Hotspots of Corruption*

Adam Graycar[1]

บทคัดย่อ

จุดเสี่ยงต่อการทุจริตนั้น มีทั้งที่เป็นสถานที่และกิจกรรม บทความนี้วิเคราะห์คดีทุจริตจากงานวิจัยสองชิ้น เพื่อหาทางระบุว่าจุดเสี่ยงเหล่านั้นอยู่ที่ใด การวิเคราะห์มุ่งเน้นไปที่องค์ประกอบหรือลักษณะสำคัญในแต่ละคดี เพื่อหาลักษณะองค์ประกอบของแต่ละมิติในสามเหลี่ยมอาชญากรรม นั่นคือผู้กระทำการทุจริตและแรงจูงใจ เป้าหมายและโอกาส รวมทั้งสถานที่และความสามารถที่จะกระทำได้ บทความนี้ แยกแยะคดีออกเป็นสามกลุ่มซึ่งสำแดงพฤติกรรมการทุจริตที่แตกต่างกัน กลุ่มแรกคือกลุ่มนักการเมืองที่กระทำการทุจริตเป็นจำนวนเงินมูลค่าสูง กลุ่มที่สองคือกลุ่มเจ้าหน้าที่รัฐระดับหัวหน้าหรือผู้คุมงานที่สร้างโอกาสเพื่อการทุจริตในกระบวนการจัดซื้อจัดจ้างและการทำสัญญา และกลุ่มที่สามคือกลุ่มผู้ตรวจหรือคุมงานโดยเฉพาะในภาคโครงสร้างพื้นฐานมีโอกาสเรียกรับสินบนมูลค่าไม่มากแลกกับการละเมิดกฎระเบียบ บทความนี้วิเคราะห์จุดเสี่ยงต่อการทุจริตของแต่ละกลุ่มภายใต้หลักการการป้องกันอาชญากรรม เพื่อพัฒนากลยุทธ์ในการป้องกันการทุจริต

คำสำคัญ: จุดเสี่ยง สามเหลี่ยมอาชญากรรม กลยุทธ์ในการป้องกันการทุจริต

---

* *The author wishes to acknowledge the contribution of Dr Louise Porter of Griffith University, Queensland, Australia. Dr Porter analysed the data in the study and provided great insight into the understanding of hotspots, and co-authored an article on some of the material covered here. See Porter & Graycar in references*

[1] *Flinders University, Victoria, Australia*

Abstract

Hotspots of corruption are both places and clusters of activity. This paper analyses corruption cases from two research studies to explore a way of identifying such clusters. Cases are analysed according to features that represent the elements of the crime triangle: offender and motivation, target and opportunity, and place and ability. Three groups of cases, exhibiting different patterns of corrupt activity are identified. Group one involves politicians involved in high value financial corruption. Group two primarily involves supervisors who create opportunities involving procurement and contracts. Group three involves inspectors, particularly in the infrastructure sector, who are involved with low value bribes to violate regulations. Each is discussed in relation to crime prevention principles to develop possible strategies for prevention.

Keywords: hotspots, crime triangle, strategies for corruption prevention

In the same way that some places have more crime than others, some have more corruption than others. While hotspots of crime can be identified by geographical factors, urban amenity, and structures that are poorly designed and thus create opportunities for crime, hotspots of corruption are very different. These are not necessarily geographical places, as hotspots are traditionally understood.

Corruption causes harm to communities and undermines security. Where it exists it can, among other things, increase the costs of doing business, ration essential services unfairly, diminish the quality of social, educational and health services, create unsafe infrastructure, cause dreadful harm to the environment, diminish the capacity of local and national government, and undermine the rule of law. It can enrich the powerful and impoverish the powerless, and apart from the tangible ill effects, it affronts citizens who expect principles, processes and laws to underpin regular authoritative interactions.

