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CRISP REPORT

Connecting Research in Security to Practice

Preventing Burglary in Commercial and Institutional Settings:

A Place Management and Partnerships Approach

Tim Prenzler, PhD

ABOUT THE CRISP SERIES OF REPORTS

Connecting Research in Security to Practice (CRISP) reports provide insights into how different types of security issues can be effectively tackled. Drawing on research and evidence from around the world, each report summarizes the prevailing knowledge about a specific aspect of security, and then recommends proven approaches to counter the threat. Connecting scientific research with existing security actions helps form good practices.

Reports are written to appeal to security practitioners in different types of organizations and at different levels. Readers will inevitably adapt what is presented to meet their own requirements. They will also consider how they can integrate the recommended actions with existing or planned programs in their organizations.

In this report Tim Prenzler, PhD, looks at how to assess, manage, and respond to burglaries that occur at commercial and industrial sites. While there is a considerable amount written about domestic burglary, research is less in evidence when the locale is non-residential. His report looks at the context in which burglaries occur, and includes a consideration of the burglar's approach. He examines a range of solutions, which aim to make it more difficult for would be offenders particularly in the workplace, and he shows where security managers can have an impact. Drawing together a range of data, he looks at approaches from different levels, from the police, the government, and from those closer to the offence, the "place managers." Those charged with preventing burglary at commercial and institutional settings now have a source of information, which connects research to practice to guide them in their prevention strategies.

CRISP reports are sister publications to those produced by Community Oriented Policing Services (COPS) of the U.S. Department of Justice, which can be accessed at *www.cops.usdoj.gov.* While that series focuses on policing, this one focuses on security.

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Executive Summary

This CRISP report is concerned with the prevention of burglary in what is often referred to as "non-residential" locations. There is a large amount of scientific literature on burglary related to homes, but less on burglary in settings such as retail outlets, offices, factories, leisure centres, and storage facilities; as well as institutions such as schools, childcare centres, clubs, places of worship, and hospitals.

Burglary accounts for a significant component of all crime. Its effects can range from irritating to devastating, both personally and financially. Despite evidence that burglary rates declined in many countries in the past decade, the prevalence of burglary remains high, and in any one year burglary can affect as many as one-third of non-residential premises in many jurisdictions. Non-residential burglary can pose a direct threat to the incomes of victims and the functional viability of organizations. Once a burglary has occurred there is little chance of catching the offenders or recovering stolen property. Most organizations are also under-insured.

Research shows that large reductions can be achieved in burglary incidents and losses through interventions that are often simple and cost-effective. Nonetheless, a large proportion of the owners and managers of facilities are reluctant to invest in security. Within most business and institutional settings there is considerable scope for the application of improved security management practices. Burglary prevention should be integrated within a wider "place management" approach to facilities management. This involves assigning clear responsibilities for the systematic improvement of all aspects of the functioning, amenity, and security of a location. Burglary is also a crime that can be successfully tackled through public-private partnerships, involving the private or community sectors, police, and government.

Dimensions of Burglary

Defining Burglary

"Burglary" is a catch-all term that relates to a variety of criminal code offences often termed "break, enter, and steal," "break and enter," "unlawful entry with intent," or "stealing from a dwelling" (Crime and Misconduct Commission, 2009, p. 33). Burglary can include entry into a building for the purposes of stealing without forced entry, including by false pretences (Mawby, 2006, p. 281). An attempted but unsuccessful burglary is usually counted as burglary and often involves property damage. Burglary can also be a prelude to a variety of other crimes, including assaults and arson.

The Extent of the Burglary Problem

Most countries experienced significant increases in burglary, along with many other crimes, from the 1960s to the 1980s. Burglary is also one of many crimes that have been falling in most countries, on a per capita basis, since the 1990s. Nonetheless, it remains a problem worldwide. According to the International Crime Victim Survey (ICVS), across the period 1996 to 2005, household burglary rates around the world averaged 4.0% per year. The highest rates were in Africa, 8.1%, and Latin America, 5.4%, and the lowest rates were in Asia, 2.4%, and North America 1.9% (Van Dijk, 2008, p. 345). These percentage figures disguise the sheer numbers of offences. For example, in the United States, police recorded 1,924,025 burglaries in 2008. Where the type of location could be identified, 1,353,258 were in residences and 570,767 were in non-residential locations (US DoJ, 2009, Table 23). In England and Wales in 2007-2008, police recorded 280,704 domestic burglaries and 302,995 non-domestic burglaries (Taylor & Patterson, 2008, p. 91).

Although residential burglaries often outnumber non-residential burglaries, businesses usually suffer higher rates of victimization. The first International Crimes against Business Survey (ICBS) conducted in 1994, found that retail premises experienced overall burglary rates, including attempted burglary, ten times those of households (Van Dijk, 1997, p. 115). The average was 30.7% (p. 116). The most recent ICBS, conducted in 2000 in nine central-eastern European cities, found that burglary was among the most frequent offences—suffered by 9% of businesses in the previous year alongside theft from customers at 9%, behind fraud by employees at 12%, theft by outsiders at 13%, and fraud by outsiders at 26% (Alvazzi del Frate, 2004, pp. 144-147). A recent British Chambers of Commerce (2008) survey found that 58% of businesses had experienced one or more incidents of crime in the previous year. The total estimated cost to business was £12.6 billion. Burglary was the third most common crime, 19%, after damage to vehicles 24%, and vandalism and graffiti 20%, and above the fourth most common crime of attempted burglary 12%.

