. In *Situational Crime Prevention: Successful Case Studies*, edited by Ronald V. Clarke. Monsey, New York: Criminal Justice Press.

## CCTV system



## Read more

Ronald Clarke and David Weisburd (1994). Diffusion of Crime Control Benefits: Observations on the Reverse of Displacement. In *Crime Prevention Studies*, vol. 2, edited by Ronald Clarke. Monsey, New York: Criminal Justice Press. (Download from: [www.popcenter.org](http://www.popcenter.org))

A problem is a recurring set of related harmful events in a community that members of the public expect the police to address. This definition draws attention to six defining elements of a problem: Community; Harm; Expectation; Events; Recurring; and Similarity. These elements are captured by CHEERS:

**Community.** Problems are experienced by members of the public. This includes individuals, businesses, government agencies, and other groups. Troublesome events within police agencies, not directly impacting members of the public, are not included. Police vehicle accidents, for example, occurring on police property are not ‘problems’ (though many of the techniques described in this manual could be applied to police vehicle accidents). Note that this element does not require that everyone or even most members of a community experience a problem, only that some community members do.

**Harmful.** People or institutions must suffer harm. The harm can involve property loss or damage, injury or death, or serious mental anguish. Most events of this sort are violations of the law, but *illegality is not a defining characteristic of problems*. There are problems involving legal behaviour that the police must still address. Noise complaints arising from the impact of legitimate commercial activity on neighbouring residents is a common example. Some problems are first reported as involving illegal behaviour that on closer examination do not involve illegalities. Nevertheless, if they meet the all the criteria of the definition, they are still problems.

**Expectation.** Some members of the public expect the police to do something about the causes of the harm. Again, the number of people who expect the police to address the problem need not be large. Events that are annoying only to police officials are not problems, in the technical sense of this term. Though public complaints to the police are important indicators of expectation, sometimes citizens have trouble

communicating with the police, or do not realise the police are willing to and capable of addressing their concerns so problems are hidden from the police. If the public understood police capacity, their expectations might change. Nevertheless, public expectation should never be presumed, but must be evident.

**Events.** Problems are comprised of discrete incidents, such a break-in to a home, one person striking another, two people exchanging money and sex, or a burst of noise. These are events. Most events are brief, though some may involve a great deal of time – some frauds, for example. A problem must have more than one event.

**Recurring.** Having more than one event implies that events must recur. They may be symptoms of an acute or a chronic problem. An *acute* problem suddenly appears, as in the case of a neighbourhood with few vehicle break-ins suddenly having many such break-ins. *Chronic* problems are around for a long time, as in the case of a prostitution stroll that has been located along one street for many years. Whether acute or chronic, unless something is done, these events will continue to occur. If recurrence is not anticipated, problem solving may not be necessary.

**Similarity.** Implied in the idea of recurring is that these events are similar or related. They may all be committed by the same person, happen to the same type of victim, occur in the same types of locations, take place in similar circumstances, involve the same type of weapon, or have one or more other factors in common. Without common features, we have a random collection of events instead of a problem. With common features, we have a pattern of events. Crime and disorder patterns are often symptoms of problems.

Problems need to be defined with great specificity because small details can make a difference between a set of circumstances that gives rise to harmful events, and a set of circumstances producing harmless events. Solving problems involves changing one or

more of these small details. CHEERS suggests six basic questions that need examination in the scanning stage:

- Who in the community is affected by the problem?
- What specifically are the harms created by the problem?
- What are the expectations for the police response?
- What types of events contribute to the problem?
- Where and when do these events recur?
- How are the events similar?

Not everything the police are asked to address qualifies as a problem. The CHEERS concepts can help identify demands that are not problems. Again, we are using the term ‘problem’ in the technical, POP sense, not as we would in everyday speech. So things we define as ‘not problems’ still may be troublesome, and still may require police attention. These are as follows:

**Single events.** Isolated crimes, acts of disorder or related phenomena, regardless of how serious, are not problems. These may deserve investigation or some other police action, but problem solving cannot be applied to isolated events because they are not similar nor do they recur.

**Neighbourhoods.** Small areas, such as city centres or particular housing estates, sometimes get reputations as ‘problems’. Neighbourhoods are seldom problems, however. Rather they are geographic areas that may contain multiple problems. These individual problems might be related, but not always. Tackling an entire area as a single problem increases the complexity of the effort and reduces the likelihood of finding effective responses. Instead, you should identify specific problems within the neighbourhood and tackle them individually. In some cases, of course, there may be common solutions to distinct problems (see box).

**Status conditions.** Truant schoolchildren, bored teenagers, vagrant adults and convicted criminals are not problems because of their status of not being in school, having nothing to do, not being employed or having been found

guilty of an offence. A community might expect the police to do something about them but status conditions lack the characteristics of harm and events. Some of these people may play a role in problems, as targets, offenders or in some other capacity, but that does not make them a problem. Defining a problem by status conditions is evidence of lack of precision and a need to examine the issue in greater depth. Status conditions may, at best, point to pieces of a larger problem, but they are not the problem.

Always define a problem using all elements of CHEERS!

## Separate problems, common solutions

Specific problems in a dilapidated neighbourhood or council estate should always be separately analysed, but, for cost-effectiveness reasons, solutions ought to be considered together. In the hypothetical example below, the last identified solution, a concierge scheme and CCTV system, is the most costly of all those listed. But it is also predicted to be the most effective solution for each problem. It might therefore be chosen as a solution to all three problems when costs might have ruled out its selection for just one of the problems.

Identified solutions (from least costly to most)	Vandalism to lifts	Thefts of/from cars	Burglaries of flats
Trim bushes to improve surveillance (£)		**	**
Block watch scheme (£)	***	*	**
Alarms for lifts (££)	****		
Electronic access to car park (££)		****	
Installation of entry phone (£££)	**		****
Window locks and strengthened doors for flats (££££)			****
Security patrol (££££)	*	**	***
Concierge system and estate-wide CCTV cameras (£££££)	*****	*****	*****
£ Predicted costs	* Predicted effectiveness		

Local police have to deal with a wide range of problems that meet the CHEERS definition (Step 15) and we have developed a scheme to classify these problems. Classification is important because it allows comparison of a new problem to similar problems that have already been addressed, and it helps identify important features for examination. The scheme is based on two criteria: the environments within which problems arise and the behaviours in which the participants engage. (The scheme is different from the wolf/duck/den classification that is a classification of persistent problems, Step 9.)

**Environments** regulate the targets available, the activities people can engage in and who controls the location. Specifying an environment allows comparisons of environments with and without the problem. It also helps identify potential stakeholders and partners for addressing the problem. There are eleven distinct environments for most common police problems:

*Residential* – Locations where people dwell. Houses, flats, and hotel rooms are examples. Though most are in fixed locations, a few are mobile, such as caravans.

*Recreational* – Places where people go to have a good time. Pubs, nightclubs, restaurants, cinemas, playgrounds, and parks are examples.

*Offices* – Locations of white-collar work where there is little face-to-face interaction between the workers and the general public. Government and business facilities are often of this type. Access to these locations is often restricted.

*Retail* – Places for walk-in or drive-up customer traffic involving monetary transactions. Stores, branch banks, and post office branches are examples.

*Industrial* – Locations for processing of goods. Cash transactions are not important activities in these environments and the public is seldom invited. Factories, warehouses, package-sorting facilities are examples.

*Agricultural* – Locations for growing crops and animals.

*Education* – Places of learning or study, including day care centres, schools, universities, libraries and churches.

*Human service* – Places where people go when something is wrong. Courts, jails, prisons, police stations, hospitals and some drug treatment centres are examples.

*Public ways* – Routes connecting all other environments. Roads and highways, foot-paths and bike trails, and drives and parking facilities are examples.

*Transport* – Locations for the mass movement of people. These include buses, bus stations and bus stops, airplanes and airports, trains and train stations, ferries and ferry terminals, and ocean liners and piers.

*Open/transitional* – Areas without consistent or regular designated uses. These differ from parks in that they have not been designated for recreation, though people may use them for this. Transitional areas include abandoned properties and construction sites.

**Behaviour** is the second crucial dimension for classifying a problem. Specifying behaviours helps pinpoint important aspects of harm, intent, and offender–target relationships. There are six types of behaviour:

*Predatory* – The offender is clearly distinct from the victim and the victim objects to the offender’s actions. Most common crimes are of this type. Examples include robbery, child abuse, burglary, and theft.

*Consensual* – The parties involved knowingly and willingly interact. This typically involves some form of transaction. Examples include drug sales, prostitution and stolen goods sales. Note, however, that assaults on prostitutes are predatory behaviours.

*Conflicts* – Violent interactions involving roughly coequal people who have some pre-existing relationship. Domestic violence among adults usually involves this type of behaviour, though domestic violence against children and the elderly is classified as predatory because the parties involved are not roughly coequal.



## SCAN FOR CRIME PROBLEMS

*Incivilities* – Offenders are distinguishable from victims, as in predatory events, but the victims are spread over a number of individuals and the harms are not serious. Many concerns that are annoying, unsightly, noisy or disturbing, but do not involve serious property damage or injury fall into this category. Some incivilities are troublesome regardless of the environment, while others are only troublesome in specific environments.

*Endangerment* – The offender and the victim are the same person or the offender had no intent to harm the victim. Suicide attempts, drug overdoses, and motor vehicle accidents are examples.

*Misuse of police* – A category reserved for unwarranted demands on the police service. False reporting of crimes and repeated calling about issues citizens can handle themselves are examples. This is a category of last resort — for use when the sole harm stemming from the behaviour is the expenditure of police resources and when none of the other types fit.

The table shows the full classification. A problem is classified by putting it in the cell where the appropriate column intersects with the appropriate row. So, for example, the 2001 Tilley Award winner dealt with glass bottle injuries around pubs, a conflict-recreational problem (A). The 2002 Tilley Award winner dealt with motorcycle accidents along a scenic road, an endangerment-public ways problem (B).

Though most problems fit into a single cell, on occasion a problem might involve multiple behaviours or environments. For example, the Staffordshire Police had a problem created when protesters occupied abandoned buildings along a construction right of way. These were open/transitional environments. The protests involved incivilities, but the tactics for occupying these buildings also posed a danger to the protesters. Thus, endangerment was another relevant behaviour (C in the table). Though multiple types of behaviours or environments are sometimes needed, excessive use of multiple types can lead to imprecision.

### A classification scheme for common problems facing local police

Environments	Behaviours					
	Predatory	Consensual	Conflicts	Incivilities	Endangerment	Misuse of police
Residential						
Recreational			A			
Offices						
Retail						
Industrial						
Agricultural						
Educational						
Human service						
Public ways					B	
Transport						
Open/transitional				C	C	

#### Read more

John Eck and Ronald Clarke (2003). *Classifying Common Police Problems: A Routine Activity Approach*. In *Crime Prevention Studies*, vol. 16, edited by Martha Smith and Derek Cornish. Monsey, New York: Criminal Justice Press (and Willan Publishing, UK).

The crime triangle (Step 9) identifies the three essential elements of crime, but does not explain how the offender finds a suitable victim and place. This task is left to crime pattern theory, which was developed by the environmental criminologists Pat and Paul Brantingham, working from a background in social geography.

The Brantinghams describe offenders' search patterns in terms of their **personal activity spaces**. Starting with a triangle, they consider offenders going from home to work to recreation. Around each of these three **nodes** and along each of these three **paths** (excepting a buffer zone where they might be recognised) offenders look around for crime opportunities. They may find these a little way off the path, but they usually do not go far beyond the area they know. This is because it is easier to commit crimes in the course of their daily routine than by making a special journey to do so.

The Brantinghams also use another important concept: **edges**, which refers to the boundaries of areas where people live, work, shop or seek entertainment. Some crimes are more likely to occur at these edges – such as racial attacks, robberies, or shoplifting – because this is where people from different neighbourhoods who do not know each other come together. In an early study, the Brantinghams found that residential burglaries in Tallahassee tended to cluster where affluent areas bordered on poor areas. Their explanation was that the affluent areas provided attractive targets to burglars from the poorer areas. However, the burglars preferred not to venture too far into the affluent areas. They were unfamiliar with them and thought they might be recognised as not belonging there.

The paths that people take in their everyday activities and the nodes they inhabit explain risks of victimisation as much as patterns of offending. This is why the Brantinghams and other crime pattern theorists pay so much attention to the geographical distribution of crime and the daily rhythm of activity. For example, they generate crime maps for different hours of the day and days of the week, linking specific kinds of crimes to commuter flows, school children being let

out, pubs closing, or any other process that moves people among nodes and along paths. Pickpockets and bag snatchers seek crowds, while other offenders pay closer attention to the absence of people. For example, the flow of people to work generates a counter flow of burglars to residential areas, taking advantage of their absence. The flow of workers home at night and at weekends produces a counter flow a few hours later of commercial and industrial burglars to take advantage of the situation.

You can use the concepts of crime pattern theory to understand crime in your force area. You should try to piece together offender and offence patterns by finding nodes, paths and edges. You can begin to distinguish between how offenders search for crime and when they find it by accident. You can find where offenders are absent and where they congregate in 'hot spots' and think about the reasons for this (Step 18). Unfortunately, 'spots' have no clear and final size, but are defined by the parameters you enter into your analysis and you may sometimes do better to focus on parks, schools, housing estates, street segments and other identifiable places. You will find that very local crime patterns tell the story. Thus a high crime district will have some streets with no crime at all and some addresses which generate most of the problem. Residents will know it is fairly safe to walk down one street but very unsafe to walk down another. They will even choose one side of the street over the other. If residents know their local turf this well, what's to stop you from finding out about it? Crime pattern theory helps you do just that, and it will help to define a specific problem at the scanning stage and understand the contributory causes at analysis.

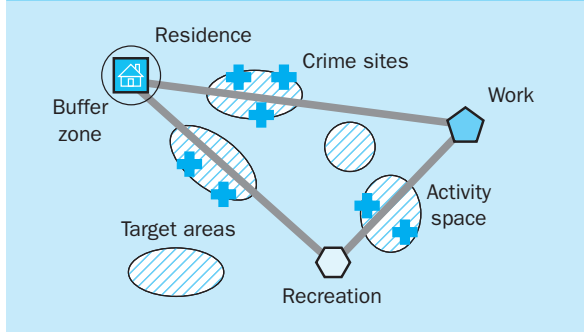
#### Read more

Brantinghams (1993) *Environment, Routine, and Situation: Toward a Pattern Theory of Crime*. In *Routine Activity and Rational Choice, Advances in Criminological Theory*, Vol. 5, edited by Ronald Clarke and Marcus Felson. New Brunswick, NJ: Transaction Publishers.

Marcus Felson (2002) *Crime and Everyday Life*. Thousand Oaks, CA: Sage.

Paul Wiles and Andrew Costello (2000) *The 'Road to Nowhere': The Evidence for Travelling Criminals*. Home Office Research Study 207. London: Home Office

## Brantingham crime pattern theory



Source: Kim Rossmo (2000). *Geographic Profiling*. Boca Raton, FL: CRC Press.

Kim Rossmo prepared this diagram to represent the Brantinghams' theory. It shows an offender's activity space (residence, work, recreation, and the travel routes between them), the buffer zone close to the home in which offenders do not usually commit crimes and five potential target areas (for example, car parks). Where an offender's activity space intersects a target area, this is where crimes happen (blue crosses). Note that in this example no crimes occur around the offender's work place, because there are no suitable targets there. Also, there are two target areas with no crimes in them because this offender is not aware of those places.

## The journey to crime and the 'self-containment index'

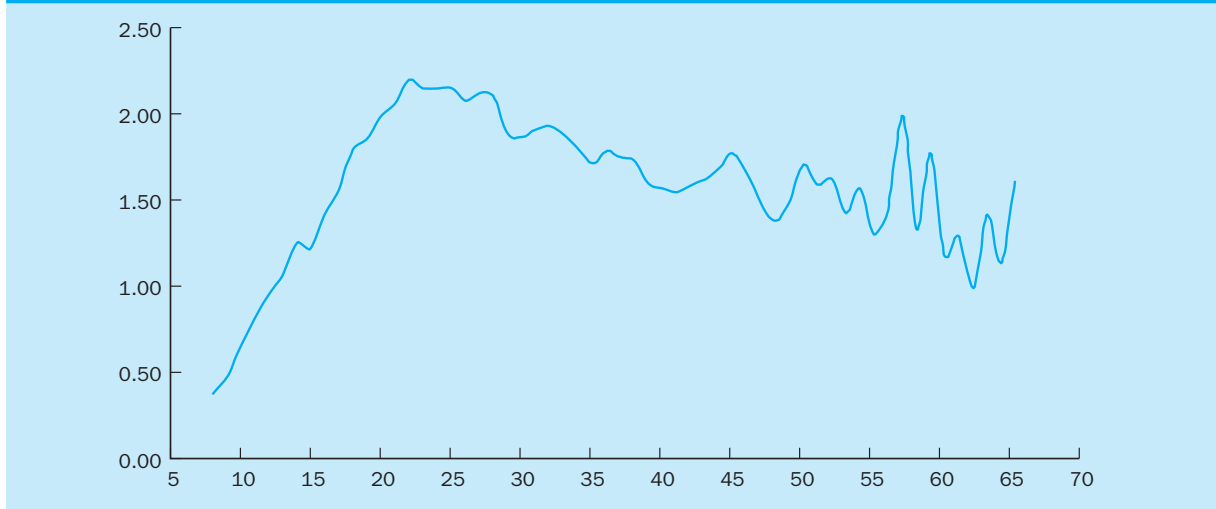
Andy Brumwell, crime analyst with the West Midlands Police, has recently completed an analysis of the distance travelled to crime from home using force data for AY2000/01–2002/03. He included 258,074 crime trips in his analysis. He found:

- Just over 50% of all journeys were less than one mile.
- Distance travelled varies with the offence. For example, 50% of arsonists travelled less than quarter of a mile, whereas only 13% of shoplifters committed their offences this close to home.
- Females travel further than males, possibly because many committed shopliftings.
- There is considerable variation among individual offenders in crime trips. Some usually commit crime in their local neighbourhoods. Others travel further particularly when working with co-

offenders. In some cases, co-offenders may travel considerable distances from where they now live, to an area where they all grew up together. Younger criminals do not travel as far as older criminals to commit crime, as shown here in his graph.

This study has led him to develop what he calls the 'self-containment index' that looks at the percentage of crimes in an area that is committed by offenders who also live in that area. A value of 100 indicates that local offenders are responsible for all the crimes, whereas a value of zero indicates that local offenders commit none of them. This value should be calculated when analysing a local problem. Whether predators are local or come from a distance will have an influence on the type of situational crime prevention measures that could be successfully introduced. For example, alley-gating (Step 33) will be less successful if many of the offenders live within the gating scheme itself.

## Average miles travelled to commit crime by age



Hot spots are geographic concentrations of crime. The Brantinghams have distinguished between three kinds of hot spots and underlying causal mechanisms:

1. **Crime generators** are places to which large numbers of people are attracted for reasons unrelated to criminal motivation. Providing large numbers of opportunities for offenders and targets to come together in time and place produces crime or disorder. Examples of generators include shopping areas, transportation hubs, festivals, and sporting events. The large number of crime or disorder events is due principally to the large number of place users. So these types of problems grow as the use of the area grows.
2. **Crime attractors** are places affording many criminal opportunities that are well known to offenders. People with criminal motivation are drawn to such locales. In the short run, offenders may come from outside the area, but over longer time periods, and under some circumstances, offenders may relocate to these areas. Prostitution and drug areas are examples. Some entertainment spots are also well known for allowing deviant activity. Such places might start off being known only to locals, but as their reputation spreads increasing numbers of offenders are drawn in, thus increasing the number of crime and disorder events.
3. **Crime enablers** occur when there is little regulation of behaviour at places: rules of conduct are absent or are not enforced. The removal of a car park attendant, for example, allows people to loiter in the parking area. This results in an increase in thefts from vehicles. This is an example of an abrupt change in place management. Sometimes place management erodes slowly over time, leading to problem growth. Crime enablers also occur with the erosion of guardianship and handling. For example, if parents attend a play area with their children they simultaneously protect the children (guardianship) and keep their

children from misbehaving (handling). If parenting styles slowly change so that the children are increasingly left to themselves, they can become at increased risk of victimisation and of becoming offenders.

The Brantinghams also suggest that areas can be crime neutral. **Crime-neutral** areas attract neither offenders nor targets, and controls on behaviours are adequate. These areas tend to have relatively few crimes, and the crimes tend to be relatively unpatterned. For this reason, crime-neutral areas seldom draw police attention. Though they seldom require crime analysis, they are important because they provide a useful comparison to the other types of areas. Comparing crime-neutral areas, for example, to a hot spot can help identify the differences that create the troubles in the crime generator, crime attractor, or crime enabler.

In summary, the development and growth of crime and disorder hot spots involves three different mechanisms: increasing targets, increasing offenders, and decreasing controls. To varying extents all three are at work in most problems. Shoppers might increase in an area, for example, due to new roads or shopping opportunities. This might increase thefts as offenders, also shopping in the area, take advantage of the new theft opportunities. New offenders might be attracted to the area because of the success of the early offenders. Increasing offending causes the number of shoppers to decline. This removes guardianship (shoppers). But it has another effect. It reduces the resources of the shopkeepers to manage their stores and the surrounding area, a reduction in place management. So, a problem that started out as a crime generator evolved into a crime attractor and then into a crime enabler.

Crime generators have many crimes, but as their number of targets is high, each may have low crime rates. Crime attractors also have many crimes, but as they have relatively few targets, their crime rates may be high. Crime enablers, with their weakened behaviour

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controls, tend to be unattractive to targets. However, those few available targets have high risks. So an area with relatively few crimes but a high crime rate suggests a crime enabler. Finally, the number of crimes at crime-neutral locations will be low, so even if the number of targets is not particularly great, their crime rate will also be low. Table 1 summarises these relationships.

**Table 1: Diagnosing hot spots**

	Number of crimes	Rate of crime
Crime attractors	High	High
Crime generators	High	Low
Crime enablers	Low (High)	High
Crime neutral	Low	Low

To diagnose which process is operating, first rank the areas using numbers of crimes, then look at their rates. Table 2 shows a hypothetical example. Area A has a relatively high number of crimes (column 2) and a high rate (column 4) so it may be a crime attractor. Area

D has relatively few crimes and a low rate, so it may be crime neutral. Area B has a large number of crimes, but a relatively low rate, so it appears to be a crime generator. And because Area C has a relatively low number of crimes, but a high crime rate, we would expect it to be a crime enabler.

**Table 2: Using numbers and rates to diagnose a problem**

Area	Crimes	Targets	Rate per 100 targets	Type
A	391	898	44	Attractor
B	148	1,795	8	Generator
C	84	243	35	Enabler
D	28	638	4	Neutral

What are the practical consequences of knowing how your hot spot arose? The answer is summarised in Table 3. Knowledge of the underlying causes (column 2) suggests possible responses (column 3).

**Table 3: What to do about worsening hot spots**

Hot spot type	Cause	Type of response	Questions to answer
Crime generator	Many unprotected targets	Increase protection	In what circumstances are targets vulnerable? How can vulnerability be changed?
Crime attractor	Attracts offenders	Discourage offenders from coming	What is attracting offenders? How can this be changed?
Crime enabler	Erosion of controls	Restore guardianship, handling or place management	Who could control behaviour? How can they be encouraged to exert controls?

### Read more

Patricia and Paul Brantingham (1995). *Criminality of Place: Crime Generators and Crime Attractors*. *European Journal on Criminal Policy and Research*, 3(3): 1–26.

One of the most important principles of crime analysis is that a few people and places are involved in most of the criminal events. This is the heart of the Wolf/Duck/Den phenomenon described in Step 9. This rule can also be found at work with hot products – a few product types are disproportionately the targets of thieves (see Step 29). This type of concentration is not peculiar to crime and disorder; it is a practically universal law. A small portion of the earth's surface holds the majority of life on earth. Only a small proportion of earthquakes cause most of the earthquake damage. A small portion of the population holds most of the wealth. A small proportion of police officials produce most of the arrests.

This phenomenon is commonly referred to as the 80–20 rule: 20% of some things are responsible for 80% of the outcomes. In practice, it is seldom exactly 80–20, but it is always a small percentage of something or some group involved in a large percentage of some result.

One of the most important questions in the investigation of any problem is to ask if the 80–20 rule applies. A simple 7-stage procedure shows how to answer this:

1. Identify the people or places the rule might apply to. The problem of assaults outside pubs, for example, suggests that a few pubs might be responsible for most of the trouble.
2. Get a list of these people or places with a count of the number of events associated with each person or place.
3. Rank order the people or places according to the number of events associated with each – most to least (the table is a hypothetical list of pubs along with the number of reported assaults associated with each). You should ask whether there is something different about the people or places at the top of the list, compared to those in the middle or at the bottom. Perhaps the pubs at the bottom of the list are popular evening entertainment spots for young people, or are all located in the city centre, or are owned by the same company. If so, then these differences might be related to the source of the problem. If there are clear and obvious differences, then divide this list into meaningful categories, with separate ranked lists for each. Potentially, each category may be a distinct problem. For each separate category, continue with Stage 4. We will assume that in our example there are no important differences.
4. Calculate the percentages of the events each person or place contributes. There are 121 assaults. The first pub, the White Hart, contributed 31 of these. So it has 25.6% of the problem. The third column shows the percentage.
5. Cumulate the percentages starting with the most involved person or place. This shows the proportion of the events that is associated with each percentile (e.g. worst 10%, worst 20%, and so on to 100%). The fourth column shows what is called the cumulative percentage (percentages from the third column are added starting with the White Hart and going up). The shading separates each 10 percentile. With only 30 pubs, 10% is about as small a percentile as is practical. But with a much longer list, it may make sense to look at smaller gradations, such as 5 or even 1%.
6. Calculate the proportion of the people or places each single person or place represents. In our example, there are 30 pubs so each represents 3.3% of the pubs. Then cumulate these percentages in the same direction as you followed in Stage 5 (top down in column 5).
7. Compare the cumulative percentage of people or places (column 5) to the cumulative percentage of outcomes (column 4). This shows how much the most involved people or places contribute to the problem.

This type of analysis can be used during scanning to detect offenders most in need of attention, places most in need of intervention,

## SCAN FOR CRIME PROBLEMS

and victims most in need of assistance. It can also be used in the analysis stage to determine if there are important differences between

people and places at the top and those at the bottom of the list.

<b>The concentration of 121 assaults in 30 pubs</b>				
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	<b>No. assaults</b>	<b>% assaults</b>	<b>Cum. % assaults</b>	<b>Cum. % pubs</b>
White Hart	31	25.6	25.6	3.3
Union	17	14.0	39.7	6.7
Feathers	13	10.7	50.4	10.0
Wellington	11	9.1	59.5	13.3
Black Prince	8	6.6	66.1	16.7
Angel	7	5.8	71.9	20.0
George & Dragon	6	5.0	76.9	23.3
Cross Keys	6	5.0	81.8	26.7
Saracen's Head	4	3.3	85.1	30.0
White Bear	4	3.3	88.4	33.3
Mason's Arms	3	2.5	90.9	36.7
Cock	3	2.5	93.4	40.0
Badger	3	2.5	95.9	43.3
Hare & Hounds	1	0.8	96.7	46.7
Red Lion	1	0.8	97.5	50.0
Royal Oak	1	0.8	98.3	53.3
George	1	0.8	99.2	56.7
Cross Hands	1	0.8	100	60.0
Rose & Crown	0	0	100	63.3
King's Arms	0	0	100	66.7
Star	0	0	100	70.0
Mitre	0	0	100	73.3
Dog & Fox	0	0	100	76.7
Griffin	0	0	100	80.0
Plough	0	0	100	83.3
Queen's Head	0	0	100	86.7
White Horse	0	0	100	90.0
Bull	0	0	100	93.3
Swan	0	0	100	96.7
Black Bear	0	0	100	100

A hypothesis is an answer to a question about a problem, and can be true or false. Hypotheses come from experience and theory. The table provides three examples of hypotheses, the questions they answer, and possible ways of testing their validity.

A set of hypotheses is a roadmap for investigating a problem. Hypotheses suggest types of data to collect, how this data should be analysed, and how to interpret analysis results. Consider a problem involving neighbourhood disturbances, for example. Based on the ideas presented in this manual, you should hypothesize that: some times of the year have more disturbances than others; there are a few locations with many disturbances and many locations with few or no disturbances; there are a few people who are routinely involved in creating disturbances, but most people who are involved are only involved on rare occasions. By determining the truth or fallacy of statements like these, you describe the problem and reveal solution options.

Hypotheses suggest the type of data to collect. If you want to test the hypothesis that there are a few people who are often involved in creating disturbances, but a larger number of

people who are only involved on occasion, you must find data that describes the number of disturbances offenders are involved in. If you wanted to test the hypothesis about time you would have to find data that gave the date and time of incidents.

### Paralysis by analysis

The lack of explicit hypotheses can lead to 'paralysis by analysis', collecting too much data, conducting too much analysis, and not coming to any useful conclusion.

Hypotheses direct the analysis of data. Step 18 describes several ways problems grow: increasing targets, increasing offenders, or decreasing controls on behaviour. Step 25 shows how to compare numbers and rates to determine which of these processes is at work. You might formulate a hypothesis such as, 'This problem is due to an increasing number of targets becoming available'. When you examine the number and rates of events you can determine if this hypothesis is reasonable. Another example can be found in Step 19, which describes the 80–20 rule. A hypothesis claiming that the 80–20 rule is at work can be

### Questions, hypotheses and tests

Question	Example hypothesis	Possible test
Why does this hot spot occur?	This hot spot is due to a large number of targets being available.	Count the number of targets in the hot spot and calculate the crime rate. Compare this to rates for the surrounding area. If the hot spot rate is higher, the hypothesis is false, but if it is about the same or lower then the hypothesis is true.
Why are there more car thefts in the problem area than in nearby areas?	Problem area residents are more likely to park their cars on the street than residents of the other areas.	If the problem area has similar or lower on-street parking rates as the others, reject the hypothesis. If higher, accept it.
Why did the theft of copper piping from new construction sites suddenly increase?	It increased when a scrap metal dealership was sold to a new owner.	Compare the thefts of copper piping for periods of time before and after the change in owners. If the theft rate is the same before and after, or the trend in thefts was already going up before the change, then the hypothesis is probably false. If otherwise, the hypothesis appears reasonable.



tested using the procedures described in this step. Not all hypotheses are closely associated with specific analytical procedures. The second two examples in the table describe tests that do not directly come from any specific theory, but instead are logically related to the question and hypothesis.

