CRIME SCRIPT ANALYSIS

Preventing Crimes Against Business

HARALD HAELTERMAN

Crime Prevention and Security Management

Series Editor
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Harald Haelterman

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To my Parents
For their unconditional love and support

Series Editor's Preface

In this book, Harald Haelterman provides an important reference point for anyone who wants to learn more about crime scripts and their use as tools of crime prevention. In so doing, he fills an important gap. Crime script analysis was adopted from another discipline—cognitive science—and applied to crime rather imaginatively by Derek Cornish over two decades ago, but his pioneering early work has not inspired as much follow-up work as it deserves. Indeed, with a few notable exceptions, fully discussed in this book, crime script analysis has remained outside of most discussions about how best to analyse crime and then prevent it. Haelterman does not just fill the general knowledge gap on using crime scripts, but the specific one of relating their use to the business environment.

Crime scripts are in fact an extremely useful analytical tool. They force a focus on all the different elements that contribute to a crime or attempted crime taking place. Moreover, script analysis affords the opportunity to examine alternative pathways that offenders might follow when confronted with different obstacles when committing offences.

In fact the book is more than a discussion of crime scripts; it incorporates a review of a wide range of theories both of criminality and the criminal event providing a context for understanding the diverse ways in which scripts can improve the comprehension of crime and the identification of effective remedies. You will also learn about costs, not just

financial ones which are the most discussed, but also ethical, esthetical, and consequential costs too. And the broader benefits of crime scripts extend beyond crime prevention to crime investigation by linking activities, and research by generating insights that are difficult to uncover by other means.

You will also be introduced to the process of crime script development, understanding how data can be collected and used, crucially how offender perspectives can be understood, how intervention points can be identified and some of the problems therein. Using scripts has long been under-examined and here you will learn about crime script visualization, labelling, and how to apply the principles of situational crime prevention in the most effective ways. This is important though because one of the problems for those responsible for preventing crime is deciding which measures are best suited to any particular context, and it is often not recognized that crime script analysis provides a potentially effective way of determining that.

This book then is about theory and practice and the integration of the two. This process is best reflected in the range of case studies that are presented, each examining an aspect of business crime including, for example, expense reimbursement fraud, fraudulent cash withdrawals from both stolen cards and account takeover, fraudulent money transfers, so-called CEO fraud, cargo theft, and theft from vehicles.

This book is timely. There is something of a resurgence of interest in crime scripts, and this book will, I am sure, be an important reference for both scholars and practitioners.

Martin Gill

Acknowledgements

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About the Author

Harald Haelterman (1972) holds a Bachelor's degree, a Master's degree, and a PhD in Criminology (Ghent University, Belgium), a Master of Science degree in Security and Crime Risk Management (University of Leicester, UK), and a Certificate of Higher Education in Philosophy (Catholic University of Leuven, Belgium). He further specialized at the Free University of Brussels, Antwerp University and University College London. He is a former research fellow at the Interdisciplinary Centre for Law and Information Technology (ICRI, Catholic University of Leuven) and a former guest lecturer at the Free University of Brussels and the University of Antwerp Management School. Between 2006 and 2014, he was an associate member of the Department of Criminal Law and Criminology at Ghent University, consecutively as an academic advisor, postdoctoral researcher, and visiting professor. Currently he is an academic advisor at the Department of Criminology, Penal Law and Social Law of that same university.

He started his professional career in 1997 as a corporate investigator and crime risk management consultant, providing consultancy and investigative services to a variety of multinationals and industry sectors. In 2002, he joined TNT Express where he held a number of senior management positions in Security, Ethics, and Compliance. Since 2013,

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Dr Haelterman is a contracted Expert for the European Commission Research Executive Agency (REA), a Council Member of the European Corporate Security Association (ECSA), and a former Chairman of the European Express Association Security Committee (EEA), representing the express cargo industry in stakeholder meetings and working groups with European Institutions and a range of international regulatory bodies. He published extensively on crime prevention, computer crime, supply chain security, and corporate investigations, and has been participating in a wide range of (international) studies, projects, and expert groups.

Abbreviations

ACFE	Association of Certified Fraud Examiners
COSO	Committee of Sponsoring Organizations (of the Treadway Commission)
CPTED	Crime Prevention through Environmental Design
EC	Ethical Cost
EMEA	Europe, Middle East, and Africa
ERM	Enterprise Risk Management
ESC	Esthetical Cost
FC	Financial Cost
fMRI	Functional Magnetic Resonance Imaging
GPS	Global Positioning System
IQ	Intelligence Quotient
ISO	International Standards Organisation
MO	Modus Operandi (*plural:* Modi Operandi)
PET	Positron Emission Tomography
PIN	Personal Identification Number
SARA	Scanning, Analysis, Response, and Assessment
TAPA	Transported Asset Protection Association
UK	United Kingdom
US	United States (of America)

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Introduction

1   Introduction

This book is about the application of script analysis in the interest of situational crime prevention. The standard methodology applied for designing situational projects, according to Clarke (1997b: 15), is 'a version of the action research model in which researchers and practitioners work together to analyse and define the problem, to identify and try out possible solutions, to evaluate the result and, if necessary, to repeat the cycle until success is achieved'. Accordingly, a generic situational crime prevention project comprises five stages: a collection of data about the nature and dimensions of the problem; an analysis of the situational conditions that permit or facilitate the commission of the crimes in question; a systematic study of possible means of blocking opportunities for these particular crimes; the implementation of the most promising, feasible, and economic measures; and a (constant) monitoring of results and dissemination of experience (Gladstone 1980, cited in Clarke 1997a, b: 15).

In previous work, it is argued that for each potential measure that has been identified to tackle a predefined risk or problem, an ex ante consideration is to take place of its financial, ethical, esthetical, and consequential cost (see e.g. Haelterman 2009, 2011, 2013; Haelterman et al. 2012). It is further argued that this assessment should include a careful consideration of potential interdependencies and of a number of preconditions such as the availability and practicability of a measure to end-users, the level of knowledge and expertise that is required to implement it, the need for end-users to be aware of the problem that is being dealt with, their belief in the effectiveness of the proposed solution(s) and their commitment to help solve the problem, and to co-operate with other stakeholders to reach the desired outcome (Ibid.). Such ex ante consideration of interdependencies, costs, and preconditions enables practitioners and policymakers to make informed decisions on what measures are best to implement or enforce. In this previous work, however, little was included on the effectiveness of situational measures in general and on how to identify potential candidates for consideration. Script analysis, it is argued, may contribute significantly to filling that gap.

In '*The procedural analysis of offending and its relevance for situational crime prevention*' (1994), Cornish borrows the script concept from cognitive science and applies it to examine the crime-commission process. According to Cornish (1994: 151), the concept offers 'a useful analytic tool for looking at behavioural routines […] and a way of generating, organizing and systematizing knowledge about the procedural aspects and procedural requirements of crime commission'. Yet according to Cornish (1994), the script concept 'has the potential for eliciting more crime-specific, detailed and comprehensive offenders' accounts of crime commission, for extending analysis to all the stages of the crime-commission sequence, and for helping to enhance situational crime prevention policies by drawing attention to a fuller range of possible intervention points'.

Over the past decades, the technique has been applied in a variety of settings and for a variety of crime types (Leclerc and Wortley 2014a). It has been applied to break down offender actions as well as to examine the patterns of interchange between offenders and their victims (see e.g. Leclerc et al. 2014). Despite its apparent success amongst academics, it has not yet found its way into daily corporate practice. Reasons for that

can be manifold. One reason might be that descriptions of script analysis to date have been rather abstract, using terminology that may not appeal to everyday practitioners. Its attributes, however, prove to be surprisingly simple and straightforward, enabling easy buy-in if presented in a logical and common-sense manner. The latter is one of the main aims of this book.

Apart from assessing the value of script analysis to those responsible for designing preventive controls in a business environment, this volume further intends to be a reference work for students and academics who want to learn more about (recent developments in) crime script analysis. Moving beyond the use of the technique with the intent to disrupt the crime-commission process, it explores the wider benefits of the approach to both academics and practitioners, and identifies a number of development needs that are considered key if we want to embrace the full potential of script analysis for preventive purposes. It further provides an overview of the theoretical approaches to which the concept of script analysis is deemed most relevant and supportive, and challenges some of their key attributes. In summary, this volume aims to address five questions. What is script analysis and where does it originate from? Does it have a real potential to guide the implementation of situational crime prevention and if yes, why? How does situational prevention relate to other crime prevention strategies and why does it appear to grow in popularity in the private sector? How can script analysis best be applied in a business environment? And what is needed most to boost its potential even further? Various sections have been dedicated to each of these questions, and for those who have neither the time nor the inclination to study these sections in full detail, the key messages have been summarized in a general conclusion.

Chapter 2 provides a general introduction into the concept of script analysis, into its historical roots in cognitive science, and into the way it was originally introduced in the criminological domain. It positions the crime event as one among many events occurring within the crime-commission process, illustrates how script analysis was adopted to gather and organize information about this process, and provides a definition of crime script analysis and its key attributes. It distinguishes single-perspective from interpersonal scripts and illustrates

how the technique enables crime prevention practitioners to assess how the crime-commission process can be influenced or disrupted. It provides an overview of situational techniques available to crime prevention practitioners and goes on to introduce the main topic of this book, which is the application of script analysis to tackle crime in a workplace environment.

Chapter 3 puts the concepts of crime script analysis and situational crime prevention in a broader theoretical context. It shows how the early application of script analysis in criminology coincided with the emerging focus on the proximal influences on criminal behaviour, on the relevance of situational variables, and on the role of opportunity. It illustrates how the concept fits in with the crime-specific orientation found in environmental criminology and explores the theoretical foundations of situational crime prevention, the approach to which it is deemed most relevant and supportive. After having provided a brief introduction into situational crime prevention, environmental criminology, and the rational choice perspective, this chapter touches on one of the main criticisms that has been raised against the latter. It explores what other, more traditional criminological theories tell us about offender rationality and effective crime prevention, and argues that this criticism does not impede the value of script analysis nor that of situational crime prevention. It goes without saying that those who can do without this theoretical background and who are mainly looking for its practical pay-offs, can move straight on to Chap. 4.

Chapter 4 explores the main building blocks and key features of a somewhat simplified scripting methodology tailored to those tasked with designing or redesigning controls in a business environment. It links the scripting exercise to (enterprise) risk management, internal controls, and control frameworks. It further differentiates between proactive, reactive, and hypothetical scripting and goes on to argue that crime script analysis can prove to be a useful tool to assist management and crime prevention practitioners in assuring that the required controls to mitigate crime are in place and fit for purpose. Using a step-by-step approach, it shows how to develop and visualize a proper crime script, how to identify potential

intervention points, and what to take into consideration when selecting or (re)designing the most promising preventive controls. Two commonly recognized success criteria for situational crime prevention are at the heart of this discussion. First, it is argued that both the effectiveness and efficiency of situational controls depend on an in-depth knowledge of the MO displayed by the offender (see e.g. Cornish 1994). Second, it is stressed that successful measures tend to be characterized by their crime-specific approach, meaning that 'one size fits all' does not apply when it comes to designing or selecting effective controls (see e.g. Cornish 1994; Clarke 1997a, b; Moreto and Clarke 2014).

In Chap. 5, the application of script analysis is illustrated in a number of case studies. These include analyses of both 'simple' and slightly more complex crimes. Each case study includes a brief description of the crime phenomenon at hand; a basic script with an overview of some potential controls derived from that script; and an initial assessment of the estimated financial, ethical, and esthetical cost related to the implementation of these controls.

Prior to reaching an overall conclusion, Chap. 6 covers both the wider benefits of the approach as well as a number of areas for further improvement. Benefits include those that are of interest to academics and those that can be achieved by practitioners in the field. With regard to the latter, it is argued that script analysis has practical implications for anticipating displacement and other reverse effects; for identifying and gaining from spillover effects resulting from preventive interventions; for targeting hot products and hot MOs; for offender and geographic profiling; and for supporting training, product development, and strategic (and problem-oriented) policing. Development needs, finally, include the need to improve the quality of reporting, the need for automation and standardization in the interest of (large-scale) scripting, and the need to boost the exchange of (depersonalized) data on offender MOs.

As will become clear from these various chapters, applying script analysis in the most effective and efficient manner is a work in progress. If this volume can contribute even the slightest bit to support or speed up this process, time has not been wasted.

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2

Crimes as Scripts

1   Introduction

Although crimes may be considered events with a specific location in time and place, the crime event itself is only one among many events that occur within the crime-commission process (Cornish 1994: 155). The unfolding of a crime involves a series of sequential decisions and actions (or units of behaviour), and is exposed to a variety of influencing and interrupting factors. As Wortley (2012: 186) puts it, the crime event is considered a multistaged, dynamic process that involves a connected chain of decisions based on an ongoing evaluation of the available options in a given situation, and that may take different paths depending upon the nature of the environmental feedback.

In order to tackle the problem of gathering and organizing information about the crime-commission process, Cornish (1994) turned to theories and concepts developed in cognitive science, where the issue of production and understanding of sequences of events or actions was also being addressed. In this respect, both production theories and the script concept were considered valuable (Cornish 1994: 157).