Very little research exists on burglary rates in premises that are non-residential and non-commercial. Some sources suggest that sporting facilities, places of worship, and community use facilities—places that are not likely to contain very many attractive targets—experience rates similar to those for domestic burglary. Schools and health care facilities are likely to have higher rates, but below those experienced by businesses (Bowers, Hirschfield & Johnston, 1998, p. 437). There are exceptions to this pattern. For example, a study in Sweden found that 90% of schools had experienced at least one burglary in the preceding year (Lindstrom, 1997). Burglary is frequently the most common crime experienced by schools, and is often associated with arson and vandalism (Hope, 1982; Lindstrom, 1997). A recent study in the United States identified a total of 28,328 offences of burglary in American schools in a five year period from 2000-2004, along with 4,014 incidents of arson and 106,281 incidents of property damage (Noonan & Vavra, 2007, p. 22).

Non-residential burglars, like residential burglars, tend to prefer to steal light-weight high-value goods, such as compact electronic goods, DVDs and CDs, cigarettes, alcohol, clothing, and cash (Clarke, 2002, p. 7; Fedorowycz, 2002). However, non-residential burglars are more likely to steal these in much larger quantities. Surveys show that the majority of non-residential burglaries are usually reported to police, but recovery rates for stolen items are typically less than 10% (Coupe and Griffiths, 1996).

Repeat Victimization

Burglary in commercial and institutional settings is characterized by the phenomenon of repeat victimization. For example, research in the 1990s for the Leicester Small Business and Crime Initiative found that 17% of burgled businesses accounted for 69% of all incidents (Tilley & Hopkins, 1998, p. 4). A study in Merseyside found that 3.4% of non-residential premises were victimized two or more times in a year compared to 0.2% of households (Bowers, Hirschfield & Johnson, 1998, p. 439). The study noted some particularly dramatic cases of repeat victimization: 43 schools were subject to eight or more burglaries in one year, and 57 retail/manufacturing facilities were subject to four or more (pp. 438-439).

Repeat victimization occurs in part because a successful burglary will motivate offenders to return to the same premise within a short time. The Merseyside study found that 43% of repeat burglaries in non-residential locations occurred within one month of the preceding event (Bowers, et al., 1998, p. 440).

Modus Operandi

Forcing a door or window is the most common entry technique used by burglars (Mawby, 2006, p. 281). This applies equally to domestic and commercial burglary, although a significant proportion of burglaries occur without signs of forcible entry. Burglars can enter premises undetected when someone is present. One version of the distraction or subterfuge technique involves thieves acting the part of service staff and gaining entry to hotel rooms and other locations (Mawby, 2006, pp. 281-282). The 2002 British Commercial Victimization Survey (Shury, et al., 2005, p. 28) found that burglars were most likely to enter manufacturing premises through a wooden or glass door, 33%, through a window, 24%, or through a metal door or roller shutter, 15%. To get in through doors, they mostly forced or broke the lock, 56%, with a smaller proportion, 13%, removing or breaking door panels or the area surrounding the door...One in five, 22%, admitted the burglar had access through an unlocked door. One in ten, 11%, burglaries had no signs of forced entry.

Professional burglars and organized property crime gangs often take a sophisticated approach to their work. They will conduct surveillance on premises and try to obtain inside information from employees. They will also organise disposal routes and avoid detection by communicating via pre-paid mobile phones. Some will "steal to order" from distributors or purchasers, and some will include a skilled operative in security system deactivation (Crime and Misconduct Commission, 2009). Warehouses and distribution centres are prime targets for these groups, who use vans to remove large quantities of stolen goods.

Impacts

A successful burglary can cause varying degrees of disruption to the operations of large businesses, as well as embarrassment or lost customers if orders cannot be supplied. Burglary also represents a direct threat to the viability of smaller businesses:

> A burglary can interrupt a business quite severely, lead to workers being laid off, or in severe cases lead to a business collapsing—a small, supply based business can easily be destroyed if its records are stolen or damaged … or if important and not easily replaced tools are taken (Johnston, et al., 1994, p. 10).

The dollar loss is also increased by clean up and repair costs and gaps in insurance coverage. The 2008 U.S. National Retail Security Survey found that each burglary cost an average of $5,209 (Hollinger & Adams, 2009, p. 32).

Burglary often produces pronounced adverse psychological effects. This appears to be much the same for non-residential burglary as for residential burglary (Johnston, et al., 1994). Victims feel their personal space has been violated. Night workers, such as cleaners, may be particularly concerned about their safety. Victims are often disheartened when the target of a successful burglary is a club or charity supported by volunteers. The possibility of burglary adds to the general economic concerns faced by businesses operating in a competitive environment (Mawby, 2004).

"The 2008 U.S. National Retail Security Survey found that each burglary cost an average of $5,209."

Factors Influencing Burglary

Area Characteristics

From a social perspective it is well known that both residential and non-residential burglary rates tend to be higher in low-income areas of cities with poor facilities, low social cohesion, transitory residents, urban blight, and higher overall crime rates (Bowers, et al., 1998; Shury, et al. 2005, p. 28). However, burglary can occur across all types of areas and affluent areas are often particularly attractive to skilled professional burglars. Wealthier suburbs and industrial areas that are accessible to offenders from poorer areas can also experience higher rates of burglary.