Hypotheses help interpret the analysis results. Test results can suggest useful solutions to problems. If you are examining vehicle thefts, you might ask, 'Why are there more cars stolen from this car park than nearby car parks?' From your knowledge of the problem car park, you might hypothesise that the facility has many users who leave their vehicles for long periods and that because users pay when they enter, no one watches who leaves with the car. Various theories suggest that when there is no one watching, crime is more likely. So, if the hypothesis is correct, then a response involving someone watching parked or exiting cars might be effective. Comparing this parking facility to ones nearby can help test the hypothesis. If parking facilities with more surveillance have fewer thefts than those with less surveillance, then the hypothesis is supported. But if you find nearby parking facilities with the same level of surveillance, but much lower theft rates, you will have to consider alternative responses.

To formulate hypotheses you need to ask important questions. Then create a simple and

direct speculative answer to the question based on experience and theory. This answer is your hypothesis. The statement must be bold enough that it could be wrong, and there must be a way of showing whether it is right or wrong. If possible, create two or more competing hypotheses. If each hypothesis is linked to a potential solution, the test of these hypotheses simultaneously directs your attention to feasible responses and rules out ineffective approaches.

If you cannot test a hypothesis, you cannot answer the question, and any response based on the hypothesis is of little use. If offender data are unavailable, for example, then creating a response directed toward reducing repeat offending has a high likelihood of failure because you do not know if repeat offending is part of this problem. Consequently, it is sometimes useful to list hypotheses that you cannot test as these may be linked to responses that cannot be supported by your analysis. Avoid using these responses!

Finally, make sure that your test results make a difference. That is, if the hypothesis is true you will take a different decision than if it is false. If you will take the same decision regardless of the test results, then the hypothesis and its test are irrelevant.

It is helpful to distinguish between acute and chronic hot spots. Acute hot spots show abnormal spikes in crime, which may decline automatically, while chronic hot spots have persistently higher crime levels than other areas. There are three basic forms of **chronic** hot spots, each of them linked to particular theories and types of responses.

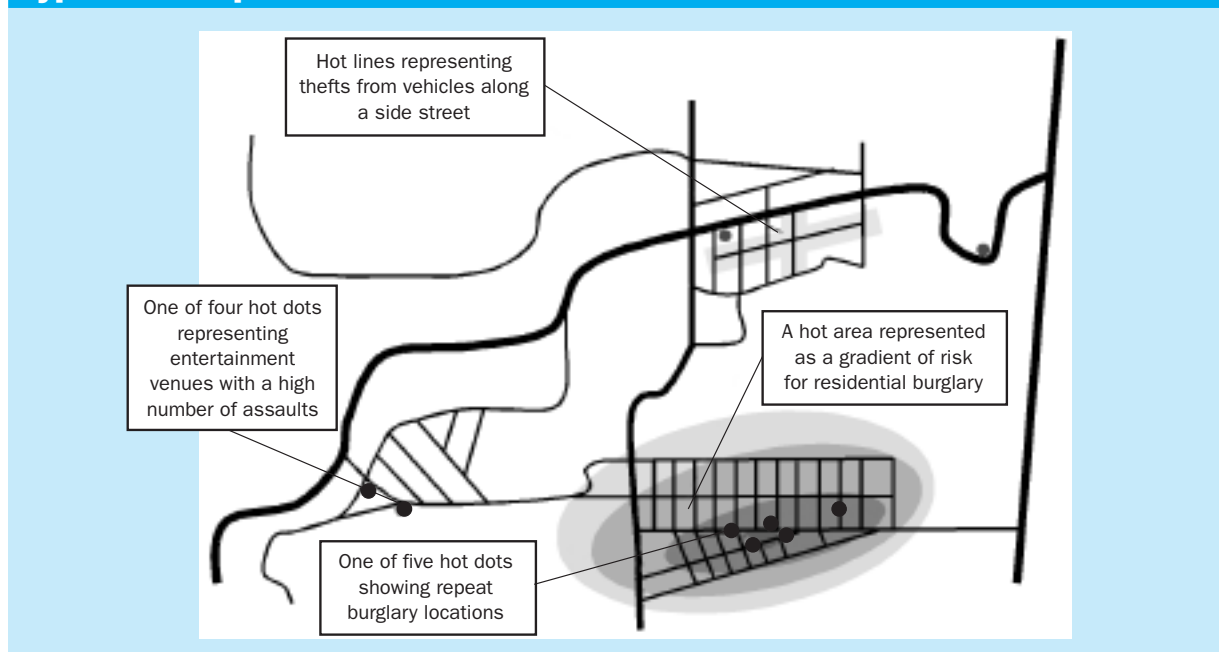
- Hot **dots** are locations with high crime levels. These show crime concentrated at facilities or at addresses of repeat victims (see Steps 26 and 27). Multiple crime events at places are represented by dots.
- Hot **lines** are street segments where crime is concentrated. These might occur, for example, if vehicles parked along particular streets suffer high rates of break-ins. Multiple crimes along street segments are shown with lines.
- Hot **areas** are neighbourhoods where crime is concentrated. Hot areas arise for a variety of reasons. Area characteristics may give rise to crime. Or an area may be hot because it contains many separate and discrete problems. On maps, hot areas are typically shown as shaded areas, contour lines, or gradients depicting crime levels.

The figure depicts these three forms of hot spots. Troublesome entertainment locations are shown as dots because the assaults are located at addresses. Vehicle break-ins, however, are along continuous street segments, so this concentration is shown as two intersecting lines. Finally, the graduated contours for the residential hot spot suggests that risk for break-ins is highest in one small area but declines as one goes away from the centre. The dots within this graduated area depict repeat burglary locations.

Clarifying the nature of your hot spot gives an inkling of response:

- Hot dots suggest changing the physical environment of particular places or changing their management. They also suggest intervening with high-risk victims.
- Hot lines suggest changing streets, paths and other routes, or the environments along them.
- Hot areas suggest large-scale partnerships to change neighbourhoods. The table shows how crime concentration is related to the way it is mapped, and where the response is focused.

### Types of hotspots



## Concentration, mapping and action

Concentration	Hot spots shown as:	Action level	Action examples
Places – at specific addresses, corners, or facilities	Dots	Facility, corner, address	CCTV in a parking deck, changing the way alcohol is served in pubs.
Victims	Dots	Victims' addresses	Repeat victimisation programmes.
Streets – along streets or block faces	Lines	Along paths, streets, and highways	Creating cul-de-sacs, changing traffic patterns, altering parking regulation.
Area – neighbourhoods	Shaded areas	Neighbourhoods, regions and other areas	Community partnerships, neighbourhood redevelopment.

Analysis of hot spots should begin with places, then move to streets, and finally to areas. Consider, for example, the problem of burned-out cars. Are they repeatedly found at specific addresses? If 'yes' then you should ask why these places are chosen instead of other nearby sites. If 'no' you should move on to examine streets. If you find street-level concentration, you should compare streets to find out why some attract burned-out cars and others do not. If there is little street-level concentration, then you should consider community concentration and make the relevant comparisons. This approach assures a highly focused response.

In the figure, the hot burglary dots indicate repeat victims within the overall neighbourhood problem. An area hot spot alone would not reveal this. Before proceeding further, you should determine if the area hot spot is largely due to the few repeat burglary spots. You can do this by treating each crime location as if it had only a single event, and then looking at the area hot spot. If it is, your problem-solving efforts should focus on these locations, not the neighbourhood. On the other hand, if these repeat burglary dots are fragments of a larger concentration of burglaries, the scope of your analysis must expand beyond these places.

Hot spot analysis provides early indicators of where to focus attention, but further analysis is always required. It is only useful if there may be a geographic component to the problem, or the concentration of crime is related to geographical features like roads or land use. It can be a valuable tool early in the problem-solving process, but it only produces suspicions that must be investigated further. For some problems, hot spot mapping has little utility and you must use other analytical approaches. Over-reliance on hot spots can result in superficial analysis and the implementation of ineffective responses.

### Read more

Two articles in *Crime Prevention Studies*, vol. 13, edited by Nick Tilley (2002). Monsey, New York: Criminal Justice Press (and Willan Publishing, UK):

1. Elizabeth Groff and Nancy LaVigne. Forecasting the Future of Predictive Crime Mapping.
2. Michael Townsley and Ken Pease. Hot Spots and Cold Comfort: The Importance of Having a Working Thermometer.

Conventional software is of little use when mapping crime in a city centre, a university campus, a council estate or any site with many large buildings. This is because most buildings, however large, have only one street address and crimes occurring anywhere in the building are assigned to that address. Mapping might therefore suggest that a particular building or facility has a crime problem, but this may only be because it is so large. When account is taken of the many people working in the building or using the facility, it could prove to be relatively safe. For example, George Rengert showed that a multi-storey car park in central Philadelphia identified as a car crime hot spot actually had a lower rate of car crime than the surrounding streets, once account was taken of the large number of cars that could be parked in the facility.

In fact, many large buildings are not safe. In his devastating critique of 1960s American public housing, Oscar Newman showed that the taller a tower block, the higher the rate of crime per 100 residents. He argued that very large blocks invited crime because residents did not know their neighbours and the design and layout of the buildings made it difficult for them to exercise any supervision of the public spaces, including corridors, lifts and play areas. His ideas have since been developed into a set of principles – Crime Prevention Through Environmental Design (or CPTED) – for designing and laying-out secure buildings and public spaces.

To understand why a particular building is insecure, crimes need to be divided into specific categories and their locations within the building need to be charted. This is where high-definition or ‘3-D’ mapping comes into play. Unfortunately, high-definition mapping is difficult and time consuming. It suffers from two principal problems:

1. Police records of crime rarely give the precise location of incidents within the building, though building managers or security departments can sometimes

supply this information. When they cannot, special crime recording procedures may have to be established for a period of time in order to obtain this information.

2. For new buildings, it may be possible to obtain plans in digitised format, which can make mapping easier. But when the building is old, it may be difficult to obtain up-to-date plans and you may have to get these drawn.

In many cases, these problems will simply rule out high-definition mapping, but they can be overcome as George Rengert and his colleagues showed in their study of crime on Temple University’s campus in Philadelphia. They developed a high-definition GIS by combining mapping software with AutoCAD drawings of the campus. Features, such as water pipes and electrical wiring, were eliminated and the maps were altered so that streets were represented as lines (with lines on either side representing pavements), while polygons were used to represent the footprints of buildings and the shapes of athletic fields and parking lots. Shrubbery, fences, lighting and other physical features were also represented on the maps. Crimes recorded by the campus police were then plotted exactly where they occurred, allowing them to be related to environmental features such as poor lighting or a blind corner allowing the attacker to lie in wait.

Crime was mapped for the floors of each building and a picture of the horizontal arrangement of crime within the building was projected onto its ground floor footprint. Figure 1 shows the result for one of the buildings – Gladfelter Hall. With the exception of the first floor, it shows that crime was most likely to occur on the upper floors. It also shows some clear clusters of crime, the largest of which was in the area closest to the bank of four elevators near the centre of the building. This is where each department’s ‘fishbowl’ offices for secretaries and receptionists are located – fishbowls because they are surrounded by glass windows, which allow

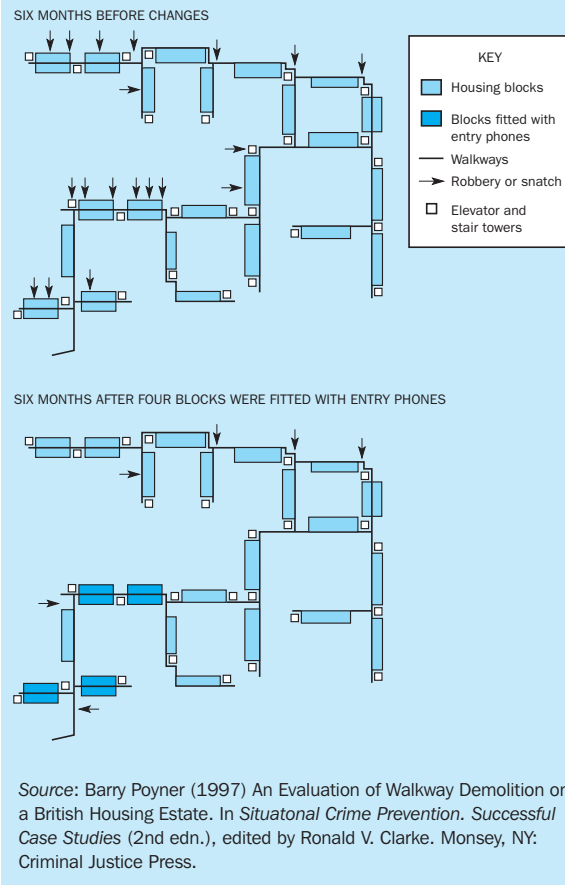
**Figure 1: 3-D map of Gladfelter Hall, Temple University Campus**



thieves to look into them to see if anyone is there and if anything is worth taking. The Department of Criminal Justice – Rengert’s own department – has now installed blinds, which can be lowered in the evenings to prevent people seeing into the fishbowl.

Commercial software is already available that will produce photo-realistic city models and technological developments, such as 3-D laser imaging, will simplify the production of computer maps like those of Gladfelter Hall. Meanwhile, when the number of incidents is small, good clear drawings with the location of crimes clearly indicated can sometimes do just as well. Figure 2 is a plan drawn by Barry Poyner of the Lisson Green council estate in London showing the locations of robberies and snatches on the walkways connecting the buildings for two six-month periods: *before* any preventive changes were made and *after* four of the blocks were fitted with entry phones. In effect, the entry phones closed access to the walkway system from the main

**Figure 2: Location of robberies and snatches on the walkway system of the Lisson Green Estate**



street entrance. In this case, high-definition mapping assisted with the assessment of preventive action, but Figure 2 also helped with diagnosis of the problem because it showed robberies and snatches tended to occur on those parts of the walkway system that lacked surveillance from neighbouring buildings or ground level.

#### Read more

Tim Crowe (1991). *Crime Prevention Through Environmental Design. Applications of Architectural Design and Space Management Concepts*. Boston: Butterworth-Heinemann.

George Rengert, Mark Mattson and Kristin Henderson (2001). *Campus Security. Situational Crime Prevention in High-Density Environments*. Monsey, New York: Criminal Justice Press.

Cycles of activities have tremendous influences on problems. The ebb and flow of vehicles caused by commuting and shopping rhythms, for example, changes the number of targets and guardians in parking facilities. This in turn influences when vehicle thefts and break-ins are most frequent. Robberies of intoxicated revellers may be more likely around pub closing time on Fridays and Saturdays, because the number of targets is higher. In this example, two important rhythms concentrate problem activities. The first is the workday/weekend cycle that makes Friday and Saturday nights so popular for entertainment and recreation. The second involves the daily cycle of opening and closing of drinking establishments. In this step we will discuss short-term fluctuations occurring over hours and days. In Step 24, we will look at longer time periods covering months and years.

Different facilities have different cycles of activities that can contribute to its associated problems. School rhythms are similar, but distinct from job rhythms. Bus stops are influenced by the rhythm of commuting and shopping, but also by the more frequent coming and going of buses.

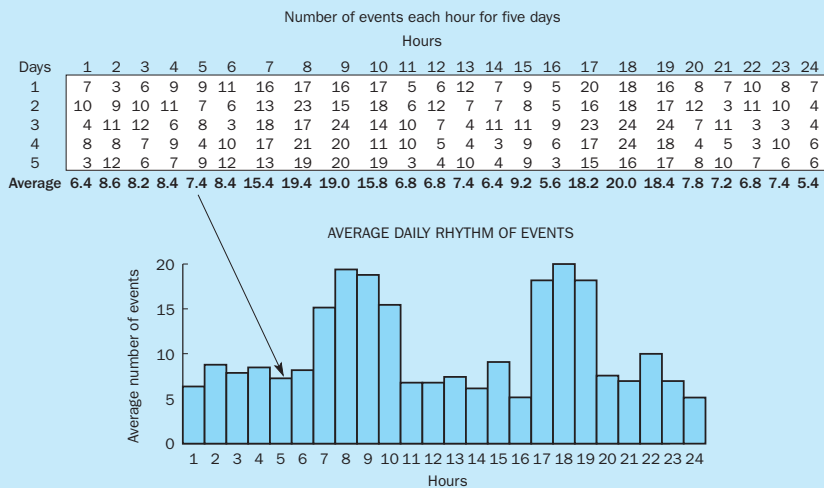
Charting the rhythm of crime or disorder events helps identify important activity cycles that may contribute to a problem. As shown in Figure 1, calculate the average of the number of events occurring in each hour (or other

time interval) over several days. Then plot the results. The more days you can average over, the clearer the pattern. In general, weekends and holidays should be analysed separately from weekdays.

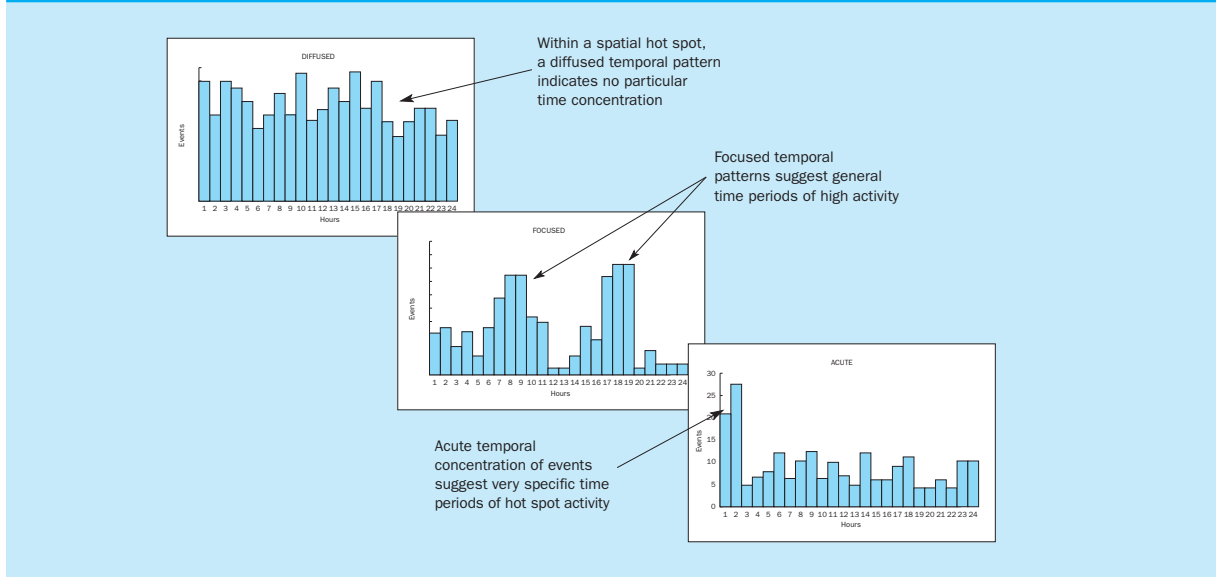
Temporal analysis is easiest when problem events are frequent. So temporal analysis will be most useful for common minor events, like noise complaints and minor traffic accidents, than for uncommon serious events, like murder. If there are few events, then you can look at a longer period to collect more events. But if the problem changes in the longer period, the picture that emerges may be distorted or out of date.

Having reasonably exact times of occurrence helps temporal analysis. Contact crimes, such as robbery, rape and assault, can be easily pinpointed as victims can often describe when these crimes took place. Property crimes, such as vehicle crimes, burglary and vandalism, are much harder to pin down because victims can usually provide only a range during which such crimes could have occurred. You can use the midpoints in these ranges to estimate the times discovery crimes are most likely to have occurred. This can lead to some distortion. (Jerry Ratcliffe proposes the use of ‘aoristic analysis’. The limitation of this approach is that it is more complex than using the midpoint, and the software to make such computations is not commercially available.)

**Figure 1: Examining a 24-hour rhythm of crime**



**Figure 2: Ratcliffe's typology of temporal concentration**



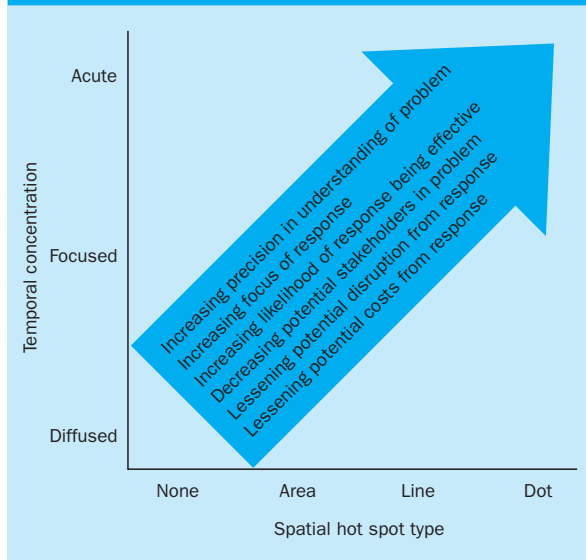
Jerry Ratcliffe has identified three forms of temporal clustering (Figure 2). Events may be relatively evenly spread over the entire day. He calls this a **diffused** pattern. **Focused** patterns show clustering within distinct time ranges. Events clustered around rush hours follow focused patterns. **Acute** patterns are tightly packed within small periods. Disturbances immediately following pub closing time might be an example. Focused and acute patterns immediately suggest temporal cycles that should be investigated.

Though Ratcliffe developed his typology for daily patterns, the basic idea can be applied to weekly cycles. If no particular day of the week is routinely troublesome, this indicates a diffused weekly pattern. A cluster of days showing a marked increase in troublesome events indicates a focused pattern. Finally, if one or two days have a marked concentration of events, this indicates an acute pattern.

Hot spots can be classified into one of three types: area concentrations, line concentrations, and point concentrations (Step 21). Along with the absence of any hot spot, we have four increasingly precise forms of concentration. Ratcliffe's types of temporal concentration also vary from least to most precise. These are combined in Figure 3. Problems toward the upper

right can be addressed more readily than problems to the lower left.

**Figure 3: Combining temporal concentration and hot spots**



ANALYSE

**Read more**

Jerry Ratcliffe (2002). Aoristic Signatures and the Spatio-Temporal Analysis of High Volume Crime Patterns. *Journal of Quantitative Criminology*, 18(1): 23–43.

Jerry Ratcliffe (2003) The Hotspot Matrix: A Framework for the Spatio-temporal Targeting of Crime Reduction. *Police Practice and Research*. Forthcoming.

Study the problem by putting data in a graph of either the number of events or a rate plotted against time. A rate is typically the number of crime or disorder events divided by the number of targets at risk (Step 25). If both the number and the rate are plotted, and they have the same shape, then change in the number of available targets does not play an important role in changing the problem. If the two graphs look different, then targets are an important consideration.

The time course of a problem can be divided into three basic components:

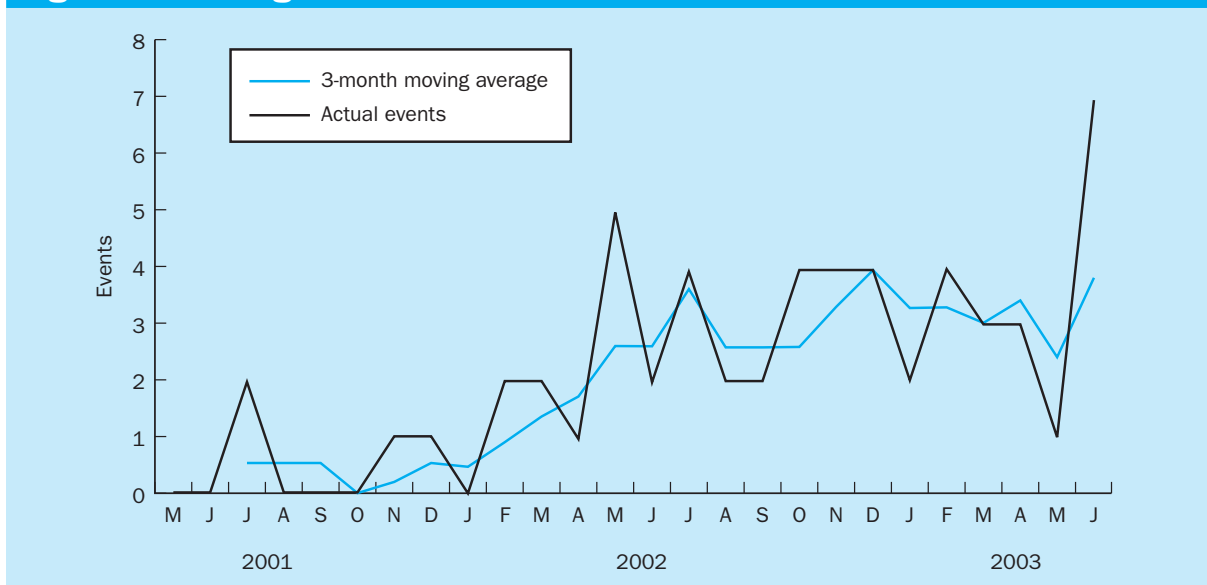
- The **overall trend**, which may be obvious from visual inspection, and which shows whether the problem is getting worse, better or staying the same over a long period.
- Seasonal, daily and weekly **cycles**.
- **Random fluctuations** that are caused by a large number of minor influences.

Figure 1 shows the 26-month time frame (black line) of a hypothetical commercial burglary problem, from May 2001 to June 2003. Early in this time frame there are burglaries, and some months have none. After October

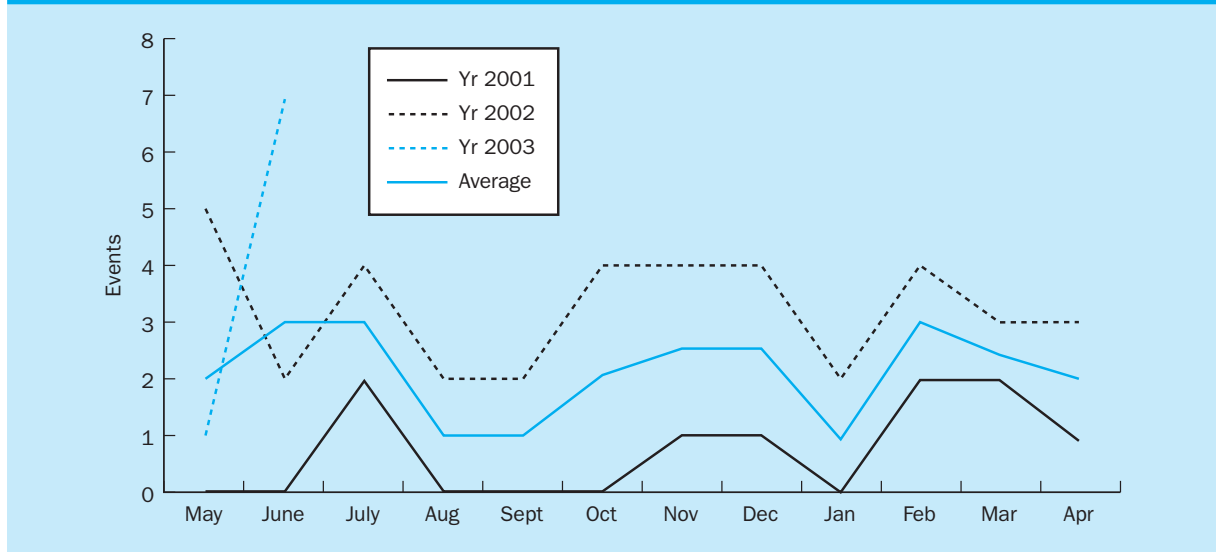
2001 the problem begins to grow and then after April 2002 it oscillates around three events per month. The period ends with a record of seven burglaries. We do not know whether this portends a new growth spurt or merely random variation.

Throughout the time frame, there is considerable monthly variation, shown by the jagged peaks and valleys. Low intensity problems, like this one, tend to have this characteristic whereas problems with many events per time period often show smoother changes. These random fluctuations can hide systematic variation. One method for revealing a trend obscured by random variation is to use a moving average (blue line in Figure 1). This is called 'smoothing'. A three-month moving average was used in this example. A July value, for example, is the average of May, June and July, while the August value is the average of June, July and August. Notice that there is no data for the first two months of the series because we do not have three months of data for these months. Moving averages fill in the valleys and knock off the peaks. Longer moving averages produce smoother graphs than shorter ones, but they can also hide useful information by making the graph too smooth.

**Figure 1: Looking for trends**





**Figure 2: Looking for seasons**

Cycles can be detected by comparing the same months of the year (or same weeks of the month, or same days of a week, or same hours of a day, depending on the time periods you are examining). It's important to note that months are of different lengths (and do not forget February in leap years) as this might influence the number of problem events. Figure 2 plots each year separately, rather than in a continuous string. Two things are readily apparent. First, as we saw in Figure 1, the problem increased: burglaries in 2002 and 2003 are higher than burglaries in the same months of 2001. Second, some months appear to be consistently high and others consistently low, relative to other months: July, November, December, and February are peaks in 2001 and 2002, while August, September and January are valleys. As we are looking at only two years of data, this is not solid evidence of seasonal fluctuation. Nevertheless, it does suggest that seasonal effects might play a role in this problem.

The average for each month produces a line that gives a clearer picture of the seasonal fluctuations (solid blue line). This is another form of smoothing and also reduces the confusion caused by random fluctuations.

Decomposing a time series into component parts can reveal possible causes of a problem.

