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# PREVENTING PAY PHONE DAMAGE

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**Abstract:** *In the 1992-93 financial year, there were 55,000 attacks on the cash compartments of pay phones in Britain, costing British Telecom (BT) some £20 million. By 1994-95 this had been cut to 17,000 attacks, costing £5 million. A major explanation for this significant reduction was the change in approach following the reorganization of pay phone management in the late 1980s. A brief overview of earlier studies provides the context for a description ofBT's strategy from the 1960s to date. Data on the effects of its latest strategy, the Security Enhancement Programme, are then presented. A comparison is drawn with Telecom Australia's approach to pay phone damage. Both strategies are related* to *Clarke's situational crime prevention framework (1992), and general lessons and principles for effective pay phone management are outlined.*

## INTRODUCTION

Pay phone damage is a world-wide problem. To the phone company, a damaged phone means loss of revenue, extra costs and a bad public image. To users it can mean anything from inconvenience to actual dangei to life.

In Britain, BT's[1] response to pay phone damage has a long history, traditionally involving measures to make the kiosk and phone more vandal-proof. An important development in its approach was the reorganization of pay phone management in the late 1980s. This change in management, with increased emphasis on reducing costs and improving profits, brought opportunities for a new response to pay phone damage. This paper describes the evolution of BT's approach, and presents data on its effects on pay phone damage. Parallels are drawn with Australia, where a synergy of business principles and crime prevention techniques has brought similar benefits.

## The Nature of the Problem

Pay phone damage takes a variety of forms.[2] Attacks may be against the kiosk itself, the telephone equipment it contains, or both. Problems suffered by the kiosk include smashed windows, structural damage, graffiti, litter and its use as a lavatory. Incidents of damage to the equipment have included smashed handsets, cut handset cords, coin chutes blocked with litter, plastic keypads being set fire to, and attacks on the cash compartment.

The reasons for attacks can be difficult to determine. Many researchers and practitioners have used adaptations of Cohen's (1973) typology as a framework for understanding vandalism. This typology categorizes vandalism in six ways: as acquisitive, tactical, ideological, vindictive, playful or malicious. While it is difficult to assign the numbers of incidents or costs of damage to pay phones to individual categories, the most serious and systematic attacks in recent years appear to be theft-related and the damage incidental.

### Figure 1: A Badly Vandalized Red Kiosk



## Early Studies and Their Policy Implications

Considerable attention and resources have been directed at understanding vandalism generally and devising preventive schemes (see Barker and Bridgeman, 1994, for a review of the literature). Three research studies have focused on pay phone vandalism as such in Britain (Mawby, 1977; Mayhew et al., 1979; Markus, 1984), seeking to identify the key factors where preventive effort should be targeted.

These studies have tested several hypotheses concerning the kiosks most likely to suffer vandalism. Mawby's (1977) study of kiosk vandalism in residential areas of Sheffield looked at housing tenures and types and population mix, the level of use of kiosks, and the extent to which they were in public view. Mawby found the strongest relationship to be with the level of kiosk use; the most used kiosks were the most heavily vandalized. This finding, however, was not supported by either Mayhew et al. (1979) or by Markus (1984). One explanation for this may be that Mawby's smaller sample focused on residential areas, whereas the later studies covered a much wider range of settings.

In both Mawby and Mayhew et al.'s studies, natural surveillance, that is, the extent to which kiosks are seen by the public, was shown to have only a small effect on the level of vandalism. The studies suggested that, apart from siting particularly high-risk kiosks in more visible locations, there was little scope for reducing damage through re-siting measures.[3] Focusing efforts on making the kiosks more vandal-proof, for example by target hardening was likely to be more effective.

Markus's work suggested, however, that target-hardening measures should be implemented in parallel with other activities, rather than in isolation. He found that the best predictors of kiosk vandalism were the proximity of schools, the amount of nearby public housing and the general appearance of the neighborhood. He emphasized the importance of developing an understanding of what motivates vandals and how they work, analyzing the problem at its source, and viewing the kiosk and its vandalism as part of the community in which it is sited. This would obviously require joint working efforts between BT and other agencies.