Burglars

Burglars appear to be much the same in all countries: 80% or more are young males, aged 15-25, often with a record of school failure, poor parenting, and substance abuse (Smith, Devine & Sheley, 1992; Britt, 1994). They tend to be unemployed, unskilled, and leisure oriented, with weak bonds to conventional society and little or no empathy for victims. Most are introduced to burglary by peers. The thrill factor is not particularly significant. Motivations are related more to pressure to obtain money quickly for drugs, alcohol, and conspicuous consumption (Forrester, Chatterton & Pease, 1988; Wright & Decker, 1994). While economic need is a driving force, most offenders are opportunists easily deterred by difficulties with access and the chance of being identified. A small group tends to be highly prolific. One study found that in some areas around 20% of offenders could be responsible for up to 75% of offences (Salmelainen, 1995, p. 24). Only a very small number of burglars are likely to be skilled professionals operating in gangs, but these groups can be responsible for significant losses to businesses (Crime and Misconduct Commission, 2009, p. 22).

Opportunity Factors and Guardianship

Even the most powerful motives for burglary, such as drug addiction, can be neutralized by lack of opportunity. In recent decades increasing attention has been given to the characteristics of targets for crimes such as burglary, especially with a view to identifying opportunity factors that might be altered to improve prevention. One of the best frameworks for understanding burglary is provided by Cohen and Felson's famous crime formula (1979, p. 589):

Structural changes in routine activity patterns can influence crime rates by affecting the convergence in space and time of the three minimal elements …

1. Motivated offenders,
2. Suitable targets, and
3. The absence of capable guardians against a violation.

In the post World War II period, economic and social changes produced conditions highly conducive to volume crimes such as burglary. Rapid industrialization put an increasing number of light-weight, high-value goods into stores and homes and these became prime targets for thieves. Access to cars increased offender mobility and the ability to transport larger stolen items. The increase in suitable targets was accompanied by large declines in guardianship. As couples had fewer children, women entered the workforce in greater numbers, and elderly people settled in retirement homes, there were more homes unguarded for longer periods. There was also a shift in residential patterns away from co-location with factories and retail outlets. Empty suburbs during the day, and empty commercial and industrial districts at night, presented a smorgasbord of burglary opportunities.

The characteristics of burgled premises are particularly important for understanding variation in victimization rates. Homes with small numbers of residents and residents who go out a lot suffer higher burglary rates. Studies of burglars and burglaries confirm the following factors related to opportunity and guardianship (Clare, Fernandez & Morgan, 2009; Cromwell, Olsen and Avary 1991; Hakim & Shachmurove, 1996b; Shury, et al., 2005):

- Around 75% of incidents occur when premises are unoccupied.
- Burglaries are more prolific the closer they are to access points such as freeway exits or train stations.
- More isolated commercial and industrial areas frequently report the highest levels of victimization.
- Larger retail and manufacturing firms are also more likely to be victimized.
- Businesses that sell readily portable goods are more likely to be victimized.
- Older premises (operating before the mid-1990s) with poorer security are more likely to be burgled.

Burglary Prevention

Risky Facilities and Place Management

The phenomenon of repeat victimization of businesses, schools, clubs, and other locations has led researchers to coin the term "risky facilities". In developing this concept, Eck, Clarke and Guerette (2007) refer to cases such as motel crimes in Chula Vista, California, where 19% of local motels were responsible for 51% of calls to police; and shoplifting in Danvers, Connecticut, where 20% of stores were responsible for 85% of incidents. The researchers focused on the concept of place management as a major explanation for this phenomenon. Place managers can be responsible, often unconsciously, for management practices that are "crime enablers":

> The concentration of crime at a few facilities can seldom be dismissed as a random fluke or 'just a lot of targets' or active offenders… Comparing the way similar facilities with different crime levels are managed can test crime enabling. If compared to low crime facilities, the high crime locations have fewer rules, lax enforcement, easy access, poor security, and other features that help offenders detect targets, commit crimes, and get away… If the high crime facilities have many targets or more highly desirable targets (either hot products or repeat victims) compared to low crime facilities, but managers do little to enhance target protection, this also suggests place management is at the heart of the problem (Eck, et al., 2007, p. 240).

There is a growing body of scientific research showing that burglary rates can be reduced by targeted interventions, including risky facilities. The following sections review these findings under the headings of social prevention, criminal justice, and situational prevention.

Social Prevention

Social or community-based prevention programs are directed at changing the motivations of potential offenders. Reductions in offending and re-offending have been achieved from carefully designed programs that address the economic and social needs of at-risk persons (e.g., Farrington, 1996). For example, a project in Merseyside, beginning in the late-1980s, diverted drug addicted offenders into a methadone program. Interviews with participants indicated a 50% reduction in the number engaged in crime, contributing to a substantial reduction in burglaries—including a reduction in non-residential burglary of approximately one-third—at a time of rapidly increasing crime in nearby areas (Parker & Kirby, 1996).

Early childhood intervention programs have also been shown to reduce crime (Farrington & Welsh, 2007). These programs include parent training, conflict resolution training, and extra-curricular teaching support aimed at improving school participation. In the case of the famous

High/Scope Perry Preschool Project in Ypsilanti, Michigan, by age 27, 14% of the intervention group had arrests for property crime compared to 26% for the control group. It was estimated that for every dollar spent 17 dollars were saved down the road—mostly from reduced criminal victimization (Schweinhart, et. al., 2005, pp. 131 & 197).