Corruption is extremely hard to measure because we are not always sure what we are measuring. (For more on measurement issues see Kaufmann et al. 2006; Sampford et al. 2006). Many people make judgements about how much corruption there might be, and often focus on a bad event or two to draw a judgement that corruption is rife. It is however important to try to measure corruption for two main reasons. First, it is an indicator of how well a society is performing in terms of a government's contract with its citizens. If there is bribery, extortion, misappropriation, self-dealing; if major capital and development projects serve an

individual's financial interests rather than the public interest; if corporations bribe public officials to exploit natural resources; if human rights abuses are tolerated; if justice administration is inconsistent with the rule of law; then that society is more corrupt than those in which these behaviours are less or not part of the social fabric. Second, if we know how much corruption there is within a jurisdiction and the nature and quantity of those corrupt events, then remedial actions can be put in place and preventive measures can be implemented. Third, if we know if corruption is concentrated and how it is distributed, our prevention processes are enhanced.

Because it is nearly always a hidden activity and done in secret, many of the measures of corruption are not therefore measures of corrupt behaviour, but instead measures of people's perception of corruption – perceptions of its incidence and perceptions of its nature (de Lancer Julnes and Villoria 2014; Graycar and Prenzler 2013, 35). Most measures are in effect, proxy measurements. These are not measures of the damage caused by corruption. Also it cannot be assumed that perceptions translate into incidence or help us understand prevalence. It is precisely because of the difficulty in administratively counting corruption that many of the measures of corruption we see are not therefore measures of corrupt behaviour.

The Global Corruption Barometer, published by Transparency International in 2013 give us some understanding of the experiences and perceptions of corruption. Almost one in five people in Thailand reported that they had paid a bribe for a public service (Table 1). This is nowhere near the levels in some African countries, but considerably more than in most European countries

Table 1: Bribes paid for public service last year (%)

Country	*%*
Thailand	18
Sierra Leone	84
Zimbabwe	62
Kyrgyzstan	45
Liberia	75
Finland	1
Denmark	1
Japan	1
Australia	1

Source: Transparency International (2013)

When asked about confidence in institutions, and whether they are perceived as corrupt, the data on Thailand is interesting. Apart from the education sector, Thais have as much confidence in their institutions as say, people in Germany of Australia.

Table 2: Perceptions of corruption by institution

Country	*Parliament*	*Education*	*Judiciary*	*Media*
Thailand	45	32	18	20
Sierra Leone	53	64	74	47
Zimbabwe	69	67	69	65
Kyrgyzstan	77	82	89	37
Liberia	96	87	89	53
Finland	31	7	9	35
Denmark	18	6	5	30
UK	55	18	24	69
Germany	48	19	20	54
Australia	36	19	28	58

Note: Percentage of population regarding that institution/sector as corrupt
Source: Transparency International (2013)

As stated above, hotspots of corruption are not geographical places, but might be institutions or practices. Note that in Table 2 people in the richer countries perceive the media to be more corrupt than other institutions, while in the African countries the media are perceived to be less corrupt than other institutions.

A note of caution needs to be expressed. Using the nation state as the unit of analysis is not always helpful in understanding corruption or in understanding hotspots. Examining the tables above and saying that Finland or Denmark are less corrupt than Sierra Leone or Zimbabwe does not tell us anything that we do not already know, nor does it help us with an analysis of hotspots. To say that Parliament in Liberia, or the education system or the judicial system in Kyrgyzstan and Liberia are hotspots of corruption starts the discussion.

In identifying hotspots the first steps are to understand what the concept of "corruption" covers, and to break it down into manageable and tangible components. Corruption primarily is about a breach of trust. Without spending time on definitions we can take some of the standard descriptions, "abuse of public position/ entrusted office for private gain" (Transparency International,

2010), or "unauthorised trading of entrusted authority" (de Speville, 2010). Not all corruption, however, is the same (Graycar & Prenzler, 2013), and it plays out differently in different contexts It may, therefore, be helpful to see corruption as a set of behaviours.

Types of corruption, such as bribery, extortion, misappropriation, self-dealing, patronage, abuse of discretion, creating or exploiting conflict of interest, nepotism, clientelism and favouritism occur in the performance of various activities. Everyday activities in which corrupt behaviour can take place include appointing personnel, buying things (procurement), delivering programsor services, managing disasters, making things (construction / manufacturing), controlling activities (licensing / regulation / issuing of permits), administering (justice for example). These activities take place in public sectors such as health, tax administration, energy regulation and delivery, social services, environment & water, customs & immigration, legal system, as well as in a host of private sector activities such as banking, agriculture, sports etc. And it all occurs in specific places, such as countries, regions, localities, corporations, work places etc.