## PAY PHONE DAMAGE IN BRITAIN: THE EVOLUTION OF BT'S APPROACH

### Early Initiatives

Reflecting its perception of the problem at the time — that is, the need for a defensive program against "senseless" damage (Markus, 1984) — the early BT initiatives all involved design alterations to the original "red" phone kiosks and the telephone equipment inside them. Alterations were aimed at reducing the numbers of attacks against the cash compartments and strengthening the handsets and dialing equipment. The cash compartments were strengthened with 10mm steel and robust locks. These changes still left, among other problems, frequently broken windows and the use of phone kiosks as public toilets.

One response to this was to introduce a completely new design of phone booth in some of the worst hit areas. This was the "Oakham"- type phone booth, formed from an indestructible steel shell, open to the street and containing an armored pay phone. It was said to have had some success in reducing damage, but the problem of graffiti remained. An overall assessment concluded that, nationally, levels of phone vandalism had remained constant despite the design alterations (Markus, 1984).

### 1985 Modernization Programme

In 1985, BT undertook a £160 million modernization program, which included introducing a number of new ideas to combat pay phone vandalism. The old red phone kiosks were replaced by more open designs, using some of the Oakham design principles, to deter undesirable behavior by making those in the kiosk more observable. This also meant that litter and rubbish were less likely to collect in kiosks, giving pay phones a cleaner, brighter image. To increase visibility still further, 24-hour lighting was installed in the kiosks. To combat the problem of broken glass and to improve visibility into the kiosk, the design of the kiosk was changed to one with fewer, larger panes of toughened glass. This had the incidental effect of reducing the amount of glass smashed, perhaps because of a greater inhibiting effect of smashing a larger pane. The phone itself was



also modified, with the introduction of one-piece handsets and of noninflammable metal keypads replacing the plastic keypad, which vandals sometimes ignited to inhale the fumes.

**Figure 2: The "Oakham" Phone Booth Introduced in Areas Particularly Badly Hit by Vandalism**

### 1987 Strategy to Improve Serviceability

Despite the modernization program, BT had to acknowledge, following media criticism in 1987, that pay phone service levels were "unacceptably low" (British Telecom, 1988). On surveying the extent of the damage, BT found that a quarter of its pay phones were not working at any one time. This prompted a change of direction in the campaign to reduce vandalism damage, by a new focus on improving levels of serviceability. Influenced by Markus's (1984) findings, this strategy had three elements.

- Faults reported were rectified much sooner than they had been, and instructions were given to all staff visiting pay phones — from the cleaners to the engineers — to report any faults and damage they found.
- To support this effort, research was commissioned to profile who was damaging the phones and why. Interviews with offenders found that a typical vandal was male, under age 20, and from the lower socioeconomic groupings, with the reason for attack varying according to age. Younger offenders were responsible for willful damage, while involvement in damage with the motivation of financial gain increased with age. In some cases, attacks arose out of frustration at finding out-of-order phones. The report made recommendations regarding design, siting and servicing, with particular emphasis on the importance of quick service and repair, and the maintenance of clean, well-maintained pay phones and kiosks (British Telecom, 1988).
- A number of community initiatives were set up, with the express intention of promoting pay phones as valuable community resources, to be looked after rather than damaged. These currently include a variety of "Watch the Box" schemes, where the local community or school keeps an eye on "their" phone kiosk and reports faults to the service engineers, and two educational programs involving videos, posters and leaflets, one for adults and one for children. Both initiatives promote the idea that phone kiosks should be respected.

## Reorganization of BT and the Cost of Security Failure Program

In 1990, as part of an overall reorganization of BT, pay phones became the responsibility of one unit, the Pay Phones Division, with a new national policy consolidating the 26 regional agendas. Security teams were created within the business units rather than operating as part of an autonomous headquarters department. These changes were aimed at improving business efficiency rather than crime prevention. They coincided with the introduction of a new Cost of Security Failure program,



which included an assessment of the financial losses incurred by pay phones as a result of fraud, theft and criminal damage. This exercise made clear that BT's substantial losses were attributable to theft-related attacks rather than vandalism. A close inspection of recording procedures revealed that engineers' perceptions of the cause of damage frequently resulted in misclassification. Many faults were being incorrectly logged as vandalism rather than theft related. Consequently, BT concentrated its energies on addressing the problem of cash compartment attacks and, on the basis that vandalism, as such, was comparatively minor, decided to discontinue separate records of vandalism.