This chapter will first explore the origin and use of the script concept in the fields of cognitive science and artificial intelligence, and go on to describe how that concept got introduced in the criminological domain. It will further distinguish single-perspective from interpersonal scripts and illustrate how script analysis can be applied in the interest of (situational) crime prevention. Finally, it will provide a brief introduction into the main topic of this book, which is the use of script analysis to prevent (repeat) victimization in a business environment.

2   Scripts in Cognitive Science

In the fields of cognitive science and artificial intelligence, the script concept features in the debate on the organization of human memory. It was developed in the context of a computer simulation of the human cognitive structures and processes involved in the understanding of text (see e.g. Schank and Abelson 1977; Abelson 1981; Cornish 1994). Scripts have been positioned as one of the theoretical entities or knowledge structures that form the basis of human memory organization (Schank and Abelson 1977: 17). In an episodic view of memory,[1] they function as an economy measure in the storage of episodes that are alike and, as such, remembered as a standardized generalized episode (Idem: 19). They are positioned as a means to avoid investing too much time and effort in interpreting a situation and in deciding how to act in that particular situation.

As argued by Schank and Abelson (Idem: 37), there are two types of knowledge that people bring to bear in order to understand and to act appropriately. The first type is referred to as 'general knowledge' and enables us to understand and interpret others' actions simply because 'the other person is a human being with certain standard needs who lives in a world which has certain standard methods of getting those needs fulfilled' (Ibid.). 'Specific knowledge', on the other hand, is the type of knowledge that we use to interpret and participate in events that we have been

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[1] An episodic view of memory is a view in which memory is organized around personal experiences or 'episodes' rather than around abstract semantic categories (Schank and Abelson 1977).

through many times and that allows us to do less processing and wondering (Schank and Abelson 1977: 37). As Schank and Abelson (Idem: 19) illustrate, 'rather than list the details of what happened in a restaurant for each visit to [such] restaurant, memory simply lists a link to what we call "the restaurant script" and stores the items in this particular episode that were significantly different from the standard script as the only items specifically in the description of that episode'. As such, a script (as an 'event schema') is defined as 'a predetermined, stereotyped sequence of actions that define a well-known situation in a particular context' (Schank and Abelson 1977: 41; Leclerc and Wortley 2014: 6). In the case of the restaurant script (see supra), and considered solely from the customer's perspective, it describes the sequence of actions that a customer must take when visiting a restaurant for a meal. In more general terms, it describes the relation between 'casts' (i.e. actors or roles such as customers, waitresses, and cooks), 'props', and 'locations' in a sequence of 'actions' to characterize routines occurring in specific 'scenes' (Borrion 2013: 2).

As argued by Beauregard et al. (2007: 1071), scripts are 'acquired through social learning and involve modelling and reinforcement'. Starting from childhood and throughout his life, a person accumulates knowledge about what sequence of actions to adopt in order to achieve desired goals or a desired outcome, and this knowledge assists and guides that person in future endeavours (Leclerc 2014: 14–15). Sequences of events that have occurred or that have been witnessed frequently and in a specific order are being captured in our memory as a standard script that can easily be recognized and recovered based on just some events that form part of its causal chain (Schank and Abelson 1977: 38). They are called up for use by means of special understanding mechanisms for recognizing them and for recovering steps that have been left out of the 'recorded' sequence (Idem: 38–41). When the behaviour that is associated with a script has been used repeatedly and has proven to be successful, the script will be activated more readily when one pursues a similar goal, and in the absence of strong inhibitory factors, an activated script will be followed by the scripted action (Tedeshi and Felson 1994, quoted in Beauregard et al. 2007: 1071).

Scripts are associated with a number of roles while written from one particular role's point of view. They can range from situational,

instrumental to personal scripts that can occur together in a juxtaposition that might include all of them (Schank and Abelson 1977: 66). The first type are referred to as scripts in which the situation is specified and in which the players have interlocking roles to follow as well as a shared understanding of what is supposed to happen (Idem: 61). They enable its holder to participate effectively in a social interaction through sequential knowledge of their own and other people's roles (Hockey and Honey 2013: 161). The second type are quite similar in structure, although the kinds of actions they describe and their use in understanding differ (Schank and Abelson 1977: 65). The order of events in instrumental scripts is very rigid, there is little variability and each of the events in the script must be completed (Ibid.). Examples of such scripts include lighting a cigarette, starting a car, or frying an egg; and while situational scripts usually take multiple actors, instrumental scripts have only one participant (Ibid.). Personal scripts, as a third type, are characterized by one actor pursuing a personal goal (Schank and Abelson 1977: 62). Contrary to situational scripts, they do not behave in a stylized fashion and exist solely in the mind of its main actor (Ibid.). They are usually goal oriented with no or very limited planning involved as they represent a sequence of events that the actor has used repeatedly (Schank and Abelson 1977: 62–63). In that sense, personal scripts differ from what Schank and Abelson (Idem: 70) refer to as a 'plans', being 'repositories for general information that will connect events that cannot be connected by use of an available script or by standard causal chain expansion'. Such plans are made up of general information about how actors achieve goals and describe the set of choices that one has when one sets out to accomplish a certain goal (Ibid.). As such, they form the general mechanism that underlies scripts and allow people to also deal with situations that they have never encountered before (Schank and Abelson 1977).

In order to cater for variability, scripts often contain a tremendous amount of information, detail, and possible options. The 'restaurant script', according to Schank and Abelson (Idem: 40), must contain sequences of scenes for fast-food restaurants, bars, or fancy restaurants in order to encompass the enormous variability of what can occur in a restaurant. Such compositions of scenes are referred to as 'tracks'. As such, the restaurant script has a 'fast food track', a 'cafeteria track', a

'fancy restaurant track', a 'coffee shop track', and so forth, and each of these tracks includes its specific 'entering', 'ordering', and 'paying' scenes with their various options (Ibid.). Yet according to Schank and Abelson (1977: 52), certain kinds of events can cause detours or abrupt endings in scripts. 'Distractions', as a first class of such events, are unexpected states or actions which initiate new goals for the actor, carrying him out of the script (Ibid.). The second class of events are states or actions that prevent the normal continuation of a script. They are referred to as 'interferences' and include both obstacles and errors (Ibid.). Obstacles may be responded to by taking corrective actions (i.e. 'prescriptions') or by giving up and exiting the scene; while errors are usually responded to by repetitions, often in combination with a prescription, or by tolerating that error (Ibid.). When certain obstacles and corresponding prescriptions occur with sufficient frequency, they may come to be recognized as a path of the script itself and, as such, 'grow' the script (Schank and Abelson 1977: 55). The same applies to common error-repetition pairs. As a result, a person repeatedly exposed to such obstacle-prescription or error-repetition (or 'error-loop') pairs may learn a sizeable number of alternative script paths; while occasional or new participants in the same situation, or those knowing it only from hearsay, have much simpler scripts to call upon (Ibid.). Furthermore, multiple scripts may be activated simultaneously, one interfering with the other (Schank and Abelson 1977: 57). Such 'script interactions' become problematic when it is unclear to what script the next input of information, that is capable of causing an event to occur in either of the two scripts, belongs (Idem: 58). A common type of interaction is that of a concealed personal script being active within a situational script. Other examples include that of two or more actors with competing concealed personal scripts within a situational script, or one or more actors with personal scripts whose nature is known by the other actors (Idem: 64–65).

In summary, Schank and Abelson (Idem: 67) consider human understanding as heavily (though not entirely) script based or, in other words, as a process by which people, to a great extent, 'match what they see and hear to pre-stored groupings of actions that they have already [witnessed or] experienced'. Human understanding, yet according to Schank and Abelson (Idem: 68), comes equipped with thousands of scripts that are

acquired through social learning and that are used almost without thinking. Applied to crime, it is argued that scripts are learned and undertaken by offenders, same as how actors learn their roles in a play (Hutchings and Holt 2014: 3).[2] They represent the complete sequence of actions adopted prior to, during, and following the commission of a particular crime and can be considered as step-by-step accounts of the procedures adopted by offenders to successfully commit that crime (Leclerc et al. 2010: 4; Leclerc and Wortley 2014: 6). At each of these stages, it is argued, the offender is required to make rational choices about how best to proceed to the next stage, and with successful repetition, the script becomes encoded as the default behavioural sequence, 'enacted automatically to facilitate the flow of actions from stage to stage, without much forethought or conscious attention, until the crime is completed' (Leclerc and Wortley 2014: 6).[3]

3   Crime Scripts

Although the first references to crime scripts date back from the mid-1970s, the concept really found its place in the criminological domain when Cornish proposed to use it to support situational crime prevention (Cornish 1994; Borrion 2013: 3; Leclerc 2014: 13). According to Cornish (1994: 151), the script concept offers 'a useful analytic tool for looking at behavioral routines in the service of rational, purposive, goal-oriented action', and fits in particularly well with the crime-specific orientation that is found in rational choice and allied approaches to crime control. Even the simplest crimes, it is argued, involve chains of instrumental decisions and actions that are separable in interdependent stages involving the attainment of sub-goals that serve to further the overall goals of the crime (Cornish and Clarke 2002: 47).

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[2] This is the reason why script analysis is also often referred to in relation to dramaturgy.

[3] While Abelson was primarily interested in 'behaviour-event schemas allowing individuals to perform complex action sequences without making "controlled" decisions', crime scientists rather 'pursue an applied approach focussing on the proximal causes of criminal events' with the purpose to 'deconstruct the script into molecular stages to identify actionable offender decision points' (Wortley 2014, quoted in Ekblom and Gill 2015).

The script concept can operate at different levels of abstraction, from 'metascripts' (e.g. theft of property) and 'protoscripts' (e.g. robbery) to very specific 'subscripts' (e.g. robbery from the person) or 'tracks' (e.g. subway mugging). Scripts can be divided up into scenes involving smaller units of action, and can have various components such as actions, roles, tools, and locations; similar to those appearing in the unfolding of a crime event. More complicated crimes can be regarded as composite scripts that can be disaggregated into a series of linked and 'nested' scripts, which function as scenes do in less complicated crime scripts (Cornish 1994: 173). As Cornish (1994: 160) continues, 'a script-theoretic approach offers a way of generating, organizing and systematizing knowledge about the procedural aspects and procedural requirements of crime-commission'. The approach offers a means to highlight the procedural aspects of crime, emphasizing the form of crime as a dynamic and sequential activity and the content of specific crimes as 'activities with particular requirements in terms of actions, costs, props and spatio-temporal locations' (Idem: 175). To crime prevention practitioners, script analysis provides opportunities for understanding the 'step-by-step process that offenders have to go through in the commission of any crimes' (Leclerc and Wortley 2014: 6). By providing a template to capture and describe each stage of that process, it further assists researchers and practitioners in identifying a broad scope of opportunities for situational interventions (Ibid.).

4   The Notion of the Universal (Crime) Script

Following Schank's (1982, in Cornish 1994: 160) discussion of the role played by script-like knowledge structures in memory, Leddo and Abelson (1986: 118, quoted in Cornish 1994: 160) suggested that scripts can be 'abstracted into a set of generalized scenes, which are similar in function regardless of the script they come from'. These 'universal scripts' consist of scenes 'arranged into a sequential order which further the overall action, offer standardized guidelines for constructing scripts at the track level, whatever the state of knowledge about the offense in question' (Cornish 1994: 160–161). Various other authors have drawn attention to the need to view crime-commission episodes in terms of a series of logistical steps

that can be translated into a universal crime script (see e.g. Ekblom 1991 and Johnson et al. 1993; quoted in Cornish 1994: 161). In Ekblom's illustration of a schematic plan of a subway mugging, the actual 'doing' phase (i.e. taking money or jewellery from the victim in the underground system) is preceded by a number of actions including preparations made outside the actual crime setting, the entry to the setting, and the selection of the victim (Ekblom; quoted in Cornish 1994: 161). Actions associated with the aftermath of the main action include escaping from the crime setting, exiting the subway system, and a number of potential follow-up actions such as disposing of the stolen items. Another example of a schematic plan is shown in Table 2.1, depicting the sequence of script scenes in a hypothetical example of cargo theft from a parked trailer.

While the MO displayed in this example is argued to be a very common method used by often well-organized and very flexible groups of offenders driving around at night in search for trailers to hit upon (TAPA EMEA 2013: 3), it is merely one particular method of cargo theft from a vehicle (see Chap. 5 for more examples). As such, it can be considered a specific track that forms part of a more generic 'cargo theft from vehicle' script which, in turn, can be considered a subscript of a 'cargo theft' protoscript. From a crime prevention perspective, however, the latter types of scripts provide little detail to work from. As it is common knowledge

Table 2.1 Example script 'Curtain-Slashing'

Script scenes/functions	Script actions
Preparation	Steal a van or light truck
Preparation	Replace number plates with false ones
Preparation	Gather the necessary tools for breaking into the trailer
Entry	Enter unsecured parking lot
Pre-condition	Circle parking lot in search for soft-sided trailers
Instrumental pre-condition	Select a suitable (soft-sided) trailer to hit upon
Instrumental initiation	Close-in on selected trailer
Instrumental actualization	Cut hole in the tarpaulin to check the load
Instrumental actualization	Break seal/lock of the trailer back door
Doing	Offload cargo from the trailer
Doing	Load cargo into the getaway vehicle
Exit	Leave parking lot
Aftermath	Sell stolen goods on the black market

that situational measures must be focused upon highly specific forms of crime (see e.g. Moreto and Clarke 2014: 210), it is the most crime-specific scripts that will prove to provide real value to crime prevention practitioners. This principle is referred to in Chap. 4 as 'the problem of generalization' (see infra).