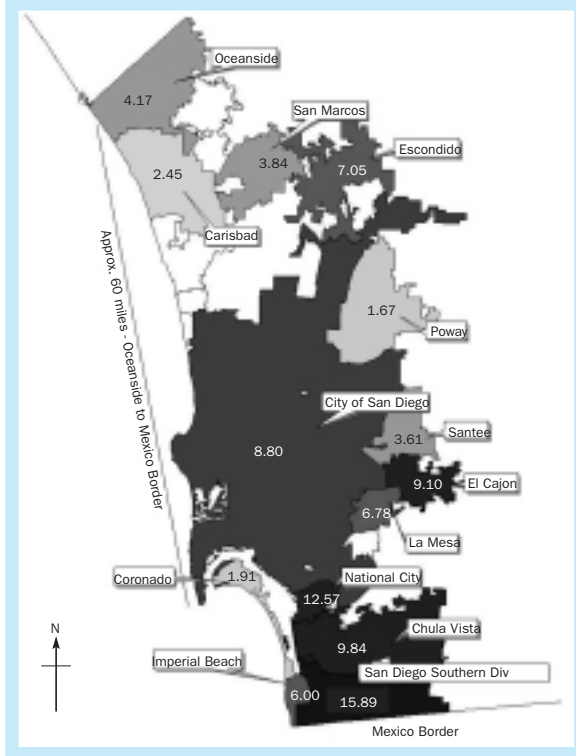
The commercial burglary trend, for example, could be decomposed into two charts showing thefts of computer equipment and thefts of other things. So if the thefts of computer equipment were trending upward while thefts of other things were remaining stable, this would suggest that attention should be focused on stores selling computer equipment.

Time frame analysis is a powerful tool for evaluating the effectiveness of a response. The basic principle is to obtain a good idea of a problem's natural trends, cycles, and variation before the response is implemented, using the techniques just discussed. This tells you what you can expect from the problem in the future, *if you did nothing* about the problem. This provides a basis for examining time frames after the response. Changes in the trend, cycles, or even the random fluctuation suggest the response had an impact. The longer the time frames before and after, the greater the confidence you can have in your conclusions.

Time frame analysis can also be very complex, so if there is a great deal depending on a precise answer to a time frame analysis, it may be useful to seek the help of a statistician specialising in this area.

Rates describe the number of crimes per target at risk, during a period of time. A target rate, for example, might be one burglary for every 1,000 households during 2002. Target rates describe the risk the *average* target has of being involved in a crime during the time period.

**Figure 1: Vehicle theft rates per 1,000 residents, San Diego County, 2001**

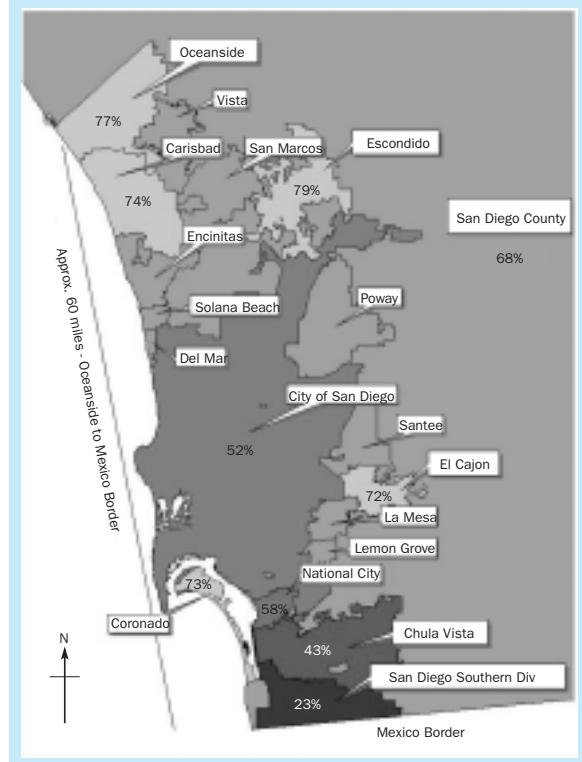


Calculating rates can be very helpful in diagnosing a problem. This is illustrated by some analyses undertaken by Nanci Plouffe, Karin Schmerler and Rana Sampson to support a POP project on vehicle thefts in Chula Vista, California. Officers believed that the city’s close proximity to the Mexican border exacerbated its vehicle theft problem. The fact that Chula Vista’s theft rates, and those of other cities closest to the border, were two to six times higher than ones further north in San Diego County supported this hypothesis (Figure 1). Many vehicles were stolen from parking lots and driven across the border before owners had even discovered the thefts. Analysis had

also suggested that pick-up trucks – highly prized in Mexico – were at greater risk of theft in Chula Vista and in the two other cities closest to the border. Figure 2 confirms that the recovery rate of these trucks when stolen in Chula Vista was generally lower than in cities further from the border. Other analyses showed that some lots had much higher theft rates than others and, ultimately, the analysis showed that border-point interventions were less valuable in preventing auto theft than efforts to improve the security of lots.

The value of calculating rates is also illustrated by a project in Charlotte, North Carolina on which one of us (Ronald Clarke) worked with Herman Goldstein. Assisted by local analysts and police officers, we examined thefts from cars in parking facilities in the downtown area of the city (locally known as ‘Uptown’). Hot spot analysis had shown a large undifferentiated cluster of these thefts centred in the middle of the area,

**Figure 2: Recovery rates for stolen pick-up trucks, San Diego County, 2001**



but a map based on rates of theft was far more revealing (Figure 3). This map was produced by one of the crime analysts on the project, Matt White, who enlisted the help of precinct officers in counting the number of parking spaces in each facility. He then calculated theft rates for each lot and parking deck. The resulting map revealed a much more detailed picture of risk. Further analysis showed that cars parked in lots were six times more at risk than ones in decks and that some lots were crime enablers due to inadequate security.

**Figure 3: Rates of theft from cars by block, Charlotte NC, 1999**



### Using rates to determine crime risks in a large hotel

Lawrence Sherman examined a large Dallas hotel with 1,245 reports of crime over a two-year period. To determine the crime rate he used information about the number of rooms (1,620), average room occupancy rate (1.8 guests per room), number of employees (1,000), and the number of other patrons and employees on the premises. All these people could be considered at risk of being a victim. The robbery rate for them was 1.2 per 1,000 (compared to 4.9 for Dallas as a whole). The theft rate, however, exceeded the city theft rate (10.1 compared with 6.4 per 1,000).

Source: Lawrence Sherman (1989). Violent Stranger Crime at a Large Hotel: A Case Study in Risk Assessment Methods. *Security Journal*, 1(1): 40–46.

### Read more

Ronald Clarke and Herman Goldstein (2003). Thefts from Cars in Center-City Parking Facilities: A Case Study in Implementing Problem-Oriented Policing. In *Problem-oriented Policing. From Innovation to Mainstream. Crime Prevention Studies*, vol. 15, edited by Johannes Knutsson. Monsey, New York: Criminal Justice Press (and Willan Publishing, UK). (Download from: [www.cops.usdoj.gov](http://www.cops.usdoj.gov))

Facilities are environments with special functions (Step 16). Educational facilities involve teaching and study. Industrial facilities produce and process materials. Office facilities process information. Retail facilities involve sales and monetary transactions. Some facilities are frequent sites for crime and disorder. Examples include pubs, car parks, railway stations and, in America, convenience stores and public housing projects. These relatively few sites make a disproportionate contribution to crime and disorder – they are ‘risky facilities’.

But the term has also a more precise meaning. It refers to the fact within each type of facility, a few of them are especially risky. In discussing the 80–20 rule (Step 19) we gave an example of pubs, which varied greatly in their risks of assault. Here are some more examples:

- **Banks** – Four per cent of UK bank branches have rates of robbery four to six times higher than other bank branches.
- **Businesses** – Surveys of businesses in Scotland show that 10% of them account for 40% of the business burglaries and almost three-quarters of the non-employee thefts.
- **Shops** – 1.6% of shops in Australia experience 70% of shoplifting.
- **Convenience stores** – 6.5% of convenience stores in America experience 65% of all robberies.
- **Bus stops** – about 7% of Wirral bus stops experience 70% of vandal attacks.
- **Schools** – Eighteen per cent of Merseyside schools reported 50% of the burglary and criminal damage.

#### Reported car crime in Nottingham city centre car parks 2001

Car park	Spaces	Type*	Theft from	Theft of	Other car crimes	Crimes per 1,000 spaces
Victoria Centre (White Zone)	1,066	M-S	0	0	0	0.0
Talbot Street	590	M-S	0	0	0	0.0
Forest Park and Ride	3,000	S	8	0	3	3.7
Victoria Centre (Main Zone)	1,700	M-S	7	0	2	5.3
Trinity Square	335	M-S	0	1	2	9.0
Broadmarsh Centre	1,200	M-S	19	1	3	19.2
Wollaton Street GNCS	125	M-S	1	0	2	24.0
Stoney Street	600	M-S	13	0	2	25.0
Mount Street	425	M-S	13	0	4	40.0
Fletcher Gate	550	M-S	19	1	6	47.3
Curzon Street	167	S	6	1	2	53.9
Arndale	412	M-S	25	0	1	63.1
St James Street	475	M-S	31	1	5	77.9
Sneiton Market	50	S	6	0	1	140.0
Royal Moat House Hotel	625	M-S	78	0	25	164.8
EuropaPS	225	M-S	37	0	2	173.3
Brook Street	56	S	16	0	7	410.7
Gill Street	49	S	14	2	7	469.4
Huntingdon Street	75	S	34	2	5	546.7

\*M-S = Multi-storey; S = Surface

Source: David G. Smith et al. (2003) *Between the Lines*, Home Office Research Study 266.

- **Parking facilities** – In Basingstoke, half of the thefts of, from and damage to vehicles came from only five car parks. Similar results were found in downtown parking lots in Charlotte, North Carolina (see previous step). The concentration of risk in Nottingham was even greater (see table). Just one car park (Royal Moat House Hotel) of the twenty in the city centre accounted for about 25% (103) of the 415 crimes reported for all the car parks in 2001. Even so, this large car park did not have the highest risk of crime per 1,000 parking spaces. The very wide variation among car parks in these risks (0.0 to 546.7) underlines the degree of crime concentration in risky facilities.

There are at least seven reasons for risky facilities and different analysis procedures can help determine which is operating in particular circumstances:

- 1. Many targets.** Some facilities contain many targets. The Royal Moat House car park in Nottingham accounted for so many crimes partly because it was so large. But this was not the whole story because, when account is taken of its size by calculating crimes per parking space, it is still one of the riskiest facilities.
- 2. Hot products.** A risky facility may not have a large number of targets, but it might have the types of targets that are particularly 'hot' (see Step 29). Compare the things being stolen in risky and non-risky facilities. If the things taken are different, and the things being taken from the risky facilities meet the CRAVED criteria described in Step 29, then hot products are the likely cause of the elevated risk.
- 3. Location.** Facilities located in high crime areas, perhaps where many habitual offenders live, are more likely to be crime risks. This is because offenders prefer not to travel far to commit crime (Step 17).
- 4. Repeat victimisation.** Some places attract people who are particularly vulnerable to crime. Compare the people being victimised in risky and non-risky facilities. If the re-victimisation rates are different, then repeat victimisation may be the cause of the elevated risk.
- 5. Crime attractors.** Facilities that draw in large numbers of offenders are crime attractors (Step 17). Crime attractors have high numbers of offences and high offence rates. Additional diagnostic checks involve analysis of arrest records and other information containing offender names.
- 6. Weak controls.** Owners of most facilities regulate conduct. When conduct is not regulated a risky facility can develop. These are called crime enablers (Step 18). Risky facilities that are crime enablers can have low numbers of offences, but high rates of offending. However, more definitive tests for weak controls include observations of similar high and low crime facilities, examinations of employee rules and procedures, and interviews of workers and patrons.
- 7. Provocations.** The physical design or the way a place is managed can provoke misconduct (Step 36). Provocative facilities are similar to weak control facilities, but where weak control sites simply permit misbehaviour provocative sites stimulate it. Use the same analysis procedures as for weak controls but also look for circumstances that excite misbehaviour.

Facilities become risky for many reasons. Ross Homel of Griffiths University found that some Australian problem pubs marketed themselves to heavy drinking males. This attracted both likely offenders and victims. He also found that the behaviour of staff exacerbated the problem by the way they sold drinks and the manner in which they handled disruptive clients. In this example we see repeat offending, repeat victimisation, weak controls and provocations.

#### Read more

Forthcoming article on 'Risky facilities' by the authors.

Some people are repeatedly victimised and a rather small proportion of victims account for a large proportion of all victimisations. In fact, according to the British Crime Survey, about 4% of people experience about 40% of all victimisations (see the table). Repeat victimisation has been found in domestic violence, burglary, racial attacks and sexual assault, to name but a few examples. Like risky facilities and repeat offending, repeat victimisation is a variation on the 80–20 rule (Step 19).

It is easy to miss the extent of repeat victimisation for several reasons:

- Many victims do not report crimes to the police, which means that repeat victimisation is undercounted in official police records. This is why researchers try to use surveys. With surveys, people can be asked about crimes they did not report to the police.
- Analysts often look for repeat victimisation by counting the number of crimes at addresses, but police data often contains inaccurate address information. This leads to higher estimates of one-time only victimisations than is actually the case. This difficulty can be reduced by increasing the accuracy of police data and through the use of address matching in mapping software (i.e. geocoding).
- Repeat victimisation can be underestimated because of the ‘time-window effect’. If only victimisations during a specific time period are counted – a time window of January 2002 through June 2002, for example – then someone who had been victimised in December 2001 and once during the six-month window would not be counted as a repeat victim. If they had the misfortune to be victimised in July 2002, we would not know that this person had three victimisations. The Home Office recommends using a rolling window where each new victim is followed for a year after the first event.

Knowledge of repeat victimisation is useful for predicting which people are most at risk and when they are at most risk. People who have been victimised once have a greater chance of being victimised in the future than people who have not been victimised. People victimised twice have a greater chance of another victimisation than people only victimised once. The time between repeat victimisations is often

### About 4% of people experience about 40% of all crimes

Crimes reported	Per cent of respondents	Per cent of incidents
0	59.5	0.0
1	20.3	18.7
2	9.0	16.5
3	4.5	12.4
4	2.4	8.8
5+	4.3	43.5

Source: British Crime Survey, 1992 all offences

rather short. Knowing the average time between crimes makes it possible to temporarily deploy crime prevention for short periods when the risk of crime is the greatest.

Crime prevention resources can be focused on people who have the highest risk when they are at most risk rather than spread over a large number of people, most of whom have a very low risk of crime. Many forces now use a ‘graded response’ when dealing with repeat victims. This means that the more often someone has been victimised the more intensive the preventive action taken by the police.

In explaining repeat victimisation, Ken Pease distinguishes two kinds of accounts:

- 1. Boost accounts** explain repetitions in terms of positive experiences at the initial offence. A burglar, for example, learns a great deal during a break-in. This knowledge may encourage him to come back for another break-in. A burglar may also tell others about goods he left behind, leading to subsequent attacks by other burglars.
- 2. Flag accounts** explain repetitions in terms of the unusual attractiveness or vulnerability of particular targets that result in their victimisation by a variety of offenders. Some professions have much higher victimisation rates than others (taxi drivers for example) and people who spend time in risky facilities are also more prone to repeated victimisation. Finally, the ownership of hot products, such as cars attractive to joyriders (Step 29), will also increase the probability of repeat victimisation.

Virtual repeats (also referred to as near repeats) involve victims who have characteristics like those of the first victim. After successfully attacking the first target, offenders generalise to targets with similar characteris-

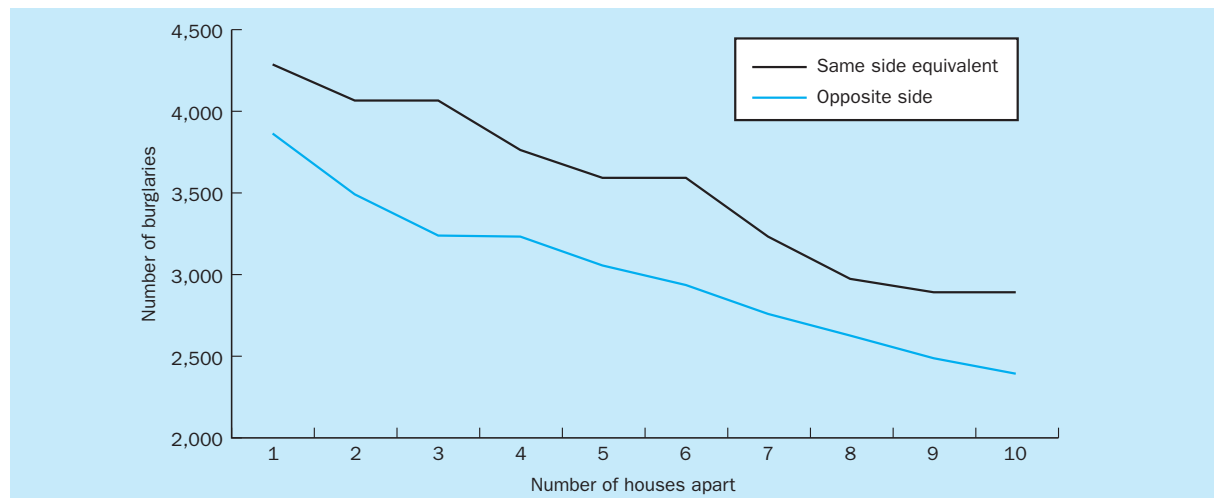
tics. Houses with the same lay-out and in the same neighbourhood as the first burglary, for example, can be expected to have higher risks because the offender has learned something about them from breaking in before.

### Neighbour beware!

All crime analysis involves saying things about the future on the basis of what has happened in the past. Repeat victimisation tells us of an elevated risk that the same victim will suffer again, most often in the immediate days or weeks following the preceding crime. But a crime communicates more than that. It illustrates how risk will be communicated to nearby places. Kate Bowers and Shane Johnson have shown how burglary risk is communicated down a street. This is illustrated in the graph. A home is burgled. Let us call that the reference burglary. The numbers at the bottom are a measure of distance from the location of the reference burglary. A distance of one tells of a home next to a burglary location on the same side of the street, or the home

immediately opposite. A distance of two refers to homes two doors down on the same side of the street, or diagonally opposite, and so on. The ordinate shows the number of burglaries following reference burglaries. The data come from Merseyside Police. It will be seen that the risk of another burglary declines the further the distance from the reference burglary. For any given distance, the risk is greater for homes on the same side of the street. This shows which homes one should seek to protect in the wake of a burglary. Priority should be given to homes close to the burgled home and especially on the same side of the street.

Source: Two forthcoming articles in the *European Journal of Criminology* by Kate Bowers and Shane Johnson: (1) 'The Burglary as Clue to the Future: the Beginnings of Prospective Hot-spotting', and (2) 'Domestic Burglary Repeats and Space-time Clusters: the Dimensions of Risk.'



#### Read more

Graham Farrell and colleagues (2002). The Time-Window Effect in the Measurement of Repeat Victimisation. In *Analysis for Crime Prevention, Crime Prevention Studies*, vol. 13, edited by Nick Tilley. Monsey, New York: Criminal Justice Press (and Willan Publishing, UK).

Home Office (2002). Crime Reduction Tool Kits: Repeat Victimisation – Timescale.

<http://www.crimereduction.gov.uk/toolkits/rv030104.htm>.

Ken Pease (1998). *Repeat Victimisation: Taking Stock*. Crime Prevention and Detection Paper 90. London: Home Office.

One of the fundamental facts of criminology is that a small proportion of individuals commit a large proportion of crime. Data from Marvin Wolfgang's famous Philadelphia cohort suggested that around 5% of offenders account for 40% of crimes. There are two explanations for repeat offending, the first of which is that careless individuals, with weak social attachments to others, tend to get into trouble more frequently than less impulsive and more attached individuals. The second explanation is that people adapt to crime and disorder opportunities (see Step 10). Both of these theories can be true.

Repeat offending can be detected by testing for the presence of the 80–20 rule (Step 19). This can be difficult in practice because offenders try to remain anonymous so the data is seldom comprehensive, and may not exist. Intelligence information can also provide evidence of repeat offending, but this information is often more suggestive than definitive. Nevertheless, systematic interviews with offenders and their associates sometimes can reveal networks that are major contributors to problems.

Understanding repeat offenders' objectives and motives can help create prevention strategies. It makes a difference to the solution to a vehicle theft problem if the thieves want to have a good time riding around in a fancy car, to obtain transportation home after a late night of partying, or to sell it for cash to support a drug habit.

Successful offending can lead to more offending. This occurs in three ways:

- Offenders, like others, learn from doing. A successful crime teaches important lessons. This can lead to the offender attacking the same target again (see box). But offenders, like everyone else, can generalise. So they learn that they may be successful if they attack similar targets (see Step 27).

- Offenders learn from each other. Information can spread through individuals working in small groups, group breakup and new group formation. This underscores the need to understand offender networks. Police can use networks to spread information that enhances offenders' perception of risks or lack of desirability of the target or place. Part of the effort to reduce glass bottle injuries by the Merseyside Police, for example, involved highly targeted advertising to potential offenders and victims about proper disposal of glass beer bottles.
- Successful offending can erode prevention, thus making subsequent offending easier. A small break in a fence, for example, will become larger with use. If the influx of offenders and offensive behaviours is faster than the responses of guardians and place managers, then a small problem will become worse.

Many crime prevention techniques rest on the assumption of a credible threat (Step 34). CCTV provides a deterrent threat to the extent that potential offenders believe either that someone is watching who will take action should they see misbehaviour, or that offenders can be identified and arrested later based on CCTV recordings. This does not mean that there have to be many arrests, but a few well-publicised arrests can reinforce an important message. And the message can be made more powerful if it is communicated through offender networks rather than relying on normal publicity.

When there is specific information that a few people are responsible for most of a problem, it can be productive to focus on these individuals. The Boston Police Department, in the United States, reduced homicides among young males by monitoring a relatively few gang members. Environmental correction suggests that probation and parole authorities should learn the specific circumstances under



which each offender gets into trouble, then help offenders develop plans to avoid these circumstances, and finally monitor compliance with these plans.

Tackling repeat offending through removing facilitating environments can sometimes be very effective. For example, in Staining, a village in Lancashire, a scrap yard served as a receiver for stolen vehicles, parts, and other loot from thefts. Many of the associated offenders were known. But despite police enforcement efforts this problem could not be resolved. Constable Farrand was able to close the site using laws governing pollution and other environmental hazards. This substantially reduced crime in the village. Similarly, police in the United States often use civil laws to close down facilities that foster drug dealing, prostitution, and other crimes and disorder.

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### **Catch prolific criminals by focusing on repeat victimisation**

Ken Pease has recently written about the benefits for detection resulting from a focus on repeat victimisation. Evidence is accumulating that repeat victimisations are

the work of the most committed offenders. He points out that this raises the intriguing possibility that offender targeting may be achieved simply by detecting repeated offences against the same household or person, since these offences are committed by offenders whom one would in any case wish to target. This kind of offender targeting would avoid all the aspects of an approach deriving from the harassment of known offenders, since it would focus not on people, but on the subset of acts that prolific offenders habitually commit.

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#### **Read more**

Francis Cullen, John Eck and Christopher Lowenkamp (2002). Environmental Corrections: A New Framework for Effective Probation and Parole Supervision. *Federal Probation*, 66

John Eck (2002). Preventing Crime at Places. In *Evidence-Based Crime Prevention*, edited by Lawrence Sherman, David Farrington, Brandon Welsh and Doris Layton MacKenzie. New York: Routledge.

David Kennedy, Anthony Braga, Anne Piehl and Elin Waring (2001). *Reducing Gun Violence: The Boston Gun Project's Operation Ceasefire*. Research Report. Washington, DC: National Institute of Justice.

Repeat offenders, repeat victims, hot spots and risky facilities are all concepts that describe important ways in which crime is concentrated. Crime is also concentrated on particular 'hot products', which are likely to be stolen, including cars, bicycles, video machines and mobile phones. The hottest product of all is cash, which Marcus Felson describes as the mother's milk of crime. As shown by the British Crime Survey, it is the most frequently stolen item in larcenies, burglaries and robberies. It fuels robberies of banks and betting shops, attacks on phone boxes, and muggings near bank machines.

The things people own can help explain their victimisation risks. For example, owning a car doubles the risk of becoming a crime victim, even when account is taken of relevant demographic and social variables. And the particular model of car owned can raise this risk many times over. This is why the Home Office publishes the Car Theft Index that gives risks of theft for different models. The Index helps people avoid purchasing a theft-prone car and puts pressure on manufacturers to improve the security of cars.

Useful as it is, the Index does not show which cars are most at risk from specific forms of theft. American research in the mid 1980s found that the models preferred by joyriders were American-made 'muscle' cars with powerful acceleration. Those stolen and never recovered were expensive cars such as Mercedes, and those broken into and stripped of contents were European models with good radios, such as VWs. American-made station wagons were not at risk of any form of theft. These were inexpensive, had terrible radios, and joyriders wouldn't be seen dead in them.

Shops carrying hot products (such as cigarettes, videocassettes, CDs, brand-name clothing and footwear) are also more vulnerable to shoplifting and burglary. Many of these items can readily be sold on the street. Knowing what is 'hot' in your area can help you explain patterns of theft and help you

think about how stolen goods are sold and how to disrupt the market. Police have generally paid little attention to fencing because it is difficult to prove and often attracts relatively light sentences. But if thieves found it harder to fence goods, the incentive for 'volume' thefts would be reduced.

The acronym CRAVED will help you remember which goods are most stolen. In general these are Concealable, Removable, Available, Valuable, Enjoyable and Disposable.

- **Concealable.** Things that can be hidden in pockets or bags are more vulnerable to shoplifters and other sneak thieves. Things that are difficult to identify or can easily be concealed after being stolen are also more at risk. This explains why we write our names in books and why car thieves do not generally steal Rolls Royces for their own use. Instead, they steal less valuable cars that merge into the surroundings. In some cases, thefts may even be concealed from the owners of goods, as when timber or bricks left lying around on building sites are stolen.
- **Removable.** The fact that cars and bikes are mobile helps explain why they are so often stolen. Nor is it surprising that laptop computers and VCRs are often stolen since these are desirable and easy to carry. The importance of these factors depends on the circumstances of theft, as borne out by American data on targets of theft from supermarkets. Both burglars and shoplifters target cigarettes, liquor, medicines and beauty aids, but burglars take them in much larger quantities.
- **Available.** Desirable objects that are widely available and easy to find are at higher risk. This explains why householders try to hide jewellery and cash from burglars. It may also help explain why cars become more at risk of theft as they get older. They become increasingly likely to be owned by people living in poor neighbourhoods with less off-street parking and more offenders living

nearby. Finally, theft waves can result from the availability of a new attractive product, such as the mobile phone, which quickly establishes its own illegal market.

- **Valuable.** Thieves will generally choose the more expensive goods, particularly when they are stealing to sell. But value is not simply defined in terms of resale value. Thus, when stealing for their own use, juvenile shoplifters may select goods that confer status among their peers. Similarly, joyriders are more interested in a car's performance than its financial value.
- **Enjoyable.** Hot products tend to be enjoyable things to own or consume, such as liquor, tobacco and cassettes. Thus, residential burglars are more likely to take videos and televisions than equally valuable electronic goods, such as microwave ovens or food processors. This may reflect the pleasure-loving lifestyle of many thieves (and their customers). Fashion items such as trainers or designer jeans are much more likely to be stolen than ordinary shoes or trousers.
- **Disposable.** Only recently has systematic research begun on the relationship between hot products and theft markets, but it is clear that thieves will tend to select things that are easy to sell. This helps explain why batteries and disposable razors are among the most frequently stolen items from American drug stores.

### Which lorries are stolen?

Home Office research conducted by Rick Brown shows that body-type significantly determines which lorries are stolen.

The highest risk of theft was found for livestock carriers, many of which are private horseboxes. These were 56 times as likely to be stolen as refuse carriers! There is a thriving second-hand market in horseboxes, which would make it easier for thieves to sell them. Tipplers and drop-side lorries used by the construction industry are also at high risk, probably for the same reason.

#### Heavy goods vehicles stolen, England and Wales 1994

Body type	Number stolen	Per cent of incidents	Theft rate per 1,000 registered
Livestock carrier	156	5.1	56
Drop-side lorry	582	19.1	27
Tipper	920	30.2	16
Flat-bed lorry	565	18.5	14
Skip loader	86	2.8	13
Goods lorry	349	11.5	9
Insulated van	88	2.9	7
Bottle float	12	0.4	3
Tanker	29	1.0	2
Refuse disposal	10	0.3	1
Other	248	8.1	1
<b>TOTAL</b>	<b>3,047</b>	<b>99.9</b>	<b>6</b>

#### Read more

Ronald Clarke (1999). *Hot Products. Understanding, Anticipating and Reducing the Demand for Stolen Goods*. Police Research Series. Paper 112. London: Home Office.

Crime facilitators help offenders commit crimes or acts of disorder. There are three types of facilitators:

- **Physical** facilitators are things that augment offenders' capabilities or help to overcome prevention measures. Lorries extend offenders' capacity to move stolen goods, telephones allow people to make obscene phone calls, and firearms help overcome resistance to robberies. Some physical facilitators are tools, but others are part of the physical environment. Barry Poyner and Barry Webb describe how the arrangement of stalls in a Birmingham retail market, for example, facilitated thefts from women's handbags.
- **Social** facilitators stimulate crime or disorder by enhancing rewards from crime, legitimating excuses to offend, or by encouraging offending. Groups of young men, for example, can provide the social atmosphere that encourages rowdy behaviour at sporting events.
- **Chemical** facilitators increase offenders' abilities to ignore risks or moral prohibitions. Some offenders, for example, drink heavily or use drugs before a crime in order to decrease their nervousness.

Each type of facilitator acts against particular forms of situational crime prevention (Steps 33–37), as shown in the table. Physical facilitators help offenders overcome preventive measures that increase risk or effort. They can also act as provocations to deviancy. Social facilitators can increase the perceived reward or the acceptable excuses for committing a crime, and they can provoke crime or disorder through encouragement. Chemical facilitators allow offenders to ignore the risk and effort involved in committing a crime. And they allow offenders to make unacceptable excuses.

Because of their capacity to blunt crime prevention, it is important to identify the role of facilitators in a problem. Evidence about facilitators can be found in investigative reports

### Crime facilitators versus situational prevention methods

Situational prevention method	Type of facilitator		
	Physical	Social	Chemical
Increase risk	←		←
Increase effort	←		←
Reduce rewards		←	
Remove excuses		←	←
Reduce provocations	←	←	

and from investigators, by interviewing victims and offenders, and by observing social situations. Statistical analysis of crime reports can be used to determine the association between crimes and various facilitators.