## 1992 Security Enhancement Programme

In the 1992-93 financial year, there were 55,000 pay-phone cash-compartment attacks, costing BT £20 million. Perpetrators appeared to be far more mobile than in the past, operating in organized gangs, equipped for the specific task with high-powered cordless drills, guns and, especially, manufactured jacking devices. In one instance, a team from Northampton, targeting kiosks in the South West, collected so much coinage that it had to use the Red Star parcel service to get it all home.

In late 1992, in response to these attacks, the £13 million Security Enhancement Programme was launched. It involved a combination of three basic elements:

- *Target hardening.* BT further improved the cash compartment design by fitting all pay phones with an integral fault-reporting system that automatically notified the area computer exchange of any malfunction. The alarms acted both as a detection tool and as a deterrent. Pilot schemes took place in Gloucestershire using kiosks with audible alarms; attacks on the equipment activated a voice of variable volume giving out a cautionary message.
- *Joint operations.* BT investigators worked with local police forces in operations where selected pay phones were fed marked coins, and were alarmed and monitored by arrest teams in close proximity. Pilot schemes incorporating the undercover operations were first introduced in December 1992 in

Manchester and Liverpool, both areas with particularly high levels of attacks. This was followed by wider adoption throughout the country.

• *Education and awareness.* Strategic use of the media was considered a vital component of the program. BT issued press releases designed to increase public awareness of the impact of cash compartment attacks on serviceability, and to invoke support for the campaign. Details of successful arrests and convictions reinforced the intended warning to perpetrators. Other features of the awareness campaign included two five-minute videos targeted at the police and the judiciary, and an educational comic for schools. In 1994, an exhibition trailer on pay phone crime was introduced for use at police training colleges.

**Figure 3:1990s-Style Phone Kiosks Reflecting BT's New Corporate Image**

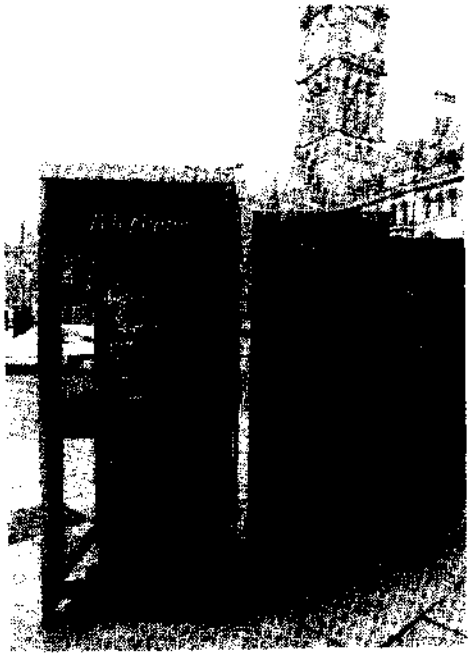




**Figure 4: The Front Cover of BT's Educational Comic**

### Graffiti

The changes in kiosk design introduced in the 1985 modernization program greatly reduced the incidence of writing on phone kiosks, which often advertised prostitution services. Unfortunately, advertisements on self-adhesive labels began to be used instead, resulting in high cleaning costs. A concerted campaign to remove these labels led to offenders switching to cards (which are not classified as criminal damage and for which offenders are liable for civil rather than criminal prosecution). While this significantly reduced cleaning costs, it did not help BT's image. Some areas are tackling the "card" problem in relation to certain sectors of offenders, for example, taxi firms, by selling them advertising space on display boards in the kiosks. With regard to other sectors, particularly prostitutes, BT is still considering various deterrents.

## EVALUATION

Systematic pay phone management was intended to result in more efficient servicing and reporting of faults. BT management claims to have increased serviceability of its pay phones from 75% in 1987 to 95% in 1995. The managers now believe that some of the vandalism in the past may have been the result of frustrated phone users encountering out-of-order phones. This would square with French research, which found that mature adults in both urban and rural areas more frequently took aggressive action against malfunctioning public phones than either the old or the young (Moser, 1984). Improved serviceability would automatically eliminate this sort of vandalism.