The example script further contains a range of actions that may each constitute a separate offense (e.g. vehicle theft, vandalism, fencing, etc.). Each of these units of action can be analysed further and, consequently, be translated into a series of 'nested' scripts that are linked to the initial (composite) script (see also Table 2.2).

5 The Routinized yet Flexible Nature of Crime Scripts

The fact that scripts can be characterized as routinized plans does not mean that they should be considered as necessarily rigid, stereotyped sequences of actions (Abelson 1981, in Cornish 1994: 171), or as chains of serially dependent scenes carried out in an invariant order (Cornish 1994: 171). As argued by Ekblom and Gill (2015), 'complex procedures and variable environments of performance will generate highly variable

Table 2.2 Linking scripts

Script actions ('Cargo Theft from Parked Trailer')	Script actions ('Vehicle Theft')
Steal a van or light truck ⟶	'Vehicle Theft' script
Replace number plates with false ones	Circule on public road
Gather the necessary tools for breaking into the trailer	Select parked vehicle of interest
Enter unsecured parking lot	Close-in on selected vehicle
Circle parking lot in search for soft-sided trailers	Break lock
Select suitable trailer to hit upon	Start engine
Close-in on selected trailer	Drive away with vehicle
Cut hole in the tarpaulin to check the load	
Break seal/lock of the trailer back door	
Offload cargo from the trailer	
Load cargo into the getaway vehicle	
Leave parking lot	
Sell stolen goods on the black market	

behaviour patterns'. Changes in the environmental feedback may and will often alter the course of action that is anticipated in the existing, activated script; triggering the activation of more elaborate scripts or the development of new plans. During crime commission, offenders may be confronted with sudden opportunities or obstacles (e.g. victims or crime controllers behaving differently than expected, anticipated facilitators being absent or removed, etc.), forcing or encouraging them to abandon the planned action altogether, to move to an alternative script, or to improvise and decide on an innovative course of action. While the first may be the most prevailing option for beginning or occasional offenders, the second option will be more open to experienced offenders. Scripts of beginning or occasional offenders will probably be relatively poorly articulated, while those of more experienced offenders 'are likely to be structured in ways which allow for the choice of rapid alternative responses in reaction to the range of unwanted but foreseeable contingencies specific to the crime-commission track in question' (Cornish 1994: 172).

6   Single-perspective versus Interpersonal Scripts

While scripts have mainly been developed from the perspective of the offender (see e.g. Table 2.1), they can equally be developed from the perspective of other 'actors' or agents participating in or interrupting the crime-commission process. Examples of such scripts are those that display the decisions and actions of victims, or those that display the behaviour of crime controllers (see e.g. Leclerc 2014: 13).[4]

  'Offender (or perpetrator) scripts', 'victim scripts', and 'crime controller scripts' provide detail on the decisions and actions of those committing a crime, those being victimized, and those 'interfering' in the

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[4] Crime controllers are those responsible for exerting control on either element of Clarke and Eck's original 'problem analysis triangle'; being the offender, the victim, or the place. Drawing on the work of Felson and Eck, crime controllers are either 'intimate handlers' (i.e. those who can handle, control, or contain the offender's propensity to offend), 'capable guardians' (i.e. those responsible for protecting themselves and their belongings as well as potential victims or targets), or 'place managers' (i.e. those in charge of supervising places) (Leclerc 2014: 14).

crime-commission process, respectively. They do not, however, provide much detail on the interactions between these various parties. Detail on such interactions, it is argued, can be extremely useful to researchers and crime prevention practitioners alike, especially to those who want to get some sense of interpersonal crimes such as acts of interpersonal violence and sexual abuse (see also Leclerc et al. 2010: 24; Ekblom and Gill 2015).[5] In an examination of the interactions between robbers and their victims, Indermaur (1996, in Wortley 2012: 186) noticed that the behaviour of the perpetrator depended strongly upon the reaction of the victims. Based on these observations, victims of violent crime were advised to adopt non-confrontational responses to the robber's actions as to reduce the violence of the offense (Ibid.). Similarly, in a study of the sequence of events precipitating violent acts, Shoham (1997: 84) developed a model in which the interaction between the perpetrator and the victim is shown as a chain of sequential (causal) 'stimulus-response' cycles with each cycle limiting the rational choice of each actor to, eventually, culminate in a violent act.[6] Such chain of events could be initiated by words, gestures, or actions that are perceived by the recipient as provoking, resulting in a positive feedback cycle culminating in a violent expression (Idem: 86). The reaction to the provoking stimulus becomes a stimulus to be perceived and acted upon in the following cycle, and unless one of the actors takes a non-violence-precipitating decision in one of the follow-up cycles, the interaction will escalate into a violent act (Idem: 89).

From the above examples, it becomes clear that interactions and the exchange of behaviours between offenders, victims, crime controllers, and the public in general, may have a crucial impact on the course of the crime-commission process (see e.g. Leclerc et al. 2010). While a range of influencing factors may be difficult to 'observe' during the crime event (e.g. the person's background, personality, and propensity to react violently due to, e.g. alcohol intoxication or the degree of anxiety, fear, and central nervous system excitation), interpersonal crime scripts that

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[5] As argued by Ekblom and Gill (2015), 'empirical scripts that describe individual sequences [of behaviour] in isolation from one another may be of limited academic interest'.

[6] As Shoham (1997: 84) indicates, such violent eruption is not a necessary outcome of the interaction process as one of the actors can take a non-violence-precipitating decision that avoids the escalation into a violent act.

provide sufficient detail on the interaction between these various parties may prove to be extremely valuable for preventive purposes.[7] This script approach has been successfully applied to examine the patterns of interchange shown in child sexual abuse, enabling the researchers to study the offender's actions, the victim's reactions, the offender's responses (including the occurrence of procedural variation),[8] and the outcomes of the abuse (Leclerc et al. 2014).

7   Disrupting the Crime-Commission Process

In order to manipulate the environment in which crimes take place in an effective and (cost) efficient manner, there is a need to be crime-specific and familiar with the details of crime commission in relation to specific crimes (Cornish 1994: 153). Acknowledging the fact that detailed accounts of the crime-commission process are often not required for satisfactory crime prevention, observing the crime-commission process as a sequence of stages, decisions, and actions enables crime prevention practitioners to assess in more detail how this process can be influenced or disrupted. The script notion, according to Cornish (1994: 151), proves to be an extremely useful analytic tool for looking how crime events and episodes unfold and for generating, organizing, and systematizing knowledge about the procedural aspects and procedural requirements of crime commission. Such procedural aspects, yet according to Cornish (1994: 157), include the fact that criminal activity is 'goal-oriented; that it consists of a sequence of steps or sub-goals; that the separate elements in

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[7] In script literature, the interpersonal script is defined as 'a cognitive structure representing a sequence of actions and events that define a stereotyped relational pattern' (Baldwin 1992, quoted in Leclerc et al. 2014: 102). The script includes declarative knowledge about the pattern of interaction which can be used to interpret social situations and the behaviour of others. As procedural knowledge, yet according to Baldwin (Ibid.), 'the if-then nature of the script can be used to generate interpersonal expectations and to plan appropriate behavior'. As Leclerc et al. (2014: 103) argue, interpersonal scripts include a complex sequence of contingent behaviours. 'While an event script is a cognitive template that breaks down an ordered set of actions required to achieve a goal in a particular situation, an interpersonal script focuses on the sequencing of interpersonal events and patterns of behavioral interdependence' (Ibid.).

[8] Procedural variation is a concept employed by Cornish (1994) to describe the event where offenders choose an alternative strategy when confronted with an obstacle.

the sequence form themselves into a procedure which can be carried out without much thought; and that the activity requires both knowledge and the experience gained by practice for its successful performance'.

Using script analysis as an analytical or methodological tool to break down the crime-commission process into a series of events and episodes enables the researcher to 'get closer to the crime scene' and uncover underlying (behavioural) routines (Leclerc and Wortley 2014: 6). For the crime prevention practitioner, it facilitates the identification of potential intervention points and provides guidance on where preventive measures can be 'mapped' onto the crime-commission process (Cornish 1994: 164). By analysing the flow of criminal thought and activity, crime scripts can help practitioners identify blind spots and crystallize patterns of malicious actions in an effort to develop more robust and effective controls (Samonas 2013: 13). By uncovering that the apparent simplicity of criminal conduct may well be a function of its routinized production (which serves to conceal important features of its organization, sequencing, and acquisition), script analysis further helps to tackle the bias that certain crimes are of a simplistic nature (Cornish 1994: 157). Finally, the use of script analysis forces researchers and practitioners to go into detail, with a potential to reveal information that may be missed during a more superficial assessment of a criminal event. Especially the latter may prove to be extremely useful to both researchers and practitioners in the field.

Table 2.3 provides a rather straightforward example of how to map situational measures onto the crime-commission process, using the hypothetical example of cargo theft from a parked trailer. Again, other and more detailed examples are captured in Chap. 5.

The controls identified in this example all qualify as situational controls. They include means to increase the effort for the offender to commit the crime (e.g. the introduction of access control measures or exit screening, the replacement of soft-sided trailers by reinforced or hard-sided trailers, or the introduction of steering or ignition locks), to increase the risk of being apprehended (e.g. by means of installing alarm systems or camera surveillance, or through enhancing natural surveillance), and to reduce the anticipated rewards for the offender (e.g. by means of identifying products to make them traceable and less easy to sell on the black market).

Table 2.3 Preventing and disrupting 'Curtain-Slashing'

Script actions	Situational controls
Steal a van or light truck	Car alarms, ignition or steering locks, immobilizers
Replace number plates	Increase formal surveillance
Gather tools	Control markets for 'multi-purpose' tools
Enter unsecured parking lot	Access control to parking lots, parking attendants
Circle parking lot	Patrolling on site, CCTV monitoring
Select soft-sided trailer to hit upon	Replace soft-sided trailers with hard-sided trailers
Close-in on selected trailer	Enhance visibility and natural surveillance
Cut hole into the tarpaulin	Intrusion detection, anti-slashing strips
Break seal/lock of the trailer back door	Intrusion alarms, security locks
Offload cargo	Patrolling on site, CCTV monitoring
Leave parking lot	Exit control
Sell goods on the black market	Disrupt markets for stolen goods, identify products

The set of situational measures or controls available to policymakers and security practitioners has evolved quite significantly over the past three decades (Smith and Clarke 2012: 299). The original formulation of situational crime prevention, published in 1980, included an eight-category classification of opportunity-reducing techniques, of which some had proven to be useful while the remainder required modification (Hough et al. 1980). In his first edition of '*Situational Crime Prevention*', Clarke (1992a) presented a revised classification of 12 techniques, adding new categories and relabelling existing ones. These 12 have later been expanded by Clarke and Homel to 16, including a new category of 'removing excuses for crime' (Smith and Clarke 2012: 302). Finally, Cornish and Clarke expanded the techniques further to 25 by including a category referred to as 'reducing provocations'.

This latter expansion grounds on some important remarks made by Wortley (1997, 2001, 2008) on controlling situational precipitators, being events and influences that can supply or intensify the motivation for individuals to commit crime (Wortley 2008: 49). As Wortley rightly points out, the immediate environment can actively encourage criminal responses. It can 'prompt' individuals to commit crime by bringing to the surface feelings and desires that would normally not emerge (Wortley

1997: 66, 2008: 51–53).[9] It can 'exert pressure' on individuals to offend, to perform inappropriate behaviour, to conform to group norms and standards of behaviour, to obey the instructions of authority figures, to comply with requests, and to submerge their identity within the group (Wortley 2008: 53–54). It can further help weaken moral prohibitions and 'permit' individuals to engage in normally forbidden behaviour (Idem: 55–56),[10] or 'provoke' a criminal or antisocial response by creating a high level of stress in the individual (Idem: 56–58).[11] Finally, by limiting the availability or viability of alternative courses of action, situational precipitators may further interfere with offenders' abilities to make decisions (Wortley, quoted in Thompson and Leclerc 2014: 75).

As illustrated by this important contribution on situational precipitators, the classification of preventive techniques has grown in step with the expanded theoretical base of situational crime prevention and with a continual adaptation to its practice (Clarke 2005; Mayhew and Hough 2012; Smith and Clarke 2012: 299). Table 2.4 provides a full overview of situational techniques, listed under five basic strategies. Each of these strategies and techniques will be explained in more detail in Chap. 4.

8   Crime Script Analysis in a Business Environment

Crime script analysis has been applied in a variety of settings and for a variety of crime types including car theft, robbery and vandalism (Cornish 1994), cheque forgery (Lacoste and Tremblay 2003), stolen

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[9] Viewing pornography, for example, has been found to incite rapists and child molesters (Marshall 1988, quoted in Wortley 2008: 52). Likewise, the sight of weapons has been found to have the potential to trigger feelings of aggression and, as a result, to facilitate violence (Berkowitz 1983, quoted in Wortley 2008: 52).