If facilitators do play a role in the problem, then the next step is to find the sources of the facilitators. Sources will, of course, vary by type of facilitator. Physical facilitators might be readily available, as in the case of paving stones for rioters or public phones for drug dealers. Or they may be purchased legitimately, as is the case for many burglary tools. Or they may be stolen, as is sometimes the case with vehicles used in serious crimes. Having found their source it may be possible to do something about them. The list opposite shows measures taken to address the use of public phones in drug dealing, and facilitating environments around cash machines.

Social facilitators depend heavily on whom offenders associate with, and the settings for the association. Risky facilities (Step 26), for example, can provide settings for social facilitation. Gangs provide the social support for crime. But even legitimate activity can on occasion spark social facilitation, as in the case with some politically motivated violence.

Chemical facilitators are abundant and frequently associated with crime and disorder. Alcohol is particularly implicated as a

facilitator. Various mixtures of facilitators are common, particularly social and chemical in entertainment venues. Several of the 25 techniques of situational crime prevention are designed to reduce the effect of the three kinds of crime facilitators (Steps 33–37).

**Measures to prevent use of public phones by drug dealers in U.S. cities**

Before cell phones became widely available, drug dealers in the US often relied on the use of public phones to make contact with suppliers and customers. Many ways to stop them were tried, including:

1. City ordinances to license public phones and ban them or limit their number at specific locations or categories of location.
2. Installation of rotary dials that do not permit outgoing calls to pagers.
3. Modification of phones to block incoming calls.
4. Community pressure on local phone companies or the city government to remove public phones or relocate them in better lit or supervised areas.
5. Permitting only operator-assisted calls or emergency calls during night hours by blocking coin operation of the phones.
6. Removal or modification of public phones by businesses such as convenience stores and petrol stations.
7. Other types of intervention such as increased police patrols, warning labels on phones, and ‘hotlines’ to report problems.

Source: Mangai Natarajan and colleagues (1996). Drug Dealing and Pay Phones: The Scope for Intervention. *Security Journal*, 7: 245–251.

**Security provisions for bank cash machines in New York City and Los Angeles**

	New York City	Los Angeles
Enclosed cash machine vestibule with secured entry door	●	
Increased lighting	●	●
Transparent windows in facility enclosure	●	
Elevated mirrors for users	●	●●
Reduced vegetation near machine		●
Surveillance cameras	●	●
Safety reminders to users	●	●●
Security provisions notice to potential offenders	●	●
Crime assessment prior to installation of cash machine		●
Security guards	●*	
Reduced cash machine operational hours based on temporal crime patterns in area		●●

● Required by legislation.  
 ●● Not required under legislation, but commonly implemented at bank’s volition.  
 \* Required only during non-banking hours for ATMs located inside bank buildings open for customer use.  
 Source: Rob Guerette and Ronald Clarke (2003). Product Life Cycles and Crime: Automated Teller Machines and Robbery. *Security Journal*, 16: 7–18.

When you have completed your analysis (using concepts discussed in the previous ten steps), you should ask whether it meets the test of a good newspaper story. Does it adequately answer the 5 W and one H questions: **what, where, when, who, why and how?**

These same questions structure Barry Poyner's method of crime analysis by breaking up a larger problem into its constituent parts. For example, when he was asked by the Home Office to study 'street attacks' in the city centres of Coventry and Birmingham, he found that the police classified these as robberies and thefts from the person, but he found that the majority of incidents fell into a number of quite distinct problems:

- Robbery from street kiosks.
- Robbery of drunks.
- Money snatched while being taken to the bank.
- Handbag snatches.
- Purse/money snatched from hand after verbal ploy.
- Thefts from shopping bags.
- Pickpocketing at bus stops.

This was a much more meaningful characterisation of 'street attacks' and was an important first step in understanding the events. He then began to sort through the incident reports, trying to arrive at a picture of each problem that would help to find a response.

Incident reports are quite variable in the information recorded, especially when the victim is not present and there are no witnesses. However, Poyner tries to piece the reports together to get a picture of the particular problem (see box). For each incident he tries to discover:

- **What happened?** This entails spelling out the sequence of events and the actions of those involved.

- **Where did it happen?** Sometimes the sequence of events takes place in several locations. For example, a car might be stolen from a car park, moved to a garage for stripping of valuable parts, and then dumped on a piece of waste land. Information may only be available about the first and last locations. Visiting these can help explain why the offender selected them.
- **When did it happen?** Householders or car owners might know only that their car was stolen or their house burgled 'some-time during the weekend'. For many interpersonal crimes, however, the victim will be able to report precisely when the crime occurred, which may permit inferences about such matters as whether the streets were deserted.
- **Who was involved?** There is always at least one offender; there may be one or more victims even if they have no direct contact with the offender; there may be witnesses and other third parties. Statements in police records made by witnesses and victims can provide much useful information, but it might sometimes be important to question a sample about the event.
- **Why did they act as they did?** It is important to understand the specific benefits that a particular kind of crime brings to the offender. In many cases of theft, the motive will be obvious, but for interpersonal crimes and for vandalism the motives may only emerge from interviewing offenders (Step 11). Equally important for prevention may be to understand why victims and witnesses behaved as they did and to answer such questions as 'What causes some victims to "have a go" at the offender?' and 'Why do witnesses often fail to intervene?'
- **How did the offender carry out the crime?** Crime can be thought of as a process, with several steps from initiation to completion, rather than a circumscribed act occurring at a specific point in time. At each step the offender must make decisions, might need to work with others and might need to

employ specific knowledge and tools. This is essentially the idea underlying Cornish's 'script' approach discussed in Step 11. It may not always be possible to develop detailed scripts, but the analysis should give a clear picture of how the crime was accomplished.

Poyner's analysis of pickpocketing at bus stops illustrates the approach. He was able to construct a detailed description of the crime by supplementing the rather sketchy incident report with observations of the queues. He found that the peak time for pickpocketing was the afternoon rush hour, particularly on Fridays when queues were long. Groups of three or four youths would hang about near the queues, looking in the windows of nearby stores to avoid arousing suspicion, while watching at the same time for suitable victims. These were invariably middle-aged or older men who kept their wallets in the back pockets of their trousers. (Younger men wore tighter-fitting trousers and did not keep their wallets in their back pockets.)

As their victims began to board the bus, which used a pay-as-you-enter system, the youths would run to the front of the queue, jump on the boarding platform of the bus and jostle the queue. They would ask the driver some irrelevant question about the destination of the bus. Meanwhile one of the youths would pick the pocket of the victim. The victim would be irate at being jostled and would not realise what was happening. The driver would shout at the youths to get off his bus and other passengers would be complaining. The youths would step off the bus and slip away into the crowd. The victim would only find out later that his wallet was gone. None of the youths were ever caught.

This analysis suggested four possible responses:

1. Instead of pay-as-you-enter, tickets might be sold in advance for use at these stops.
2. Bus stops might be re-sited away from main pavements and organised in bays more like a bus station. This would make it difficult for offenders to lie in wait.
3. Screen the queues by a bus shelter so the offenders would be unable to identify potential victims in advance.
4. Construct queue-marshalling barriers at the boarding point so offenders cannot jump onto the bus platform.

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### Working like an archaeologist

'There is a further advantage of combining incidents. In some cases we may have much less detail than other cases but otherwise the facts we do know about are the same. It may be possible to reconstruct the missing data in these less well reported incidents in much the same way as the archaeologist reconstructs broken pottery from an excavation. He may only have a few pieces of the broken pot but from knowledge of other similar pots he can be reasonably sure about the form of the whole pot. This archaeological approach is quite helpful when, for example, we may have some detailed accounts of what offenders do in a few cases where they have been caught. It seems reasonable to believe that similar behaviour occurred in similar crimes even though the offenders were not caught.'

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Source: Barry Poyner (1986). A Model for Action. In *Situational Crime Prevention*, edited by Gloria Laycock and Kevin Heal. London: HMSO.

The first instinct of police, even when they have been involved in a detailed analysis of a problem, is to try to solve it by beefing up enforcement. You should expect this and not oppose it, even if the impact is usually short-lived. But from the beginning you should be helping your police colleagues find more permanent solutions. Local community partners could provide this help, but instead they often promote their own agendas and push solutions with limited impact. The result is often a compromise package of measures, none of which is effective, but each of which may satisfy one or other of the parties. In fact, the disagreements over solutions may lead to a loss of momentum and nothing may be properly implemented.

You can help to stop this happening, but you must first become an expert on solutions. For example, if the problem is one of car theft, you must be able to speak authoritatively about the ineffectiveness of decoy vehicles or 'lock your car' campaigns. If it is a burglary problem, you must know the results of research on burglar alarms or improved street lighting, both of which may be suggested as solutions. You should also be thoroughly familiar with findings on displacement, since innovative solutions are often blocked by knee-jerk invocations of this theory.

To become expert on solutions you should become familiar with the many relevant studies on the Home Office website ([www.homeoffice.gov.uk](http://www.homeoffice.gov.uk)) and you must know how to find out more about particular responses by undertaking rapid literature searches. You will need access to *Criminal Justice Abstracts*, *Security Journal*, *Crime Prevention and Community Safety*, *Crime Prevention Studies* and other relevant journals. Because evaluative research is scarce, you should look for studies undertaken overseas by the Australian Institute of Criminology ([www.aic.gov.au](http://www.aic.gov.au)) or the National Institute of Justice ([www.ncjrs.org](http://www.ncjrs.org)) and the Office of Community-Oriented Policing Services in the United States. The latter publishes a series of *Problem-Solving Guides for Police* that are focused on specific problems. Twenty guides are

currently available and many more are planned ([www.popcenter.org](http://www.popcenter.org)) When using research from overseas, you may have to explain that, because criminals everywhere tend to have similar motives and use the same methods, the findings are likely to apply to your local situation.

You must also become an expert on situational crime prevention, the science of reducing opportunities for crime. Situational prevention uses the same action-research methodology as problem-oriented policing and has dozens of evaluated successes to its credit. Much of the knowledge about displacement, diffusion of benefits, repeat victimisation, and many other concepts discussed in this manual have been developed by situational prevention researchers. The next five steps discuss the 25 techniques of situational crime prevention, which fall into five main groups (see the box). These are defined by what Nick Tilley calls the *mechanism* through which the techniques achieve their preventive effect: increasing the effort of crime, increasing the risks, reducing the rewards, reducing provocations and removing excuses.

At this point, you might be asking yourself why you should assume this responsibility for identifying solutions. Isn't it enough that you carry most of the burden at the scanning, analysis and assessment stages? And even if you did take on this role, why should anyone pay attention to you? But to become a problem-solving analyst you must go beyond your traditional analytic function. You must become a full and equal member of the problem-solving team. You may be relatively junior, but your authority comes from your expert knowledge, not your position. People will listen if you make novel suggestions, or if you provide supporting evidence for other people's good ideas.

You should always opt for solutions that could bring a rapid reduction in the problem. This means that you must focus on the immediate, direct causes of a problem rather than the more distant, indirect ones. This important distinction has been developed by Paul Ekblom and



## FIND A PRACTICAL RESPONSE

can be illustrated by the problem of bar fight injuries caused by broken bottles and glasses. Distant ‘root’ causes might include racial discrimination producing a generation of disaffected minority youths, lack of local employment opportunities resulting in widespread social exclusion, and the premium placed on a ‘tough’ reputation in a deprived and lawless community. More immediate, situational causes might include irresponsible serving practices promoting drunkenness in local pubs, and the immediate availability of bottles and glasses that can easily be used as deadly weapons.

Rapid and sustained reductions in crime can only result from addressing situational causes; addressing root causes, even if we knew what to do about them, can only pay off in the comparatively distant future – long after the current stakeholders have any remaining interest in the problem. Meanwhile, unless the immediate causes are dealt with, broken glasses and bottles will continue to claim victims.

Some situational solutions can also take a long time to implement. For example, the danger posed by glasses and bottles could be addressed by national legislation requiring pubs to use only toughened glasses and bottles that disintegrate into crumbs when broken. This would probably take years to accomplish. Much more realistic would be to bring community pressure to bear on local pubs to serve beer only in toughened or plastic glasses and to refuse to sell bottles at the bar. This ought to be achievable in a much shorter time. You might have a particular analytic role in promoting this solution by assembling data about the likely costs for the pubs and the reduced costs of injuries and emergency care. In fact, it will probably fall to you (who else?) to collect data about the feasibility, costs and the public acceptability of any of the measures that are being seriously considered by the problem-solving partnership.

The bottom line is that unless you acquire knowledge of a broad range of solutions and

unless you are prepared to fight for good ideas, all your careful analytic work may come to nothing.

### Read more

Ronald Clarke (1997). *Situational Crime Prevention: Successful Case Studies*. Monsey, New York: Criminal Justice Press.

Derek Cornish and Ronald Clarke (2003). Opportunities, Precipitators and Criminal Decisions: A Reply to Wortley’s Critique of Situational Crime Prevention. In *Theory for Situational Crime Prevention. Crime Prevention Studies*, vol. 16, edited by Martha Smith and Derek Cornish. Monsey, New York: Criminal Justice Press (and Willan Publishing, UK).

### Twenty-five techniques of situational crime prevention

#### Increase the effort

1. Harden targets
2. Control access to facilities
3. Screen exits
4. Deflect offenders
5. Control tools/weapons

#### Increase the risks

6. Extend guardianship
7. Assist natural surveillance
8. Reduce anonymity
9. Utilise place managers
10. Strengthen formal surveillance

#### Reduce the rewards

11. Conceal targets
12. Remove targets
13. Identify property
14. Disrupt markets
15. Deny benefits

#### Reduce provocations

16. Reduce frustrations and stress
17. Avoid disputes
18. Reduce emotional arousal
19. Neutralise peer pressure
20. Discourage imitation

#### Remove excuses

21. Set rules
22. Post instructions
23. Alert conscience
24. Assist compliance
25. Control drugs and alcohol

Here we describe the most basic category of situational measures – those designed to increase the difficulties of crime – beginning with target hardening. Situational prevention is sometimes dismissed as being nothing more than this, though it is only one of the 25 techniques that the approach encompasses. Note that there is considerable overlap between the techniques (for example, target hardening can slow up offenders and increase the risks of their getting caught) and that some measures can serve more than one purpose. When using this classification, do not spend time worrying where a particular measure fits. Use the classification only to ensure that you consider the widest possible repertoire of situational responses to a particular problem.

**Harden targets.** An obvious, often highly effective way to obstruct the vandal or the thief is through physical barriers such as locks, screens, or reinforced materials. Improved design of London Underground ticket machines substantially reduced the use of slugs. Screens to shield bus drivers have significantly reduced assaults and anti-bandit screens in London post offices reduced robberies by 40%. Strengthened coin boxes have reduced theft and damage to public telephones in Britain and Australia. The introduction more than 30 years ago of steering locks in Germany, Britain and America produced substantial reductions in theft of cars and immobilisers are currently achieving the same result.

**Control access to facilities.** Stopping people from entering places where they have no right to be, such as offices, factories and apartment blocks, has a long pedigree – think only of the portcullises, moats and drawbridges of medieval castles. It is also a central component of defensible space, arguably the start of scientific interest in situational prevention. Barry Poyner and Barry Webb found that a combination of entry phones, fencing around apartment blocks and electronic access to the parking garage achieved a significant reduction in vandalism and theft in one London council estate. Poyner has also demonstrated that the installation of entryphones and the demolition of walkways linking buildings significantly reduced muggings at another London estate (Step 22). In some cases, access controls

are intended to detect prohibited objects or to ensure the possession of tickets and documents. Automatic ticket gates on the central zone stations of the London Underground reduced fare evasion by two-thirds throughout the system, while redesigning tickets to make them easier to check produced a similar result on Vancouver ferries. In the most famous example, baggage and passenger screening at major airports in the early 1970s contributed to a major reduction in the number of airline hijackings worldwide from about 70 to 15 per year.

**Screen exits.** The purpose of exit screening is to ensure that those leaving a building, a facility or some other place have not stolen anything or have paid all fees and taxes. This technique includes the requirement to surrender tickets on leaving a train, border controls on leaving a country and the use of electronic tags in library books and shops. These tags activate an alarm if books have not been checked out or if a thief tries to remove a tagged item from the shop. Studies have shown that they significantly reduce shoplifting and theft of library books.

**Deflect offenders.** Rival groups of soccer fans are segregated in the stadium to reduce fighting, and their arrival and departure has been scheduled to avoid the waiting periods that promote trouble. Scheduling the last bus to leave immediately after pub closing time is intended to interfere with another of Britain's less admirable traditions, the closing time brawl. Reducing congestion around stalls substantially reduced thefts from shopping bags at markets in Birmingham because this increased the difficulty of pick-pocketing and other 'stealth' thefts. Roger Matthews has shown that a road closure scheme to deflect kerb crawling contributed to the rehabilitation of a red light district in a North London suburb. These are all examples of deflecting offenders away from crime targets, a situational technique suggested by routine activity theory.

**Control tools and weapons.** Saloons in the Wild West routinely required customers to surrender their pistols on entry because of the risk of drunken gunfights. More recently,

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'safer' handguns have been developed that can only be fired by the owner or which shoot wax bullets or tranquillisers. To prevent glasses being used as weapons when broken, many pubs in this country now use 'toughened' beer glasses. The first commercial use of Caller-ID (in New Jersey at the end of the 1980s) led to a reduction of one quarter in obscene telephone calls. Step 30 lists the different ways in which US cities have attempted to control the use of public phones in drug dealing, including blocks on incoming calls and banning them from specific locations. Re-programming of public phones at the Manhattan bus terminal prevented illegal access to the international phone service and wiped out a multi-million dollar scam perpetrated by hustlers. The introduction of identification procedures in Sweden produced a dramatic decline in cheque frauds, while improved security procedures for delivering credit cards produced a substantial drop in credit card frauds in this country in the mid-1990s (Step 12).

### Increase the effort of crime

#### Harden targets

- Steering column locks, immobilisers and the 'club'.
- Anti-robbery screens at banks and post offices.
- Plastic shields for bus drivers.

#### Control access to facilities

- Entry phones for blocks of flats.
- Electronic card access to garages and offices.
- Fenced backyards and the alley-gating scheme.

#### Screen exits

- Ticket needed to exit.
- Export documents.
- Electronic tags for shops and libraries.

#### Deflect offenders

- Street closures in red-light districts.
- Separate toilets for women.
- Disperse pubs from city centre.

#### Control tools and weapons

- Restrict spray-can sales to juveniles.
- Toughened beer glasses.
- Stop incoming calls to public phones to foil drug dealers.
- Photos on credit cards and thumbprints on cheques.

### Seven criticisms of situational crime prevention – and rebuttals

Criticism	Rebuttal
1 It is atheoretical and simplistic	It is based on three crime opportunity theories: routine activity, crime pattern and rational choice.
2 It does not work; it displaces crime and often makes it worse	Many dozens of case studies show that it can reduce crime, usually with little displacement.
3 It blames the victim	It empowers victims by providing them with information about crime risks and how to avoid them.
4 It promotes a selfish, exclusionary society	Defensible space designs for council housing and CCTV on public transport are just two examples of protection given to vulnerable sections of the population.
5 It promotes Big Brother and is a servant of repression	Situational remedies are often barely visible or improve the general quality of life. Prevention is generally less discriminatory than law enforcement.
6 It diverts attention from the root causes of crime	It achieves immediate results and allows time for finding longer-term solutions to crime.
7 It is a conservative, managerial approach to the crime problem	It promises no more than it can deliver. It requires that solutions be economic and socially acceptable.

Read more: Andrew von Hirsch, David Garland and Alison Wakefield (2000). *Ethical and Social Perspectives on Situational Crime Prevention*. Oxford: Hart Publishing.

According to interviews with offenders, they worry more about the *risks* of being apprehended than about the *consequences* if they are caught. This makes sense from their point of view since they can do little to avoid punishment if caught, but they can do a lot to reduce the risks of capture by being careful. This is why situational prevention seeks to increase the risks of being caught and makes no attempt to manipulate punishment.

**Extend guardianship.** Cohen and Felson showed that the increase in residential burglary in America during the 1960s and 1970s was partly due to the increasing numbers of women working outside the home. This meant that for much of the day many houses, if not entire suburbs, had no 'capable guardians'. Other research has found that burglars prefer to commit their crimes on weekday afternoons when people are likely to be out. This explains why householders should cancel newspapers and inform their neighbours when they go away on holiday. Carrying a cell phone or going out at night in a group are other ways to extend guardianship. Little is known about the effectiveness of these routine precautions and evaluations of neighbourhood watch, the only systematic effort to extend guardianship, have not been encouraging. However, cocoon neighbourhood watch, under which surrounding homes were alerted after a burglary, was an important element of the successful Kirkholt project.

**Assist natural surveillance.** Householders trim bushes outside their homes and banks illuminate their interiors at night to capitalise upon the 'natural' surveillance provided by people going about their everyday business. Enhancing natural surveillance is also the prime objective of improved street lighting and defensible space architecture. Oscar Newman has recently reported some successes in reducing crime in American public housing through the application of defensible space principles. Improved lighting in a Dudley council estate produced crime reductions with little evidence of displacement.

Robbery rates of convenience stores in Florida were lower when they were located in areas with busy evening activity and when the view of their interiors was unobstructed. Informant hotlines and crime stopper programmes are attempts to capitalise upon the natural surveillance provided by the public.

**Reduce anonymity.** Expanded car ownership has allowed people to work in places distant from their homes. The development of out-of-town retail malls has contributed to the demise of local high-street shopping. Low-cost travel has led to increased tourism both at home and overseas. As a result, people spend increasing periods of time among anonymous strangers. The building of large schools is part of this trend because pupils are less well known to staff and other pupils. Reducing anonymity is a promising but rarely used situational technique. Some American schools are now requiring uniforms to reduce the anonymity of pupils on their way to and from school. 'How's my driving?' signs with 0800 telephone numbers on lorries, and taxi driver IDs displayed for passengers, are two further attempts to reduce anonymity.

**Utilise place managers.** In addition to their primary function, some employees also perform a surveillance role. These 'place managers' include shop assistants, hotel doormen, car park attendants and bus conductors. Less vandalism has been found on buses with conductors and on council housing estates with resident caretakers. Public telephones sited in pubs or railway stations where they receive some oversight from workers also suffer fewer attacks. Canadian research has found that apartment blocks with doormen are less vulnerable to burglary. Rewarding cashiers for detection of forged or stolen credit cards helped to reduce annual fraud losses by nearly \$1 million dollars at an electronics retailer in New Jersey. Vandalism on a fleet of 80 double-decker buses in northern England was substantially reduced when some of the buses were fitted with CCTV for drivers. Having two shop assistants on duty, especially

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at night, has been found effective in preventing robbery of convenience stores in the United States.

**Strengthen formal surveillance.** Formal surveillance is provided by police, security guards and store detectives whose main function is to furnish a deterrent threat to potential offenders. Burglar alarms and CCTV can enhance this surveillance. Vandalism, assaults

and fare dodging were substantially reduced on public transport in Holland when a new force of inspectors was employed. A bike patrol succeeded in curbing car thefts from commuter parking lots in Vancouver. A Home Office study found appreciable reductions in a variety of crimes following installation of CCTV in three British cities. New ways of enhancing formal surveillance are provided by linking data sets on individuals (see box).

### A better way to prevent welfare frauds

Parliamentary rows are periodically sparked when governments try to crack down on fraudulent welfare claimants by asking the public to turn them in. A few years ago, an opposition MP denounced the government's 'Beat-a-cheat' campaign. He said that, 'Encouraging your next-door neighbour to snoop on you is the sort of community values we now expect in Britain.' Eckhart Kuhlhorn has documented a better way of reducing welfare fraud, which involved a new computer system in Sweden that allowed crosschecking of statements made about personal income. When people claimed for rent allowance they were tempted to understate income, but when they claimed sickness benefits, they were tempted to overstate it. Linking the two sets of statements reduced this temptation and Kuhlhorn found two results: (1) a 75% increase in voluntary statements made to the rent allowance authorities about raised incomes; and (2) a 55% reduction in the numbers of households who lost rent allowances as a result of false statements about income. Both were desirable results and they illustrate the value of computerised crosschecking of data, not just in the welfare system but elsewhere. It is even possible that had death certificates been routinely checked against patient data, Harold Shipman might never have embarked on his homicidal career.

### Increase the risks of crime

#### Extend guardianship

- Promote routine precautions such as leaving signs of occupancy when away from the house, carrying a cell phone and going out at night in a group.
- Cocoon neighbourhood watch.

#### Assist natural surveillance

- Improved street lighting.
- Defensible space design.
- Neighbourhood watch and informant hotlines.

#### Reduce anonymity

- Taxi driver IDs.
- 'How's my driving?' signs.
- School uniforms.

#### Utilise place managers

- Train employees to prevent crime.
- Reward vigilance.
- Support whistleblowers.

#### Strengthen formal surveillance

- Speed cameras and random breath testing.
- CCTV in town centres.
- Focused bike patrols in parking lots.

Rational choice theory holds that offenders are always seeking to benefit themselves by their crimes. These benefits may not simply be material as in theft because there are many other rewards of crime, including sexual release, intoxication, excitement, revenge, respect from peers and so forth. An important strand of situational crime prevention is therefore to understand the rewards of any particular category of offending and to find ways of reducing or removing them.

**Conceal targets.** Householders often try to foil burglars by hiding jewellery or other valuables. They also keep their curtains drawn to stop thieves from looking through the windows to see what they own. Some people don't wear gold chains in public, and others avoid leaving their cars overnight on the streets if these are models attractive to joyriders, such as souped-up Fords and Vauxhalls (see box). These are all ways to conceal targets and reduce temptation. Some other concealment strategies are less obvious. For example, gender-neutral phone lists can help protect women from obscene phone calls and unmarked bullion trucks can reduce the risk of in-transit robbery.

**Remove targets.** The installation of a machine in a Spanish church that accepted plastic cards brought several benefits: donors received receipts for tax purposes, the church received larger gifts and, since money was not deposited, the church reduced its theft risk through removing targets. An earlier application of this same situational technique comes from the days of the Californian Gold Rush. Plagued by robberies of stage coaches, one mine started casting in 400-pound cubes. These were too heavy for robbers to carry away on horseback. More up-to-date examples of target removal are provided by changes made to public telephones. To stop people smashing glass, kiosks in high-risk locations have been replaced by booths. Phonecards that dispense with the need to store large sums of cash have removed an important target for theft. The package of measures that prevented repeat victimisation of houses on the Kirkholt council estate included the removal of gas and electric coin meters which were frequently targeted by burglars. Perhaps the most striking success is the introduction of exact fare systems and safes on buses, which dramatically reduced

bus robberies in New York and in 18 other cities in the late 1960s.

**Identify property.** Motor vehicles in developed countries must be registered and must carry a unique Vehicle Identification Number (or VIN). This is to assist taxation, but these measures also reduce theft. One of the last US states to require vehicle registration was Illinois in 1934, whereupon vehicle thefts declined from 28,000 in the previous year to about 13,000. More recently, the US Motor Vehicle Theft Law Enforcement Act 1984 has mandated the marking of all major body parts of 'high-risk' automobiles with VINs. Police 'operation identification' programmes have had a chequered history in the United States, but Gloria Laycock found that property marking undertaken in three small communities in Wales, combined with extensive media publicity, halved the number of reported domestic burglaries.

**Disrupt markets.** Criminologists and police have devoted remarkably little attention to understanding and disrupting markets for stolen goods. Criminologists have found it difficult to obtain data about these markets and the police have preferred to pay more attention to catching thieves and burglars than fences, partly because the penalties for dealing in stolen goods are relatively light. However, if there were no market for stolen goods there would be few persistent burglars and few thefts of lorries carrying large loads of tobacco and alcohol. Recent work for the Home Office by Mike Sutton has awakened interest in disrupting markets for stolen goods. The disruptive measures need to be tailored to the nature of the market and include systematic monitoring of pawn shop transactions by the police, crackdowns on illegal street vendors and monitoring of small ad sales in newspapers to detect repeat vendors. Police 'sting' operations – such as bogus second-hand shops – should be avoided because research has found these may stimulate theft in the area around the sting.

**Deny benefits.** Installing 'sleeping policemen' or road humps is a sure way to deny the benefits of speeding. Security-coded car radios and ink tags provide further illustrations of crime prevention techniques. Security-coded radios cannot be

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used unless the thief knows the PIN and, according to studies undertaken in Australia and the United States, cars with these radios have lower theft rates. Ink tags are used in clothing stores to prevent shoplifting. They release ink if tampered with and indelibly the stain garment to which they are attached. The thief cannot wear the garment or sell it, which removes the incentive to theft. The remarkable success achieved by the New York Transit Authority in ridding its subway cars of graffiti was due to a policy of immediate cleansing, which denied offenders the gratification of seeing their work on public display.

### Locking the stable door

Nick Ross reminds us in the *Foreword* that POP is about locking the stable door rather than, as in conventional policing, chasing after the horse. We may no longer have horses but most of us have cars. Many of us also have garages though we do not always use them. However, if we have models that are at high risk of theft (see the Home Office's Car Theft Index), we would be well advised to conceal them in the garage. As the table shows leaving them in the driveway or in the street outside the house greatly increases the risks of vandalism and theft.

### Reduce rewards

#### Conceal targets

- Off-street parking for cars attractive to joyriders.
- Gender-neutral phone directories.
- Unmarked bullion trucks.

#### Remove targets

- Removable car radios.
- Women's refuges.
- Pre-paid phonecards for public phones.

#### Identify property

- Property marking.
- Vehicle licensing and car parts marking.
- Cattle branding.

#### Disrupt markets

- Checks on pawn shops.
- Controls on classified ads.
- Licensed street vendors.

#### Deny benefits

- Ink merchandise tags.
- Graffiti cleaning.
- Disable stolen mobile phones.

### Read more

Mike Sutton, Jacqueline Schneider and Sarah Hetherington (2001). *Tackling Stolen Goods with the Market Reduction Approach*. Crime Reduction Research Series Paper 8. London: Home Office.