This analysis, known as TASP (type, activity, sector, place) is a working framework for the analysis of corruption (Graycar 2015). TASP sets the stage for a situational crime prevention analysis of corruption. Noting that corruption involves doing wrong things, or failing to do something one should do, or doing something permissible, but purposely doing it in an improper manner, then the unit of analysis should not be corruption in a country or an organisation, or a corrupt offender, but rather a corrupt event. The event may arise from structural features, in which corruption is embedded in processes and tolerated, sometimes it is situational and fleetingly opportunistic. Sometimes the participants are willing, so the behaviour involves collusion, sometimes one participant is unwilling, and thus the behaviour is extortionate.

To better understand hotspots, we can turn to Routine Activity Theory (Cohen & Felson, 1979) which explains how offenders, targets and locations converge to create opportunities for crime. For example, Clarke and Eck's (2003) crime triangle explains that crime occurs when a motivated offender and suitable target converge in an opportune place in the absence of effective guardianship. Crime Pattern Theory explains that crimes do not occur randomly across geographical and temporal contexts, but that patterns of convergence can be seen in the existence of 'hotspots' (Brantingham & Brantingham, 2008).

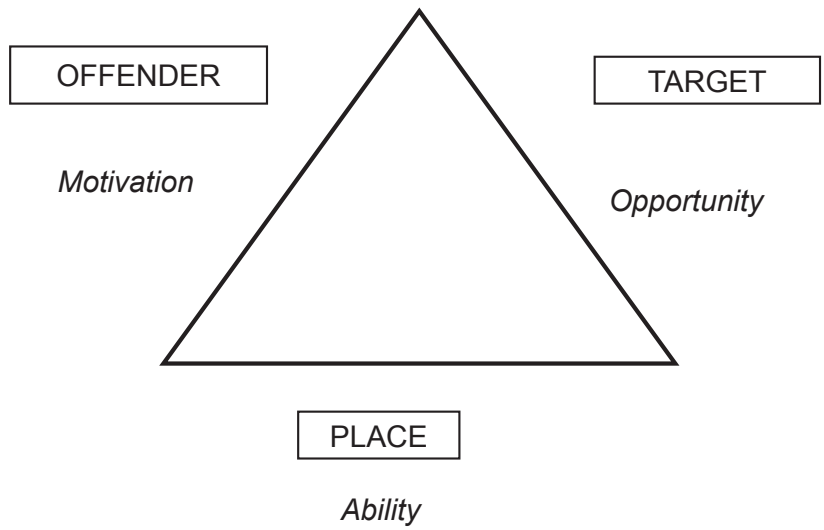
Three points shape hotspots, offender, target and guardian (absence of). If any one of these is removed, there will be no corrupt situation to deal with.

We can easily identify offenders. There are people who take bribes, people who offer bribes, people who do deals that breach their position of trust, people who use patronage, people who self deal and give contracts to companies owned by themselves or their families, I am sure you can identify many more. Targets might include organisations that supply public goods where the demand exceeds supply, or organisations where there is a great deal of discretion, or organisations that do not have processes to adequately safeguard their assets. Targets might also be processes, or they might be actual cash, or goods, or positions.

Guardians are not necessarily the police or those who prevent things from happening. Guardianship might include political leadership; it could cover culture in an organisation, the that ethics are adhered to and shared, and particularly the management commitment to ethics and fair process. Often this might result in a comprehensive management strategy. Education is also a part of the guardianship process, either as organisational in house training for the community as a whole, making all aware of the damaging effects of corruption. In more formal terms guardianship might include the law, but only if it is actually enforces, and one mechanism of guardianship might also be an anti-corruption agency.

Carmel-Gilfilen (2013, p.84) describes an inner crime triangle (Figure 1) composed of the offender, place and target, and an outer triangle composed of motivation, ability and opportunity, respectively. These "represents the environmental circumstances that can be adapted in order to deter [offending]". In this analysis details of the Offender, Target and Place provide information on the 'who' 'what' and 'where', of corruption events, while details of the Desire, Opportunity and Ability provide information on 'how' corruption can surface. These are all elements that make up hotspots and that can be targeted for prevention.