[10] As argued by Wortley (2008), individuals may find support for neutralizing beliefs from those around them ('everybody does it'), they may minimize their own responsibility, or blame others or other things for their own misconduct ('I couldn't help it'). They may further minimize the consequences of their acts, or minimize the victim status of their victims based on situational factors.

[11] According to Wortley (2008: 56), 'stress-related crimes can be generated by environmental frustrations, crowding, invasions of territorial boundaries, and environmental irritants such as adverse weather conditions'.

Table 2.4 Situational crime prevention strategies and techniques

Increase the effort	Increase the risk	Reduce rewards	Reduce provocations	Remove excuses
1. Harden targets	6. Extend guardianship	11. Conceal targets	16. Reduce frustration and stress	21. Set rules
2. Control access to facilities	7. Assist natural surveillance	12. Remove targets	17. Avoid disputes	22. Post instructions
3. Screen exits	8. Reduce anonymity	13. Identify property	18. Reduce emotional arousal	23. Alert conscience
4. Deflect offenders	9. Utilize place managers	14. Disrupt markets	19. Neutralize peer pressure	24. Assist compliance
5. Control tools/ weapons	10. Strengthen formal surveillance	15. Deny benefits	20. Discourage imitation	25. Control drugs/ alcohol

Source: Clarke (2005): 46–47

vehicle resale or vehicle 'ringing' (Tremblay et al. 2001; Morselli and Roy 2008), crimes in public transport (Smith and Cornish 2006), serial sex offences (Beauregard et al. 2007), suicide bombings (Clarke and Newman 2006), employee computer crime (Willison and Siponen 2009), child sex trafficking (Brayley et al. 2011), drug manufacturing in clandestine laboratories (Chiu et al. 2011), cigarette smuggling (von Lampe 2010), and child sexual abuse (Leclerc et al. 2010). It has been applied to both conventional and highly organized forms of crime such as the infiltration of the public construction industry by the Italian mafia (Savona 2010) and to human trafficking for sexual exploitation (Savona et al. 2014). More recently, it has been applied to study the MO of Jihadist foreign fighters prior to their departure to conflict areas abroad (de Bie et al. 2015).

Despite its increasing popularity amongst academics, the concept has hardly penetrated the practitioner community in general or the business community, in particular. This may be due to the fact that its value for daily practice and its application at a tactical level are yet to be demonstrated in a logical and common-sense manner, providing real-life examples whilst not neglecting the theoretical background that is required to

put the approach in a broader perspective. Chapter 3 aims to provide such background.

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3

Crime and Criminality

1   Introduction

As this book is about preventing crime against business, it is important to understand what is meant by crime and how this phenomenon relates to criminality, as both terms are often used interchangeably. This chapter aims to clarify the distinction between the two. It further aims to illustrate that this distinction has implications for the scope and objectives of preventive interventions. While the main focus of preventing criminality is on trying to avoid individuals from becoming or remaining engaged in criminal conduct, preventing crime is about preventing criminal acts or events from occurring. It should become clear from this chapter that script analysis is introduced as a tool to support the latter objective.

Apart from distinguishing crime from criminality (or 'delinquency'), and apart from positioning script analysis as a promising tool to guide the implementation of situational crime prevention, this chapter further provides some insight into the theoretical perspectives underpinning the situational approach and into those that form the basis for alternative

strategies such as social, developmental, or community crime prevention. Including this background will help those that are less familiar with criminological theory in placing the topic of this volume in a broader theoretical context. Such context is deemed necessary and important if one wants to judge an approach on its true merits and potential.

2   Crime and Opportunity

The early application of script analysis in the field of criminology coincided with the emerging focus on the proximal influences on criminal behaviour, on the relevance of situational variables, and on the role of opportunity. During the 1970s, the effectiveness of the treatment models that were designed to prevent the development of criminality, as well as the faith that had previously been invested in the expectation that increasing prosperity and improving living conditions would result in a decrease of crime rates, were increasingly called into question (Newburn 2007: 280). Both in the UK and in North America, there was a growing pessimism about the effectiveness and benefits of rehabilitative programs; whether in education, social work, psychiatry, or criminal justice (see e.g. Mayhew and Hough 2012: 18). Findings derived from evaluation studies gave rise to an increased focus on the influence of the immediate environment on the likelihood of offending (Cornish and Clarke 2008: 22). It was argued that criminology to that date had neglected the many ways in which the environment can be managed in order to prevent or reduce offending (Cornish 2014: xviii). The 'opportunity theories' or 'crime theories' that were developed accordingly all give an important role to situational factors in crime (Newman et al. 1997: viii; Clarke 2005: 14; Lilly et al. 2007: 266). They are claimed to provide a solid theoretical base for situational crime prevention, the approach to which the procedural analysis of offending is historically deemed most relevant and supportive (Clarke 2005: 41).

Given the interrelationship between script analysis and situational crime prevention, and given the many cross references found in literature, one of the aims of this chapter is to put the latter into a somewhat broader theoretical perspective. It will first explore the foundations of

situational crime prevention and describe how the concept fits in with a school of thought that is commonly referred to as 'environmental criminology'. It will further touch on some of the main criticisms raised against the theoretical assumptions behind the situational perspective and explore whether and how these underlying assumptions compete with other, more traditional criminological theories. Finally, it will argue that neither this criticism nor the (perceived) opposition between crime theories and theories on criminality impede the value of script analysis and situational crime prevention.

3   Situational Crime Prevention

While most criminological theories have traditionally been concerned with explaining why certain individuals are more likely to engage in criminal behaviour compared to others, situational crime prevention is an approach that focuses on modifying the settings in which crimes occur (Clarke 1997b: 2). It aims to change the environment in which crime takes place in order to affect assessments made by potential offenders about the costs and benefits associated with committing particular offences (Idem: 5). Focusing on specific forms of crime or disorder, and analysing the opportunity structures that give rise to these problems, situational crime prevention seeks to identify changes in the design and management of the environment that have the potential to reduce crime with the fewest economic and social costs possible (Clarke 2010, in Mayhew and Hough 2012: 18–19). These changes, according to Clarke (Ibid.), are intended to discourage potential offenders by increasing the risks or difficulties of crime, by making crime less rewarding or excusable, and by reducing temptations or provocations.

Situational crime prevention is a model that shifts the focus from supposed deficits of offenders to aspects of the immediate environments that encourage or permit crime to occur (Wortley and Smallbone 2006: 8). According to Wortley and Smallbone (Ibid.), it is based on the premise that 'all behaviour is the result of an interaction between the characteristics of the actor and the circumstances in which an act is performed'. The concept was first introduced in the late 1970s by a team of scholars

working in the UK Home Office (Clarke 1992a: vii).[1] Studies on institutional treatments for delinquents undertaken by the Home Office Research Unit revealed that 'there was little scope for reducing crime through the essentially marginal adjustments that were practically and ethically feasible in relation to policies of incapacitation, deterrent sentencing, preventive policing or social prevention' (Tilley 1993, in Clarke 1997b: 6). Opportunity reduction, on the other hand, was identified as a topic worthwhile of further study (Clarke 1997b: 6). The consequent notion that these opportunities could be 'designed out', together with two independent but related strands of policy research in the USA,[2] provided a stimulus for the founding of a theoretical base for situational crime prevention (1971; Clarke 1997b: 7; Crowe 2000; Cozens 2008). Its theoretical development was further strengthened by the development of routine activity theory and the rational choice perspective, and also builds on a solid psychological principle referred to as 'situationalism' and stating that behaviour is highly variable and a response to different situational demands and expectations (Clarke 1992a: 5–7; Newman et al. 1997; Wortley 2012: 184).

Clarke, a former Head of the UK Home Office Research and Planning Unit and commonly considered the leading scholar in situational crime prevention, describes the approach as 'the science of reducing opportunities for crime' (Clarke 1997b: 3). In order to counter the criticism that situational measures would inevitably lead to crime displacement, Cornish and Clarke (2008: 23–24) developed a simple choice model that would later develop into the rational choice perspective. Apart from countering the displacement criticism, this perspective is further claimed to contribute to situational crime prevention as a source of the injunction to examine crime from the offender's perspective as a series of decision points that can be influenced by changes in the immediate settings for crime, as a rationale for the classification of situational techniques, and as

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[1] Already back in 1967, Ronald Clarke published a research paper in which he noted that the best predictors of juvenile delinquents absconding from a residential school were 'certain environmental influences' such as hours of daylight, features of the school regime, and so on (Leclerc and Wortley 2014b: 1).

[2] Newman's concept of 'defensible space' (1972) and Jeffery's concept of 'crime prevention through environmental design' 1971.

an aid to alert researchers to diffusion of benefits and anticipatory effects of situational interventions (Idem: 37). Yet according to Cornish and Clarke (Idem: 24), the rational choice perspective is to be seen as a heuristic device or conceptual tool rather than as a conventional criminological theory. It has been developed with a purpose to offer a way of looking at offending that is present centred and that recognizes the influence of the environment on behaviour.

For rational choice theorists, increasing prevention or decreasing the opportunity to commit crime is considered an important means of deterring crime (Hagan 2008: 104). In its current representation, the perspective consists of a number of core concepts (Idem: 24). First, it is argued that criminal behaviour is purposive, deliberate, and rational. The rational choice perspective takes the view that crimes are committed with the intention of benefiting the offender (Idem: 25). The choice of methods for carrying out crimes and the decision-making involved are regarded as instrumental behaviours to achieve certain goals or benefits (Cornish and Clarke 2002). These can include material benefits, sexual gratification, excitement, prestige, admiration, revenge, domination of others, reduction of tension, and so on. As argued by Akers and Sellers (2009: 26), rational choice theory is based on the 'expected utility' principle in economic theory, stating that people will make rational decisions based on the extent to which they expect the choice to maximize their profits or benefits and minimize the costs or losses. It is assumed that if the costs of exploiting a criminal opportunity are perceived as being too high, or if an opportunity is reduced or removed altogether, the offender will cease the activity or look for another and better opportunity (Hamilton-Smith 2002: 15). According to Clarke (1997b): 5), 'making this judgement implies some rationality and a considerable degree of adaptability on the part of the offender'. Even in the case of offences that seem to be pathologically motivated or impulsively executed, it is assumed that rational components are present in the crime-commission process.[3]

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[3] As illustrated by Newman (1997: 8), 'even though violence is widely believed to be an "expressive" or "explosive" type of behaviour (and thus, by definition, not "rational"), it is possible to trace the logical (and rational) line of action taken by both participants in a violent interaction'.

Another core concept of the rational choice perspective holds that criminal decision-making is crime specific. As Cornish and Clarke (2008: 26) put it, 'offenders don't commit crime, but carry out specific crimes, each of which has its particular motives, purposes and benefits'. Even offences that seem to cluster into natural groupings, it is argued, differ in important ways according to the purposes for which they are committed and the ways they are carried out (Ibid.). As will become clear in Chap. 4, this concept of crime specificity is considered key to effective crime prevention.

Finally, it is argued that criminal choices can be broadly divided into 'involvement' and 'event' decisions, that there are separate stages of involvement (i.e. initial involvement, habituation, and desistance), and that criminal events unfold in a sequence of stages and decisions (Clarke 1997b: 10; Cornish and Clarke 2008: 24; Smith and Clarke 2012: 294). While involvement decisions concern the offender's criminal career and extend over longer timescales, event decisions are crime centred and concentrate upon crime commission (Cornish and Clarke 2008: 27). It is argued that both types of decisions need to be studied separately for different crimes. Different sets of variables will be of influence in the various stages of criminal involvement, and the decision-making during the crime event goes beyond providing attention to the central stages of the crime event only (Idem: 28). In order to focus attention to all stages of the crime-commission process and in order to facilitate a proper analysis of this process, Cornish (1994) introduced the concept of script analysis. This concept, according to Cornish (Ibid.), facilitates the analysis of the entire crime-commission process and helps to identify the instrumental decisions and actions of offenders as well as the situational variables that must be taken into account.

4   Environmental Criminology

Given its focus on crime rather than criminality, as well as its emphasis on the setting in which crime occurs, situational crime prevention is often seen as a contemporary approach in environmental criminology

(see e.g. Clarke 2008; Cornish and Smith 2012).[4] The latter is a family of theories that share a common interest in criminal events and the immediate circumstances in which they occur (Wortley and Mazerolle 2008: 1). They state that criminal events must be understood as confluences of offenders, victims, or criminal targets and laws in specific settings at particular times and places (Brantingham and Brantingham 1991, quoted in Wortley and Mazerolle 2008: 1).