Criminal Justice

Criminal justice systems are designed to stop crime by general deterrence (fear of being punished), specific deterrence (offenders' fear of being punished again), and by incapacitating offenders through incarceration. Many respondents to business crime surveys see faster police response times and tougher sentences as the best ways to reduce crime (Federation of Small Business, 2008, p. 16). However, this approach has proven largely ineffective. Most burglars do not think they will be caught, and they are largely correct in their calculations, as police clearance rates for burglary are typically only 10% (Taylor & Patterson, 2008, p. 9). Burglars leave little trace evidence behind, so that forensic innovations, such as DNA databases, appear to produce a negligible impact on property crimes (Briody & Prenzler, 2005). A recent large-scale experiment in the United States found that collecting DNA at property crime scenes doubled the arrest rate from 8% to 16% of cases but the impact on offences was not calculated (Roman, et al., 2008).

Burglary is also one of many offences where police cannot respond to a report in time to stop the crime or catch the offenders. Research on this topic has led to the conclusion that

> The speed of police response to calls for assistance (1) does not affect arrest rates (the ratio of arrests to crimes reported), (2) is not crucial in satisfying the public, and (3) rarely prevents further injury or damage (Bayley, 1998, p. 52).

There are some benefits to be gained from a more strategic approach to policing property crime. Bayley (1998, p. 53) emphasizes how outcomes can be improved by increasing the rapidity at which police are notified of a crime in progress, and through a "graded response" system that prioritizes calls where a rapid response might lead to the capture of offenders or prevention of further harm or losses. The potential benefits of this approach have been demonstrated in relation to a number of offence types, including ATM ram raids (Prenzler, 2009). Increased police patrols around crime hot spots have been shown to

reduce burglaries of business premises, although the level of increased patrol required is expensive and possibly not cost-effective (Johnson, et al., 2007).

Targeting prolific offenders. Police can also contribute to burglary prevention by targeting prolific offenders. This can be done by profiling techniques that match offence characteristics to the modus operandi of known offenders. In an anti-burglary project in the UK's Boggart Hill neighborhood, a focused effort resulted in the arrest of 14 highly prolific offenders in an initial crackdown period. In a traditional policing model, 'the response to the burglary problem would have ended there' (Farrell, Chenery & Pease, 1998, p. 7). However, the project included an innovative consolidation phase, in which quality door and window locks and sturdy frames were installed in victimized homes. The combined strategies produced a 60% reduction in burglaries in the target area from an average 44.9 per month pre-project to 18.5 in the consolidation phase. There was also a 36% drop in burglaries in contiguous areas.

The management of repeat offenders through probation services is also important. In Oxford, England, the Intensive Recidivist Intervention Scheme (IRIS) combined economic and social support for convicted prolific offenders with very close surveillance and a tough arrest policy for reoffending. The 35 offenders selected for the first phase of the scheme had been convicted in the preceding two years of a total 702 offences, including 71 burglaries of a non-dwelling. Two years after commencing the program there was a decline of 73.6% in total convictions to 185, and an 84.5% reduction in convictions for non-dwelling burglaries to 11. Overall the scheme contributed to a 32.8% decline in acquisitive crime in Oxford and was estimated to have saved victims and the criminal justice system £1.3 million (Roberts, 2007).

Targeting receivers. Police can also target receivers of stolen goods. Regulatory efforts in this area have focused on licensing second hand dealers, requirements for proof of identity of suppliers, and recording item numbers. Research to-date suggests these strategies show more promise than real achievement but some improvements have been suggested through computerization, electronic recording of serial numbers, and tougher ID checks (Crime and Misconduct Commission, 2009). Police should also use criminal intelligence to target premises known for trading in stolen goods and use undercover officers to shut down ad hoc operations in pubs and other venues. In the United States, it is now estimated that about 18% of stolen property is sold on the Internet (Palmer & Richardson, 2009, p. 13). Police therefore also need to use online search devices to trawl Web sites for stolen goods, and work with service providers to better regulate the industry.

Property marking is a strategy closely related to targeting receivers. An intensive property marking scheme initiated by police amongst villages in South Wales showed significant success (Laycock, 1997). The first year of operation saw a 61% drop in offences amongst participating households, with no evidence of displacement and a further drop in offences the following year. Property marking is directly relevant to deterring non-residential burglary and recovering stolen property. There is now an array of high-tech marking and tracking devices available, including uniquely coded microdot systems and GPS asset tracking.

Crime data. More generally, police can initiate and coordinate crime prevention programs based on security advice and upgrades. Accurate information about burglaries–such as specific locations, time of offence, and method of entry—are vital to developing tailor-made interventions. As a rule, the more any crime is concentrated in terms of specific places, times, victims, or offenders the more amenable it is to effective intervention. Crime analysts in police departments need to collect and supply these data.

Situational Prevention

Situational Crime Prevention. Situational crime prevention refers to the introduction of measures designed to pre-empt offences in the physical environment in which crime occurs. It is closely aligned with the concept of crime prevention through environmental design (CPTED). Clarke and Eck (2003) describe 25 types of situational techniques. Fifteen of these are particularly relevant to burglary reduction

Table 1: Techniques of Situational Crime Prevention Related to Burglary

Increase the effort	Increase the risks	Reduce the rewards
1. Harden Targets Roller shutter	**6. Extend guardianship** Rent premises to community groups outside business hours	**11. Conceal targets** Store high value items in cupboards
2. Control access to facilities Alley gates	**7. Assist natural surveillance** Low shrubbery	**12. Remove targets** Frequent banking of cash
3. Screen exits Alarm escape points	**8. Reduce anonymity** Require staff wear ID	**13. Identify property** Microdot high value items
4. Deflect offenders Limit street access to premises	**9. Utilise place managers** Appoint managers with security responsibilities and expertise	**14. Disrupt markets** Regulate second hand stores
5. Control tools/weapons Clear building surrounds of implements for breaking and entering	**10. Strengthen formal surveillance** Link CCTV control room to on-site security patrols	**15. Deny benefits** Mark property

Table 1. Adapted from Clarke & Eck (2003).

and are listed in Table 1, grouped under three headings of increase the effort, increase the risks, and reduce the rewards, with one burglary-related example for each technique.