### Car thefts and parking place, England and Wales, British Crime Survey

Where parked	Car crimes per 100,000 cars per 24 hours
Garage at home	2
Drive/carport	40
Street outside home	117
Housing estate garage	38
Housing estate car park	101
Garage at work	48
Car park at work	37
Street near work	118
Other street	327
Public car park	454

Source: Ronald Clarke and Pat Mayhew (1998). Preventing Crime in Parking Lots: What We Know and What We Need to Know. In *Reducing Crime through Real Estate Development and Management*, edited by Marcus Felson and Richard Peiser. Washington, DC: Urban Land Institute

When studying prisons and pubs, Richard Wortley noticed that crowding, discomfort and rude treatment provoked violence in both settings. This led him to argue that situational prevention had focused too exclusively on opportunities for crime and had neglected features of the situation that precipitate or induce crime. As a result of his work, Clarke and Cornish have included five techniques to reduce what they called 'provocations' in their new classification of situational techniques. These techniques are explained below, drawing on Wortley's examples.

**Reduce frustration and stress.** Everyone gets angry when treated rudely by waiters, when people jump queues or when trains are delayed with no explanation. Sometimes they get so angry they become violent. This could be avoided by improved service, which is increasingly being demanded and delivered. However, complaints may be ignored when those mistreated have little power. For example, prisoners are often ignored when they complain that they cannot eat when hungry or choose their TV programmes, even though these complaints could be met quite easily by staggering meal times and providing more TVs. Queuing for phones, another source of frustration for prisoners, can be reduced by computerised systems to ration phone use (see box). Outbursts of anger and violence can also result from people being subjected to extreme discomfort – too much noise, being jostled and having nowhere to sit. These conditions exist in many clubs and pubs and have consistently been found to induce trouble. More seating, soothing music and muted lighting are all ways to reduce stress in these settings.

**Avoid disputes.** Rival groups of fans are segregated in football stadiums and their arrival and departure has been scheduled to avoid the periods of waiting around that promote trouble. Taxi fares from Kennedy airport to Manhattan are now fixed at a standard \$30 to prevent cheating and disputes over fares. In an attempt to produce consensual crowd management at the Australian Motorcycle Grand Prix, riders were permitted to operate campsites for their fellow motorcyclists and were encouraged to develop rules for use of the

facilities. This helped to eliminate the brawls between police and motorcyclists, which had marred the event in previous years.

**Reduce emotional arousal.** Male doctors should not conduct detailed physical examinations of female patients without a nurse or receptionist present. This protects the doctor from false accusations, but it also reduces the temptation to sexually abuse the patient or make inappropriate advances. Laws that prohibit convicted paedophiles from taking jobs involving contact with children not only protect children, but also help adults to manage their sexual desires. That the very sight of a gun has been found to trigger feelings of aggression provides one good reason for gun control laws. Similarly, the fact that high proportions of sex offenders own or use violent pornography provides a rationale for controlling these materials. Finally, reducing temptation is the basis for advice about being careful with one's money in public as well as advice to young women about being careful when out alone at night.

**Neutralise peer pressure.** Many parents discourage friends who are a 'bad influence' on their children and schools disperse groups of troublemakers into different classes. But adults as well as children are subject to peer pressure. Existing staff may induct new workers into stealing from their employers, and young men are often encouraged to drink too much by friends. One publicity campaign mounted in Australia to reinforce the powerful deterrent impact of random breath testing made use of the slogan, 'Good mates don't let mates drink and drive'.

**Discourage imitation.** All television sets now sold in America must contain a 'V-Chip' so that parents can programme their TVs to prevent children from viewing violent programmes. Though the link between violent movies and violence in society is much disputed, there is some evidence of 'copycat' crimes because media reports of unusual crimes sometimes provoke imitation elsewhere. It has also been shown, for example, that students who see



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their teachers engaging in illegal computer activity are more likely to commit computer crimes themselves, and that other pedestrians will follow someone crossing against a red light. Indeed, how often have you ‘run the red’ only to find when glancing in your rear view mirror that so has the car behind you? It has also been shown that picnic tables in parks that had been scratched and carved are more than twice as likely to attract further damage. Findings such as these provide the rationale for ‘rapid repair’ programmes to deal with vandalism. Wilson and Kelling extended this principle in their famous ‘broken windows’ article by arguing that the failure to deal promptly with minor signs of decay in a community, such as panhandling or soliciting by prostitutes, can result in a quickly deteriorating situation as hardened offenders move into the area to exploit the breakdown in control.

### Phone fraud, slot time and Victoria Secrets at Rikers Island

Rikers Island, a stone’s throw from La Guardia airport, is a huge system of 10 jails. These house different categories of inmates, whose phone privileges vary with their status. Corrections officers were supposed to use logbooks to record phone use and to regulate the amount of time each inmate spent on the phone. In the early 1990s, this system had broken down. Inmates had developed their own system, known as ‘slot time’, and the annual cost of calls had escalated to over \$3 million. The most powerful inmates controlled the phones, which they often used to access their beepers and maintain their drug businesses in the outside world. Inmates were also accessing ‘sex lines’ and were using stolen credit card numbers to make long distance calls and purchases. As Nancy La Vigne notes, who studied this problem as a graduate student at Rutgers, ‘The female inmates did just this, accessing the Victoria Secrets catalogue, which resulted in a jail that could boast the best-dressed inmates in the country – until officials caught on.’

The officials introduced a high security computerized phone system that put strict limits on phone use, in line with the status of the caller. Detainees gained access to the phones through bar codes on their ID cards and by entering a PIN. This system immediately cut phone costs in half, but it was also noticed that fewer fights were erupting over access to the phones. In fact, Nancy La Vigne’s study showed that the monthly rate of these fights dropped from 6.7 per 1,000 inmates in the year before the new phone system to 3.6 per 1,000 after its introduction.

We don’t know whether the female inmates remained the best dressed in the country.

Source: Nancy La Vigne (1994). Rational Choice and Inmate Disputes over Phone Use on Rikers Island. In *Crime Prevention Studies*, vol. 3, edited by Ronald Clarke. Monsey, New York: Criminal Justice Press.

### Reduce provocations

#### Reduce frustration and stress

- Efficient queues and polite service.
- Expanded seating capacity.
- Soothing music and muted lighting.

#### Avoid disputes

- Separate enclosures for rival soccer fans.
- Reduced crowding in pubs.
- Fixed cab fares.

#### Reduce arousal and temptation

- Controls on violent pornography.
- Prohibitions on paedophiles working with children.
- Advice about avoiding sexual victimisation.

#### Neutralise peer pressure

- ‘Idiots drink and drive’.
- ‘It’s OK to say No’.
- Disperse troublemakers at school.

#### Discourage imitation

- Rapid repair of vandalism.
- V-chips in TVs.
- Avoidance of ‘copycat’ crimes by censoring details of *modus operandi*.

### Read more

Richard Wortley (2001). A Classification of Techniques for Controlling Situational Precipitators of Crime. *Security Journal*, 14: 63–82.

This fifth category of situational techniques recognises that offenders make moral judgments about their behaviour and that they often rationalise their conduct to 'neutralise' what would otherwise be incapacitating feelings of guilt or shame. They make such excuses as: 'He deserved it,' 'I was just borrowing it' and 'I only slapped her'. These excuses may be especially important for ordinary people responding to everyday temptations to evade taxes, drive when drunk, sexually harass junior employees and steal employers' property.

**Set rules.** All organisations make rules about conduct in their fields of governance. For example, businesses regulate employees' time keeping and shops require sales assistants to follow strict cash-handling procedures. Organisations such as hospitals, transport systems and hotels must, in addition, regulate the conduct of the clients they serve. Any ambiguity in these regulations will be exploited if it benefits the client. One important strand of situational prevention, therefore, is rule setting – the introduction of new rules or procedures (and the clarification of those already in place) to remove any ambiguity concerning the acceptability of conduct. For example, in attempting to reduce 'no-shows', many restaurants will now only accept reservations if callers leave a telephone number where they can be reached. Some are also requiring that reservations be accompanied by a credit card number so that a charge can then be made for no-shows. Requiring anglers in California to wear their licences was successful in getting more of them to comply with licence purchase rules.

**Post instructions.** Work rules are often set out in employment contracts and rules established by credit card companies, telephone providers and insurance companies are contained in the service contracts. Regulations governing public places or facilities may be publicly posted, either to prevent people claiming ignorance of the rules or to show precisely where these apply. The roads, in particular, make extensive use of signs governing driving or parking. Studies have found that warning signs significantly reduce illegal parking in bays reserved for disabled drivers. Many other facilities – parks, libraries, colleges, transport systems, council estates – also post

signs to govern a wide range of behaviours. Despite their wide use, there have been few evaluations of the preventive effectiveness of posted instructions – but they are an essential tool of law enforcement and are often used in problem-solving efforts.

**Alert conscience.** This situational technique differs from 'informal social control' in two important respects. First, the focus is on specific forms of crime occurring in discrete, highly limited settings and, second, the purpose is to alert conscience at the point of committing a specific kind of offence rather than attempting to bring about lasting changes in generalised attitudes to law breaking. For example, signs at store entrances announce that 'Shoplifting is stealing' and in the Manhattan Bus Terminal signs proclaim that 'Smoking here is illegal, selfish and rude'. Roadside speed boards are widely used to give immediate feedback (without issuing fines) to motorists travelling above the speed limit. Finally, government television campaigns that accompany crackdowns on TV licence evasion show those detected being treated by the courts as 'common criminals'. There is no published evidence on the success of these campaigns but they have been repeated for more than three decades.

**Assist compliance.** When Lombroso suggested in the 19th century that people should be locked up for urinating in the streets, his pupil Ferri suggested a more practical way to solve the problem: build public loos. This constitutes an example of facilitating compliance, a technique of wide application. It includes subsidised taxi rides for those who have been drinking, litter bins and 'graffiti boards' (the latter of which are supplied for people's public messages), and improved checkout procedures in libraries, which reduce delay and thus excuses for failing to comply with rules for book borrowing. In a classic little paper on Disney World, Shearing and Stenning provide a fascinating glimpse into the ways in which sophisticated crowd control and management – involving the use of pavement markings, signs, physical barriers (which make it difficult to take a wrong turn) and instructions from cheerful Disney employees – greatly reduce the potential for crime and incivility in the theme park (see box).

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**Control drugs and alcohol.** Crime is facilitated by alcohol and drugs, which undermine inhibitions, or impair perception and cognition so that offenders are less aware of breaking the law. The value of situational controls on drinking has often been demonstrated. Johannes Knutsson has shown that limiting the amount of alcohol that individuals could bring into a Swedish resort town on Midsummer Eve helped to reduce drunkenness and disorderly conduct. A local ordinance banning alcohol consumption in public in the centre of Coventry achieved large reductions in complaints of insulting behaviour. Voluntary agreements reached among local drinking establishments to promote responsible drinking have reduced alcohol-related crime in numerous nightlife areas in Australia. Rutgers University has decreed that beer must be served from kegs not cases at dorm parties because cases are easier to hide and, as one student said: 'If you have one keg and a line of 20 people behind it, people will get less alcohol than if you had a refrigerator and people were throwing out beer.'

### Remove excuses

#### Set rules

- Rental agreements.
- Harassment codes.
- Hotel registration.

#### Post instructions

- 'No Parking'.
- 'Private Property'.
- 'Extinguish camp fires'.

#### Alert conscience

- Roadside speed display boards.
- Signatures for customs declarations.
- 'Shoplifting is stealing'.

#### Assist compliance

- Easy library checkout.
- Public lavatories.
- Litter bins.

#### Control drugs and alcohol

- Breathalysers in pubs.
- Server intervention training.
- Alcohol-free events.

### Arriving at Disney World

- Signs tell visitors arriving by car to tune into Disney radio for information
- Signs direct them to the parking lot they must use and road markings show the way
- Smiling parking attendants direct visitors to their space and loudspeakers remind them to lock their cars
- They are directed to rubber-wheeled trains to take them to the monorail
- Recorded announcements direct them to stand safely behind guardrails
- They are reminded about the location of their parking space (e.g. Donald Duck 1)
- They are (politely) asked to sit, to keep their arms and legs within the confines of the carriage, and to make sure children do the same
- Before disembarking, they are told how to get to the monorail and barriers stop them going the wrong way
- On the platform, attendants guide them into corrals the right size to fill one compartment of the monorail

- Safety gates at the platform edge open only when the monorail arrives
- Any delays in service are announced and expected times of arrival are given
- On board, passengers are asked to remain seated 'for their own safety'
- Passengers are told how to disembark and how to move to the first entertainment
- They are once again reminded to look after their children and to take their possessions
- While waiting to enter each exhibit, visitors are marshalled in queues, which indicate waiting times; those in line are entertained by Disney characters
- On leaving the exhibit, they are guided by signs, barriers and attendants to the next one

Source: Clifford Shearing and Phillip Stenning (1997). From the Panopticon to Disney World: The Development of Discipline. In *Situational Crime Prevention: Successful Case Studies*, edited by Ronald V. Clarke. Monsey, New York: Criminal Justice Press.

Many problems arise through the failure of some institution – business, government agency, or other organisation – to conduct its business in a way that prevents crime rather than causing it. In short, many problems occur because one or more institutions are unable or unwilling to undertake a preventive strategy, or because these institutions have intentionally established a circumstance that stimulates crimes or disorder. This creates risky facilities (Step 26) and other concentrations of crime.

Solving problems usually requires the active cooperation of the people and institutions that have failed to take into account the conditions that lead to the problem. These people and institutions have shifted the ownership of the problem from their shoulders to the shoulders of the police. Consequently, an important objective of any problem-solving process is to get them to assume ownership. So in developing a response, you need to answer three questions regarding ownership:

- Who should have ownership of the problem?
- Why has the owner allowed the problem to develop?
- What is required to get the owner to undertake prevention?

**Who should have ownership of the problem?** When a problem is located at a specific place, it is usually easy to identify who is responsible. The owner of the problem is the owner of the location. A problem in a park, for example, is the body with the responsibility for operating the park – usually a local authority or some private agency.

It is more difficult to identify those responsible for problems that are spread over larger areas. If a widespread problem is focused on a specific location, then that location may be the source for the events in the surrounding area, and the owner of the central location may be responsible. A Lancashire scrap yard functioning as a criminal receiver, for example, facilitated property crime in the surrounding village.

If there are agencies charged with seeing to the well-being of a special group of individuals – the elderly, children with special needs, or victims of domestic violence – and these individuals are targets of crime or disorder, then the service agency is a candidate for an owner of the problem.

**Why has the owner allowed the problem to develop?** There are four generic explanations that alone or in combination fit most problems:

1. An institution may be **unable** to prevent crime. This might be due to *ignorance* as to the effect of its operations on crime or ignorance as to how to prevent crime. Or this may be due to *lack of resources*, even when the institution knows its operations help create crime. It is also important to recognise the importance of institution-alised *procedures*. Changing procedures can be time consuming and costly in both monetary resources and staffing. A new inventory control procedure to prevent shoplifting and internal theft may be difficult to implement because it requires disruptive changes in the ways employees conduct their normal business.
2. Some institutions may be **unwilling** to prevent crime facilitated by their operations. Rather than recognise the role of opportunity in creating crime, some people dwell exclusively on the role of offenders. From this perspective, it is the function of police to reduce crime by stricter enforcement. The limitations of this approach have been noted in Step 4. Another source of unwillingness is the belief that the police are intruding on their rights. A retailer might claim that he has the right to display goods any way he wants, and that the police should not compel, or even suggest, alternative displays that might reduce shoplifting.
3. Some institutions are unwilling because they **gain** more by ignoring crime than they lose. They may perceive that the costs of prevention outweigh any benefits to

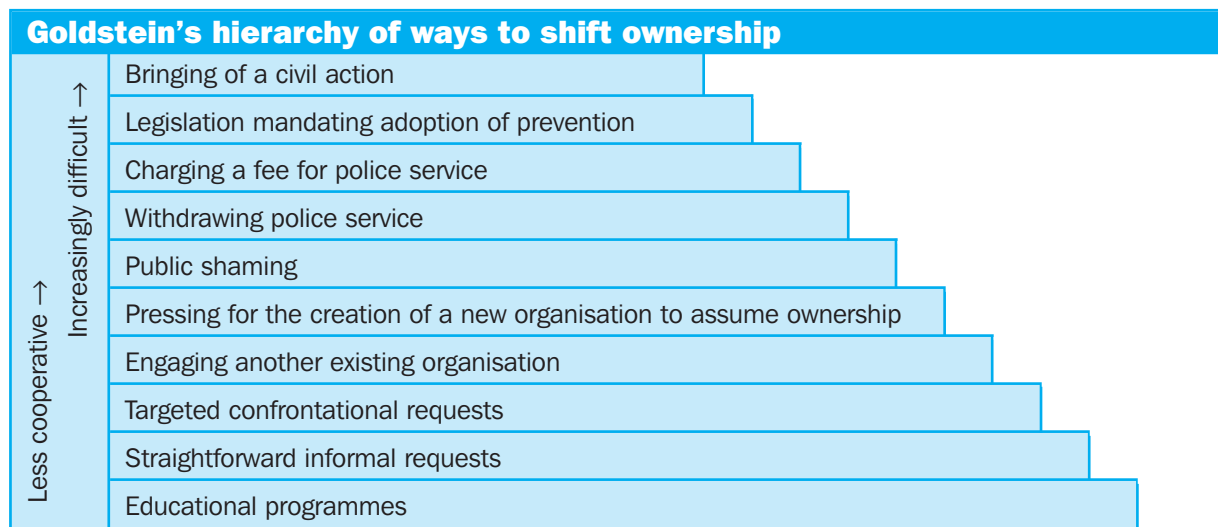
## FIND A PRACTICAL RESPONSE

them. Security personnel at an entertainment venue are costly, and quality security personnel are more costly. If the costs of the problem are not borne by the facility, then there is little perceived need to bear the costs of prevention. In essence, such facilities are exporting the costs of crime and prevention onto others, and thereby reducing their costs.

4. Some institutions may **profit** from the crimes, as can happen when a second-hand goods shop does little to verify legitimate ownership of the merchandise they display. Garages can purchase stolen car parts cheaper than legal car parts, thus increasing their profit margin.

**What is required to get the owner to undertake prevention?** Herman Goldstein has outlined a rough hierarchy of interventions designed to shift ownership of problems from the police back to the institutions that are responsible for them. These are shown in the figure.

Moving from the bottom to the top of the list, interventions become less cooperative and increasingly coercive. Because of this, as one moves up the list, the difficulty of intervention increases, along with the costs of failure to the police. Consequently, the value of information and thorough analysis increases from the bottom to the top. As Goldstein notes, this hierarchy is a rough indicator of these trends, rather than an exact description. Nevertheless, it is useful for planning a layered set of responses to a problem – beginning with the most cooperative and working upward only if needed and only when supported by information.



RESPOND

### Read more

Herman Goldstein (1997). The Pattern of Emerging Tactics for Shifting the Ownership of Prevention Strategies in the Current Wave of Change in Policing: Their Implications for Both Environmental Criminology and the Police. Paper presented at the 6th International Seminar on Environmental Criminology and Crime Analysis. Oslo, Norway. (Download from: [www.popcenter.org](http://www.popcenter.org))

It can be a long and troublesome process finding a suitable response. You may be repeatedly disappointed when promising interventions are vetoed because of expense or difficulty, or because a crucial partner won't cooperate. But there is never just one way to solve a problem and it is always possible to find an acceptable response among the available range of situational measures. So, eventually your team will agree on a response that meets some basic requirements:

- It is not too ambitious or costly.
- It focuses on near, direct causes rather than on distant, more indirect ones, which gives it a good chance of making an immediate impact.
- The mechanism through which each measure should impact the problem has been clearly articulated.

So, at last your worries are over and you can relax, right? Wrong! Even more difficult than agreeing on a promising response is to make sure that, once selected, it is actually implemented. As an analyst, you cannot ensure this on your own, but if you know the pitfalls of implementation, you can steer the partnership away from choosing responses that can fall prey to these. Tim Hope and Dan Murphy identified these pitfalls when studying a Home Office vandalism prevention project in eleven schools in Manchester.

The measures to be implemented at each school were selected by local council officials, school staff and police. Much of the damage was more inadvertent than malicious. For example, many windows had been broken by footballs and much of the damage to the outside of buildings had been caused by children climbing about. This suggested two different solutions: situational measures to protect the buildings or leisure provision to divert children into less harmful activities. Only one of the eleven groups recommended improved leisure provision. The situational measures recommended were mostly basic target-hardening

(window grills, toughened glass and high fences), though proposals also included a scheme to encourage local residents to keep an eye on two adjacent schools and a plan to move a playground to a less vulnerable area.

At only two schools were all the recommendations implemented. In three, none was put in place and at the remaining six schools one or more measures failed to materialise. The failure to implement measures meant there was little impact on vandalism. Hope and Murphy identified five main obstacles to implementation, all of which have since been encountered in other problem-solving projects:

- 1. Unanticipated technical difficulties.** For eight schools, the groups recommended the replacement of vulnerable windows with polycarbonate glazing or toughened glass. However, not a single pane of either type was installed. Polycarbonate glazing had been prohibited by the city architects because it would prevent escape in case of fire and might give off toxic fumes. Toughened glass had to be cut to size before it was toughened, but the panes came in many sizes and it would have been difficult to store a few of each size in readiness. The alternative of supplying a pane to order was ruled out by the long time (six weeks) it would take to do this.
- 2. Inadequate supervision of implementation.** At one school it was agreed to move the playground to a less vulnerable area. The original playground was to be replaced with flower-beds, but this had to be done by a council department that got no further than providing an estimate for the work. The relocation of the playground was subcontracted to a private builder, but due to a misunderstanding only half the proposed area was resurfaced. After two years, therefore, vandalism was unchanged, there were no flower-beds, and the school had acquired a useless, narrow strip of tarmac.
- 3. Failure to coordinate action among different agencies.** Every recommendation

that was the sole responsibility of the buildings branch of the education department was implemented, while none of those involving other departments or agencies ever materialised. For example, it was recommended that people living near two schools should be encouraged to keep an eye on them after hours and report anything suspicious to the police. The scheme required the cooperation of the education department, the head teacher, staff and pupils of the schools and three branches of the police – crime prevention, community relations and local police. All seemed keen on the idea, but no one would take the lead.

- 4. Competing priorities.** During the implementation period many other demands were placed on the education department as a result of widespread industrial action by council employees and a substantial reorganisation made necessary by a declining school-age population. The department was also undergoing staff changes that resulted in the reassignment of staff who had been involved in the vandalism project. It is therefore not surprising that the Home Office vandalism project was given little priority, especially when there was no obvious advantage for officials to spend time on it.
- 5. Unanticipated costs.** In some cases, the wider consequences of a particular course of action outweighed its immediate benefits. For example, at the school with the most serious vandalism problem it was decided to mount a security patrol for the impending holiday period. The school caretakers were employed to patrol the school for payment during their spare time. This measure was immediately successful in reducing vandalism and was extended beyond school holidays to provide coverage at evenings and weekends. Other schools began to demand the same protection and more caretakers wanted the additional overtime opportunities. Ultimately the cost became too high and the scheme was scrapped.

You can see from the list above that some implementation problems cannot be anticipated and that a proportion of all measures selected will never be implemented. However, it is also clear that certain kinds of measures can be expected to encounter problems and these are summarised in the box. In some cases, of course, a measure may be so promising that it is worth pursuing despite the risks of implementation failure. But being forewarned is to be forearmed.

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### **Expect implementation problems when a measure.....**

- ...requires coordinated action among a number of separate agencies
- ...will take a long time to introduce and involves a number of steps to be completed in sequence
- ...must be implemented by staff with little understanding of its purpose
- ...has no major supporter among the partnership team
- ...lacks the support of senior administrators

### **Also expect problems when the measure must be implemented by an agency...**

- ...that is outside the partnership
- ...that is poorly resourced or in turmoil
- ...that will gain little direct benefit from the solution

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#### **Read more**

Tim Hope and Daniel Murphy (1983). Problems of Implementing Crime Prevention: The Experience of a Demonstration Project. *The Howard Journal*, XXII, 38–50.

Gloria Laycock and Nick Tilley (1995). Implementing Crime Prevention. In *Building a Safer Society*, edited by Michael Tonry and David Farrington. University of Chicago Press.

The first critical step in assessment is to conduct a **process** evaluation. It answers the question, ‘Was the intervention put into place as planned and what alterations were required for implementation?’ A process evaluation does not tell you whether the response was effective. For that you need an **impact** evaluation. An impact evaluation tells you whether the problem changed. Steps 41 to 48 discuss various aspects of impact evaluations.

Both types of evaluations are needed in a POP project. The table summarizes possible conclusions based on the findings of both types of evaluation. A) The response was implemented in accordance with the plans, and the decline in the problem was probably due to the response. So there is credible evidence that the response caused the reduction. B) The response was implemented as planned, but there was no reduction in the problem. So there is credible evidence that the response was ineffective.

But what if the response was not implemented as planned? In this case, it is hard to come to a useful conclusion. C) If the problem declined, it might mean that the response was accidentally effective or some other factor was responsible. D) If the problem did not decline, then no useful conclusion is possible. Perhaps the implemented response is faulty and the original response would have been effective, or neither is effective. So unless we can be sure the response was implemented as planned, it is hard to learn from an impact evaluation.

It is useful to think of the response as a complex piece of machinery with a variety of components, any of which can go wrong (Step 39). A process evaluation requires examining the degree to which components of the response were carried out. The process evaluation checklist lists the questions that you should ask. For each item, you should first establish whether the component is critical for the success of the intervention, and finally whether the component operated as planned.

Few responses are implemented exactly as planned. Though unexpected developments can force you to modify a response, some of these developments can be anticipated. To see how, we need to answer the question, what goes wrong with responses? Some of the possible answers are as follows:

- 1. You may have an inadequate understanding of the problem.** You may have focused too little on repeat victims, for example. This can be caused by invalid assumptions about the problem or insufficient analysis (you did not look for repeat victimisation, for example). If while developing the response you can identify weak spots in your analysis, then you can create contingency plans (a plan to address repeat victimisation should this prove to be needed).
- 2. Components of the project have failed.** The process evaluation checklist shows that there are many potential points of failure. However, not all components are

### Interpreting results of process and impact evaluations

Process evaluation results			
		Response implemented as planned	Response not implemented as planned
Impact evaluation results	Problem declined & no other likely cause.	A. Evidence that the response caused the decline.	C. Suggests that the response was accidentally effective or that other factors may have caused the decline.
	Problem did not decline.	B. Evidence that the response was ineffective.	D. Little is learned.



## Process evaluation checklist

Components of response	Is component critical?	Did it operate as planned?
<b>Who is supposed to act?</b>		
Police units		
Government partners		
Community groups		
Businesses		
Others		
<b>Do they have the capability to act?</b>		
Legal authority		
Local authority		
Resources		
Expertise		
<b>When were they supposed to act?</b>		
Dates and times		
Coordination with others		
<b>Who or what is supposed to receive action?</b>		
People		
Places		
<b>Was action delivered appropriately?</b>		
Intensity		
Duration		
<b>Are there back up plans?</b>		
Faulty plans		
Adaptation		
External changes		

equally important for success. Further, it is sometimes possible to anticipate components with high failure rates. Citizen groups in general are quite variable in their ability to carry out tasks, for example. Creating redundant capabilities or an emergency backup plan can alleviate difficulties created by component failure.

**3. Offenders may negatively adapt to your response (Step 12).** Some forms of negative adaptation can be anticipated and planned for. Sometimes geographical displacement locations can be identified before the response, for example, and advanced protective actions can be taken to immunise them.

**4. There are unexpected external changes that impact the response.** A partner agency's budget may be unexpectedly cut, for example, forcing it to curtail its efforts on the problem. As the problem will not dissipate on its own, the only recourse is to alter the plans.

In short, it is possible to plan for some unexpected developments, but not all. Part of the process evaluation should include examining the adequacy of planning for unexpected developments and the effect of truly unexpected changes on the response. A complete process evaluation will help others learn from your experiences.

You should address three questions when assessing a response:

1. 'What was the implemented response?' A process evaluation answers this question (Step 40).
2. 'Did the problem decline?' Comparing the level of the problem after the response to the level of the problem before answers this question.
3. If the response declined, then the third question is, 'Did the response cause this decline, or was it something else?' There are usually many alternative explanations for the decline in the problem.

To answer the third question requires the use of controls. The purpose of controls is to rule out alternative explanations. Different alternative explanations require different types of controls as described below:

- **Changes in size.** If there had been a decline in tenants in an apartment building we would expect the number of burglaries to decline because there are fewer potential victims. A reduction in targets is an alternative to the explanation that the drop was due to the intervention. To control for changes in size you divide the number of burglaries before and after the response by the number of occupied flats before and after the response. In the table, what appears to have been a decline in burglaries was partially caused by the reduced number of occupied units. When this is accounted for, we still notice a decline of 21 burglaries for every 100 units. If the time periods before and after are substantially different in length, we control for this by dividing again by the number of months before and the number of months after to get burglaries per occupied unit per month.
- **Cycles of activity.** Human activity oscillates over days, weeks and months. Some of the most common cycles include commuting and attendance at school, work and leisure, and seasons and holidays. Such

### Using rates to control for changes in size

	6 months before	6 months after	Change
Burglaries	41	20	-21
Occupied units	83	73	-10
Burglaries/ occupied unit	0.494	0.286	-0.208

cycles can cause oscillations in problems. To control for cycles compare the same part of the cycle before the response to the same part of the cycle after the response. You should compare the number of thefts from vehicles in July, August, September and October before the response, for example, to the number of thefts from vehicles in July, August, September and October after the response. With the cyclical theft pattern shown in the figure, comparing the months marked by dots controls for the cycles.

- **Trends in the problem.** Problems may be getting worse (or better) before the response. Without accounting for trends one could conclude the response was responsible, when in fact this might have occurred anyway. There are two ways of controlling for trend. The first method is to measure the problem for a long period before the response so any trend can be identified (the trend is shown by a dashed line in the figure). Substantial deviations from the existing trend after the response are evidence of a response effect (there is no evidence of this in the figure). Anticipatory effects (Step 46) are drops in the problem due to the response, but occurring before the response is fully implemented. These need to be distinguished from longer trends prior to implementation.