> Environmental criminologists look for crime patterns and seek to explain them in terms of environmental influences. From these explanations they derive rules that enable predications to be made about emerging crime problems, and that ultimately inform the development of strategies that might be employed to prevent crime. (Wortley and Mazerolle 2008: 1)

While traditional criminological theories are foremost concerned with criminality, focusing on the distant causes of crime, the environmental approach focuses on the criminal event. It aims to prevent crime rather than to cure offenders and is based on the premises that criminal behaviour is significantly influenced by the nature of the immediate environment in which it occurs; that the distribution of crime in time and space is non-random[5]; and that an understanding of the role of criminogenic environments and an awareness of spatial and temporal distribution of crime may prove to be powerful weapons for investigation, crime control, and crime prevention (Bottoms and Wiles 2002: 620; Wortley and Mazerolle 2008: 2). As argued by Wortley and Mazerolle (2008: 3), 'the environmental perspective is multi-disciplinary in its foundations, empirical in its methods and utilitarian in its mission'. Its macro-analytic roots are to be found in the early works of Guerry and Quetelet (see infra), its meso-analytic roots in the human ecology movement and in the work of Jacobs, and its micro-analytic roots in psychological theory (Wortley and

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[4] While environmental criminology or 'the environmental perspective' is considered here as a collective term, environmental criminology is often equated with crime pattern theory and considered a stand-alone approach next to, for example, the rational choice perspective and routine activity theory.

[5] It is argued that the distribution of crime in time and space is non-random in a sense that crime will be concentrated around crime opportunities and other environmental features that facilitate criminal activity.

Mazerolle 2008: 3–8). Yet according to Wortley and Mazerolle (Idem: 8–14), contemporary environmental approaches can be divided into five broad areas: those with a focus on designing the built environment, those focusing on specific offences and settings, those examining wider social trends, those exploring crime patterns, and those focused on equipping the police with the necessary methods and tools to implement environmental interventions.

In the early 1970s, frameworks for reducing crime by modifying immediate environments were set out in Jeffery's '*Crime Prevention Through Environmental Design*' (CPTED) (1971) and in Newman's '*Defensible Space*' (1972). Extending Jacobs' ideas about the need for residents to take responsibility for crime in their immediate neighbourhoods, Newman proposed strategies for increasing a sense of ownership over private and semi-public space by defining clear territorial boundaries and for increasing opportunities for natural surveillance. The concept has been successfully demonstrated in schools, commercial, residential, and transportation areas (Crowe 2000: 33); and the idea behind it is that as a result of introducing a number of design features, residents would become increasingly vigilant. Such increased vigilance would consequently deter potential offenders (Wortley and Mazerolle 2008: 9).

> 'Defensible space' is a surrogate term for the range of mechanisms—real and symbolic barriers, strongly defined areas of influence, and improved opportunities for surveillance—that combine to bring an environment under the control of its residents. (Newman 1972, in Newburn 2007: 290)

Jeffery's work was broader in scope and included strategies ranging from broad social policies to micro-level psychological interventions. He claimed that sociologists had overstated the social causes of crime and proposed a broad, holistic approach to criminology drawing on social, behavioural, political, psychological, and biological systems (Cozens 2008: 153). His CPTED concept expands upon the assumption that 'the proper design and effective use of the built environment can lead to a reduction in the fear of crime and the incidence of crime, and to improvement in the quality of life' (Crowe 2000: 1).

A second major contribution was the development of situational crime prevention by Clarke and his colleagues (see supra). This contribution represents the micro-level extreme of the modern environmental perspective. Seeking to alter the situational determinants of crime in an attempt to make it less likely to happen, situational crime prevention is claimed to have a sound basis in the theories of environmental criminology (Clarke 2008: 178).

Elaborating on the theory of human ecology, Cohen and Felson's work in examining crime patterns and crime trends in terms of broad social forces lead to the development of the routine activity approach, which is considered a third major contribution in environmental criminology. On a micro level, the approach argues that offenders are but one element in a crime, and perhaps not even the most important element. According to the routine activity approach, 'crime occurs when a motivated offender and suitable target converge in space and time in the absence of a capable guardian' (Felson 2008: 70).[6] The latter refers to anybody whose presence or proximity discourages crime, in most cases, someone whose mere presence serves as a gentle reminder to the offender that someone is looking (Felson 1995, 2008; Newburn 2007; Leclerc 2014b). According to Felson (1998: 53), the most significant guardians in our society are ordinary citizens going about their daily routines.[7] Yet according to Felson (Idem: 23), everyday life delivers temptations unevenly, and crime is mainly committed by people who are tempted more and controlled less. On a macro level, the approach states that certain features of larger society and larger community can make such convergences much more likely (Felson 2008: 70). 'Suitable targets may shift in location as a result of everyday activities, as may the presence or absence of capable guardians' (Newburn 2007: 287). An often quoted example of the latter is the increased participation of women in the workforce, which led to the fact that more houses were left unattended during the day and, consequently, contributed to an increase in the number of daytime residential burglaries (Wortley and

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[6] More recently, the concept of 'handler' was added as an additional element. According to Felson (2008: 74), 'the offender had to first escape the handler and then find a target with a guardian absent'.

[7] Felson (1995: 53) provides the example of a retired person at home who may well discourage daytime burglary of his or her own home or even the home next door.

Mazerolle 2008: 11). Other examples include the dispersion of people into more single-person households, which is claimed to have contributed to a crime increase in the 1960s and 1970s (Felson 1998: 25); the increased availability of lightweight portable electronic goods (Clarke and Felson 2004: 8); and the increase of contact crimes as a result of a greater mass of people spending time outside the home, increasing the probability of encountering motivated offenders (Newburn 2007: 288). On a micro level, it was soon realized that the three necessary elements for crime provided a useful framework for analysing the dynamics of individual crime events and for determining points of intervention for crime prevention (Wortley and Mazerolle 2008: 11). While the approach was initially developed to counter direct-contact predatory violations, Felson later applied it to other crime categories (Hopkins Burke 2005: 47). In doing so, the absence of an intimate handler (i.e. a significant other that can impose informal social control on the offender) was identified as a fourth variable that enables a criminal event to take place (Ibid.). As Felson (2008: 74) consequently summarizes, 'a crime occurs when the offender escapes handlers, finds targets free from guardians in settings not watched by managers'.[8]

In the tradition of Guerry and Quetelet, a fourth area of work in environmental criminology consists of the analysis of the geospatial dimension of crime. This renewed activity was linked to the development of Brantingham and Brantingham's crime pattern theory and to the advent of powerful geographic and statistical software. According to the Brantinghams (2008: 79), the argument for the complete randomness of targets and victims is not plausible. Crimes do not occur randomly or uniformly in time or space, and a very small proportion of people commit most of the known offences. As part of their crime pattern theory, they established a set of rules that can be used to account for the patterned non-uniformity and non-randomness that character-

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[8] A good example of how the framework is applied in real life is John Eck's crime triangle used in operational policing (Wortley and Mazerolle 2008: 11). This crime triangle, often referred to as the 'problem triangle', is really two triangles with the inside triangle showing the potential offender, the crime target, and the place setting for the crime as the three elements that must converge for a normal crime to occur; and the outside triangle depicting three sorts of supervisors: the handler, the guardian, and the place manager (Felson 2008: 74).

izes criminal events (Ibid.). They identify 'crime generators' and 'crime attractors' as places that become 'crime hot spots' as a result of these rules and processes.

> Crime generators are particular nodal areas to which large numbers of people are attracted for reasons unrelated to any particular level of criminal motivation they might have or the particular crime they might end up committing. […] Crime generators produce crime by creating particular times and places that provide appropriate concentrations of people and other targets in settings that are conducive to particular types of criminal acts. […] Crime attractors are particular places, areas, neighbourhoods or districts which create well-known criminal opportunities to which intending criminal offenders are attracted because of the known opportunities for particular types of crime. They become activity nodes for repeat offenders. (Brantingham and Brantingham 2008: 89)

Examples of crime generators include shopping precincts, entertainment districts, or office concentrations. Examples of crime attractors might include bar districts, prostitution strolls, drug markets, large shopping malls, and large parking lots in business or commercial areas (Brantingham and Brantingham 2008: 89).

A fifth and final area of work in the environmental tradition focuses on equipping the police with methods and tools to implement environmental interventions. Examples of the latter include Goldstein's problem-oriented policing, Eck and Spelman's 'SARA'-model, and intelligence-led policing (Wortley and Mazerolle 2008: 14). Introduced in 1979, problem-oriented policing reflects the same action research paradigm underpinning situational crime prevention. According to Goldstein (1979; Clarke and Eck 2003: 5–1; Scott et al. 2008: 225), achieving greater operational effectiveness for the police requires identifying the everyday problems they handle in more precise terms, researching each problem, documenting the nature of the current police response to these problems, assessing its adequacy and the adequacy of existing authority and resources, engaging in a broad exploration of alternatives to present responses, weighing the merits of these alternatives, and choosing from among them. As argued by Eck and Madensen (2012: 81), problem-oriented policing is about the application of sci-

ence to problems faced by the police. Rather than simply respond to crimes once they have occurred, problem-oriented policing attempts to discover and tackle the immediate causes of crime with the intent of implementing preventative strategies (Braga 2000, in Brayley et al. 2011: 132). Yet according to Eck and Madensen (2012: 82), the approach has become synonymous with the 'SARA'-process, a practical device used to assist its implementation. This model was originally developed by Eck and Spelman as a simple problem-solving tool that can help in addressing any crime or disorder problem (Morgan and Cornish 2006: 29). More recently, Ekblom (cited in Clarke and Eck 2003: 8–2) developed the 'SARA'-acronym further into what he refers to as 'the 5 I's': intelligence, intervention, implementation, involvement, and impact and process evaluation. Intelligence-led policing, finally, serves as a third example of methods and tools to implement environmental interventions. It was developed as a police practice that makes strategic use of crime data and criminal intelligence and is applied to understand the true causal factors of crime problems plaguing communities (Wortley and Mazerolle 2008: 14; BJA 2015).

5   Criticism against the Situational Approach

Following its introduction, situational crime prevention has seen a rapid growth. Likewise, the concept has not been without its share of criticism. Opponents claim that the approach is simplistic and atheoretical; and that it ignores the vast body of criminological research establishing that the root causes of crime lie in deprivation resulting from genetic inheritance, personality and upbringing, or from social, cultural, racial, and economic disparities. To suggest that there is a direct link between opportunity and crime is considered to be an oversimplification of the determinants of human behaviour (see e.g. Newburn 2007: 566). As argued before, situational crime prevention has been blamed of displacing crime (see e.g. Tilley 2005: 6; Newburn 2007: 296). It is claimed to be a conservative, managerial approach to crime; 'damned' as administrative criminology

because of its origins[9]; castigated for its lack of social awareness in its choice of crimes to address; accused of paying too much attention to protecting the property and interests of the powerful whilst neglecting crimes against women and minorities; and said to lack any vision and social purpose. Opponents further state that it promotes a selfish, exclusionary society, and institutionalizes suspicion and mistrust; that it blames the victim for not taking (sufficient) precautions against crime; that it promotes 'Big Brother', and restricts personal freedoms (see also Sève 1997: 192–193; Felson and Clarke 1997: 198; von Hirsch et al. 2000; Tilley 2005: 6; Newburn 2007: 296; Jones 2009: 106; Mayhew and Hough 2012: 19).

One of the main criticisms is not directed at the approach itself, but at the rational choice perspective which is claimed to be a principal part of its theoretical foundations (see supra). Central to the rational choice perspective is the assumption that offenders make rational decisions when carrying out a criminal act (Clarke 1997b: 6). The offender is portrayed as a reasoning criminal, 'a thinking individual who is capable of making (crime-specific) decisions and who seeks to gain benefits from committing crimes' (Leclerc and Wortley 2014b: 3). This presumption of rationality has been a central target for critics who find themselves supported by recent developments in various fields of study. From decades of research on human decision-making, we meanwhile know that people will frequently make choices that are not rational and do not maximize expected utility (Wortley 2014: 241). Many offenders have flawed social cognitive skills impacting their ability to make an informed decision (Palmer 2003: 21); and research suggests that a range of physical conditions such as exhaustion, stress, depression, or alcohol intoxication have an impact on an individual's capacity for self-control and, as such, on their decision-making (see e.g. Felson 2014: 18). Evidence emerging from neuroscience further challenges the notion of consciousness and free will in human decision-making. The question is raised whether or not, and in what

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[9] In the mid-1980s, Young witnessed a shift away from mainstream criminology in official (mainly UK Home Office) circles to what he terms 'administrative criminology'. According to Young, this administrative criminology represents a return to classical thinking which sees crime in voluntaristic (non-deterministic) terms (Young 1986, cited in Jupp 1989: 21).

sense, rational agents exercise control over their actions and decisions. Through researching the actions of specific neuronal circuits in our brains using, in most cases, non-invasive neuroimaging techniques like positron emission tomography (PET) and functional magnetic resonance imaging (fMRI), neuroscientists have come to begin decipher what exactly happens when individuals make decisions (see e.g. Lee et al. 2011). We meanwhile know that only a limited number of decisions are being made consciously. As argued by Damasio (2006: 166), the terms 'reasoning' and 'deciding' usually imply that the decider (in this case the offender) has knowledge about the situation which calls for a decision, about different options for actions, and about consequences of each of those options. They further imply that the decider possesses some logical strategy for producing valid inferences on the basis of which an appropriate response option is selected, and that the support processes required for reasoning (such as attention and working memory) are in place (Damasio 2006: 166). In '*Descartes' Error*' (1994), Damasio illustrates that although we recognize these ingredients in a great number of decisions we take and problems we solve in the course of our lives (e.g. in choosing a career path, in deciding how best to invest our savings, in solving a mathematical problem), there are many examples of decisions we take and in which we use neither conscious knowledge nor a conscious reasoning strategy (Damasio 2006: 166–167).[10] According to Schank and Abelson (1977, quoted in Leclerc 2014a: 222), a person has a repertoire of behavioural sequences stored in memory ready to be activated unconsciously. Cognitive psychologists nowadays distinguish between two types of cognitive processes, being controlled processes and automatic ones.