The effectiveness of situational prevention techniques has been demonstrated in a variety of case studies. One of the most famous anti-burglary initiatives, the Kirkholt Project in the UK, used security hardware upgrades on a housing estate to prevent repeat victimization (Forrester, et al., 1988). Within a few days of a burglary a crime prevention officer would conduct a security survey of the premises. Target hardening was paid for by the local council's housing department. The project included other elements, such as removal of coin operated fuel meters (target removal) and a specific form of Neighborhood Watch called Cocoon Watch (extending guardianship). Cocoon Watch entailed asking victims' immediate neighbors to make an extra effort to be aware of strangers in the area, and participating neighbors were given free security upgrades. The cocoon surveillance component was based in part on a finding that 70% of burglary entry points were visible to neighbors. The process was repeated for every victimized person during the running of the project. Average burglary rates were reduced by 75% from 44 per month before the project began to 11 per month in the third year after implementation, with no observable displacement. Multiple victimizations were reduced almost to zero. When savings from reduced burglaries were set against costs the project produced an estimated overall saving of £1.2 million (Forrester, Frenz, O'Connell & Pease, 1990, pp. 28, 4 & 44).

An important observation of the Kirkholt project team that has direct implications for non-residential security was that the effectiveness of each strategy was dependant on contextual factors (Forrester, et al., 1988, p. 15). For example, security levels needed to be consistent to aid general deterrence. Good window locks were found to be of little use if door locks were weak. Kirkholt was also a small, clearly bounded estate with limited access. Upgrading security in properties adjoining the victim's property helped to reduce displacement when repeat attacks against the original target were thwarted. The fact that security upgrades were free was also important.

Neighborhood Watch and Business Watch. The success of Kirkholt demonstrates why traditional Neighborhood Watch has shown limited success. It is highly reliant on adequate numbers of residents being at home for sufficient lengths of time to make surveillance work and this is usually not possible. Despite businesses being generally supportive of Business Watch, there is no real evidence at this stage for its effectiveness in reducing crime (Charlton & Taylor, 2005). This is most likely because most businesses are

unoccupied at the same times. Neighborhood Watch appears to work best in the form of "NW plus"—that is, Neighborhood Watch combined with other measures such as Cocoon Watch, property identification, and security upgrades (Bennett, Holloway & Farrington, 2009).

Crime prevention partnerships. A number of advisory or subsidized security enhancement schemes for business areas have shown positive results. In the Safer Merseyside Partnership, 178 businesses in a deprived area upgraded their security in some way, with 105 businesses participating directly in the program (Bowers, 2001). Participants received free security audits and advice, and selected premises were offered subsidized security. Some participants installed target hardening devices, such as window locks and roller shutters, and others installed better lighting. However, an evaluation found that many firms were reluctant to take advantage of the offer of subsidized security. In such cases, data on burglary risks should encourage participation in security schemes. Amongst those businesses that upgraded security, attempted burglaries declined from 49% to 25% between survey periods, and successful burglaries from 32%, 33 burglaries, to 13%, 14 burglaries. This represented a 59% decline overall. There was no significant change in rates for non-participating businesses. Firms that participated in the grant scheme and installed security had the lowest victimization rates.

The Leicester Small Business and Crime Initiative was particularly successful in reducing repeat victimization (Taylor, 1999; Tilley & Hopkins, 1998). The scheme was funded by a charity trust and coordinated by a committee that included representatives from the city council, police, and chamber of commerce. A project officer visited burglarized premises and undertook a security audit soon after a police report was filed. A mix of security measures was usually recommended—including installation of portable silent alarms and supplementing existing alarms with CCTV. Portable alarms were chosen because they could be shared with other premises once the high risk period for repeat offences had expired. Silent alarms were chosen with a view to capturing offenders. Scoping research indicated that many offenders moved fast to complete a burglary once an audible alarm was activated. The evaluation found that very few offenders were caught but offences in the target areas were reduced by 41% from the year before the project to the final year.

Alarms. Alarms are amongst the most popular anti-intruder devices, often installed in 90% or more of commercial premises (Hollinger & Adams, 2009, p. 23). Interviews with burglars show that the large majority prefer to avoid alarmed premises (Cromwell, et al., 1991). This view was supported by a study of commercial burglary in Philadelphia which found that the likelihood of a non-alarmed property being burgled was 4.57 times that of an alarmed

property (Hakim & Shachmurove, 1996b, p. 43). Simply advertising the presence of alarms at commercial premises reduced the risk of burglary by 50%, compared to premises with alarms that did not advertise them (p. 451). Alarms have also been shown to help thwart burglaries in progress. For example, in the Safer Merseyside Partnership, 26% of failed burglaries were associated with a member of the public being alerted by an alarm (Bowers, 2001, p. 36). A study that attempted to factor in all the costs of alarms in financial terms against all the potential savings from reduced burglaries judged alarms to be cost-effective in both residential and commercial settings (Hakim & Shachmurive, 1996a).