Figure 1: Inner Crime Triangle



Application

This study reported here uses the elements of the crime triangle to identify patterns of how activities converge to produce or encourage corruption. If there are discernible patterns to these elements, then this would suggest that 'hotspot' analysis of this kind might be a beneficial way for anti-corruption agencies to identify the common problems in their jurisdictions. This will shape possible ways of preventing corruption.

The cases that comprise this study were taken from the Department of Investigation (DOI) of the City of New York. This is a large and traditional anti-corruption agency, which focuses both on administrative and political corruption. Founded in 1873 to serve as an independent and non-partisan watchdog for the New York City government, the DOI consists of attorneys, investigators, forensic auditors, computer forensic specialists and administrative personnel.

An earlier study (Graycar & Villa 2011) commenced with one hundred cases which the DOI had investigated and which had been successfully prosecuted. Beginning with cases in 2009 and going backwards, 100 cases were selected in chronological order, and only open source information was used to inform the descriptions and analysis. However, not all were corruption cases. 28 cases were eliminated because they were criminal activities such as assault, theft, fraud or forgery.

The final sample comprised of 72 cases. You can read these examples and identify offenders, targets and potential guardians. Some examples of the type of cases are:

- A factory operator offered USD700 to a Department of Buildings (DOB) boiler inspector to overlook unsafe boiler violations in the factory.

- Seven employees of the New York City Human Resources Administration / Department of Social Services and eight other individuals generated Medicaid cards (meant for the city's neediest and most vulnerable people) in exchange for a cash fee of approximately USD300-USD400 per card. This scheme led to the Medicaid Program losing an estimated USD3.9 million.

- A New York State assembly woman offered her help to a private contractor to acquire city-owned land in her district and in exchange the contractor had to build a house for her valued in USD500,000.

- A housing inspector of the Department of Housing Preservation and Development accepted USD100 from a house owner to overlook a violation creating hazardous conditions in an illegal basement apartment.

- A Plumbing Inspector employed with the New York City Department of Buildings (DOB), solicited and accepted a USD500 bribe from a plumbing contractor in exchange for filing false certificates of inspection with the DOB. He also falsely claimed that he had performed mandated inspections on two residential sewer connections

- Two government officials were arrested and charged with embezzling millions of federal dollars that had been provided to their agency by submitting invoices for goods and services that were never provided or by padding invoices for computer services and software purchased following the September 11, 2001 terrorist attacks in New York City. They had been the Director of Records and the Director of Management Information Systems.

- A technician accepted a USD100 bribe to alter drug test results. Her role was to collect urine samples as part of pre-employment testing of all job applicants for the New York City Housing Authority.

- A summer camp manager was arrested for allegedly offering to wire USD10,000 into the personal bank account of an upstate New York City Department of Environmental Protection ("DEP") employee to overlook wastewater treatment violations at the children's camp.

- A clerical employee of the Department of Housing Preservation and Development (HPD), was arrested for accepting and retaining two cash payments, of USD40 and USD50, in exchange for providing the investigator with a total of five certified copies of building registrations that should have cost USD8 each, payable to the City.

- A former New York State Assemblyman and labor leader indulged in racketeering. He misappropriated millions of dollars by conjuring up a phantom employee on his legislative staff, taking a portion of the fictitious employee's supposed salary and draining funds from organisations for which he sought funding.

- A water use inspector was arrested for allegedly soliciting and receiving bribes from four people who faced stiff fines for water use violations and/or costly repairs to their water meters. He offered to overlook violations in return for payments of between USD100 and USD250.

Six characteristics were identified in these cases, as per Figure 1, a suitable *target* with *opportunity* available, the *ability* to acquire this product in a specific *place* and *desire* on the part of the *offender* to complete the crime" (framework derived from Carmel-Gilfilen 2013, p. 83.).

Table 3 shows the six variables chosen to represent the elements of interest.

- The offender element was characterised by the type of public servant involved.

- The desire, or motivation, was characterised by the value of the bribe or kickback.

- The nature of activity describes whether the target was regulations (that were controlled or implemented), procurement/contracts, or finance (i.e. stealing or misusing money).

- The opportunity describes whether the person violated procedure or proactively created the opportunity for him/herself.

- The place, rather than being the physical location, is taken to be the sector in which the person was working.

- The ability is reflected in the nature of the infraction, that is, the violation, theft, or abuse of influence that was enabled by the individual's position.