> Controlled processes are those cognitions of which we have conscious awareness, that we intentionally initiate, that we deliberately control, that are relatively slow, and that require cognitive effort. With practice, many

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[10] To illustrate this point, Damasio provides the example of ducking away briskly in order to avoid a falling object. In order to select the appropriate response is this situation, we rely on knowledge that was once obtained consciously, namely when we first learned that falling objects may hurt us and that avoiding or stopping them is better than being hit. Past experience with this scenario, according to Damasio (2006: 167), made our brain pair the provoking stimulus (i.e. the perception of a falling object) with the most advantageous response (i.e. ducking away), a link that is activated automatically and rapidly when we find ourselves confronted with that scenario later in life.

controlled processes become automatic ones, occurring below the level of conscious awareness, activated without intention, fast and operating in the absence of conscious control. (Wortley 2014: 246–247)

From Damasio, we also now know that decision-making is often interlinked with somatic markers produced by the body (Damasio 2006; Raine 2013). Stored in the somatosensory cortex, these somatic markers are unpleasant autonomic bodily states such as a pounding heart, an unpleasant gut feeling, or perspiration produced when one is contemplating a risky action or a difficult decision (Damasio 2006: 173; Raine 2013: 126).

> [The somatic marker] forces attention on the negative outcome to which a given situation may lead, and functions as an automated alarm signal which says: Beware of danger ahead if you choose the option which leads to this outcome. The signal may lead you to reject, immediately, the negative course of action and thus make you choose among other alternatives. The automated signal protects you against future losses, without further ado, and then allows you to choose from among fewer alternatives. There is still room for using a cost/benefit analysis and proper deductive competence, but only after the automated step drastically reduces the number of options […] When a negative somatic marker is juxtaposed to a particular future outcome the combination functions as an alarm bell. When a positive somatic marker is juxtaposed instead, it becomes a beacon of incentive. (Damasio 2006: 173–174)

As summarized by Raine (2013: 127), negative somatic markers have flagged negative outcomes in an individual's past, and if the situation currently at hand has previously been linked to a negative outcome, the somatic markers for that past event will sound an alarm bell to the decision-making areas of the brain. Yet according to Raine (Ibid.), 'this process may act at either a conscious or a subconscious level, and can be thought of as helping to reduce the range of options in decision making.'

> [Somatic markers] assist the deliberation by highlighting some options (either dangerous or favorable), and eliminating them rapidly from subsequent consideration. You may think of it as a system for automated qualification of predictions, which acts, whether you want it or not, to

evaluate the extremely diverse scenarios of the anticipated future before you. (Damasio 2006: 174)

Damasio (2006: 171) opposed this somatic marker hypothesis to the traditional 'high-reason' view of decision-making[11] and instigated a revolution in cognitive and affective neuroscience by arguing that emotions importantly guide good decision-making.[12]

Developments in neuroscience have further shown that, although in close interaction with the physical and social environment, our biological makeup has a say in determining our behaviour and decision-making. This will be further elaborated upon when dealing with contemporary biosocial explanations for crime (see infra).

The above are just some examples of findings that challenge the main premise of rational choice theory and the 'homo economicus' in its pure sense. Rational choice theorists and proponents of situational crime prevention respond to this challenge by pointing out how limited and circumscribed 'reasoning' and 'rationality' are. As Newman noted back in 1997, situational crime prevention literature to that date had avoided any serious attempt to define the concept of rational choice (Newman 1997: 6). Instead, Clarke and his colleagues preferred to employ the term 'limited rationality'[13] or 'bounded rationality'[14] in order to soften the idea of rationality as fully conscious

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[11] With 'high-reason view', Damasio (2006) refers to the traditional view of decision-making in which the different scenarios are taken apart and a cost/benefit analysis is performed of each of them prior to making a decision.

[12] A similar development may be required in mainstream situational crime prevention. As Ekblom and Gill (2015) argue, cognitive factors such as emotional, perceptual, and motivational processes that shape acquisition, imagining, initiation, and performance of procedures are seldom considered within traditional situational crime prevention, disregarding the fact that emotions may impact behavioural performance.

[13] Bennett and Wright (1984, quoted in Walsh 1986: 41) define the concept of 'limited rationality' as a concept 'in which it is not presumed that offenders weigh all the relevant factors every time an offense is contemplated, and in which other factors (e.g. moods, motives, moral judgments, perceptions of opportunity, laziness, alcohol and narcotics consumed, the effect of others, and their attitude to risk) apparently unrelated to the immediate decision often take over'.

[14] The 'bounded rationality' hypothesis states that 'human information-processing limitations place constraints on decision processes' or, in other words, that 'behaviour is reasoned within constraints, but not necessarily rational in the strict expected utility maximization sense' (Johnson and Payne 1986: 172).

action. Some refer to 'quasi-rationality' as a necessary condition of situational crime prevention efficacy (see e.g. Pease and Laycock 2012: 172). The offender's capacity to make rational choices is argued to be 'limited by cognitive biases, lack of information, time pressures, emotional arousal, drugs or alcohol, individual values and a range of other factors' (Leclerc and Wortley 2014b: 3). As argued by Wortley (2014: 241), the expected utility approaches to decision-making are currently recognized as 'normative models of rationality', showing how judgements should be made and providing 'benchmarks against which errors in reasoning can be judged'. Yet according to Wortley (Idem: 237), Cornish and Clarke intended the model to be an organizing framework for situational crime prevention policy and practice, and not a theoretical model or complete explanation of offender decision-making.

> By emphasising the bounded nature of rationality and the importance of offence-specific decision making, Cornish and Clarke's version of rational choice diverges significantly from the strict expected-utility models originally employed in the social sciences. Cornish and Clarke's [model] was first and foremost a pragmatic model. From the start they were concerned with the practical implications of rational choice, rather than with the precise details of offender decision making. Indeed, while the term rational choice theory is common in the literature as a description of their approach, they regarded rational choice as a heuristic rather than a theory and have consistently preferred the terms rational choice model or perspective. Their primary aim was to develop a 'good enough theory' to provide a framework for developing crime control strategies. (Leclerc and Wortley 2014b: 3)

Despite these efforts and clarifications, critics have continued to focus on undermining the narrow definition of rational decision-making. Scholars argue that if rational choice theory assumes pure rationality (in a sense that an offender would choose to commit a crime with full knowledge and free will, taking into account only a carefully reasoned, objectively or subjectively determined set of costs and benefits), it has virtually no empirical validity (Tilley 1997: 97; Akers and Sellers 2009: 27). It is argued that 'even offenders who pursue crime on a regular, business-like

basis typically do not operate through a wholly rational decision making process' (Akers and Sellers 2009: 27).

As an unfortunate side effect, this criticism often robs off on the affiliated concept of situational crime prevention. As the latter is commonly reported on in close relation to the rational choice perspective, it may appear as if it has no real value if one does not subscribe to the hypotheses put forward in a (pure) rational actor model. In what follows, it is argued that this is not the case. First, however, it makes sense to visit a range of seemingly competing criminological theories and highlight what claims they make regarding (offender rationality and) effective crime prevention.

6   Theories on Crime and Criminality

As Masters and Roberson (1990: 37) indicate, there are a variety of schemes used to classify criminological theories. Some authors go back through history in search for writings on crime and punishment in order to list them chronologically, while others divide them into schools of thought or portray them as a succession of perspectives (see also Coleman and Norris 2000: 24; Garland 2002; Hopkins Burke 2005). In his '*History of Criminology*' (1994), Rock identifies five phases in the development of the discipline (Hine 2008: 20).[15] In an often quoted article on the development of criminology in Britain, Garland suggest that criminology grew out of a convergence between the governmental project, focusing on the administration of justice, and the Lombrosian project, aimed at building a science of causes (Garland 2002: 7–8).[16] Still others divide the various explanations and theories that have been developed around three main types of theory: those that argue that criminality is caused by

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[15] The first phase covers the period between 1500 and 1750, with a number of individuals writing about crime and criminals. The second phase (1750–1830) is described as the beginnings of an organized criminology motivated by philanthropic aims, and the third (1830–1890) as a period characterized by the state's acknowledgment of the value of expertise. In phase four (1880–1960), criminology developed as a distinctive academic pursuit, and phase five (1960 and onwards) saw the institutionalization of the discipline (Hine 2008: 20–21).

[16] While the 'Lombrosian project' is to be regarded as a more academic (theoretical) enterprise, the 'governmental project' is primarily concerned with applied, practical matters such as policy, governance, and control (Coleman and Norris 2000: 16; Garland 2002: 8).

forces beyond the control of the individual; those that recognize free will and the ability of individuals to think and choose what is perceived as their own best interests; and those that focus on the way society decides who and what to control, and in what manner (see e.g. Williams 2004; Hopkins Burke 2005).

Classifications are not always consistent and sometimes misleading (Garland 2002: 11–12). Some authors will position learning theory under the heading of psychological explanations (e.g. Newburn 2007), while others will refer to them under sociological explanations (e.g. Hagan 2008). Some authors include feminist criminology under radical criminological theories, while others will limit the label of radical criminology to Marxist criminology. These are just a few examples. Furthermore, it appears impossible to separate all perspectives in a clear alienated fashion. Some theorists will be featured under multiple perspectives or under the same school of thought while they may have quite differing views on important topics such as, for example, human nature (see also Garland 2002: 11–12). Finally, many theoretical approaches have been subjected to revision, competition, and integration (Hopkins Burke 2005: 187). Theories tend to build upon other existing explanations and elements of existing theories have been combined to come to a revised explanation for crime and criminal behaviour. Braithwaite's theory on reintegrative shaming, for example, combines elements of social disorganization theory, control theory and labelling theory (Newburn 2007: 220); and elements of Hirschi's control theory have been reintroduced in many more places since its original formulation (Coleman and Norris 2000: 68). Many of the early theories have been discredited over time, although a lot of expressions of these theories are resurrected in new forms of modern thinking (Hagan 2008: 94). As Hopkins Burke (2005: 187) indicates, all theories have been revised to some degree based on insights and explanations found in other theories, and the sources can vary from internal sources to sources external to their host model of criminal behaviour.

Overall, there is no such thing as one general and universally accepted theory on crime causation. Theories differ in their theoretical range (i.e. the units of analysis and level of explanation) and in their ability to address different types of criminal behaviour (Hagan 2008: 205). According to Walker (1987, quoted in Blackburn 1993: 25), 'the search for a unifying

theory of crime is equivalent to looking for a single theory of disease.' As Gamble and Eisert (2004, quoted in Hagan 2008: 141) put it, 'looking into the next century, the question that remains is not whether biological or psychological or sociological approaches will be most successful in understanding crime and delinquency, but rather how successful will we be in describing how biological, psychological and sociological factors interact to produce delinquent behavior'.

As to present the broad range of criminological theories in some structured and meaningful manner, this chapter mainly follows the division in types or schools of thought used by Hagan in his *Introduction to Criminology* (2008). Acknowledging the fact that certain theorists exhibit conceptions that meld different types or schools of thought, Hagan (2008: 94) identifies the demonological, classical (and neoclassical), ecological, economic, (biological and psychological) positivistic and sociological approaches as the primary theoretical approaches in criminology. As the latter include a broad range of subtypes, Hagan further divides sociological approaches into 'mainstream' versus 'critical' approaches. Like any scheme or classification, the one obtained for in this chapter will have its merits as well as its faults. Quite some arguments and approaches will be missing; and only limited detail, context, and criticism will be provided on the ones that are included. In view of the discussion at hand, however, the summary of approaches will serve its purpose.

6.1   Demonological Explanations

For over a thousand years prior to the modern age, crime and criminal behaviour in Europe had been explained by spiritualist notions (Vold et al. 1998, quoted in Hopkins Burke 2005: 1). In an ancient system of knowledge, the criminal was thought to be a sinner who was possessed by evil spirits or demons, or damned by other worldly forces. His actions were viewed as deterministically controlled by forces beyond human mastery (Lilly et al. 2007: 13; Hagan 2008: 98). Premodern legal systems were founded on spiritualist explanations and punishment frequently involved horrible physical torture (Hopkins Burke 2005: 2). The administration of criminal justice was 'chaotic, predominantly non-codified, irrational

and irregular, and at the whim of individual judgment'; and from a preventive point of view, the threat of cruel and savage punishments, often delivered in public, was considered the primary deterrent (Idem: 2–3).