Results from the Security Enhancement Programme are encouraging. Table 1 shows the number of cash compartment attacks and the corresponding costs for the last three financial years.

Between April and September 1992 there were 24,662 cash compartment attacks. Over the same period in 1993, attacks fell to 12,478, and, between April and September 1994, they fell further to 8,599. Acomparison of the number of arrests made during these periods shows a significant increase of 70%, from 401 arrests between April and September 1992 to 681 arrests between April and September 1993. Over the same period in 1994, 438 arrests were made.



### Table 1: Cash Compartment Attacks and Costs*

| Financial Year | Number of Attacks | Cost of Cash Compartment Attacks (£) |
|---|---|---|
| 1992-1993 | 55,563 | 19,695,703 |
| 1993-1994 | 22,196 | 10,474,643 |
| 1994-1995 | 17,111 | 5,127,456 |

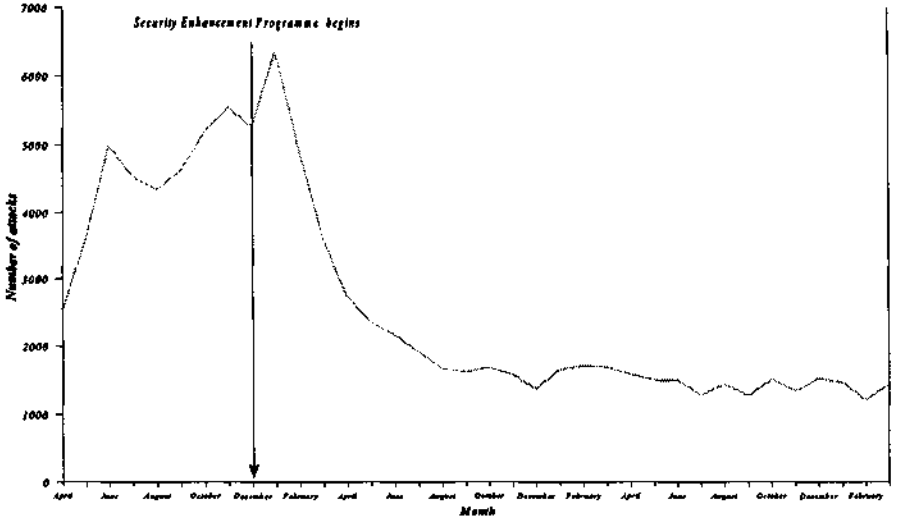
** Costs relate to the revenue stolen, supplies and labor.*
Source: BT, 1995

The fall in costs has been due largely to fewer offenses, but also to the improved design and refurbishment program.

Figure 5 presents monthly data on cash compartment attacks nationally between April 1992 and March 1995. A dramatic reduction can be seen from December 1992 onward, when attacks were cut from their peak Level of around 6,000 per month to stabilize at levels of around 1,200 to 1,500 per month.

At various times, attacks have appeared to be concentrated on particular areas. In the autumn of 1992, for example, Manchester suffered particularly high levels of attacks. Ajoint police/BT targeted operation in December 1992, launching the Security Enhancement Programme, resulted in 45 arrests in six weeks, and attacks in the city dropped from 400 a month to fewer than 10. In 1994, kiosks in Leeds were the targets of attacks on the coin mechanism, with losses accounting for the greatest part of the sum stolen nationally. BT investigators mounted a two-month undercover operation with the local police, which included video surveillance of kiosks and dawn raids. More than 140 arrests were made as a result of the initiative, and monthly attacks were reduced from around 400 to fewer than 40.

**Figure 5: Number of Cash Compartment Attacks on BT Kiosks (April 1992 - March 1995)**




## CONCLUSIONS

BT's recent successes in reducing pay phone damage can be seen as a culmination of a series of developments in its approach. In particular, the reorganization of pay phone management in the late 1980s appears to have facilitated better coordination of a more sophisticated range of preventive activities, with increased emphasis on tackling the problem strategically. Accounts of Telecom Australia's experience with pay phone vandalism show similarities to that of BT. These accounts describe how, quite independently, similar problem-solving strategies were devised and implemented.