Table 3: Triangle Components and Occurrence

Triangle Element	Variables	Frequency *f*	Frequency %
Offender / Kind of public servant involved	1. Inspector	35	49
	2. Low-level worker	17	23
	3. Supervisor	14	19
	4. Politician	5	7
Desire / Size of bribe / kickback	1. Low (<USD10,000)	49	68
	2. High (>USD10,000)	16	22
Target / Nature of activity	1. Regulations	52	72
	2. Procurement/Contracts	14	19
	3. Finance	6	8
Opportunity / Process	1. Violation of procedure	46	64
	2. Creation of opportunity	26	36
Place / Sector	1. Infrastructure	30	42
	2. Human Services	21	29
	3. Health & Environment	20	28
	4. Whole of government	1	1
Ability / Kind of infraction	1. Violating regulations	55	76
	2. Theft	13	18
	3. Abuse of political influence	4	6

The six variables showed some clear patterns. The most common features of the cases include the involvement of inspectors (49%), low value bribes under USD10,000 (68%), and activity relating to controlling or implementing regulations (72%). Most frequently the cases involved a violation of procedure (64%), rather than creating the opportunity (36%), and were in the infrastructure sector (42%), although human services and health and environment sectors were also commonly involved (29% and 28%, respectively). About three quarters of the sample involved violating regulations, with smaller numbers involved in theft and abuse of influence.

In trying to understand hotspots we grouped our cases into three profiles (Table 4)

Table 4: Profiles of Activities

Triangle Element	Triangle Element	Triangle Element
Politician High value Finance Create opportunity Human Services Abuse of political influence	Supervisor High value Procurement/Contracts Creation of opportunity Human Services Theft	Inspector Low value Regulations Violation of procedure Infrastructure Health & Environment Violating regulations

Group 1 consists of only five cases but was distinctive because all cases involved politicians. These cases all involved the creation of the opportunity, and all involved high value (over USD10,000) bribes/kickbacks. In four out of the five cases the target was financial, and in four of the five cases this was enabled through abuse of their political influence. Most commonly, these cases involved the human service sector, although one case involved infrastructure and one the whole of government. An example case that typifies this group is as follows:

A State Senator used his position and influence to obtain financing funds for two non-profit organizations. Part of this money was diverted to pay his personal expenses for an amount of approximately USD575,000. In that example, the politician creates the opportunity, with his position enabling him misappropriate funds for his private use. In another case, a New York State assembly woman used her position in her district to help a private contractor acquire state owned land. In exchange for this, the contractor had to build her a house valued at USD500,000.

Group 2 consists of 14 cases and, while some distinct patterns can be seen within the group, it did show somewhat more variation across the categories. The majority (approximately two thirds) of the cases in this group involved supervisors, high value bribes/kickbacks, procurement and administrating contracts in the human services sector, and a creation of the opportunity that amounted to theft. However, up to a third of cases showed some variation on these features. An example case that typifies this group is as follows:

Supervisor of adoptions at the City Administration for Children's Services fabricated adoption cases, authorizing undue payments for a total of USD411,775 in exchange for receiving a portion of that money.

Other examples include employees of the City's Health and Hospitals Corporation (HHC) selling confidential patient information to personal injury attorneys, and the head of a construction company falsifying

contract documents to avoid an obligation to subcontract part of the work, and keep the full contract payment amount.

Group 3 consists of the largest number of cases (n= 45). All cases in this group involved low value bribes/ kickbacks, all related to controlling or implementing regulations and all violated regulations. Those involved were typically inspectors (71%) or low level workers (27%) who violated procedures (80%) rather than creating the opportunity. While there was some variation in the sector involved, almost half involved the infrastructure sector. Further, this group is the only group of the three that also includes cases from the health and environment sector. An example case that typifies this group is as follows:

An Inspector of the City Department of Buildings (DOB) was offered a USD300 payment to not issue a violation and stop work order when the company failed to follow constructions plans.

This example clearly shows an inspector in the infrastructure sector who, rather than creating an opportunity for corruption, is offered a low value bribe in exchange for violating procedures (not issuing the violation and stop work order). The violation concerned the inspector not implementing the regulations regarding construction plans.