Burglar alarms are far from foolproof, and the time gap between alarm activation and response is often sufficient for some goods to be stolen. False alarm activations are also a major problem. Typically, up to 98% of activations are false (Sampson, 2001), causing a significant waste of police resources. Some premises have much higher rates of false alarm activations than others. False activations are caused by poor quality equipment, faulty installation, and user error (Gill & Hemming, 2003). The U.S. Department of Justice has developed a guide for reducing false alarms, based on projects that reduced police dispatches by up to 90%. Key recommendations include (Sampson, 2001, pp. 13-17):

- Requiring monitoring companies to make a visual inspection before contacting police.
- Charging a fee for service for all activations.
- Fining companies responsible for repeat false alarms.

CCTV. Closed Circuit Television (CCTV) can be useful for both deterring and capturing offenders (Coupe & Kaur, 2005). A project in the city centre of Newcastle upon Tynne—involving the installation of a police-managed CCTV system linking control room operators to patrol officers and retailers—produced a 57% reduction in burglary (Brown, 1997). In the same study, smaller reductions in burglary and other crimes were also associated with CCTV in King's Lynn and Birmingham. The success of the Newcastle project was related to the more concentrated nature of the business district, allowing better camera coverage and better coordination of police responses. A major review of CCTV projects found that many were unable to demonstrate effectiveness. However, as with the Newcastle upon Tynne project, CCTV was found to be "most effective when the degree of coverage by CCTV was high and when CCTV was combined with other interventions." These included improved lighting and communication with police (Farrington, Gill, Waples & Argomaniz, 2007, p. 21).

Business Improvement Districts. Business Improvement Districts (BIDs) involve focused efforts to improve commerce by enhancing the amenity and civility of an area. Funds from government and business groups are used to upgrade open areas, remove graffiti, repair vandalized property, improve lighting, and increase police and security patrols in order to attract legitimate users and deter criminals. One of the better known business regeneration and crime reduction projects was in the Union Avenue corridor of Portland, Oregon in the 1970s. The project included a significant investment in street lighting. Commercial burglary was reduced by 48% from an average of 16.3 incidents per month in the 20 months before the project to 8.4 incidents in the 20 months after the project began (Kaplan, O'Kane, Lavrakan & Pesco, 1978, p. 7-13). It has also been suggested that anti-burglary guardianship can be enhanced by urban renewal projects that return to a more traditional mix of residential and business areas in what is sometimes called 'living over the shop' (Clarke, 2002, p. 27).

The uptake of security measures. A common finding of business crime surveys is that there is a low rate of adoption of basic security measures. One study even referred to a culture of "learnt helplessness of the most vulnerable proprietors" (Bowers, 2001, p. 27). In the Netherlands, a detailed study on security was conducted as part of the first ICBS. The following adoptions of anti-burglary measures were identified (Van Dijk, 1997, pp 120-121):

91.4% Insurance against burglary

49.6% Burglar alarm systems

44.1% Toughened glass, bars, and shutters

43.3% Security lighting

7.8% After hours supervisor or security firm surveillance.

The British Chambers of Commerce crime survey found that 44% of respondents had never sought advice about how to reduce crime (2008, p. 20). Research also shows that most businesses upgrade security or obtain security advice only after they have been victimized (Bowers, 2001, p. 33; Shury, et al., 2005, p. 77; Van Dijk, 1997, p. 123).

Research also shows that most businesses upgrade security or obtain security advice only after they have been victimized.

Establishing on-going partnerships. Many of the successful case studies described involved a cooperative arrangement between government and business. Such projects are often temporary or informal. Considerable success has also been reported with formal permanent partnerships (Van den Berg, 1995). The Netherlands has been a leader in this area. In the late-1980s at the Dutch Enschede-Haven industrial site, the Area Entrepreneur Association approached the police with a request for increased patrols to reduce crime. After analyzing the crime profile for the area the police suggested a partnership in which police would provide support to private security patrols paid for by the companies. From there the following aspects of the project emerged:

1. The Entrepreneurs' Association formed a cooperative of participating companies, involving the majority of the 410 companies on the 300 hectare site.
2. The local police formed a project agency to coordinate the activities of the cooperative, the police, and local government.
3. A successful submission was made to a national government crime prevention body to subsidise the start-up costs of the project.
4. A government employment agency agreed to support the employment of unemployed people as security guards. The training was provided by police.
5. Sufficient funds were collected to enable a security guard to be stationed on site at all times outside business hours.
6. All alarm activations were channeled through one security firm's monitoring station to the police.
7. The on-site guard checked activations before contacting police, thus minimizing false call outs.
8. The project was widely advertised on signage around the site.
9. The local council also made extra efforts to maintain lighting and the general appearance of the area.

An evaluation showed that security incidents were reduced by 72%, from 90 per month in the year-and-a-half before the project commenced to 25 per month in the year-and-a-half after it was established. The partnership continued as a self-funded project once the initial subsidy expired (Van den Berg, 1995).

A similar partnership involved business representatives, police, the mayor's office, and 40 companies on the Dutch Vianen industrial estate (Van den Berg, 1995). A "master contract" with a security firm included surveillance outside business hours with police back up. Commercial burglary, the most common crime on the estate, was reduced by 52% from 75 incidents in the year before the project commenced to 36 the following year. All crime incidents were reduced by 41%, from 133 to 78.