Pay phone vandalism in Australia was felt to be such a problem that in 1988 a Working Party was established to develop a coordinated national approach. The measures adopted as a result of the Working Party's recommendations included: design modifications; electronic surveillance systems; audible alarms; an educational package; and the introduction of new—



statistical reporting methods coupled with improved exchange of statistics between the police and Telecom Australia.

After only one year, the cost of repairing vandalized pay phones halved. Two accounts of the initiative attribute its success to different factors. Wilson (1990) argued that the success was due to target-hardening measures that made it more difficult to steal from the cash compartment. Challinger (1991) considered that target hardening alone could not account for the reduction. In his view, the major explanation for the marked decrease was the changes in management resulting from Telecom Australia's privatization, with greater emphasis given to reducing costs and improving profits. In 1987, there were around 16 separate sections of Telecom Australia involved in pay phone management. The problems of uncoordinated policies and lack of focal supervision were addressed by the establishment of the Payphones Division in mid-1988. Challinger stressed that the management change was not introduced as a crime prevention measure to reduce vandalism. Rather, it was introduced to improve performance in the pay phones area, and was part of getting pay phones operational involved tackling vandalism and damage.

In both countries, the changes in management practice followed the privatization of the telecommunications industry. The new strategies might have emerged in any event. In Britain, for example, the public sector has been steadily moving toward a tighter financial regime, but the new management ethos seems to have speeded and stimulated the process. The more general evolution of "multi-agency" approaches to crime prevention will also have smoothed the way for joint working with the police, education authorities and others. The introduction of competitors in the pay phones market also may have added urgency for improvement in BT and Telecom Australia's performance.

The parallel experiences of Britain and Australia highlight a number of key elements in a successful strategy to reduce pay phone damage: the use of situational crime prevention techniques, the development of quality information, and the importance of effective management.

### Application of Situational Crime Prevention Techniques

Since the introduction of the concept of situational crime prevention in the mid-1970s (Mayhew et al., 1976), with its focus on opportunity-reduc-

ing measures, an array of research studies have demonstrated its effectiveness in preventing a wide variety of crimes in an equal variety of contexts (see Clarke, 1992, for examples). Clarke and Mayhew (1980) developed an eight-category classification of opportunity-reducing techniques, ranging from simple target hardening to more sophisticated measures designed to deflect offenders from possible targets and reduce inducements to criminal action. The classification was subsequently revised and extended to include 12 categories (Clarke, 1992:4) to provide a more "formal and theoretical basis for some practical and commonsense thinking about how to deal with crime."

In common with several of the case studies reviewed by Clarke (1992), the measures adopted by BT and Telecom Australia do not appear consciously to have been developed within a situational crime prevention framework. They are a good example of "practical and common sense thinking" aimed at reducing opportunities for crime. Challinger (1991) grouped Telecom Australia's activities under the headings identified by Clarke's earlier work (1978). Table 2 summarizes this information and also relates the BT measures described in this study to the techniques.

Situational crime prevention follows a standard methodology, a version of action research under which researchers and practitioners work together to analyze and define the problem, identify and experiment with solutions, and evaluate and disseminate the results (Clarke, 1992). Two elements implicit in this process, quality information and effective management, appear to have been of particular significance in the British and Australian experiences with developing successful schemes.

## Quality Information

For effective action a precise definition of the problem is essential (see, for example, Ekblom, 1988). In Britain, recognition that some of the earlier damage was due to the frustration of ordinary phone users encountering out-of-order phones suggested a need to improve serviceability, ensuring that faults were quickly reported and acted upon. The importance of rapid repair was highlighted by Wilson and Kelling's (1982) thesis that vandalism is more likely where property shows signs of being uncared for. In Burrows's (1991) commentary on business initiatives, he identified the need for a comprehensive assessment of the losses being sustained from crime, of how these occur, and of emerging vulnerabilities. BT's Cost of



Security Failure program revealed that the cash compartment was the most frequent object of attack and should therefore be a focus for preventive effort.