A further example can be seen in the case of a low-level employee of the City Department of Parks and Recreation (DPR) who received a low value bribe of USD120 from a person obligated to perform community service (Human Services sector) as part of an alternative sentence program. The aim of the bribe was to let the person leave early without performing the services. This would constitute a violation of procedures through not enforcing the regulations that govern community service program.

Prevention

This paper analysed public sector corruption cases from the New York Department of Investigation to identify common themes that may indicate opportunities for targeted prevention. Using the framework of the crime triangle, three groups of cases were distinguished in the data, based upon different combinations of features relating to the 'offender', 'target' and 'place' (sector). Three different 'hotspots' of corruption; that is, three primary ways in which offenders, locations and opportunities for corruption converged in the sample cases. The presence of such hotspots shows that, while not all corruption incidents are the same, equally they are not all unique. This means that, instead of responding to corruption on a case-by-case basis, prevention can be focused toward broad types of activity. Thus, prevention

can be tailored to each particular type (based on the particular elements involved) to increase effectiveness, as well as targeted at the most frequent (or likely) types, to prevent the most cases.

Three principles of prevention can be applied: increase the effort to behave corruptly; increase the risks of corrupt behaviour; and reduce the rewards of corrupt behaviour. These principles are discussed in relation to corruption (Graycar and Prenzler 2013) and it is clear that certain strategies are likely to apply to a number of different forms of corruption; for example, increasing guardianship through transparency and accountability of processes, and reducing rewards through introducing penalties for corruptbehaviour. Such strategies can be targeted to particular forms of behaviour by particular people (positions) in particular sectors. Each of the three groups of cases are summarized and discussed in terms of proposed avenues for prevention encompassing the SCP principles (summarised in table 5).

Table 5: Example prevention techniques proposed for each corruption group.

Group 1	**Increase the effort**	**Increase the risks**	**Reduce the rewards**
• Politician • High value • Finance • Create opportunity • Human Services • Abuse of political influence	Oversight and hearings by authoritative expenditure committees; media vigilance and publicity; scrutiny by citizen groups	Financial audit of personal and business accounts	Financial penalties; moral penalties
Group 2	**Increase the effort**	**Increase the risks**	**Reduce the rewards**
• Supervisor • High value • Procurement/Contracts • Creation of opportunity • Human Services • Theft	Layered decision-making	Setting and enforcement of procurement guidelines	Penalties for procurement breaches
Group 3	**Increase the effort**	**Increase the risks**	**Reduce the rewards**
• Inspector • Low value • Regulations • Violation of procedure • Infrastructure • Health & Environment • Violating regulations	Oversight of decisions	Audits of decisions relating to regulations; integrity testing	Financial penalties

Group 1: Politicians

In the sample analysed, politicianswere most vulnerable to high level financial corruption, due to their position of political influence. While comprising only a small proportion of cases, the financial cost associated with these incidents was high, with further potential cost to public confidence in government. The focus of these cases on high personal financial gain would suggest that the prevention principle of decreasing the rewards may be particularly effective. Strategies to achieve this might include large financial penalties, exclusion from future employment in the political/ government sphere, as well as moral penalties, such as public naming and shaming. Further, the risks of such behaviour could be increased, for example through mandatory financial audits of both personal and business accounts of politicians. Identification of "red flags' is important, and there is a literature on the identification of red flags (see for example, Grabosky & Duffield 2001, Ware et al 2011)

Group 2: Supervisors

The data showed that supervisors, particularly in the Human Services sector, can create opportunities around procurement and administrating contracts that amount to high value theft and distortion of policy priorities. This suggests that those working in this field might need greater guardianship in terms of accountability mechanisms that could increase the risks and effort, as well as reduce the rewards. For example, using a process of layered decision-making, particularly for contracts that represent a high value, could increase the visibility of supervisors' decisions and reduce individual discretion. The setting and enforcement of procurement guidelines, including the use of penalties for procurement breaches could also be effective. Regular and random audits of accounts may also increase the risk of exposure of theft.

Group 3: Inspectors

Group three suggested that NYC inspectors are vulnerable to low value bribes to violate regulations, due to their decision-making positions, particularly in the infrastructure sector but also within the health and environment sector. This group was revealed to be the most common type among the sample cases. While involving low value bribes/kickbacks, the damage resulting from such cases could be extensive. For example, overlooking building code or environmental violations could seriously affect public safety.