The success of crime prevention partnerships in the Netherlands led to a commitment by the Department of Crime Prevention in the Dutch Ministry of Justice to systematically initiate and establish partnerships. The system works through a three step process, supported by an initial financial subsidy (Van den Berg, 1995, p. 32):

Step 1 involves a feasibility study, including scoping potential sites, gauging support amongst business people, and analyzing crime data.

Step 2 specific plans are developed, a coordinating committee is established, a security firm is selected, and a master contract is signed.

Step 3 requires implementation of the plan, usually through the activation of on-site security patrols and alarm response arrangements with police.

One particular advantage of security projects on defined sites, such as industrial estates, is the capacity to restrict access. Multiple access points, such as through grid pattern street designs, greatly increase the risk of property crime because of the ease of offender access and escape, and the capacity of offenders to pose as legitimate visitors (Beavon, Brantingham & Brantingham, 1994). Cul-de-sac streets restrict access and make it easier for guardians to identify and challenge intruders. Estates with single road access can also be closed to vehicles outside business hours.

Best Practice Principles for Burglary Prevention

This final section summarizes key lessons from the research in the form of a set of guidelines. These are organized around the contributions of (1) police, (2) government, and (3) place management. Deliberative burglary reduction plans are likely to be most effective when they involve as many types of interventions as possible. The third section, on place management, enlarges on the links between the research findings discussed and principles of security management.

Police

Police have a very limited capacity to provide premises with a preventive presence or to catch and incapacitate burglars. Nonetheless, police can make a major contribution to burglary prevention by working in partnership with other agencies and place managers. Police have instigated and coordinated numerous successful burglary reduction projects, and there is significant scope in many jurisdictions for more of these schemes. Police should also:

1. Use criminal intelligence methods to focus enforcement activities on prolific offenders.
2. Work with security industry associations to minimise false alarms.
3. Develop alarm prioritization protocols with repeat victims or in high burglary areas, in conjunction with other security enhancement methods.
4. Make crime mapping data available for risk assessments, with data that are premise-specific and available in a time series format.

Government

Overlapping with the police role, governments, especially local authorities, also have the potential to make a major contribution to burglary reduction. Like police, other state officials can facilitate burglary reduction through a variety of strategies. Governments should:

1. Fund early childhood intervention programs for at-risk children.
2. Initiate offender rehabilitation programs; including drug diversion programs, and programs involving close supervision and support of paroled prolific offenders.
3. Use "soft policy" assistance programs to upgrade security in risky premises, including subsidizing security upgrades in deprived areas.

4. Adopt a "get tough" approach with negligent owners and managers of risky facilities through enforcement of building code regulations. This is particularly important in relation to landlords who may resist installing basic security (Eck, et al., 2007).
5. Regulate the second-hand goods market.
6. Initiate and coordinate crime prevention partnerships with businesses and non-commercial institutions.
7. Set security standards in building codes and apply CPTED principles in building design guidelines.
8. Employ crime prevention officers, town planners, and architects with CPTED credentials.

Place Managers

Perhaps the biggest challenge for burglary reduction in commercial and institutional settings is the mainstreaming of successful situational measures. As we have seen, there is now a great deal of knowledge about effective measures, but the uptake is often limited. The task is to consistently apply security measures on a tailor-made basis in the many diverse locations that are targets for burglars. Eck, et al. (2007) argues that crime prevention efforts, especially where they are focused on risky facilities, must "involve the people who own and run the facilities" (p. 243). This includes security managers, facilities managers, and general managers, as well as janitors, maintenance staff, and security personnel.

There is now a well-established literature on security management that integrates the scientific knowledge of situational crime prevention with principles derived from the experience of security practitioners. The term security management implies a carefully planned approach to security, as opposed to crisis management or purely reactive security–where action is only taken after an incident. Walsh and Healy (1990) introduced the concept of a systems approach to security management. Their model offers a three step process: (1) vulnerability analysis, (2) installation of countermeasures, and (3) a test of the operating program to insure its effectiveness (pp.1-7). Within this framework they propose three categories of countermeasure: software, people, and hardware. All three must be interrelated in the system design to ensure an effective, integrated protection program (p. 1-7).

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The often neglected area of software refers to policies, procedures, rules, and training that set the whole security framework for an organization, as well as the culture of expectations from top management down. People refers to the assignment of security duties and responsibilities to ensure adequate monitoring and coverage of all aspects of an organization's functions and facilities from a security perspective. Hardware refers to all target hardening, monitoring and access control devices, such as fences, locks, safes, alarms, cameras, and lighting.

Walsh and Healy's systems approach is developed below in relation to burglary by focusing on the primary elements of risk assessments. The application and management of physical barriers is developed in terms of the concept of defence-in-depth.

Risk assessments. Security risk assessments (or security audits) involve physical inspections of premises to assess security strengths and weaknesses. Primarily, the survey allows the security manager to identify areas of vulnerability where security needs to be improved. The process also helps to target scarce resources, using a scale of risk, to ensure efficiency in crime prevention expenditures. Risk assessments should:

1. Be conducted on a regular basis, at least annually.
2. Be comprehensive, covering every square foot of a location, as well as examining the immediate surrounds and local area.
3. Go beyond physical security to analyze the organization's security plan and staff training.
4. Utilise a checklist that obliges auditors to cover all aspects of security (see Fennelly, 2004).
5. Periodically include an independent security consultant.
6. Integrate as much information as possible, including internal incident and loss data, local area crime statistics and trends, and local demographic data.
7. Ensure that insurance is adequate and has kept pace with the current value of assets.
8. Ensure that security modifications do not adversely affect safety and check for displacement.
9. Covertly test security without staff knowledge (subject to safety procedures).