### Table 2: Pay Phone Damage and Situational Crime Prevention

| SITUATIONAL TECHNIQUE (from Clarke, 1992) | BT MEASURES | TELECOM AUSTRALIA MEASURES (from Challinger, 1991) |
|---|---|---|
| Target Hardening | • Cash compartments strengthened with 10mm steel and robust locks<br>• New tougher handsets and keypads<br>*(early 1980s, local initiatives; 1992→ nationwide implementation)* | • Strengthened handsets, stainless steel cords and redesigned dials<br>• Strengthening of coin box and its security through development of the 'Kirk safe', 'Barker link' and wave door<br>• Modified coin refund chutes that are hard to block<br>• New metal coinheads that restrict direct access to the coin-race<br>*(from 1986→ gradual introduction. By June 1989, all public telephones in South Australia were target hardened)* |
| Formal Surveillance | • Targeted operations with local police *(from early 1980s, ad hoc operations; 1992→ systematic operations)*<br>• Voice alarmed kiosks *(1992→)* | • Formal surveillance of high risk kiosks by security staff *(best used only where major problems occur, for example in late 1984, special team established in Sydney)* |
| Surveillance by Employees | • Engineers and cleaners encouraged to report any damage or faults *(1987→)* | • Increased attention from technicians, cleaners, coin collectors *(Sept 1988→)* |
| Natural Surveillance | • More open kiosk design to make callers more observable *(1985)*<br>• Installation of 24-hour lighting *(1985)*<br>• Resiting of vulnerable kiosks away from dark places *(early 1990s)* | • Resiting of kiosks<br>• Keeping kiosk lighting operational *(1988→)* |
| Target Removal | • Replacing kiosks in high risk locations with "Oakham" booths *(early 1980s)*<br>• Replacing design of many small panes of glass with fewer larger panes *(1985)*<br>• Installing cardphones which do not use coins *(early 1980s)* | |
| Removing Inducements | • Rapid repair of faulty equipment and graffiti removal *(1987→)* | • Specialist technicians introduced to ensure rapid repair *(1988→)* |
| Rule Setting | • Educational campaigns and strategic use of the media reinforcing the message that vandalism is unacceptable *(1985 and 1992→)* | • Adopt-a-phone programme, educational materials, encouragements to report incidents and financial awards *(commenced in Sept 1988)* |

Challinger pointed to the need for accurate, specific data on the "victimization" of public pay phones (1991) and reported on Telecom Australia's plans for their collection. BT recognizes that these data must be held in a form capable of sophisticated analysis. The engineer's report is currently being revised to provide more detailed information on: the object of the attack (for example, the cash compartment and the coin mechanism); the method apparently used (for example, was force used or were special tools used?); and information on any equipment failure. This information is being processed on a weekly basis, forwarded to product development staff, and fed into the investigative process. More sophisticated crime pattern analysis (CPA) is in development, including a mapping system to include sitings of all the kiosks. The aim is to use CPA as a predictive tool to enable a cost-effective targeting of prevention resources.

## Effective Management

The implementation of preventive measures requires a great deal of commitment, coordination and perseverance (Hope and Murphy, 1983). Efficient management can be pivotal to their success. In BT's case, the changes in arrangements for repairing and maintaining the phone kiosks were necessary for the preventive design alterations to take effect. Furthermore, the restructuring of BT in the late 1980s enabled a coordinated response to be delivered. In Australia, the shift of responsibility from 16 separate sectors into a single new Payphones Division brought similar benefits. The value of this approach has been documented by other research studies. One example is Sloan-Howitt and Kelling's (1990) account of the "Clean Car Program" adopted by the New York City Transit Authority to tackle an escalating graffiti problem. One of the factors identified as responsible for the scheme's success was the creation of a management matrix that coordinated and monitored the activities of the responsible units.