The second method is to identify a group of people with the same problem (but not getting a response) or similar areas with the problem (but not getting the response). These are control groups. A control group must be similar to the response group with

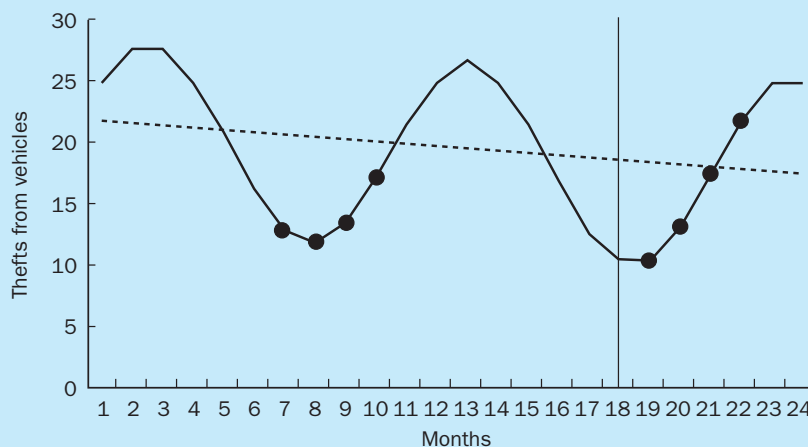
regard to the problem, but cannot receive the response. A control group tells you what would have happened to the response group, *if the response group had not received the intervention*. If the response group changes differently, this is evidence of a response effect.

- Other unexpected events.** Many things are changing as the response is implemented, one or more of which could have caused the decline in the problem. Instead of an accident reduction response causing a decline in accidents on a road, for example, slow traffic from the road repairs, going on about the same time as the response might have been the cause. The standard approach is to use a control group. The control area is only effective if it is influenced by the same influences as the response area. So, counting accidents on the response and control roads, both of which are influenced by the road repairs, could tell you whether the road repairs contributed to the decline in accidents.
- Change in problem measurement.** A before–after comparison is only valid if the problem was measured in the same way before and after the response. Measurement differences could cause a perceived change

in the problem. Use the same standardised and systematically applied measurement procedures before and after. Before and after observations should occur at the same sites at the same times, watch the same things and record them in the same way. Before and after photographs and videos should be taken in the same light from the same angles, at the same distance and with the same size image area. Interviewers should be the same before and after, asking the same questions, in the same order. Examine official records to determine if recording practices are stable over time.

- Natural decline from an extreme high.** Many problems are addressed because things have become extremely bad. So the response is implemented when the problem is abnormally high. But even a relatively stable problem will fluctuate. A problem that is now abnormally bad will return to its normal level, even if nothing is done (this is called ‘regression to the mean’, and it applies to abnormal lows as well). Comparison area controls may not be useful here, if the response area is at a peak and the control area is not. Instead, examine the long-term fluctuation prior to the response (see trends, above) to see if the problem was abnormally bad.

### A cyclical pattern with a downward trend



Geographical displacement occurs when the intervention blocks crime or disorder opportunities at a facility or in an area, and offenders move to other facilities or areas to offend. Temporal displacement also stems from successful prevention, but in this case offenders shift offending in time.

Offenders can find it difficult to move to some other location because easy crime or disorder opportunities are limited (Step 17). Targets may be concentrated at some places and not others (Step 17). Vulnerable potential victims can be found at some locations, but not others (Step 27). Some facilities have low behavioural controls, but others do not (Step 26). Opportunities that exist are either already hot spots or are hidden from offenders – either far away or not recognisable as fruitful places to offend.

Offenders will not usually spend time searching far from their hot spot when it is suppressed. So, if offenders move they are most likely to move close to the original hot spot. The likelihood that offenders will move to an opportunity declines the further the opportunity is from the original hot spot, as illustrated in the figure. Also, not all spaces are suitable to

offenders. Opportunities are not spread evenly across the map. In this map, the diamonds are places with characteristics like the original hot spot. Those closest to the original location will be affected most by displacement. Knowing this, displacement countermeasures can be applied with the response.

If geographical displacement occurs, it can distort your findings of prevention effectiveness. Table 1 illustrates how this can happen. Here there are three similar areas with equal numbers of crimes before treatment: (1) a treatment area; (2) an area adjacent to the treatment; and (3) an area distant from the treatment. The treated area has a decline of 25 crimes. However, the adjacent area has a 10-crime increase, indicating that if nothing had been done in the treatment area it too would have experienced 110 crimes. So the net reduction is 35 (the estimated net effect is the treatment difference minus the comparison difference,  $-25 - 10 = -35$ ).

But these extra 10 crimes could have been due to geographical displacement. One would be better off using the distant control area for comparison. As a control, the distant area suggests that if no treatment were implemented, crime would not have changed in either the treatment or the adjacent area. The implication is that the treatment caused a 25-crime decline in the treatment area, but a 10-crime increase in the adjacent area (displacement), for a combined reduction of 15 crimes. Though effective, the programme is not as effective as originally estimated. Step 45 describes formulas to calculate effectiveness when geographical displacement or diffusion are present.

Try to select two comparison areas as part of evaluations: one near the treatment area to detect geographical displacement (and diffusion—Step 45), and the other to serve as a control area. The control area should be protected from displacement contamination by distance or some other barrier (e.g. a motorway or river). Valid selection of control and displacement areas requires you to have some idea of offenders' normal movement patterns,

### Decline of geographical displacement with distance from hot spot epicenter



**Table 1: Use of adjacent and distant control area in controlling for geographical displacement**

	Before	After	Difference
Treatment	100	75	-25
Adjacent area	100	110	+10
Distant area	100	100	0

as the control area needs to be outside their roaming territory while the displacement area should be within it.

Temporal displacement may be easier for offenders than geographical displacement because it requires less effort. Temporal displacement can occur within a 24-hour day, if, for example the prevention is restricted to certain times but leaves other times unprotected. It can also occur over a week. Or it can occur over longer periods.

If the evaluation compares times with prevention to times without prevention, contamination of temporal controls can take place. In Table 2 a treatment takes place on Saturday and Sunday. The average number of crimes on these days dropped by 25 crimes after treatment, while crime on Mondays and Fridays increased by 10. Was this due to temporal displacement? Midweek days may be more valid controls because they have less in common with weekends than do Mondays and Fridays.

Waiting out the prevention is a common form of temporal displacement. Enforcement crack-downs are particularly vulnerable to this form of time shifting because they are temporary by definition. If an intervention can be maintained (unlike a crackdown), then offenders cannot wait it out. They then face the difficult option of moving to less attractive places or targets or undertaking new tactics or other crimes. If these options are too difficult, unrewarding, risky or otherwise unattractive they may curtail some offending.

**Read more**

John Eck (2002). *Assessing Responses to Problems: An Introductory Guide for Police Problem-Solvers*. Washington, DC: Office of Community Oriented Policing Services, US Department of Justice. (Download from: [www.popcenter.org](http://www.popcenter.org))

Lawrence Sherman (1990). Police Crackdowns: Initial and Residual Deterrence. In *Crime and Justice: A Review of Research*, edited by Michael Tonry and Norval Morris, vol. 12. Chicago: University of Chicago Press.

**Table 2: Using days of the week to control for temporal displacement**

	Day of week	Before	After	Difference
Treatment days	Sat & Sun	100	75	-25
Adjacent days	Mon & Fri	100	110	+10
Distant days	Tues-Thurs	100	100	0

In addition to geographical and temporal displacement, offenders can switch targets, change their tactics or change crimes. These forms of displacement will be more difficult for you to detect than geographical or temporal displacement.

Target displacement involves offenders shifting from newly protected targets to other targets. In 1970, when steering column locks became required in all new cars sold in Britain, thefts of new cars dropped from 20.9% of all cars stolen in 1969, to 5.1% in 1973. However, the overall theft rate of automobiles stayed roughly constant because offenders switched from the newer, protected, vehicles to older, unprotected, vehicles. This is one of the few documented cases where displacement wiped out most prevention gains, at least in the short run. Over a longer period these devices appeared to have curbed theft for temporary use. As this case illustrates, it is easy for offenders to switch to similar targets. Target displacement is less likely when the alternative targets are unlike old targets.

Step 42 shows how geographical or temporal displacement can contaminate control groups. If the evaluation of a prevention effort uses a target control group, then a similar form of contamination can take place. Imagine a response to curb theft of handbags from older women (over 60) in a shopping district. To estimate what the trend in elderly handbag theft would be if nothing had been done, the theft of handbags from middle-aged women of 45 to 59 is measured. If, unknown to us, the thieves displaced from the protected older women to unprotected middle-aged women, we would conclude that handbag theft would have gone up without a response. When we compare this control target group change to the treatment group change we would mistakenly inflate the treatment effectiveness. A better control group might be even younger women shoppers (ages 30 to 44, for example), or even better, wallet theft of male shoppers. Though neither of these alternatives is perfect, they are improvements because one would

expect far less displacement to dissimilar targets. (Or select another shopping district as a control area. In this case you would have to guard against geographical diffusion or displacement contamination – Steps 42 and 45.)

Tactical displacement occurs when offenders change their tactics or procedures. They might use different tools to defeat better locks, for example. Or computer hackers might alter their programmes to circumvent improved security. In medicine, some bacteria can mutate quickly so a drug that is effective against one form of the bacteria becomes less effective as mutant strains become more prevalent. One way of countering this is to use broad-spectrum treatments that are effective against a wide range of mutations. Similarly, ‘broad spectrum’ responses protect against existing methods used by offenders and many modifications of these tactics. Broad-spectrum interventions require offenders to make big changes in their behaviour which they may not be able to do. Paul Ekblom describes attempted tactical displacement following the installation of barriers in sub-post offices to prevent ‘over the counter’ robberies; some offenders tried using sledgehammers. This change in tactics was not particularly successful, however, and displacement was limited. These barriers are an example of a broad-spectrum intervention as they were able to defeat new tactics.

We seldom select treatment or control groups based on tactics, but we sometimes use crime types as controls. For example, we might select theft *from* vehicles as a control in the evaluation of a theft *of* vehicles intervention. The same principles of contamination and protection apply here as we found with other displacement methods. If the tactic or crime type is very similar to the tactic or crime type being addressed, then displacement could contaminate these controls. Dissimilar tactics or crime types are less likely to suffer contamination. But if they are too dissimilar it is not a useful control.

There is no perfect solution to this problem and compromises must be struck. The consequence is that it is often difficult to know if

displacement is occurring and difficult to judge the effectiveness of the intervention. Compounding these difficulties is that multiple forms of displacement can occur simultaneously. Indeed, sometimes one form of displacement will necessitate another form as well. Some target displacement may require a change in tactics, and if the new targets are not in the same places as the old targets, geographical displacement will occur too.

You cannot find displacement unless you look for it. This means that you should examine a problem closely and hypothesise the most likely forms of displacement. Are there other opportunities for crime or disorder that are similar to the opportunities your efforts are trying to block? Will your offenders easily discover these opportunities? Looking for displacement opportunities prior to finalising a response gives you two advantages. First, you can develop measures for detecting it should it appear. More important, you may be able to develop counter-measures that prevent displacement.

### **A study of target displacement: helmet laws and the reduction in motorcycle theft**

In Germany (as elsewhere) the enactment of helmet laws was followed by large reductions in thefts of motorcycles. After the laws were brought into place in 1980, offenders wanting to steal a motorbike had to go equipped with a helmet or they would be spotted quickly. The first column of the table shows that by 1986 thefts of motorbikes had dropped to about one-third of their level in 1980, from about 150,000 to about 50,000. (The gradual decline probably reflects stronger enforcement and growing knowledge about the requirement.) This fact suggests that motorbike theft has a much larger opportunistic component than anyone would have thought. The existence of excellent theft data in Germany allowed researchers to investigate whether the drop in motorcycle theft had resulted in target displacement to theft of cars or bikes, other forms of personal transportation.

The second and third columns of the table show the national totals for car and bike thefts during the same years. These provide some limited

### **Thefts of motorcycles, cars and bicycles in Germany**

	Motorcycles	Cars	Bicycles
1980	153,153	64,131	358,865
1981	143,317	71,916	410,223
1982	134,735	78,543	453,850
1983	118,550	82,211	415,398
1984	90,008	72,170	376,946
1985	73,442	69,659	337,337
1986	54,208	70,245	301,890

evidence of displacement in that thefts of cars increased by nearly 10% between 1980 and 1986, from about 64,000 to 70,000. Theft of bicycles also increased between 1980 and 1983, but by the end of the period had declined again to a level below that for 1980. Altogether, it is clear that at best only a small proportion of the 100,000 motorbike thefts saved by the helmet laws were displaced to thefts of other vehicles.

A little thought shows why this may not be surprising. Motorbikes may be particularly attractive to steal. They are much more fun to ride than bikes for the young men who comprise most of the thieves. Even if the intention is merely to get home late at night, a motorbike offers significant advantages, especially if the distance is more than a few miles. Motorbikes may also be easier to steal than cars since the latter have to be broken into before they can be started. Like bikes, cars also offer less excitement than motorcycles and they may require more knowledge to operate.

Source: Pat Mayhew and colleagues (1989). Motorcycle Theft, Helmet Legislation and Displacement. *Howard Journal of Criminal Justice*, 28: 1–8.

#### **Read more**

Paul Ekblom (1987). *Preventing Robberies at Sub-Post Offices: An Evaluation of a Security Initiative*. Crime Prevention Unit Paper 9. London: Home Office.

Barry Webb (1994). *Steering Column Locks and Motor Vehicle Theft: Evaluations from Three Countries*. In *Crime Prevention Studies*, vol. 2, edited by Ronald Clarke. Monsey, New York: Criminal Justice Press. (Download from: [www.popcenter.org](http://www.popcenter.org))

Three principles of this manual are: (1) it takes more than offenders to create problems; (2) people cannot offend if there is no opportunity structure to support this behaviour; and (3) altering the opportunity structures can dramatically reduce problems. It follows that responses focusing on only removing offenders have limited effects on problems. It does not matter whether offender removal is based on law enforcement or on reformation or rehabilitation through social services.

Removing offenders and letting opportunities to offend remain is not good practice. After some offenders are removed, there may be a decline in the problem for a short time. Then either the old offenders return to take advantage of the opportunities, or new offenders start taking advantage of them. (This is sometimes called perpetrator displacement.) Natural replacement of offenders can be slow, particularly if the opportunities are obscure. But if someone discovered the crime opportunities in the past, chances are others will rediscover them. If the old offenders were removed through imprisonment, some may return to take advantage of the opportunities upon their release.

New offenders attracted by opportunities might contribute to long-term crime cycles. Bank robberies in parts of the United States may be an example of this. For a few years there will be a large number of these crimes and then they will decline for several years, only to surge again later to start the cycle over again. One hypothesis for these cycles is that during peak robbery years, banks begin instituting a host of preventive measures and most offenders are caught and imprisoned. These efforts drive bank robbery down. After several years with few bank robberies, bank security becomes lax and the opportunities for bank robbery increase. Then new offenders start to take advantage of the lower security beginning a new wave of robberies and prevention. This hypothesis draws attention to the fact that it takes more than enforcement to be effective and prevention must be maintained to stay effective.

In fact, it is quite common to read descriptions of problem-solving efforts that begin with a description of failed enforcement efforts. In every situation either old offenders keep coming back or new offenders have replaced them. There are three ways in which new people are exposed to offending opportunities:

1. They are exposed to them through their **normal daily routines**. Police arrest young men stealing items from unlocked cars in a city centre, for example, but unlocked cars with things in them remain there. Of the many people who use the city centre on a daily basis, a few will notice these cars and try their hand at theft. If successful, some of these individuals will continue to steal from cars.
2. They are exposed to crime opportunities through **informal networks of friends and acquaintances**. People already experienced with taking advantage of an opportunity to commit crime or disorder may invite others in to help them or enjoy the experience. Since we are seldom 100% successful at removing all the offenders for long periods, there are usually many people around who can introduce new people to the opportunities.
3. They discover offending opportunities through **recruitment**. A criminal receiver may employ new burglars if the old ones can no longer supply him with goods. If prostitution is organised, then a pimp may recruit new prostitutes to fill the jobs left vacant by the former prostitutes. Gangs may bring in new members to replace old ones. In the United States, it has been suggested that adult drug dealers, faced with stiffer penalties for drug convictions, started hiring juveniles to carry out the riskiest tasks because the penalties for juveniles caught with drugs were much less than for adults.



How do you find out if offenders are moving in? The most straightforward method is to compare the names of offenders associated with the problem before the response to the names of offenders associated with the problem after the response. If the names are different then offenders may be moving in. The difficulty with this approach is that one seldom has a complete roster of the offenders involved. So it is not clear if the new names are really new offenders, or if they have been part of the problem for some time, but have only recently been discovered.

Offender interviews can also be helpful. Offenders may tell you when they became involved in the problem, how they became involved, and who else is involved. They can also provide information on tactical and other forms of displacement. However, offenders can be uncooperative and unreliable.

Sometimes detailed examination of the methods used to commit crimes can provide insights into whether new offenders are involved. If the tactics are radically different than those used earlier, there is a possibility that new offenders are working. However, it is also possible that the old offenders have switched tactics.

### **Combining crackdowns with environmental modifications: Controlling ‘away day’ prostitutes in Finsbury Park**

Roger Matthews describes a London prostitution problem in Finsbury Park. Repeated crackdowns by the police over many years had failed to control the prostitution market as the prostitutes simply returned to the same area. When crackdowns were combined with street barriers to make it difficult for men to find prostitutes by driving round the area in their cars the level of prostitution activity dropped dramatically. Matthews suggests that it was the combination of strategies – offender removal through enforcement and opportunity blocking through street barriers – that was responsible for the decline. One important reason why these interventions were successful was that the prostitutes were not deeply committed to this way of earning a living. Few were addicted or under the control of pimps. In fact, the commonest reasons they gave for working as prostitutes was that they could earn more money than other forms of work, they enjoyed the independence and enjoyed meeting a variety of men. Many of them came to Finsbury Park from outlying areas on cheap ‘away day’ rail tickets. Together with other women, they rented rooms in one of the many boarding houses or residential hotels in the area, or they conducted business in the cars of clients. When not working as prostitutes, many of them worked as barmaids, go-go dancers or shop assistants. Their relatively light commitment to prostitution and their alternative ways of making money might help explain why the researchers could find little evidence of displacement of the Finsbury Park prostitutes to other nearby areas in London.

#### **Read more**

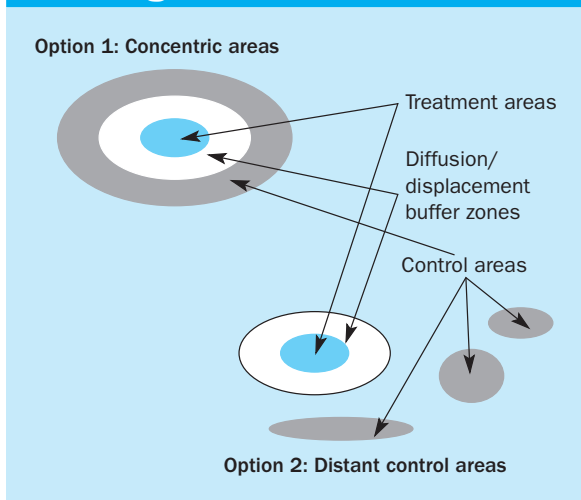
Roger Matthews (1997). Developing More Effective Strategies for Curbing Prostitution. In *Situational Crime Prevention: Successful Case Studies*, 2nd edition, edited by Ronald Clarke. Monsey, New York: Criminal Justice Press.

You can drastically underestimate the effects of your intervention if you do not take account of diffusion of benefits (Step 14). You may conclude that the intervention is not worth the effort or that it failed to suppress the problem. This is particularly true when diffusion contaminates your control group.

Control groups show what would have happened to problems if you did nothing (Step 41). They need to be as similar to the treatment group as possible but *they must not be influenced* by the treatment. If prevention diffuses into the control area, you will get the misleading impression that things would have gotten better if no response had occurred. This invalid conclusion will cause you to underestimate the effectiveness of your programme. (See Step 42 for related issues with displacement.)

Kate Bowers and Shane Johnson suggest two ways to select control areas when diffusion of benefits or displacement are possible. The first is to create two concentric zones around the treatment area. Prevention may diffuse into the adjacent buffer zone but does not contaminate the outer control area. This is feasible if the control and treatment areas are very similar and diffusion or displacement does not reach the control zone. If these conditions are not met, then option 2 should be used. Here

**Figure 1: Two options for selecting control areas**



the control areas are widely separated from the treatment and diffusion/displacement buffer. Controls are selected specifically for their similarity to and isolation from the treatment area. Multiple control areas can be selected and their crime rates averaged.

To determine the overall effect of the response on the problem (including any diffusion or displacement effects) you need to answer four questions, in order. Each question has a formula that you can apply to the results from the response, control and diffusion/displacement areas to get answers.

- 1. Did the problem change from before to after the response?** Subtract the crime in the treatment area before the response from the treatment area after the response, using the formula for the Gross Effect:

$$GE = R_b - R_a \text{ (the subscripts indicate after and before).}$$

A positive number indicates a decline in the problem.

- 2. Was the response a likely cause of the change?** Shane Johnson suggests comparing the change in the treatment area (R) to the change in the control area (C), using this formula for the Net Effect (NE):

$$NE = (R_b/C_b) - (R_a/C_a).$$

If NE is close to zero, the response probably was ineffective, and if NE is negative the response may have made things worse. In either case, displacement and diffusion are irrelevant so you can stop with the answer to this question. But if NE is positive there is reason to believe the response may have caused the improvement. This raises the possibilities of diffusion and displacement. So you need to answer the next question.

- 3. What is the relative size of the displacement or diffusion?** Bowers and Johnson propose the Weighted Displacement Quotient (WDQ), to measure this:

$$WDQ = \frac{D_a/C_a - D_b/C_b}{R_a/C_a - R_b/C_b}.$$

**Figure 2: Selecting control and diffusion-displacement sites**



$D_a$  is the crime rate in the diffusion/displacement area after the programme and  $D_b$  is the crime rate in this area before the programme. The bottom term (denominator) is a measure of the effectiveness of the response, relative to the control. An effective programme will produce a negative number in the denominator. The top term (numerator) shows the relative amount of diffusion or displacement. The numerator is negative when diffusion is present and positive when displacement is present. If it is near zero, neither is present and the WDQ is zero (so you can skip question 4). If the WDQ is positive there is diffusion (remember, a ratio of two negative numbers is positive), and if it is greater than one then the diffusion effect is greater than the response effect. If the WDQ is negative, there is displacement. When the WDQ is between zero and negative one, displacement erodes some, but not all, of the response effects. Theoretically, the WDQ could be less than negative one, indicating the response made things worse. However, research suggests that this is an unlikely occurrence.

#### 4. What is the Total Net Effect of the response (including diffusion and displacement)?

Johnson suggests using the following formula to calculate the Total Net Effect:

$$TNE = [R_b(C_a/C_b) - R_a] + [D_b(C_a/C_b) - D_a].$$

The first term shows the effect of the treatment in response area (accounting for the control area changes). The more effective the treatment, the more positive this term. The second term shows the level of diffusion or displacement (accounting for the control area). It will be positive in the presence of diffusion and negative in the presence of displacement. The more positive TNE, the more effective the programme.

Lets see how these formulas can be applied. Imagine a problem of assaults in a particular pub shown as R in Figure 2. The nearby pub with a similar problem is a good diffusion/displacement site (D). We calculate the assaults as a rate (e.g. 20 assaults per 1,000 patrons per year) so we can make comparisons across pubs with unequal numbers of patrons. This also allows us to have multiple control pubs (J, K and L) that can be averaged to form a single control.

The table shows the results. We see that diffusion contributed substantially to the effectiveness of the intervention, and the total net effect was a reduction of 10 assaults per thousand patrons per year.

#### Read more

Kate Bowers and Shane Johnson (2003). Measuring the Geographical Displacement and Diffusion of Benefit Effects of Crime Prevention Activity. *Journal of Quantitative Criminology*, 19(3): 275–301.

Shane Johnson, Kate Bowers, Peter Jordan, Jacque Mallender, Norman Davidson, and Alex Hirschfeld (in press). Evaluating Crime Prevention Scheme Success: Estimating 'Outcomes' Or How Many Crimes Were Prevented. *International Journal of Theory, Research and Practice*.

#### Calculating the response effects

	Before	After	A-B	
Treatment area (R)	20	12	-8	
Diffusion area or buffer (D)	15	11	-4	
Control area (C = average of J, K & L)	18	17	-1	
	GE = 8	NE = 0.405	WDQ = 0.459	TNE = 10

Offenders often believe that prevention measures have been brought into force before they actually have. This leads to what has been called the ‘anticipatory benefits’ of prevention. Though these anticipatory effects can occur by accident, the police can make deliberate efforts to create or accentuate them. To be effective, police must have useful insight into how offenders perceive the situation and have methods for deceiving offenders as to the true nature of the intervention.

Marti Smith and her colleagues found evidence of anticipatory benefits in 40% of situational prevention studies whose data could have revealed such benefits. They have provided six possible explanations for observed anticipatory benefits:

- 1. Preparation-anticipation** effects occur when offenders believe the programme is operational before it is actually working. For example, a property-marking scheme may be announced to the public, but residents have not yet been mobilised, or CCTV cameras may be installed but not yet monitored.
- 2. Publicity/disinformation** effects occur when offenders believe covert enforcement exists as the result of publicity or rumour. Offenders’ perception can be manipulated, at least in the short run, through disinformation. Rather than disinformation, targeted communications can sometimes be effective. In the United States, a project in Boston to reduce youth homicide used direct communications with potential offenders to warn them that certain specified behaviours would result in crackdowns.
- 3. Preparation-disruption** effects occur when preparation for the prevention programme causes surveillance at the prevention sites. Surveys of residents might alert offenders. Problem-solving projects can create anticipatory responses during their analysis stage if there is considerable visible data collection in the community (note that statistical analysis of police data will not create anticipatory effects).
- 4. Creeping implementation** occurs when parts of the response are put into effect before the official start date. The evaluator may use 1 May as the beginning of the full programme, but offenders detect staged implementation in the weeks leading up to 1 May, and change their behaviour accordingly.
- 5. Preparation-training** effects occur when planning, training, and surveys make the public or police better prepared to address problems and they use this new knowledge prior to the programme going into effect. A coordinated multi-business anti-shoplifting programme, for example, may be scheduled to begin on a particular date, but the discussions and training of employees makes them more attentive prior to that date.
- 6. Motivation** of officers or public occurs for similar reasons as preparation-training, except the people involved are more highly motivated rather than better equipped. The higher motivation leads to improved performance in advance of response implementation.

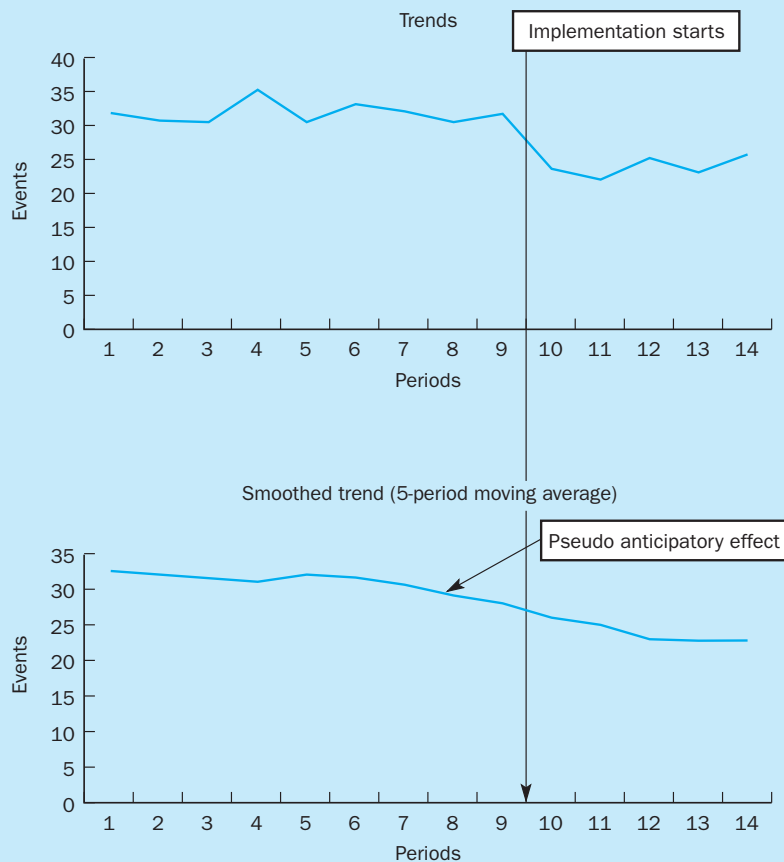
Smith and her colleagues also identified four distinct circumstances that masquerade as anticipatory effects, but are really the results of misinterpretation or incomplete analysis:

- 1. Seasonal changes** in crime can also create pseudo anticipatory effects. An intervention that begins shortly after a seasonal turndown in crime will appear to have an anticipatory effect. Controlling for seasonality (Steps 24 and 41) can eliminate this problem.
- 2. Regression** effects refer to natural declines in crime from extreme highs that occur even if nothing is done (Step 41). If a crime trend for a problem has just dropped due to a regression effect and a prevention programme is implemented, the natural decline will look like an anticipatory effect. Examining the long-term average crime level prior to the response, as suggested in Step 41, can reveal a regression effect masquerading as an anticipatory effect.

3. If a crime type (A) has been **over-recorded** by changing the classification of another crime (B), it is possible to get what looks like an anticipatory effect. This might occur if one type of crime was inflated in order to gain funding to address that type of crime, and then following the receipt of funding, the classification was changed back to normal. This bogus anticipatory effect can be detected by looking at opposite trends in the other crime. Finding two similar crimes that have opposite trends provides a clue that changes in the classification of crime are responsible.

4. **Smoothing data** (Step 24) to reveal a trend masked by random variation can produce results that look like anticipatory effects. In the figure, a prevention programme was implemented between periods 9 and 10. The raw data are plotted in the upper graph and the smoothed data in the lower graph. A pseudo anticipatory effect is visible in the smoothed data due to the moving average used. A pseudo anticipatory effect is more likely the wider the moving average (e.g. 5 periods vs. 3) and the bigger and more abrupt the decline in crime following the intervention.

### Pseudo anticipatory benefits caused by smoothing data



#### Read more

David Kennedy (1997). Pulling Levers: Getting Deterrence Right. *NIJ Journal*, July: 2–8.