Given that these cases typically involve violations rather than individuals creating opportunities, effective prevention might be targeted at increasing the effort and risks associated with such violations. This could include mechanisms of oversight

to increase the transparency and accountability of inspectors' decisions. Rotation of inspectors for particular jobs may also increase the effort and risk necessary for those offering bribes, as each inspection will involve a new person to be approached. Further, while bribes/kickbacks were of low value, there are possible strategies to reduce the rewards. For example, removing pension rights of convicted employees might make low value bribes less attractive, as this would ensure too low a reward for the risk involved.

Conclusion

The method for uncovering the patterns found in the NYC cases can be applied to any data set of cases that have enough detail to inform knowledge about the offenders and their motivation, the target and the opportunity, and the place and the ability. Such analysis on a new data set, perhaps in Thailand, for example might uncover groups that are different to those identified here. This is because different jurisdictions will likely experience different problems, due to different opportunity structures (and prevention strategies that may already be in place). In other words, anticorruption agencies need to conduct their own analysis of cases in their jurisdiction to uncover what the 'hotspots' of activity are, and tailor prevention accordingly. Indeed, corruption follows opportunity, and this is the key next task for this type of research – identifying opportunities and their locations.

The identification of three specific themes within the data shows that not all corruption cases are the same, but that the main features can be distilled into broad types that share common features. The advantage of such identification is that prevention can be targeted to such themes. This has potential cost-benefit improvements over an individualistic case-by-case response, where resources can be targeted at multiple incidents but specific features to ensure the greatest impact.

References

Brantingham, P., & Patricia. (2008). Crime pattern theory. in R. Wortley & L. Mazerolle (Eds.), *Environmental criminology and crime analysis*, 78-93. Cullompton: Willan.

Carmel-Gilfilen, C. (2013). Bridging security and good design: Understanding perceptions of expert and novice shoplifters. Security Journal, 26, 80-105.

Clarke, R. V., & Eck, J. (2003). *Become a problem-solving crime analyst*. London: Jill Dando Institute of Crime Science.

Cohen, L.E., & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American Sociological Review*, 44(4), 588-608.

de Lancer Julnes, Patria, & Villoria, M. (2014). Understanding and addressing citizens' perceptions of corruption: The case of spain. *International Review of Public Administration*, 19(1), 23-43.

de Speville, B. (2010). *Overcoming corruption: The essentials*. Richmond UK: de Speville & Associates.

Grabosky, P., & Duffield, G. (2001). Red flags of fraud. *Trends and Issues in Crime and Criminal Justice*. http://aic.gov.au/publications/current%20series/tandi/181-200/tandi200.html

Graycar, A., & Villa, D. (2011). The loss of governance capacity through corruption. *Governance: An International Journal of Policy, Administration, and Institutions*, 24 (3), 419-438.

Graycar, A., & Prenzler, T. (2013). *Understanding and preventing corruption*. Basingstoke, UK: Palgrave Macmillan.

Graycar, A. (2015). Corruption: Classification and analysis. *Policy and Society*, 34 (2).

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2006). Measuring corruption: Myths and realities. *World Bank Institute, Washington, DC*. http://www1.worldbank.org /publicsector/anticorrupt/corecourse2007/Myths.pdf

Porter, L.E. & Graycar, A. (2013) Hotspots of corruption: applying a problem-oriented policing approach to preventing corruption in the public sector, *Security Journal* (advance online publication; doi: 10.1057/sj.2013.38)

Sampford, C., Shacklock, A., Connors, C., & Galtung, F. (2006). *Measuring corruption*. Burlington, VT: Ashgate.

Transparency International. (2013) 'Global Corruption Barometer 2013', Berlin: Transparency International, available at http://www.transparency.org/gcb2013

Transparency International. (2010). *Frequently asked questions about corruption*. Berlin, Transparency International, http://archive.transparency.org/news_ room/faq/corruption_faq

Ware, Glenn, Shaun Moss, Edgardo Campos, & Noone Gregory. (2011). Corruption in procurement. in Graycar A. & Russell G. S. (Ed.), *Handbook of global research and practice in corruption*, 65-121. Cheltenham UK: Edward Elgar.