Contemporary best practice now integrates these practices within a broader risk management framework. Risk surveys attempt to forecast all threats to the viability of a business or institution– for example an economic downturn may involve a risk to markets and an increased risk of financial and property crime.

Security risk assessments are aided by matrixes that assign threat levels to different crime categories. Two key concepts here are criticality—the extent to which loss or damage would affect the functioning of the organization– and probability—an estimate of the likelihood of an adverse event occurring (Walsh & Healy, 1990). These should be used interactively to match countermeasures to risk. It might be the case, for example, that a school or business has never been burgled and is in an area that experiences very few burglaries. The probability of an attempted burglary might therefore be very low. However, the organization might have a number of assets, such as computers, with high criticality, and a security survey might reveal a high level of vulnerability due to poor security. In such cases it is imperative that the low probability rating does not create complacency and that investment is made in upgrading prevention measures to ensure there is no future disruption to operations.

Defence-in-depth. The concept of defence-in-depth has particular application to burglary prevention. It involves concentric rings of protection that utilise the physical structure of a location to block or impede the progress of burglars towards their targets, as well as making it more difficult for them to exit with stolen property. Layers of security should serve to initially deter intruders. Where this fails, delays at each stage should allow sufficient time for a detection system to alert an appropriate guardian who can intercept the intruder.

The first layer of security is a frequently neglected area. Perimeter security should be used to minimise entry and exit points as far as possible. Fences must be sturdy, with attention to the strength of the base sections. A basic CPTED principle is that in most cases a front entrance should be as open as possible to natural and employee surveillance, with low shrubbery, transparent fencing, and as few hiding places as possible. The sides and rear of buildings, where visibility is usually limited, should be fortified as much as possible. Fortification with grills and shutters is essential for facilities that have no guardianship outside opening hours and have ready public access, such as sporting clubs on public land and school canteens. As a rule, the less guardianship there is the more target hardening is required.

Areas between perimeters and external walls should be cleared of all tools, scrap, and any items that could be used to jimmy open doors, windows, or cladding. Building walls, doors, and windows all need to be made of sturdy material, with high quality door and window frames and locks. Burglar alarms and CCTV can assist in deterring intruders or limiting their window of opportunity, thereby reducing losses if security is breached. Back-to-base alarms assure absent owners that there will be a response by mobile security guards. Larger premises or group security arrangements can contract on-site security personnel who provide a much shorter response time.

Interiors should be compartmentalized so an intruder is prevented as much as possible from moving between sections of a building and between rooms. Internal sensor lights can be useful for exposing intruders. Modern hung ceilings are particularly vulnerable to penetration that allows access to all rooms in a complex. In such cases, highly attractive goods, such as prescription drugs, or items with high criticality, should be located out of sight in high security rooms or reinforced cabinets or safes. High value items, such as computers and electronics, should also be secured by chains or brackets. Double deadlocks on doors can inhibit the ability of intruders who gain entry through small openings, such as windows, to escape with large goods or large quantities of goods. Other techniques for making an exit difficult include shutting off power to loading-bay doors and ensuring fire-exits are locked out of hours (Clarke, 2002, p. 25).

A number of additional policies and procedures should be adopted by place managers to reduce burglary risks:

1. The capacity of burglars to "case" premises should be limited. Stock should be kept out of sight of non-employees as much as possible so offenders cannot appraise the value and vulnerability of goods.
2. Checks should be carried out at closing time to make sure no offenders have hidden themselves inside premises.
3. Cash minimization through frequent banking can reduce losses from burglary, robbery, and theft. Signage stating "no cash kept on premises" can reduce burglars' perceptions of potential rewards.
4. Damage done by thieves when searching for high value items can also be minimized by strategies such as leaving open empty cash registers (Clarke, 2002, p. 24).

5. Efforts should also be made to enlarge guardianship by encouraging legitimate use of premises outside operating hours. Because of extended holidays, schools in particular have long periods of time when they are unoccupied and vulnerable to attack. This can be countered by encouraging use by holiday care groups and other community groups, as well as providing subsidized accommodation on school grounds for teaching or maintenance staff.

6. Place managers should stay up-to-date with developments in security technology that might have application to their situation.

Conclusion

Burglary constitutes a major source of loss and disruption to the operations of many businesses and institutions. At the same time, burglary is a crime that is highly amenable to successful prevention, especially through situational prevention techniques. In tackling burglary, a holistic place management approach begins with a systematic security audit, followed by the installation of appropriate countermeasures, and regular tests of the system.

Place managers also need to develop relationships with peers to coordinate strategies that address crime problems occurring within a defined area or that constitute a shared crime problem. Governments and the police have a key role here with intelligence-based enforcement strategies (especially targeted against prolific offenders), initiating public-private security partnerships, providing start-up funds and subsidized hardware when required, and ensuring there is adequate monitoring and evaluation of programs.

Future Research

Business organizations frequently criticize the lack of detailed statistics on crimes against business. There is even less information available about burglary and other crimes against schools, clubs, places of worship, and charities. Without detailed, accurate, and regular data it is impossible to gauge the scale of the problem, the need for action, and the impacts of preventive measures.

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