Martha Smith and colleagues (2002). Anticipatory Benefits in Crime Prevention. In *Analysis for Crime Prevention. Crime Prevention Studies*, Volume 13, edited by Nick Tilley. Monsey, New York: Criminal Justice Press (and Willan Publishing, UK).

How do you know that the problem actually declined? Most problems vary in intensity, even when no one is responding to them. For example, there are nine vehicle thefts in a particular city centre, on average, but seldom are there weeks with exactly nine thefts. Instead, 95% of the weeks have between 7 and 11 thefts, and in 5% of the weeks less than 7 or greater than 11 thefts are recorded. Such random variation is normal. Clearly, a reduction in vehicle thefts from an average of nine per week to an average of six per week is within the norm, and might be due to randomness alone. In other words, the response to the problem may have had no impact. If the change in the problem is small, random variation is a plausible explanation. If the number of thefts had dropped to about zero per week, with an occasional week with one theft, we could be reasonably certain that this was not a chance result; it is abnormal. How can we know if the change in the problem is within normal variation?

The answer is use a **significance test**. A significance test compares the after response variation in the problem to the variation in the problem before the response. It tells you the probability of the change in the problem being random. Your response may have caused the change if there is a small probability of the change being random.

If there is less than a 5% chance that the problem's change was due to random fluctuations, we reject the explanation of randomness as a cause of the change. Here, 5% is called the **significance level**, and five per cent is the conventional choice. In short, we 'bet' that something other than randomness caused the change, if there is a 'sufficiently low' likelihood randomness could have been the cause. We define 'sufficiently low' by our choice of significance level. Often our choice is 5%, but we can pick other levels.

You can pick a more stringent level, such as 1%. The more stringent the significance level you select, the greater the likelihood you will mistakenly conclude that the response was ineffective when it actually worked. You might pick a stringent significance level if the cost of the response is so high that you need to be very certain it works.

Occasionally, analysts use a less stringent significance level, such as 10%. The less stringent the level you pick, the greater the possibility that you will mistakenly endorse a response that has no effect. You might want to pick a less stringent level if the problem is serious, the measures of the problem are not particularly good, and you are very concerned about accidentally rejecting a good response.

There are two ways of using significance levels. Social scientists typically use them as rejection thresholds: below the level you reject chance and above the level you accept it as the cause. In short, the significance level makes the decision. If you follow this strategy, always pick the significance level before you calculate it. In fact, you should select it early in the assessment process to avoid 'fiddling' the figures to get the desired outcome.

A better approach is to use the significance level as a decision aid. Decision makers use the significance test information, along with other facts (problem seriousness, programme costs, absolute reduction in the problems and so forth) to make an informed choice. Many sciences, such as medicine, follow this approach. If you follow this approach, use a **p-value** instead of the significance test. The p-value is an exact probability that the problem's change is due to chance. So a p-value of 0.062 tells you that the chance of making a mistake if you accept the response is a bit more than 6%. This can be roughly interpreted to mean that in 100 such decisions, the decision to reject randomness in favour of the response will be wrong about 6 times. Would you or your colleagues take such a bet? It depends on a many things, doesn't it?

There are many statistical software programs that can make the required calculations. The difficulty you will face is how to choose among the various methods of determining the significance level or p-value. You can rely on the program's default settings, but there is no guarantee that these settings correspond to your situation. The difficulty lies with the hidden assumptions behind the calculations. The following are a few important considerations.

The variation in a problem is called its distribution. In the example above, the **distribution** would describe how many weeks (over a long period) had zero thefts, one theft, two thefts, and so forth. Many software packages assume a **normal**, bell shaped distribution. This is often not appropriate because a normal distribution assumes that the numbers are continuous (like people's income, or crime rates) rather than discrete events (like counts of crime and disorder). If you are using crime count data, check the software package to determine if there is an option to use something like a **binomial** distribution.

Also, normal distributions are symmetrical, with the average in the centre. Most crime data is highly distorted – a few people or places or times have most of the crime events, and many people, places or times have few or no such events (see Step 19). This is because crime and disorder is rare, particularly in short time intervals and small places. This also means that chance can play a large role in the fluctuations. To find a significant change in a problem when the events are rare, you will have to look longer and harder at the problem, both before and after the response. This typically means more time periods. Also, a **Poisson** distribution is a better assumption when you are dealing with rare events.

The investigation of chance can become very complex. If there is a great deal riding on the outcome of a significance test or a p-value and you are not an expert in probability theory or statistics, you should seek expert help from a local university or other organisations that use statistics on a regular basis.

You should pay attention to two types of costs. The first is the cost of crime. A response that reduces crime reduces these costs and results in benefits. Offsetting these benefits are the costs of the response – personnel, equipment and so forth. Overall, the cost of preventing crime should not be greater than the costs of the crimes averted.

How much does the response cost? Response costs will fall into two broad categories: fixed and variable. **Fixed costs** are made once or are obligations that cannot be changed for a long time. **Variable costs** can be increased or decreased. Changing a street pattern incurs a fixed cost. It is done once; it cannot be easily altered and needs little maintenance. Traffic enforcement is mostly a variable cost, since police deployment can be easily changed. A prostitution reduction scheme involving enforcement and changing street patterns will have both.

It is important to calculate all the costs involved in an intervention. Police costs include personnel time (including pro rata fringe benefits), equipment purchases, materials used up (such as fuel and office supplies) and other expenditures. Arrest and adjudication have costs. Non-police costs are similar and include resources supplied by citizens, businesses or other government agencies. It does not matter if these were donated – they are still costs to someone.

Many of the costs of crime are borne by victims. Property crimes have three costs associated with them:

1. The monetary loss of the items taken (sound systems stolen from vehicles, for example). Records on monetary losses may be part of police investigation reports, though the accuracy is sometimes questionable because of ignorance, recall and exaggeration for insurance purposes. Further, replacement costs may be a better indicator of harm to the victim than the initial cost of the items taken.
2. Repair costs of things damaged during the crime (car windows smashed, for example). Damage costs are often unknown to the police and may not be recorded.
3. Intangible costs to the property owner (lost time dealing with the theft and psychological costs of the stress related to the crime, for example). Intangible costs are extremely difficult to calculate and are often left out of benefit calculations. Doing so short changes the value of the prevention effort.

Personal crime costs are more difficult to calculate. Much of the cost of personal crime is intangible, and placing a credible monetary value on it is difficult. There are some tangible costs, however, such as the monetary loss in robberies, damage to property from assaults, and medical costs of injuries. Costs of consensual crimes, such as prostitution and drug dealing, are even harder to estimate. This is because most of the costs are indirect and intangible – affecting people not directly involved in the events.

Sam Brand and Richard Price have made estimates for the Home Office for many personal and property crimes. These estimates do not take into account the costs of fear and the impact on families or acquaintances. Also, these are national estimates and there may be local variation. Nevertheless, they can be used as rough approximations of minimum benefits.

**Cost effectiveness** is the cost of the response divided by the number of crimes averted. If an assault reduction programme cost £10,000 and the evaluation showed that 30 assaults were averted because of it, its cost effectiveness is £333 per assault. Cost effectiveness figures are useful for two purposes. First, they allow comparisons of interventions with different costs and levels of effectiveness. A cost of £333 per assault may be less expensive than alternatives that either cost more or reduce fewer assaults. And second, you sometimes can determine that the costs of the programme exceed known costs of the crime. If the average assault costs over £500 in medical expenses,



for example, then this programme is already worthwhile without even taking into account other factors.

**Benefit-cost** is calculated either as a ratio of benefits to costs or as benefits minus costs. Valuable programmes have ratios greater than one and positive differences. Under-performing programmes have ratios less than one and negative differences.

If all the costs and the benefits of the programme occur at the same time – within a single year – then comparisons are relatively easy. However, many opportunity reduction efforts have response costs that come early and go down rapidly but have benefits that continue coming in for a long time. Because it is a standard principle of accounting that a benefit today is worth more than the same benefit some time in the future, adjustments need to be made that put the future benefits (and costs) in present day pounds. These adjustments also account for economic inflation that raises costs of future responses.

Sanjay Dhiri and Sam Brand provide guidance for making cost-effectiveness and benefit-cost calculations. Benefit-cost analysis can be a highly technical undertaking. If it is critically important to obtain highly reliable and precise estimates then you should ask the advice of an expert in this field.

### Read more

Sam Brand and Richard Price (2000). *The Economic and Social Costs of Crime*. Home Office Research Study 217. London: Home Office.

<http://www.homeoffice.gov.uk/rds/pdfs/hors217.pdf>

Sanjay Dhiri and Sam Brand (1999). *Analysis of Costs and Benefits: Guidance for Evaluators*. Crime Reduction Programme. London: Home Office.

<http://www.homeoffice.gov.uk/rds/pdfs/cdp1costeff.pdf>

The purpose of your work is to help people make better decisions. To assist decision makers you must tell a clear story that leads from an important question to possible answers and to effective actions. To do this you need to know who your audience is and the questions they want answered. Your story has to address their particular needs. This story can be told in a written report or in an oral presentation (see Step 53).

You should not simply recount what you did to analyse the problem. This is tedious and does not help people make actionable decisions from your work. So once your analytical work has been completed you will have to translate it into a story that addresses the needs of your audience.

Your work can help answer four basic questions. These questions correspond to the stages of the SARA process:

- **Scanning** – What is the nature of the problem?
- **Analysis** – What causes the problem?
- **Response** – What should be done about the problem?
- **Assessment** – Has the response brought about a reduction in the problem?

Clearly, these are general questions that can be made more specific depending on the facts of the matter being examined. Local residents, for example, might complain about late night noise and finding litter along their street. Instead of the general scanning question, a set of specific questions could be developed: Are there recurring instances of late night noise and litter that disturb residents? When and where do these incidents occur? Who is disturbed? Are these complaints symptomatic of a deeper set of issues? So in this example, answering the general question requires answering a set of more specific questions.

Your first task in telling a coherent story is to decide which kind of question you are seeking to answer. Next, you should try to structure your account around the basic theories and approaches described in this manual (e.g. the crime triangle or the 80–20 rule). These are frameworks. A framework is a general ‘story shell’ that links the multiple interacting factors that cause problems. Your choice of frameworks depends on the problem, your findings and the needs of decision makers. Be sure there is a logical flow from the basic question, through the framework and findings, to the answers. Check for gaps in logic. Now outline a story. There are four basic story outlines that can guide your work. The details of the story will depend on the specifics of your problem.

Do not religiously stick to these outlines, but tailor them to the amount of time you have and, above all, to the concerns of the people whom you are addressing. Try to anticipate their questions, and modify the appropriate outline accordingly. Though we have used technical terms from this manual in these outlines, you may need to use a common vocabulary in your presentation. If your audience is not already familiar with the terminology of problem analysis, you probably should use it sparingly, or not at all.

## Four story outlines

### 1. WHAT IS THE NATURE OF THE PROBLEM?

- A. Organising framework – e.g. elements of problem definition.
- B. Systematic description of evidence about problem type and existence:
  - Time trend of crimes or disorder.
  - Geographic analysis and hot spots.
  - Types of harm.
  - Types of people most harmed.
  - Evidence from other forces and areas.
- C. Implications for analysis and collaborative problem solving:
  - Questions that need answering.
  - Partners who need to become involved.
- D. Summary.

### 2. WHAT CAUSES THE PROBLEM?

- A. Organising framework for problem – e.g. problem analysis triangle.
- B. Systematic description of problem answering the following questions:
  - Is this an enduring problem or a new problem?
  - What brings the offenders and targets together at the same places?
  - What behaviours are each engaged in?
  - Why don't others step in to prevent these encounters?
- C. Implications for general form of responses that fit the information:
  - Offender access or control.
  - Victim/target behaviours or protection.
  - Facility access or management.
- D. Summary.

### 3. WHAT SHOULD BE DONE ABOUT THIS PROBLEM?

- A. Organising framework for response – based on analysis conclusions:
  - Offenders.
  - Targets/victims.
  - Places.
- B. Systematic description of response strategy:
  - Increasing risk or effort.
  - Reducing rewards, provocations or excuses.
  - Who will carry out actions, when and where?
  - Additional resources required.
- C. Implications and anticipated outcomes:
  - Direct results.
  - Displacement.
  - Diffusion.
  - Other side effects.
  - How evaluation should be conducted.
- D. Summary.

### 4. HAS THE RESPONSE BROUGHT ABOUT A REDUCTION IN THE PROBLEM?

- A. Organising framework – Why the response was expected to be effective.
- B. Systematic description of evaluation:
  - Was the response implemented as planned?
  - Did the problem change?
  - Why it is likely response was a direct cause of change.
  - The magnitude of displacement, diffusion and other side effects.
- C. Implications for further action:
  - Is this problem-solving effort complete?
  - What further actions are necessary?
  - Should further analysis be conducted and the response changed?
- D. Summary.

Problem-solving maps serve four important purposes:

1. They show where problems are located (important at scanning and early in analysis).
2. They help test hypotheses about problems (important during analysis).
3. They show how problems are handled (important during the response and early assessment stages).
4. They show changes in problems (important for assessment).

We will first illustrate purposes 1, 3 and 4 with a pair of maps, and then illustrate purpose 2 with a third map.

Map 1 shows the location of a commercial burglary problem (first purpose). This straddles a half-mile stretch of Battersby Road, beginning at the Sophie River, but is most intense in the two middle street segments. The elongated ellipse indicates the problem's axis is Battersby Road and the problem does not extend much into the surrounding areas. A colour range shows the intensity of the problem. The distance scale at the bottom of the map helps people judge size, and the arrow shows North. The map shows the relationship of the problem to roads and the river. The only roads labelled are those needed to understand the problem's position. The amount of labelling depends on the local knowledge of the map users and the nature of the problem. Later we will see why two additional streets should have been labelled.

The grey rectangle in Map 2 along Battersby Road shows the bounds of a merchants' association created to address the commercial burglary problem. A more detailed map could show every shop colour-coded by participation in the association. This might indicate where further efforts are needed, if the locations of the least involved shops correspond to the remains of the problem (third purpose).

The hot spots in Map 2 depict the remains of the problem after the response. Comparing Map 2 to Map 1 gives an indication of how the problem changed (fourth purpose). It shrank

to about a quarter of a mile and the intensity of the problem declined because no dark blue remains in the original hot spot. The problem may also have partially displaced to the intersection of Young's Road and Crowley Street. Note that these two streets were not labelled in Map 1 because they had no apparent relation to the problem.

Before-and-after maps are insufficient to establish that the response caused changes, but along with other information can help make persuasive arguments. In this example, data showing that offenders associated with the Battersby Road hot spot are now found at the new hot spots across the river (and they were not there before) could lend support to the displacement hypothesis. In the absence of other information, however, the displacement hypothesis has no more credibility than the hypothesis that the new hot spot grew independently of the response.

It is important that the before-and-after maps are created in the same way (size, distance scale, directional orientation, problem intensity measurement, and so forth) so that any changes can be attributed to the problem. If Maps 1 and 2 are to be used together in the same presentation, then they should have consistent street labelling.

Map 3 tests the association of problem locations with other features (second purpose). Here, a map of the pub assault problem, introduced in Step 19, shows the eight pubs in one area of a police district. The numbers within the circles and squares indicate the number of assaults associated with each pub, and the shapes and shading of the icons indicate the pubs relative 'riskiness'. Three 'risky' assault pubs' are concentrated on Dorcus Hill and another is less than a mile away. All four pubs are located to the east of the river and railway line.

This map calls into question two possible hypotheses. The association of 'risky' pubs with main roads is suspect because all the low assault pubs are also on main roads. The association of 'risky' pubs with Dorcus Hill neighbourhood is not clear. One of the 'non-

risky' pubs is located amongst the 'risky' pubs. Further, two other 'non-risky' pubs are located within a mile of the cluster of 'risky' pubs. This suggests that the neighbourhood effect is not absolute and that site-specific circumstances should be investigated. The problem solver should investigate what 'protects' cold pubs and what facilitates assaults at the sites of the 'risky' pubs.

As useful as maps are, they do not tell a complete story. Aspects of a problem that are not geographic cannot be shown on maps. For this reason, maps are often a part of presentation, but they are seldom the only part.

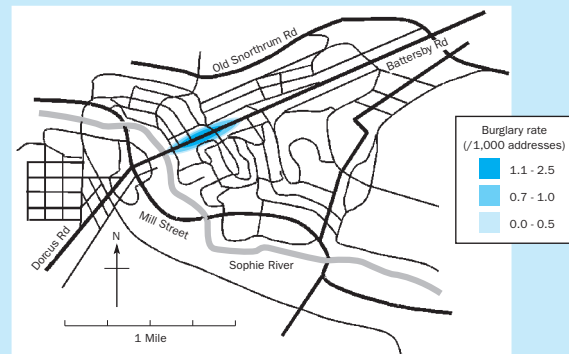
## Creating useful maps

1. Keep maps simple. Eliminate all features that do not contribute to understanding the problem.
2. Always include a scale and compass orientation (usually North is to the top).
3. Use meaningful gradations to show intensity of hot spots. For example, show colours becoming increasingly hot (yellow to red) as the problem worsens.
4. Apply the correct dimension of crime concentration: dots for places (and sometimes victims); lines for concentrations along streets and highways; and areas for neighbourhoods.
5. Avoid graphics that draw more attention to themselves than the data. The reader should not have to ask about the techniques used, but only about the problem.
6. Make use of tables and figures along with maps.

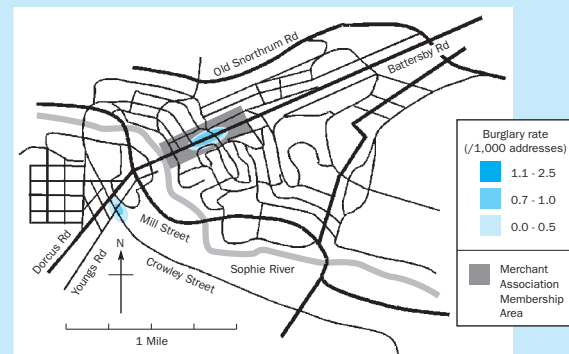
### Read more

Mark Monmonier (1993). *Mapping it Out: Expository Cartography for the Humanities and the Social Sciences*. Chicago: University of Chicago Press.

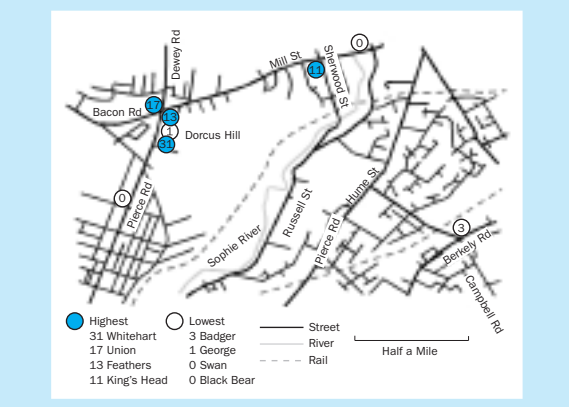
## Map 1: Where is the commercial burglary problem?



## Map 2: Assessing the response to the commercial burglary problem



## Map 3: Association of pub assault problem with geographical features



Tables are effective tools for telling a compelling story if they are made simple, but this is often difficult. The software used to create tables adds unnecessary and distracting packaging – the lines and labels used to interpret the data. In addition, analysts do not always organise tables in a way that makes intuitive sense.

Assume that you are trying to show that beer thefts from off-licences may be facilitated by the way beer is displayed. Some off-licences display the beer near the front entrance and some at the rear. You are trying to show that rear display off-licences have fewer incidents of beer thefts than those where the display is in the front. Table 1 gets in the way of this message. The data are poorly organised and the packaging is distracting.

Table 2 properly organises the data. The percentages are made central to the story. Because the raw numbers do not tell the main story, but may be useful to a reader who wants to look more closely, they are made subservient by enclosing them in brackets. Finally, instead of row percentages (as in the first table), column percentages are used.

Whenever we examine a relationship in which one factor may be the cause of another factor, it is best to put the causal factor in the column and use column percentages. Comparisons are then made across the row. Here we see immediately that 29% of the front-display off-licences had no thefts compared to almost 83% of the rear-display off-licences. At the opposite extreme, almost 46% of the front-display off-licences had three or more thefts, but none of the rear-display off-licences did.

Table 2 has less packaging. The bold borders have been removed and replaced by thin lines. Inside, the only remaining line separates the title from the content. Instead of lines, space is used to guide the reader's eye across rows and down columns. By informing the reader in the title that the important numbers are percentages (and the raw numbers are in brackets),

there was no need to include a per cent symbol in each cell. Only the column total remains. This tells the reader that the important sum is vertical. Finally, all percentages are rounded to one decimal place, thus allowing the column figures to line up, making interpretation easier. With all of these changes, most of the content of the table is data rather than packaging.

A problem often has multiple causes. Though tables can be constructed to show large numbers of causes, a single table communicates poorly if the number of causes is greater than two. The basic principles of table construction remain the same:

- All the causes go in the same direction (usually columns).
- Summation goes in the direction of the causal factors.
- Comparison of causes goes in the opposite direction (rows if causes are in columns).

Table 3 is a three-dimensional table (the earlier tables were two dimensional). Table 3 answers the question: is the relationship between display location and theft different for two different off-licence chains (Roberts and Bolgers). The answer is readily seen; it does not. There is the same basic pattern for both chains that we saw in Table 2. In both cases we sum the column and compare front-display off-licences to rear-display off-licences. This implies that any off-licences that display beer at the rear will experience less theft.

In effect, Table 3 holds constant type of off-licence. Other factors can be held constant if we think they are important. For example, we could group off-licences by size – small, medium and large – and separately analyse the relationship between display location and theft for each size category. This would require three panels, but otherwise the same principles apply.

Take note of several other features of Table 3:

- If you add the raw numbers (in brackets) in the Roberts cells to their corresponding cells under Bolgers, you get the raw numbers in Table 2. In other words, Table 2 is a summary of Table 3. This also means that you cannot go the other way: derive Table 3 from Table 2.
- Because Table 3 contains two possible causes of the problem, we have added a vertical line to draw attention to the two types of off-licences.
- The row labels apply to both store types, so there was no need to duplicate them. Because of rounding in the percentages, they sometimes add to over 100. In some instances these sums can be just under 100, usually 99.9. Such small deviations are seldom of much concern.

If you routinely produce the same tables for the same decision makers, show them several different table formats with the same data. Determine which format most effectively communicates to them, and then use this standard format.

**Table 1: Location and beer theft (June)**

	Location of display		
Number of theft reports	Front	Rear	Total
0	7 (17.5%)	33 (82.5%)	40
1–2	6 (46.15%)	7 (53.85%)	13
3 or more	11 (100%)	0 (0%)	11
Total	24 (37.5%)	40 (62.5%)	64

**Table 2: Percentage of off-licences with reported beer thefts (numbers in brackets)**

	Location of display	
Thefts in June	Front	Rear
0	29.2 (7)	82.5 (33)
1–2	25.0 (6)	29.2 (7)
3 or more	45.8 (11)	0.0 (0)
Total	100.0 (24)	100.1 (40)

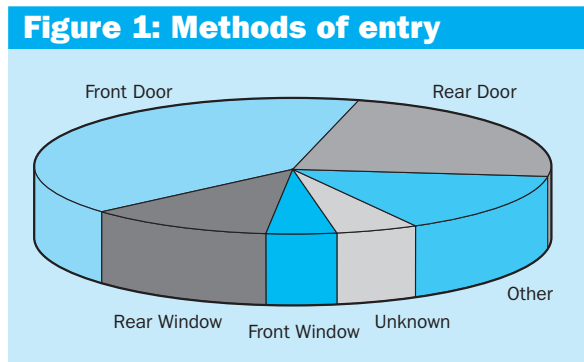
**Table 3: Percentage of off-licences with reported beer thefts by retail chain (numbers in brackets)**

	Roberts Off-licences		Bolgers Off-licences	
Thefts in June	Front display	Rear display	Front display	Rear display
0	30.8 (4)	84.2 (16)	27.3 (3)	81.0 (17)
1–2	23.1 (3)	15.8 (3)	27.3 (3)	19.0 (4)
3 or more	46.2 (6)	0.0 (0)	45.5 (5)	0.0 (0)
Total	100.1 (13)	100.0 (19)	100.1 (11)	100.0 (21)

Like tables and maps, figures and charts are effective tools for conveying information, but only if they are kept simple. All figures consist of two parts – packaging and content. Content is the information you are interested in conveying to others. The purpose of the packaging is to ensure that the content can be quickly, easily and accurately interpreted. Simplicity means keeping the packaging to a minimum. The most common mistake is adding elements that get in the way of the story. To illustrate this, we begin with an example of a poorly designed figure. Then we will show how figures become more powerful by making them simpler.

Figure 1 shows a pie chart that is supposed to show how burglars entered homes. The three-dimensional image distorts the message. As we will see later, doors are the biggest problem and the rear window ranks fourth, behind other as the entry of choice for these burglars. The 3-D effect inflates the importance of the slices in the front while deflating the importance of the slices in the back. The single valuable feature of a pie chart is that it shows how the parts contribute to the whole. This is lost when a 3-D effect is used. Note that a variety of shades and patterns need to be used to display the six categories. This adds clutter.

Figure 2 shows the distortion that 3-D effects can produce in bar charts. Comparing bar heights is difficult because one has to choose between the front top edge and the back top edge of the bar. Three-dimensional effects should never be used.

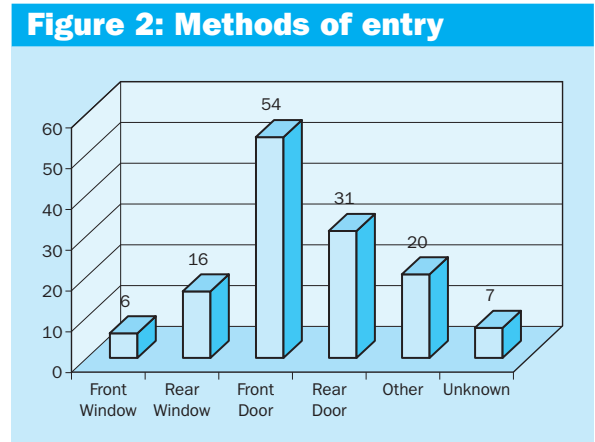


This chart has a number of other features that make it hard to use: surface shading that masks contrasts between the bars and background, redundant bar labels and vertical axis labels, and distracting horizontal lines. The frame around the figure is superfluous.

The simple bar chart in Figure 3 communicates information very effectively because all the confusing features of Figure 2 have been removed. We even removed the horizontal axis. If we wanted each bar to show the exact percentage, we could label the tops of the bars. But then we should remove the vertical axis, as this feature communicates the same information.

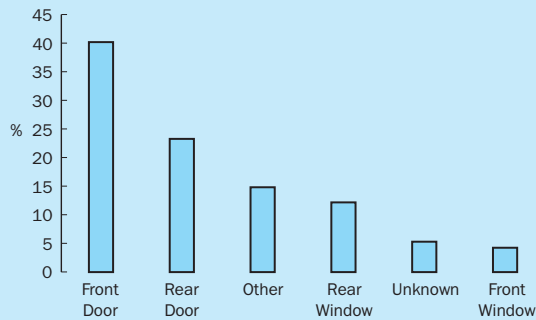
Additionally, the data in Figure 3 have been reorganised. Instead of raw numbers of burglaries, the chart shows the percentage of the total. This communicates two points: which methods are more frequent, and what part of the whole each method represents. If you need to show the relative contribution to a whole, use percentages in a bar chart rather than a pie chart.

Another feature of Figure 3 is that the categories are arranged in a meaningful order: from most to least. This points to where attention should be focused. Meaningful order is hard to communicate in a pie chart because it has no obvious beginning or end. There really is no need to use a pie chart as bar charts can communicate better. When you have data in categories, bar charts are simple and effective.





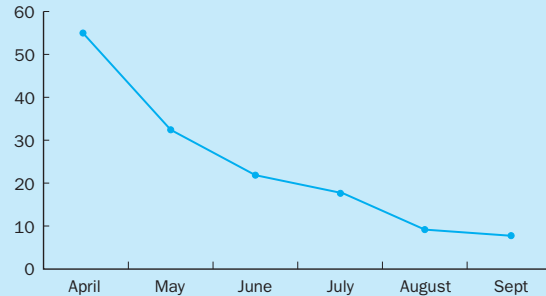
**Figure 3: Doors are the problem**



Do not forget the figure title. In Figure 3 the title boldly tells a story. Not only is this far more interesting than ‘Methods of Entry’, it makes the story unambiguous. In short, Figure 3 stands on its own. Without reading any accompanying text, the reader gets the point.

The final figure depicts a line graph. These are typically used when tracking data over time. In Figure 4, the data cover six months. The dots symbolise the burglary count, and the lines indicate a continuous connection over time. The vertical axis shows the number of burglaries. If this chart were in a report, we would expect the text to indicate that these numbers are counts, rather than rates. Generally, you should label the vertical axis so the figure communicates the story on its own.

**Figure 4: The decline in burglary**



If you prefer to show the number of events at each time period, label the dots, but remove the vertical axis; it’s now redundant. Be careful, however. Numerical labels at every time point can make a chart difficult to read. If multiple graphs are shown in the same figure (for example, the trend in burglaries for several police districts), make sure the different lines are clearly marked and easily differentiated over the chart.

## Designing effective figures

- Keep them simple. Don’t over package.
- Do not use superficial effects, like 3-D.
- Avoid pie charts.
- Use bar charts for data that comes in categories.
- Use line graphs for trends over time.
- Use labels effectively.
- Choose titles carefully.
- Make them stand on their own, without help from the text.

A presentation should begin with a basic question, move through a description of findings within a framework, and end with a set of specific conclusions (see Step 49). Graphical material should be prepared following the guidance in Steps 50 through 52. The main focus of your presentation should be to answer specific questions that will aid decision-making and it should consist of:

- A set of slides organised around your story.
- A graphical motif or outline slide to keep your audience focused on the story.

Figure 1 illustrates a presentation of analysis findings. The presenter, Sergeant Smith, has two goals. The first is to answer the question, 'What causes this problem?' The second is to open up a discussion of possible responses. The title slide asks the question (and introduces the presenter). This and Slides 2 to 4 constitute the introduction. Slide 2 reinforces a set of already agreed points that serve as a foundation for what follows. Slide 3 outlines the presentation. And Slide 4 summarises data collection.