## Future Developments in Britain

BT consider the Security Enhancement Programme (SEP) to have successfully reduced what was once an immense problem to manageable



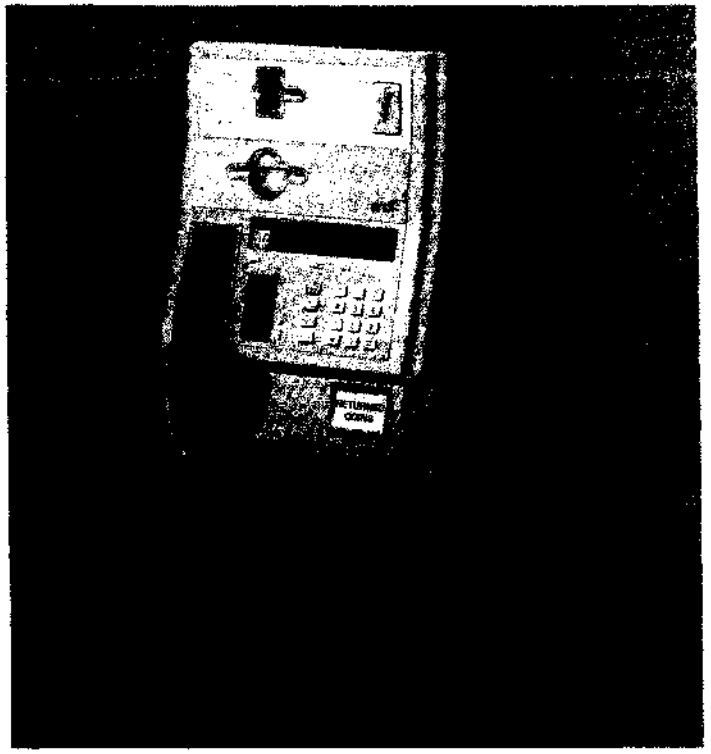
levels overall. It is felt that the improved design has deterred opportunistic thieves — in the past, effective amateurs could break into the cash compartments — leaving a hard core of professionals. At the outset, the SEP addressed pay phone crime on a national level, supported by targeted operations, such as those in Manchester and Leeds. For the future, the intention is to direct attention more closely to specific areas with particular problems and to tailor solutions accordingly.

A focused alarm initiative is one line of development. In the past, kiosk alarms have used BT lines to inform the area computer exchange of malfunction or interference. One drawback at present is that if the line is cut, BT does not know about it until an engineer, cleaner or the public notice and report it. In an attempt to overcome this, an alarm system is being developed that will not be reliant on BT phone lines. The idea is that an area of the country will be chosen and alarms will then be fitted in selected kiosks, with other portable alarms deployed to support detection activity.

Another aspect to a more targeted approach is that in the future, Payphone 2000, a multi-payment option phone with the most sophisticated security, will predominate in areas of high usage. The older models of phone will be part of BT's refurbishment program, which includes automatic security upgrading to a minimum level of security specification. Additional levels of security are available for kiosks that have been attacked.

These further initiatives and the continuing motivation of staff to tackle the problem will merit careful monitoring. Businesses have become increasingly persuaded of the need to integrate crime prevention activities into their working practices and procedures, and there is a growing number of documented initiatives that have demonstrably contributed to profitability by cutting crime losses (see, for example, Burrows, 1991). Pay phone damage and its potentially grave consequences in cutting off communications is a worldwide problem. It is also an area in which crime prevention principles and a business management approach are proving to coincide productively.

**Figure 6: The Payphone 2000**



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**Acknowledgements:** The material in the third section of this article, describing the evolution of BT's approach, is drawn from an earlier case study published in a Home Office Crime Detection and Prevention Series paper on preventing vandalism (Barker and Bridgeman, 1994). All photographs are copyrighted by British Telecommunications plc.

## NOTES

1. Until 1984, British Telecom, renamed BT in 1991, was the monopoly supplier of pay phones in Britain. It is still the main operator in the market following privatization, though the government has taken steps to encourage new entrants.

2. There are two main parts to the pay phone: the mechanism control for coin handling and the cash compartment. While a call is in progress, the coins are held in store in the mechanism. On completion of the call, the coins are transferred to the bottom of the phone to the cash compartment.



3. While natural surveillance did not appear to offer kiosks significant protection against vandalism, Mayhew et al. (1979) pointed out that employee surveillance of rented call boxes in places such as shops, pubs and launderettes results in them suffering far less damage. Rented call boxes, however, do not meet the sort of 24-hour need served by kiosks.

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