6.2   Early and Classical Criminological Theories

6.2.1   Classical Theory

The introduction of the rational choice perspective in the 1980s is commonly regarded as an expansion of the utilitarian deterrence doctrine in classical criminology, referring primarily to the eighteenth-century writings of Beccaria and Bentham (Newburn 2007: 114–115; Akers and Sellers 2009: 17; 26; Jones 2009: 1; Leclerc and Wortley 2014b: 3). The basic premise in that theory is that individuals, when making decisions or taking actions, act rationally and exercise free will (Newburn 2007: 115).

> All individuals choose to obey or violate the law by a rational calculation of the risk of pain versus potential pleasure derived from an act. In contemplating a criminal act, they take into account the probable legal penalties and the likelihood that they will be caught. If they believe that the legal penalty threatens more pain than the probable gain produced by the crime, then they will not commit the crime. (Akers and Sellers 2009: 18)

 Successful deterrence, according to Beccaria, requires that punishment is certain, swift, and severe (Newburn 2007: 116). The more likely it is that one will be punished for deviant behaviour, the less likely it is that one will derail. Swift punishment will ensure that the association between the act and sanction will be stronger and more lasting, and a punishment that is severe enough but not too severe will deter (and thus prevent) future misconduct. The aim of punishment, according to Beccaria, is to prevent the criminal from committing more crime, and to prevent others from committing similar offences (Newburn 2007: 117; Verhofstadt 2014: 51). The first is referred to as 'specific deterrence', the latter as 'general deterrence'. As stated by Verhofstadt (2014: 57), the principle of subsidiarity, which forms one of the key principles advocated by Beccaria,

resulted in a fundamental switch from a criminal law based on retaliation to a system that aims for prevention and reason. Beccaria's masterpiece '*Dei delitti e delle pene*' (1764) contains references to a number of practical measures that have the potential to reduce crime, such as providing a decent upbringing and education, providing sufficient formal surveillance, and rewarding compliant (honest) behaviour (Verhofstadt 2014).

According to Bentham, another key figure associated with classical criminological theory and best known for his invention of the 'Panopticon' as a model prison, human action is acceptable if it promotes happiness (i.e. pleasure), and unacceptable if it produces pain (Hopkins Burke 2005: 22; Newburn 2007: 118; Hagan 2008: 102). Based on this principle, the main purpose of the criminal justice system and the logical way to deter or prevent crime should be to ensure that the amount of pain inflicted by punishment outweighs the pleasure derived from the crime (Newburn 2007: 117–118; Jones 2009: 77). For Bentham, 'the principal control over the unfettered exercise of free will is that of fear', and 'punishment is the main way of creating fear in order to influence the will and thus control behaviour' (Hopkins Burke 2005: 23). Yet according to Bentham, punishment needs to be proportionate to the crime, and understandable and predictable to the offender who would be deterred from crime if he calculated that the pain would exceed the pleasure (Newburn 2007: 118; Jones 2009: 77).

6.2.2   Neoclassical Theory

While pure classicism seemed to be oblivious to the differences between individuals, the neoclassical approach admitted environmental, psychological, and other mitigating circumstances such as age, feeble-mindedness, or insanity as modifying conditions to classic doctrine (Coleman and Norris 2000: 19; Hopkins Burke 2005: 27; Hagan 2008: 104). Neoclassicists revised the doctrine of free will recognizing that children, elderly, the insane, and 'the feebleminded' were less capable of exercising free choice and, therefore, less responsible for their actions (Hopkins Burke 2005: 27). This observation lead to what Hopkins Burke (Idem: 28) refers to as a somewhat 'awkward theoretical compro-

mise between the rational actor model of criminal behaviour and the predestined actor model', a compromise that still forms the basis of most modern criminal justice systems.

6.2.3 Right Realism and Contemporary Rational Actor Theories

Near the end of the nineteenth century, the rational actor model had gone out of fashion to see a revival from the 1970s onwards, boosted by the emergence of the new political right that mounted an assault on liberal and radical left trends (Hopkins Burke 2005: 31–32). Becker argued that individuals freely choose crime based on their estimate of their likelihood of being caught, and Wilson proposed a shift in focus in (applied) research from finding causes to finding out 'what works' (Hagan 2008: 104). While adopting a utilitarian explanation for human action, Wilson would concentrate on increasing the cost of crime rather than increasing the benefits of 'non-crime' (Hopkins Burke 2005: 34). With a strong focus on the certainty of punishment rather than its severity, he advocated an increase in police effectiveness and an improvement of the consistency of the criminal justice system (Ibid.). Together with Herrnstein, he would consequently argue against long sentences while adopting a traditional rational actor model stance on the issue of the deterrent value of sentencing (Hopkins Burke 2005: 35). As argued by Hopkins Burke (Idem: 36), right realism can be considered very much a contemporary revival of the rational actor model of crime and criminal behaviour.

> It is the central proposition of their thesis that crime is the result of individual choice and can be prevented or contained by pragmatic means which make the choice of criminal behaviour less likely: reducing the opportunity; increasing the chances of detection; increasing perceptions of detection partly through rigorous policing, especially of disorder; and, most importantly; definite punishment. (Hopkins Burke 2005: 36)

Other examples of contemporary rational choice theories include Cornish and Clarke's rational choice perspective and Cohen and Felson's

routine activity theory, which have been covered in sufficient detail in previous sections (Williams 2004: 421; Hopkins Burke 2005: 40). Yet another expression of neoclassical theory can be found in the deterrence literature (Hagan 2008: 104). Each of them grew out of the same utilitarian philosophy of the eighteenth century and all of them assume that crime is the result of rational choice and of the hedonistic impulses of the individual, an assumption that, as illustrated before, is criticized by many.

6.2.4   Ecological (or Geographical) Theory

The ecological school represented 'a critical transition from the philosophical and theoretical approach of Beccaria to the more scientific approaches of the 20th century' (Hagan 2008: 110). Opposite to Beccaria or Lombroso, some consider Guerry and Quetelet to be the true fathers of modern criminology (see e.g. Hagan 2008: 106). As representatives of the ecological or geographical school of criminological theory,[17] they applied official data and statistics to the problem of explaining criminality. Back in the 1830s, they (independently) carried out the earliest spatial studies of crime (Anselin et al. 2008: 98; Jones 2009: 81). Based on a cartographic analysis of variations in French official crime statistics, Guerry concluded that the higher rates of property crime witnessed in the wealthier areas of France were due to greater opportunity. Quetelet, the father of modern sociological and psychological statistics, challenged the view that individuals exercise free will in deciding on their actions (Hagan 2008: 109). In his *Treatise on Man and the Development of His Faculties* (1835), he noted a remarkable consistency with which crime appeared annually and with which it varied with respect to age, sex, economic conditions, and other sociological variables, which made him conclude that crime could not be solely a matter of individual choice (Hagan 2008: 109). Other geographical theories would emerge following Guerry's and Quetelet's pioneering work. Examples include explanations

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[17] The ecological school of criminology is often referred to as the geographic, cartographic, or statistical school.

for human behaviour being found in the influencing role of astrological bodies, physical forces or weather conditions, or the early work conducted in the Chicago School, which will be elaborated upon later. From a preventive point of view, Quetelet concluded that the causes of crime were to be found in aspects of social organization, and that legislators should identify and remove these aspects as far as possible (Coleman and Norris 2000: 20).

6.2.5   (Early) Economic Theory

Together with Darwin and Freud, Marx is considered one of the forerunners of modern criminological thought (Hagan 2008: 112). While Darwin would heavily inspire the biological positivists and Freud would influence the psychological positivists, Marx is considered the inspirational figure behind most economic criminological theories (see infra). Being an economic determinist, he insisted that the economic substructure determines the nature of all other institutions and social relationships in society (Idem: 113). Marxist criminologists drew on his writings and applied them to the issue of crime. One of the first to do so was Bonger, who viewed the criminal law as primarily protecting the interests of the propertied class.

> Private ownership of the means of production, as well as the profit motive found in capitalist society, induces 'egoistic tendencies', encourages greed and selfishness, and fails to promote 'social instincts' that would otherwise prevent 'egoistic thoughts from leading to egoistic acts'. […] As a consequence of the present capitalist economic system, man has become very egoistic and hence more capable of crime than if the environment had developed the germs of altruism. (Bonger 1916/1969, quoted in Akers and Sellers 2009: 244)

The cause of crime, therefore, is 'the capitalist mode of economic organisation by which one's class position in society is defined by one's relationship to the means of production' (Akers and Sellers 2009: 244–245). Yet according to Bonger, poverty resulting from capitalism encour-

ages crime, and most crime would be eliminated in a socialist system in which the goods and wealth of a society would be equally distributed (Hagan 2008: 113–114).[18]

6.3   Biological Positivism

Writings of the classical school have had an enormous and lasting influence, leading to extensive reforms to the criminal justice system and the creation of entirely new legal codes based on clearly defined principles (Newburn 2007: 118; Jones 2009: 80). The central statement that crime resulted from the free will and hedonism of the individual offender, however, was argued not to be an adequate response to the question of crime causation. At least in some cases, as shown in the development of neoclassicism, an individual's behaviour could be determined as opposed to resulting from the exercise of a rational choice (Jones 2009: 80). A new search for the criminal man was soon to be initiated and lead to the creation of what came to be known as 'the positivist school of criminology' (Lilly et al. 2007: 17).

Positivism is a philosophical approach that proposes the use of empirical or scientific investigation for the improvement of society (Hagan 2008: 117). In criminological theory, positivists emphasize a consensus world view, a focus on the criminal actor rather than the act, a deterministic model, a strong faith in the scientific expert, and a belief in rehabilitation of the 'sick' offender rather than punishment of the 'rational' actor (Ibid.). As Hagan (2008: 118) continues, the positivists seek to uncover the basic cause of crime and appropriate treatment methods through the systematic application of the scientific method. Positivist criminology is to be seen as a product of an era in which scientific thought placed an increased emphasis on ideas asserting that human behaviour was determined by factors such as biology and physiology, and in which it was assumed that progress was to be gained as a result of the 'dispassionate study of cause and effect' (Newburn 2007: 121).

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[18] Please note that Bonger did not deny that there are inborn differences between individuals making some more liable to commit crimes than others. Capitalism, however, was still maintained to be the major driving force behind criminality (Jones 2009: 191).

6.3.1   Early Biological Positivism

Traditional biological theories, also referred to as early biological positivism, thought of criminals as biologically inferior to normal, law-abiding citizens. Crime is not regarded as rationally reasoned behaviour but rather as the outcome of inborn abnormalities (Newburn 2007: 122; Akers and Sellers 2009: 47). Physical attributes that were initially considered indicative of biological inferiority range from facial features to the external shape of the human skull as an indication of the size, shape, and nature of the brain inside (Newburn 2007: 122). Early scholars that connected biological explanations to criminal behaviour include della Porta, Lavater, and Gall.

Influenced by the work of Darwin on the evolution of species, Lombroso, a nineteenth-century psychiatrist and former army physician, would label the 'born criminal' as an 'atavism', a throwback to an earlier stage of human evolution coming into the world with a bodily constitution that causes him to violate the laws of modern society (Hopkins Burke 2005: 55; Akers and Sellers 2009: 48). The 'criminal man' was considered an almost separate species exhibiting a variety of mental and physical characteristics such as asymmetry of the face, deviation in head size and shape, excessive dimensions of the jaw and cheek bones, excessive length of arms, and so on (Wolfgang 1960, quoted in Newburn 2007: 123). Lombroso would later include broader environmental factors into his work, and would refer to various other types of criminals (Newburn 2007: 124–125; Lilly et al. 2007: 19).[19] Although he used a rather primitive and simplistic methodology, one of the main contributions of Lombroso to the development of modern explanations of crime and criminal behaviour is that he, especially in his later work, clearly recognized the need for multifactor explanations of crime that include hereditary, social, cultural, and economic factors (Hopkins Burke 2005: 56).

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[19] Apart from the 'born criminal', Lombroso would refer to 'insane criminals', including idiots, imbeciles, paranoiacs, epileptics, and alcoholics; 'occasional criminals' or 'criminaloids', whose crimes are explained primarily by opportunity; and 'criminals of passion', who commit crime through passion or some other emotion and are characterized by being propelled to crime by an irresistible force (Hopkins Burke 2005: 55; Lilly et al. 2007: 19).

Various related theories based on the scientific method and supporting the notion of criminal inferiority or a criminal nature would flourish in the late nineteenth and early twentieth centuries. Ferri and Garofalo, both pupils of Lombroso, would stress the importance of considering psychological and social causes as well as biological ones (Coleman and Norris 2000: 21). Ferri would define the classical notion of free will as incompatible with knowledge obtained from modern psychology (Newburn 2007: 126). Unlike (the early) Lombroso, however, he would place greater emphasis to the interrelatedness of social, economic, and political factors that contribute to crime (Lilly et al. 2007: 20; Jones 2009: 83).[20] According to Ferri, crime is caused by a variety of factors which he classified as physical, anthropological, and social (Jones 2009: 83). Yet according to Ferri, the state could do much to reduce crime, for example, through birth control, the provision of inexpensive housing and better street lighting, the provision of public recreation, and so on (Idem: 84).