The framework is presented in the fifth slide. Sgt. Smith uses the crime triangle. All of the findings that follow will be keyed to this triangle (Note that this only works if Smith's audience is already familiar with the triangle. If they are not, then Smith should use a different framework.) To reinforce this message, and to keep the audience from getting lost, Sgt. Smith uses the triangle motif throughout the presentation of findings, with slight but important modifications: the shaded side and the colour change as slides move from targets and guardians, to places and managers, and to offenders and handlers. The circular arrow in Slide 5 indicates the anti-clockwise order Sgt. Smith will present the findings. So in this slide, Sgt. Smith has simultaneously described his framework and provided an outline of the main findings.

Slides 6 to 13 present tables, figures and maps that tell the audience about the elements described in the framework. A bar chart might show the actions used to protect targets. A location map might show the places where the problem is particularly prevalent in contrast to where it is absent. Photos might show particularly important features of these sites. A table might show the frequency with which offenders are arrested.

Slide 14 summarises these findings. Here the triangle shows all sides shaded, reinforcing the point that the separate findings are part of a larger whole. The final slides list response options that are consistent with the findings and options that are inconsistent. Though Sgt. Smith gives his expert opinion, it is the decision makers who have the final say in this matter. So these final slides are meant to open up a discussion that is informed by the earlier findings.

It is important to keep your audience focused on the larger story and from becoming lost in the details. Two methods for accomplishing this are to use an ongoing motif (like the triangle in the figure) or a highlighted outline slide. When using an outline slide, the outline is shown before each topic. The topic to be presented is highlighted on the outline and the other topics are dimmed. In Sgt. Smith's presentation, the outline slide would be shown four times, before each of the main topics.






Handouts of your slides are very useful, but there are some limitations. You can make last-minute changes in the slides more easily than the handouts. If you expect major last-minute changes, handouts may not correspond to the images. Colour slides are often not legible when photocopied in black and white. If you are using PowerPoint, then the 'pure black and white' option in 'Print' menu will temporarily convert your colour slides to black and white for printing.

Most decision makers are not as interested as you in the methods you used to analyse your problem. Therefore, do not spend a great deal of time describing your methods, unless this is the objective of the presentation. Rather, summarise the main elements (see Slide 4 in Figure 1). You can prepare separate methods slides, held in reserve, should audience members have methods questions. These might be a separate slide show, additional handouts, or other media.

## Read more

Rand 'Guidelines for Preparing Briefings'. Download from: [www.rand.org/publications/CP/CP269/CP269.pdf](http://www.rand.org/publications/CP/CP269/CP269.pdf)

## Slides for a hypothetical presentation

<p><b>What Causes the XYZ Problem?</b></p> <p>Sgt. Rodney Smith Problem Analysis Section</p> <p>1</p>	<p><b>What is the XYZ Problem?</b></p> <ul style="list-style-type: none"> <li>- High number of reported X events</li> <li>- Concentrated in sector Y</li> <li>- First documented in 1986</li> <li>- Does not respond well to enforcement</li> <li>- Common to other police forces</li> </ul> <p>2</p>	<p><b>This Presentation Shows</b></p> <ul style="list-style-type: none"> <li>- Data sources used</li> <li>- How the data was organised</li> <li>- Why we have this problem</li> <li>- Possible responses</li> </ul> <p>3</p>
<p><b>Analysis of XYZ Problem</b></p> <ul style="list-style-type: none"> <li>- Undertaken by Problem Analysis Section</li> <li>- Data from a Variety of Sources               <ul style="list-style-type: none"> <li>Reported X events</li> <li>Interviews with Merchants &amp; Shoppers</li> <li>Offender Interviews</li> <li>Revue of CCTV Recordings</li> </ul> </li> <li>- Experts from other Police Forces</li> </ul> <p>4</p>	<p><b>Elements of the XYZ Problem</b></p>  <p>5</p>	<ul style="list-style-type: none"> <li> Slides describing targets and guardians</li> <li> Slides describing places and managers</li> <li> Slides describing offenders and handlers</li> </ul> <p>6 - 13</p>
<p> <b>Causes of the XYZ Problem</b></p> <p>A bulleted summary of the previous slides</p> <p>14</p>	<p><b>Inconsistent Responses</b></p> <p>Target and Handlers</p> <ol style="list-style-type: none"> <li>a.</li> <li>b.</li> </ol> <p>Places and Managers</p> <ol style="list-style-type: none"> <li>a.</li> <li>b.</li> </ol> <p>Offenders and Handlers</p> <ol style="list-style-type: none"> <li>a.</li> <li>b.</li> </ol> <p>15</p>	<p><b>Consistent Responses</b></p> <p>Target and Handlers</p> <ol style="list-style-type: none"> <li>a.</li> <li>b.</li> </ol> <p>Places and Managers</p> <ol style="list-style-type: none"> <li>a.</li> <li>b.</li> </ol> <p>Offenders and Handlers</p> <ol style="list-style-type: none"> <li>a.</li> <li>b.</li> </ol> <p>16</p>

Nowadays, all professionals are required to make presentations and presentational skills are becoming almost as important as good writing. The key to a good presentation is thorough preparation.

### Preparation

Never try to 'wing it'. Thorough preparation helps keep nerves under control.

Be sure to:

1. Know your topic.
2. Know your audience (including who else is presenting).
3. Establish presentation length.
4. Prepare to finish a few minutes early (but take full time if you need it).
5. Rehearse presentation (and time it).
6. Rehearse again, if necessary.

### Check out the room on the presentation day

1. Is the equipment you need in place?
  - Flip charts
  - Black/white boards
  - Chalk/marker
  - Projectors
  - Microphone
  - Laser pointer
  - Other
2. Do you know how to use the equipment?
3. Have you tried it out?
4. Do you know how to summon the technician?
5. Do you know how to dim lights?

### Projector

1. Locate this in the best position for the audience and yourself.
2. Make sure it does not block the view of the screen .
3. If necessary, get help with presenting slides.
4. Make sure slides can be read from the back of the room.
5. Draw curtains or blinds if necessary.

### Presentation style

1. Avoid reading your paper (even if you have supplied a written version).
2. Speak from notes (using cards prevents you losing your place).
3. Begin politely (thank chair, introduce yourself, greet audience, etc.).
4. If possible, stand up and speak (this helps keep control of the audience).
5. For lengthy presentations, you can vary where you stand (but don't walk about restlessly).
6. Do not block the audience's view of the slide images.
7. Make sure you can be heard.
8. Don't speak too fast (about 120 words per minute is good).
9. Maintain eye contact with the audience (but not just one person!).
10. Deal with questions quickly (or put them off until the end).
11. Make sure handouts are clear (and that you have enough).
12. End on time.
13. Try to enjoy yourself!

### PowerPoint

PowerPoint and other similar presentation software allow the audience to receive the information simultaneously in two modes: visually from the slides and aurally from your talk. They are therefore more likely to understand and remember key points. The main danger is that PowerPoint can result in standardised presentations that quickly become boring for more sophisticated audiences.

1. Don't read your slides – your talk should not just be a repetition of the slides.
2. Look at the audience – not at your slides!
3. Begin with the title of the presentation, your name and affiliation (but not your qualifications).
4. Use only one form of slide transition throughout, and only use a simple transition that does not distract the audience from your main points.

### Individual PowerPoint slides should:

1. Make only one point.
2. Present just enough detail to address the point and no more.
3. Avoid distracting sound effects, animation, type fonts and transitions.

4. Use dark background (e.g. deep blue) and light colours for text (e.g. yellow).
5. Use large fonts and contrasting (not clashing) colours.
6. Avoid thin lines and letters that cannot be easily distinguished from the background. This can be a particular problem with line charts and maps.
7. Avoid too much red – you should use red selectively to emphasise important points.
8. Use visual graphics rather than words when possible.
9. Use clear and simple maps, figures and tables.
10. Use short bulleted phrases, not narratives, on word charts.
11. Ensure that each bullet is related to the main point of the slide.

### Finally, be safe

1. Avoid technologies that break down frequently or ones that you are not familiar with.
2. Have a backup plan for equipment and software failures.
3. Provide handouts of slides as supplements.

Much of what we know about problems today was unknown 20 years ago. This accumulation of knowledge is largely due to the sharing of knowledge by police practitioners and researchers in the UK, United States, and other countries. Steps 49 to 52 described how to communicate to decision makers in your police force and in your community. You also have a duty to improve your profession by sharing your work outside your local force and community.

There are two approaches to communicating with your peers. The first is through written materials. These may be published in reports, professional periodicals, or popular press articles. The second is through presentations at professional conferences and meetings. The most effective strategy for communicating information is to use a combination of these approaches.

Written reports can present a wealth of detailed useful information that others can use as reference material. There are a number of ways of disseminating written information. It can be made available in a downloadable format from websites. It can be published in professional periodicals. Shorter pieces designed to capture people's attention can be published in professional newsletters and other periodicals. Finally, encouraging professional journalists to write about your efforts can reach even a wider audience. Shorter and more easily accessible pieces reach a wide audience, but contain less information.

Conferences allow face-to-face communications, questions and answers, and discussions of the latest developments. Informal discussions are useful for exchanging viewpoints on ideas that have not developed enough to be published. And they allow you to seek advice from peer experts on difficult problems.

The United Kingdom and the United States hold annual conferences on problem-oriented policing. There are also a host of other police conferences around the globe where you can present new information on problem solving.

Finally, you should also consider conferences of other professions, particularly if you have been working with partners from other fields. The principal drawbacks to conferences are the limited time available to present material, the lack of detailed permanent records of conference proceedings and the relatively small numbers of people who attend. But attendees can spread information to those not present.

A comprehensive communications strategy should include the following:

1. For people interested in the details, a technical report downloadable through an easily used website.
2. For a large audience of general interest, one or more short articles in professional or popular periodicals, with references to the website.
3. For professional colleagues and academics, a longer article in a professional journal.
4. For a small but influential group of professional colleagues, at least one presentation at a professional conference.

Additionally, it is helpful to send copies of articles to people who are interested in the topic you are investigating. This not only communicates your ideas, but also allows you to solicit advice as to how to communicate your ideas to others. Professionals are particularly interested in:

1. Discoveries of new or changing problems.
2. Advances in analytical techniques that can answer new questions, or answer old questions more precisely and with less error.
3. New responses to problems or new applications of old responses.
4. Evidence about the effectiveness, lack of effectiveness or side effects of responses.

Each of these topics can be written as a case study of your particular problem. The basic outline for a useful case study covers four points:

1. Dissatisfaction with the old situation – why the standard understanding or practice is insufficient in particular circumstances.
2. Search for alternatives – how a new understanding or practice was discovered.
3. Evidence supporting alternatives – comparison of old and new approaches.
4. Conclusions and implications – summary of what people should consider, given this new information.

Notice that this outline follows the SARA process. Scanning reveals dissatisfaction with a particular circumstance. Analysis is a search for a new understanding of the problem. Response

requires a systematic comparison of alternative approaches and the selection of a particular new approach. And assessment summarises what one has learned from the experience.

The table shows how this outline can be applied to each of the four case study topics. These types of case studies can be combined, as circumstances require. A new technique for problem analysis might reveal a new type of problem, for example. In such a circumstance, the first two types of case study can be combined. Similarly, a description of a new response to a problem might include evaluation information, thus combining the last two types of case study. Other combinations are possible.

Four types of case study				
Outline	1. New problem	2. New analytical technique	3. New response	4. New evidence on effectiveness
I. Dissatisfaction	Discovery of an anomalous situation.	Why old technique is limited.	Why old response is limited.	Uncertainty of effectiveness of response under particular circumstances.
II. Search	Exploration of what is different.	How the new technique was discovered.	How the new response was discovered.	Difficulties in evaluating response in these circumstances.
III. Evidence	Comparison of old problem to new problem.	Systematic comparison of old technique and new based on objective criteria.	Systematic comparison of old response to new based on objective criteria.	Evaluation methods used and their results.
IV. Conclusions	What this implies for problem solving.	Circumstances where new technique is particularly helpful.	Circumstances where new response is particularly helpful.	Circumstances where response should be used and expected results.

Term and definition	Step
<b>3-D mapping</b> High-definition mapping that portrays locations within buildings.	22
<b>80–20 rule</b> The principle that a few people or places are involved in a large proportion of events.	19, 20, 26, 27, 28, 49
<b>Activity space</b> The nodes and routes routinely used by an offender during his/her daily activity ( <i>see</i> Crime pattern theory).	17
<b>Acute problems or hot spots</b> Problems or hot spots that suddenly appear (i.e. have not been present for a long time, not chronic) ( <i>see</i> Chronic problems or hotspots).	15, 21
<b>Acute temporal clustering</b> A very high concentration of crime in a small part of the 24-hour cycle.	23
<b>Adaptation</b> Long-term changes in offender population behaviours in response to crime prevention.	12, 40
<b>Analysis</b> The second stage in the SARA process involving systematic examination of the problem to identify possible causes that might be susceptible to responses.	1, 5, 6, 7, 8, 9, 17, 19, 20, 21, 31, 32, 38, 40, 46, 49, 55
<b>Anticipatory benefits</b> Benefits from crime prevention that begin prior to initiation of crime prevention treatment.	12, 46
<b>Anticipatory benefits, pseudo</b> The appearance of anticipatory benefits caused by smoothing data (i.e. the use of a moving average).	46
<b>Aoristic analysis</b> A statistical method for determining the 24-hour rhythm of crimes when the exact time of crime commission is unknown.	23
<b>Assessment</b> The fourth stage in the SARA process involving evaluating the effectiveness of the response.	1, 2, 5, 8, 22, 25, 32, 40, 47, 49, 50, 55
<b>Attractors, Crime</b> Areas of criminal opportunities well known to offenders.	18, 26
<b>Behaviours</b> One of two criteria for classifying problems describing aspects of harm, intent and offender–target relationships ( <i>see</i> Environments).	16, 49
<b>Benefit-cost</b> The ratio of benefits to costs or benefits minus costs.	8, 48
<b>Benefits</b> The value of crime prevented and of positive side effects of prevention.	8, 28, 35, 38, 39, 45, 46, 48
<b>Boost accounts</b> An explanation for repeat victimisation that suggests that the rewards to the offender for the first crime encourage the offender to repeat the offence against the same victim or to tell other offenders who then attack the same victim ( <i>see</i> Flag accounts).	27
<b>Broad-spectrum treatments</b> Crime prevention measures that are effective against a wide variety of methods for committing a type of crime.	43
<b>Broken windows policing</b>	6, 36
<b>Buffer zone</b> Area around a facility, hot spot or treatment area used to account for diffusion or displacement ( <i>see</i> Diffusion/Displacement area).	17, 45
<b>CHEERS</b> Acronym for elements defining a problem: Community, Harm, Expectation, Events, Recurring and Similarity.	15, 16



Term and definition	Step
<b>Chronic problems or hot spots</b> Problems or hot spots that persist for a long time ( <i>see</i> Acute problems or hotspots).	15, 21
<b>Community policing</b>	5, 6
<b>Content</b> The substantive information in a table or figure.	51, 52
<b>Control area</b> A geographical area not receiving treatment but compared to a treatment area ( <i>see</i> Control group).	41, 42, 43, 45
<b>Control group</b> A group of people or an area that is similar to the treatment group or area, but does not receive treatment. Used in evaluations to control for the impact of other, non-treatment, influences on crime ( <i>see</i> Controls (for analysis)).	41, 42, 43, 45
<b>Controls (for analysis)</b> Statistical and evaluation design procedures to isolate the effect of one factor on some outcome from that of others. A group of people or areas not getting a response that are compared to those receiving the response to show what would have happened to the response group, if the response group had not received the intervention ( <i>see</i> Control Group).	41, 42, 43, 45
<b>Controls (on offenders)</b> People and situations that reduce potential offenders' willingness or capabilities to commit crimes.	7, 10, 16, 18, 20, 26, 33, 35, 36, 37, 42
<b>Conventional policing</b> Policing that relies primarily on the use of patrolling, rapid response and follow-up investigations to prevent crime.	4
<b>Cost effectiveness</b> The ratio of response costs to crimes prevented. It is a measure of the cost of preventing a single average crime.	15, 48
<b>Costs</b> Expenses or hardships associated with criminal events or prevention measures.	8, 13, 15, 32, 38, 39, 47, 48
<b>Costs, fixed</b> Costs that cannot be changed for long periods.	48
<b>Costs, response</b> Costs of the intervention to prevent crime.	48
<b>Costs, variable</b> Costs that can be changed in a short time period.	48
<b>CPTED</b> <i>See</i> Crime Prevention Through Environmental Design.	
<b>CRAVED</b> An acronym describing the characteristics of items most likely to be stolen and standing for Concealable, Removable, Available, Valuable, Enjoyable and Disposable.	26, 29
<b>Crime pattern theory</b> A theory of how offenders' normal routines create crime patterns.	17
<b>Crime Prevention Through Environmental Design</b> A set of principles for designing and laying-out secure buildings and public spaces.	22
<b>Crime reduction partnerships</b>	6
<b>Crime triangle</b>	9, 17, 49, 53
<b>Crime-neutral areas</b> Areas attracting neither offenders nor targets, with adequate controls on behaviours.	18

## Glossary and index

Term and definition	Step
<b>Cycles</b> Regular fluctuations in crime that correspond to daily, weekly, monthly, annual or longer changes in human activity.	23, 24, 41, 44
<b>Decomposing a time series</b> Breaking down a problem into parts and plotting the time series for each part.	23
<b>Defiance</b> Offenders challenge the legitimacy of prevention efforts and commit more offences rather than fewer.	12
<b>Den (of iniquity) problems</b> Problem characterised by substantial involvement of repeat places ( <i>see</i> Crime triangle, Place). Occurs when new potential offenders and new potential targets encounter each other in a place where management is weak.	9, 16, 19
<b>Deterrence, General</b> Communicating a public perception that the risks and penalties of offending are high, so anyone considering such behaviour will refrain.	4
<b>Deterrence, Specific</b> Communicating a perception of high risk and penalty to specific individuals so they will refrain from committing crimes.	4
<b>Diffused temporal clustering</b> A relatively even, or random, spread of crime throughout 24-hour cycles.	23
<b>Diffusion contamination</b> Occurs when diffusion of benefits influences the control group or area during an evaluation. Leads to undervaluing the treatment ( <i>see</i> Displacement contamination).	43, 45
<b>Diffusion of benefits</b> Reducing crime beyond the focus of the prevention scheme; a multiplier of effectiveness.	12, 14, 32, 42, 43, 45, 49
<b>Diffusion of benefits, crime type</b> Additional crime types blocked.	12
<b>Diffusion of benefits, geographical</b> Additional prevention over space.	12, 42, 43, 45, 49
<b>Diffusion of benefits, tactical</b> Additional methods thwarted.	12
<b>Diffusion of benefits, target</b> Additional targets protected.	12
<b>Diffusion of benefits, temporal</b> Additional prevention over time.	12
<b>Diffusion/Displacement area</b> Areas used to detect diffusion of benefits and displacement that are separate from control group and treatment group.	45
<b>Displacement</b> Offenders changing their behaviour to thwart preventive actions.	1, 5, 12, 13, 14, 27, 32, 34, 40, 42, 43, 44, 45, 49, 50
<b>Displacement contamination</b> Occurs when crime is displaced into the control group or area during an evaluation. Leads to inflation of effectiveness ( <i>see</i> Diffusion contamination).	42, 43
<b>Displacement countermeasures</b> Prevention implemented to prevent expected displacement.	42, 43
<b>Displacement, crime type</b> Offenders change type of crime.	12, 13, 43
<b>Displacement, geographical</b> Offenders move spatially.	12, 13, 27, 40, 42, 43, 45
<b>Displacement, tactical</b> Offenders switch method for committing crime.	12, 13, 43, 44
<b>Displacement, target</b> Offenders switch type of target or victim.	12, 13, 43

Term and definition	Step
<b>Displacement, temporal</b> Offenders switch time or day.	12, 13, 42, 43
<b>Distribution</b> A description of the numerical variation in the magnitude of a problem.	23, 47
<b>Distribution, binomial</b> A distribution used for crime count data.	47
<b>Distribution, normal</b> A bell-shaped distribution used for continuous data.	47
<b>Distribution, Poisson</b> A distribution used for discrete data where one of the outcomes is rare.	47
<b>Duck (sitting) problems</b> Problems characterised by substantial involvement of repeat victims ( <i>see</i> Crime triangle). Occurs when victims continually interact with potential offenders at different places, but the victims do not increase their precautionary measures and their guardians are either absent or ineffective.	9, 16, 19
<b>Edges</b> Boundaries between areas where people live, work, shop or seek entertainment.	17
<b>Enablers, Crime</b> Places with little regulation of behaviour.	18, 25, 26
<b>Environments</b> A criterion for classifying problems describing where the problem takes place ( <i>see</i> Behaviours).	16, 23, 26, 30
<b>Facilitators</b> Physical items, social situations or chemical substances that help offenders commit crimes or acts of disorder.	30
<b>Facilitators, chemical</b> Substances that increase offenders' abilities to ignore risk, reward or excuses.	30
<b>Facilitators, physical</b> Things that augment offenders' capabilities, help overcome prevention measures or incite deviancy.	30
<b>Facilitators, social</b> Situations that provide support that stimulates crime or disorder by enhancing rewards from crime, by legitimating excuses to offend or by encouraging offending.	30
<b>Facilities</b> Places that have special functions, like schools, businesses and restaurants.	6, 21, 23, 26, 27, 28, 30, 32, 33, 36, 37, 38, 50
<b>Facilities, risky</b> Facilities that are frequent sites for crime and disorder.	26, 27, 29, 30, 38
<b>Flag accounts</b> An explanation for repeat victimisation that suggests that some people are particularly vulnerable because of their occupation or their ownership of hot products ( <i>see</i> Boost accounts).	27
<b>Focused temporal clustering</b> Clustering of crime in distinct time ranges during 24-hour periods.	23
<b>Generators, crime</b> Areas to which large numbers of people are attracted for reasons unrelated to criminal motivation.	18
<b>Gross Effect</b> Crime in the response area before the treatment, minus crime in the response area after the treatment. A positive result indicates a crime reduction ( <i>see also</i> Net Effect, Weighted Displacement Quotient, and Total Net Effect).	45
<b>Handler</b> Someone who knows an offender well and who is in a position to exert some control over his or her actions.	9, 23, 53

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Term and definition	Step
<b>Hot areas</b> Hot spots showing neighbourhoods where crime is concentrated.	21
<b>Hot dots</b> Hot spots showing locations with high crime levels.	21
<b>Hot lines</b> Hot spots showing street segments where crime is concentrated.	21
<b>Hot products</b> Things that are particularly attractive as targets ( <i>see</i> CRAVED).	19, 26, 29
<b>Hot spots</b> Geographic concentrations of crime.	1, 4, 9, 17, 18, 21, 23, 29, 42, 49, 50
<b>Hypothesis</b> An answer to a question about a problem that can be true or false, and may or may not be supported by evidence.	20, 25, 44
<b>Impact evaluation</b> A research study to determine if the response changed the problem.	40
<b>Incapacitation</b> Removing active offenders from society to prevent crimes that they would have committed if they were not locked up.	4
<b>Intervention</b> The response being applied to a problem (also called a treatment or response – <i>see</i> Response).	5, 8, 11, 12, 19, 25, 30, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 48
<b>Manager</b> A person who has some responsibility for controlling behaviour in a specific location.	6, 9, 22, 23, 28, 32, 34, 53
<b>Mechanism</b> The process by which a response works on a problem to have an effect, or a process that causes a problem.	18, 32, 39
<b>Moving average</b> A method for reducing random fluctuation in a time series by recomputing the value for every data point based on the average of preceding time periods ( <i>see</i> Smoothing).	23, 46
<b>National Intelligence Model</b>	1
<b>Net Effect</b> The change in crime in the response area relative to change in crime in the control area ( <i>see also</i> Gross Effect, Weighted Displacement Quotient, and Total Net Effect).	45
<b>Nodes</b> Destination places such as home, work, shopping, entertainment and school ( <i>see</i> Paths).	17
<b>Offender</b> A person who commits a crime or act of disorder.	1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 40, 42, 43, 44, 46, 49, 53
<b>Offenders, repeat</b> People who commit many crimes or acts of disorder ( <i>see</i> Wolf).	26, 28, 29
<b>Opportunity/opportunity structure</b> Physical and social arrangements that make crime possible.	10, 12, 13, 14, 38, 42, 44, 48
<b>Owner of a problem</b> People or institutions that are unwilling or unable to undertake prevention measures, thereby helping to create a problem.	38
<b>Packaging</b> The lines and labels used in tables and figures ( <i>see</i> Content). Small amounts are needed to help interpret content, but large amounts obscure content.	51, 52
<b>Paths</b> Routes connecting nodes.	17, 21

Term and definition	Step
<b>Perceptions, offenders'</b> How offenders view situations and prevention measures ( <i>see also</i> Deterrence, specific).	4, 12, 28, 37, 46
<b>Place</b> A very small area, such as an address, street corner, or block face ( <i>see</i> Crime triangle, Den).	5, 9, 12, 16, 17, 18, 19, 21, 23, 26, 28, 32, 33, 34, 37, 38, 42, 47, 49, 50, 53
<b>POP</b> See Problem-oriented Policing.	
<b>Problem analysis triangle</b> See Crime triangle.	
<b>Problem-oriented Policing</b> Policing that changes the conditions that gives rise to recurring crime problems and does not simply rely on responding to incidents as they occur or forestalling them through preventive patrols.	1, 2, 4, 5, 6, 8, 13
<b>Process evaluation</b> Assessing how a response was implemented.	8, 40, 41
<b>Provocations</b> Physical designs or the way places are managed that provoke misconduct.	26, 30, 32, 36
<b>p-value</b> The probability that the difference between two sets of statistics is due to randomness ( <i>see</i> Significance test).	47
<b>Random fluctuations</b> Short-term changes in problems caused by a large number of very small effects.	23, 46, 47
<b>Rates, crime</b> The ratio of crimes to targets for an area. Used to control for differences in the number of targets ( <i>see</i> Risk, crime).	18, 20, 21, 25, 26, 41, 45, 52
<b>Regression to the mean</b> The tendency for abnormal high or low levels of crime to move back to their normal levels.	41, 46
<b>Response</b> The third stage in the SARA process involving the development and implementation of an intervention designed to reduce a problem. Also a term for the preventive treatment or intervention being applied ( <i>see</i> Intervention or Treatment).	1, 5, 6, 8, 9, 11, 15, 18, 20, 21, 24, 31, 32, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 53, 55
<b>Response area</b> <i>See</i> Response group.	41, 45
<b>Response group</b> People or places receiving prevention in contrast to control group.	41
<b>Risk, crime</b> The chance a target will be involved in a crime.	5, 7, 17, 18, 21, 23, 24, 25, 26, 27, 29, 35, 50
<b>SARA</b> An acronym for the problem-solving process ( <i>see</i> Scanning, Analysis, Response and Assessment).	1, 5, 6, 8, 49, 55
<b>Scanning</b> The first stage in the SARA process involving problem identification, verification and classification.	1, 2, 5, 8, 15, 17, 19, 32, 49, 50, 55
<b>Self-containment index</b> Proportion of crimes in an area committed by offenders living in an area.	26
<b>Significance level</b> A threshold below which one rejects the possibility that the difference between two sets of statistics is due to randomness. Often 0.05 (or 5%) is the rejection threshold ( <i>see</i> Significance test).	47
<b>Significance test</b> A statistical procedure used to determine whether the difference between two groups of numbers is due to randomness.	47

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Term and definition	Step
<b>Situational Crime Prevention</b> The science of reducing opportunities for crime. A set of 25 techniques divided among five categories: increase offenders' efforts, increase offenders' risks, reduce offenders' rewards, reduce provocations to offend and reduce excuses for offending.	1, 2, 14, 30, 32, 33, 34, 35, 36, 37
<b>Smoothing</b> Removing random fluctuations from a time series by using a moving average ( <i>see</i> Moving average).	23, 46
<b>Target</b> The person or thing an offender attacks, takes or harms ( <i>see</i> Victim).	3, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24, 25, 26, 27, 28, 29, 32, 33, 37, 38, 41, 42, 43, 49, 53
<b>Target area</b> An area with many potential targets (e.g. a car park for a car thief).	17
<b>Temporal clustering</b> Concentration of crime over 24 hours ( <i>see</i> Acute, Diffused and Focused temporal clustering).	23
<b>Time-window effect</b> The underestimation of repeat victimisation due to using a set time period.	27
<b>TNE</b> <i>See</i> Total Net Effect.	
<b>Total Net Effect</b> A formula for measuring the full impact of a response on a treatment area and diffusion/displacement area, while accounting for changes in a control area ( <i>see also</i> Gross Effect, Net Effect and Weighted Displacement Quotient).	45
<b>Treatment</b> <i>See</i> Response or Intervention.	42, 43, 45
<b>Treatment area</b> An area receiving a response ( <i>see</i> Response group).	42, 45
<b>Treatment group</b> <i>See</i> Response group.	43, 45
<b>Trend</b> A steady increase, decrease or stable level of crime over some period of time.	10, 20, 23, 41, 43, 46, 49, 52
<b>Victim</b> A human target or the owner of stolen goods or damaged property ( <i>see</i> Target).	2, 3, 4, 5, 7, 9, 11, 15, 16, 17, 19, 21, 23, 25, 26, 27, 28, 29, 30, 31, 32, 38, 41, 42, 48, 49, 50
<b>Victim, repeat</b> A person or place with multiple crimes or acts of disorder ( <i>see</i> Duck).	9, 21, 23, 24, 26, 27, 29, 40
<b>Victimisation, repeat</b> The process leading to repeat victims.	9, 21, 24, 26, 27, 28, 32, 35, 40
<b>Virtual repeats</b> Victimisation of targets that are very similar, though not identical (as in the case of repeat victims or places).	27
<b>WDQ</b> <i>See</i> Weighted Displacement Quotient.	
<b>Weighted Displacement Quotient</b> A formula for measuring the effects of diffusion of benefits and displacement ( <i>see also</i> Gross Effect, Net Effect and Total Net Effect).	45
<b>Wolf (ravenous) problems</b> Problems characterised by substantial involvement of repeat offenders ( <i>see</i> Crime triangle). Occurs when offenders are able to locate temporarily vulnerable targets and places.	9, 16, 19