According to Garofalo, crimes are to be perceived as offences against the law of nature, and these 'natural crimes' as violating the basic human sentiments of probity (i.e. respect for the property rights of others) and pity (i.e. revulsion against the voluntary infliction of suffering on others) (Hopkins Burke 2005: 57; Jones 2009: 84). He would label criminals as developmentally deficient, lacking altruism or concern for others (Newburn 2007: 126), and identified four classes of criminals, each one distinct from the others because of deficiencies in the basic sentiments of pity and probity (Hopkins Burke 2005: 57; Lilly et al. 2007: 23). True criminals, according to Garofalo, lack properly developed altruistic sentiments and have psychic or moral anomalies that can be inherited (Hopkins Burke 2005: 57).

In '*The English Convict*' (1913), Goring described the criminal of English prisons as 'markedly differentiated by defective physique […], by defective mental capacity […] and by an increased possession of wilful anti-social proclivities' (Goring 1913, quoted in Newburn 2007: 127).

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[20] In his fifth edition of *Sociologia Criminale* (1929–1930), Ferri listed six classes of criminals: the born or instinctive criminal, the insane criminal, the passion criminal, the occasional criminal, the habitual criminal, and the involuntary criminal (Lilly et al. 2007: 21).

He would refute Lombroso's theory of distinctive physical characteristics and launch a search for hereditary mental deficiency as the cause of crime (Hagan 2008: 121). Hooton, an American anthropologist, would define crime as 'resulting from the impact of environment upon low-grade (that is 'organically inferior') human organisms'; and theorists such as Kretschmer, Sheldon, and Glueck would relate criminal behaviour to previously distinguished body types (Coleman and Norris 2000: 27; Newburn 2007: 127; Hagan 2008: 123).[21]

6.3.2   More Recent Biological Positivism

In modern biological and biosocial theories of crime and delinquency, the rather simplistic biological determinism that is characteristic of the early biological theories is mostly rejected. As stated by Newburn (2007: 132), 'work in this area is no longer based on a simplistic search for a direct connection between physical characteristics and behaviour.' Proponents of more recent biological theories do not support the view that specific biological defects produce specific criminal behaviour (Akers and Sellers 2009: 69). Most of them would argue that biological and environmental factors interact and suggest that some biological factors partially account for some crime in some types of offenders (Hagan 2008: 125). They generally acknowledge the importance of environmental and social influences on criminal behaviour and suggest that these should be studied in parallel with genetics (Williams 2004: 128).

As stated by Akers and Sellers (2009: 53–54), the emphasis in modern biological theory has shifted from speculation over physical stigmata and constitutional make-up of the 'born criminal' to biochemistry (e.g. nutrition, male and female hormonal balances, metabolism), genetics (e.g. heritability, IQ, evolution), and neurophysiology (e.g. brain, central and autonomic nervous systems, physiological arousal levels, neurotransmitters). Various attempts have been made to examine a genetic basis for crime, for example, through studying the family trees of known

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[21] As an example, Kretschmer referred to the 'asthenic', 'athletic', and 'pyknic' body type, and some mixed types.

criminals, twin studies, adoption studies, and the like (see e.g. Williams 2004: 131–135; Newburn 2007: 132–137). Offending has been linked to diet (e.g. in relation to blood sugar levels, food allergies, food additives, and the level of vitamins or minerals in the human body) and extensive research has been conducted on the effects of various biochemical factors such as hormonal imbalances on criminal activity and antisocial behaviour (Newburn 2007: 141–143). The male sex hormone has been claimed (but not necessarily proven) to adversely affect the central nervous system causing aggressive behaviour (Idem: 141–142); various studies have been conducted into the relationship between adrenalin levels, cortical arousal, and aggression (see e.g. Olwens 1987, quoted in Williams 2004: 151); and scientists have linked a number of neurotransmitters such as serotonin, dopamine, and norepinephrine with various sorts of antisocial behaviour (Williams 2004: 147–154). It is commonly accepted that attention needs to be given to the interaction between these biochemical effects, behavioural changes, the environment, and the psychological characteristics of the individual (Idem: 153).

Many contemporary scientists consider genes relevant due to their impact on the development of brain structures and functions and, consequently, on (criminal) behaviour. According to neuroscientists, the early development of the human brain is influenced by a multitude of genetic and environmental factors that can determine its future structure and functioning (see e.g. Swaab 2010; Raine 2013). It is claimed that we are born with a different predisposition to aggressive behaviour based on gender,[22] on the amount of nutrients received via the placenta and on the behaviour of our mother during pregnancy (e.g. smoking, use or abuse of certain medicines or alcohol causing damage to the foetal brain, etc.). As argued by Raine (2013: 205), multiple health-related factors that occur right at birth and even before birth can be considered 'architects in shaping the landscape of violence'. In a study by Beaver and Wright (2005), hypoxia[23] was found to be 'the best predictor of a lack of self-control, a key behavioural risk factor for crime and especially for

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[22] Males, for example, will commonly behave more aggressively than females due to the testosterone levels produced during pregnancy.
[23] A partial lack of oxygen at birth.

explosive, impulsive aggression'. Other birth complications such as pre-eclampsia,[24] maternal bleeding, and maternal infection reduce the blood supply to the placenta, resulting in cell loss in a number of important brain areas including the hippocampus and frontal cortex (Raine 2013: 189). Malnutrition and dietary deficiencies such as a lack of iron, zinc, protein, riboflavin, and omega-3 can cause brain impairments contributing to crime, and can be compounded by an overexposure to heavy metals in the environment such as neurotoxic lead and manganese (Idem: 207). Likewise, major mental illness with biological causes can contribute to criminal conduct (Ibid.).

Over the years, various brain areas have been associated with immoral, aggressive, and antisocial behaviour. The prefrontal cortex is known to restrict impulsive and stimulate moral behaviour (Swaab 2010: 122). Damage to this area is claimed to result in risk-taking, irresponsibility, and rule-breaking (Raine 2013: 67). Research conducted on murderers and psychopaths has revealed an abnormal functioning of the amygdale (Swaab 2010: 296); and the deeper limbic emotion-related brain regions including the hippocampus are believed to be partly responsible for deep-seated aggression and rage (Raine 2013: 79). Many other brain regions are known to play a role in antisocial behaviour, and science has only begun to put the pieces together. What we already do know is that specific abnormalities or damage inflicted to these brain areas (e.g. as a consequence of a cyst or brain tumour) may result in the fact that individuals are unable to distinguish moral from immoral behaviour, to think rationally, or to control their behaviour. Frontal damage, for example, has been shown to result in a whole range of personality changes including impulsivity, loss of self-control, and the inability to modify and inhibit behaviour appropriately (Idem: 67). 'A large body of evidence has shown that adults suffering head injuries that damage the prefrontal cortex—especially the lower, ventral region—show disinhibited, impulsive, antisocial behaviour that does not conform to the norms of society' (Idem: 146). Damage to the orbitofrontal cortex impairs decision-making, and

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[24] 'Preeclampsia' (literally 'the period preceding eclampsia') is also referred to as 'toxemia' or 'toxemia of pregnancy' and is a serious complication of pregnancy associated with the development of high blood pressure, swelling, and protein in the urine (www.emedecinehealth.com).

disturbance to the posterior cingulated will likely result in a disturbance in emotion (Idem: 83).

Not only structural brain malfunctioning is claimed to contribute to antisocial behaviour. As Raine (2013) illustrates, structural superiorities such as greater thickness of grey matter in the ventromedial prefrontal cortex and increased thickness in a band of cortex that stretches across the lateral, outer surface of the right hemisphere of the brain, are believed to be instrumental to white-collar criminals.

> Due to these structural superiorities, white collar criminals have relatively better executive functions and at times are more capable of making good decisions. They are more attentive to what is going on around them and to what people say, as well as being better able to maintain their attention over time. They have a good social sense and know how to read others. They value rewards, particularly abstract rewards like money, and are both motivated and driven by them. They know when to act and when not to act, depending on the social circumstance. They can carefully calculate both the costs and benefits of acting or not acting, depending on the situation. (Raine 2013: 180)

In his *Anatomy of Violence* (2013), Raine argues that impairments in a number of brain areas predispose someone to more complex social and behavioural outcomes that, in turn, predispose them to antisocial behaviour, in general, and violence, in particular.

> Impairment to the ventromedial prefrontal cortex, the medial-polar prefrontal regions, the angular gyrus and the anterior and posterior cingulate results in poor planning and organisation, impaired attention, the inability to shift response strategies, poor cognitive appraisal of emotion, poor decision making, impaired self-reflection, and reduced capacity to adequately process rewards and punishments. These cognitive impairments translate into social elements that lead to crime, poor occupational and social functioning, noncompliance with societal rules, insensitivity to punishment cues that guide behaviour, bad life decisions, poor cognitive control over aggressive thoughts and feelings, overreaction to minor irritations, lack of insight, and school failure. […] At the affective level, impairment to the amygdale/hippocampal complex, the insula, the anterior cingulate, and the superior

temporal gyrus can result in an inability to understand the mental status of others, learning and memory impairments, lack of disgust, impaired moral decision making, lack of guilt and embarrassment, lack of empathy, poor fear conditioning, poor emotion regulation, and reduction in uncomfortable emotions associated with moral transgressions. These can then result in being undeterred from perpetrating gruesome acts on others, callous disregard for others' feelings, poor conscience development, and being unmotivated to avoid social transgressions. […] At the motor level, impairments to the dorsolateral prefrontal cortex, orbitofrontal cortex, and the inferior frontal cortex result in response perseveration, motor impairments involving a failure to shift response sets and passively avoid punishment, and motor excess. In the social context of everyday life this results in the failure to invoke alternative response strategies for conflict resolution, the repetition of maladaptive social behaviour, poor impulse control, the failure to avoid punishment, and disruptive behaviour. (Raine 2013: 267–269)

Raine's flow from basic brain processes to more complex cognitive, emotional, and motor constructs that then translate to real-world practical behaviours conveys the complexity of the topic, acknowledging that many more brain regions are involved and that the puzzle becomes even more complex when we include the macrosocial and psychosocial processes that interact with these brain pieces (Raine 2013: 269).

As stated before, most modern theorists in this field assume that behaviour results from an interaction of the biological makeup of the human organism with the physical and social environment (hence the reference to 'biosocial' theories). Behavioural potentials and susceptibilities, it is argued, can be triggered by biological factors but have different probabilities of actual occurrence depending on the environments the individual confronts over a period of time (Akers and Sellers 2009: 54). As Raine (2013: 114) argues, although there is substantial evidence for a biological basis to crime and violence, 'biology is not destiny'. The same biological predispositions can result in very different outcomes, and even though people may have a propensity for antisocial behaviour, that does not mean that they automatically become criminal (Williams 2004: 163). The environment and social context are critically important as they can act as a trigger for the structural or functional brain disruptions or risk factors (see e.g. Raine 2013: 190). Biological and social processes

are inextricably mixed.[25] As Raine (2013) concludes, 'we can get to bad brains through bad genes or bad environments, or through the combination of both'.

6.4   Psychological Positivism

Psychologists have shown an interest in crime and the law as from the advent of psychology as a discipline (Blackburn 1993: 1). While purist proponents of psychological positivism would argue that certain patterns of reasoning and behaviour are specific to offenders (Hopkins Burke 2005: 74), most contemporary psychological theories and scholars acknowledge that behaviour is relatively variable and shaped by the content in which it occurs (Wortley 1997: 65; Palmer 2003: 11). As do biological theories; psychological, psychiatric, and psychoanalytic theories search for the causes of crime within the makeup of the individual, in this case, the individual's mind (Hagan 2008: 131; Akers and Sellers 2009: 71). Some authors argue that there are two general types of psychological theories in criminology, being those that focus on traits and those that focus on learning theory (see e.g. Cullen and Agnew 2003, quoted in Hagan 2008: 132). According to other scholars, psychological theories of offending behaviour can be divided into psychobiological theories, psychodynamic theories, learning theories, cognitive–behavioural theories, and control theories (see e.g. Palmer 2003). Some of these will be dealt with in separate sections, although one can argue that they equally fit under the heading of psychological theories.

6.4.1   Freudian Theory

As stated by Newburn (2007: 149), 'psychoanalytic theory emphasises irrational and unconscious motivations in explaining criminal conduct.' Classical Freudian explanations of delinquency focus on abnormalities

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[25] Low serotonine, as an example, does not act in isolation in predisposing individuals to aggression. As Raine argues, it also requires a suitable provocative social context to result in hot-blooded violence (Raine 2013: 58).

or disturbances in the emotional development of the individual from early childhood. It is argued that criminal or delinquent behaviour is 'a symptom of the psychic conflict between the id, ego, and superego, arising from abnormal maturation or control of instincts, a poor early relationship with the mother or father, fixation at a stage of emotional development, or repressed sexuality or guilt' (Akers and Sellers 2009: 72). In psychoanalytical theory, crime is explained as an expression or symptom of one or more underlying mental illnesses, emotional disorders, or psychic disturbances (Hagan 2008: 132; Akers and Sellers 2009: 72), or as 'one of the outward signs of the disease or of the problematic resolution of the mental conflict' (Williams 2004: 171). As Hagan (2008: 132) puts it, 'adherents of Freudian theory view much criminality as unconsciously motivated and often due to repression (i.e. hiding or sublimation into the unconscious) of personality conflicts and unresolved problems experienced in early childhood'. Crime is a symbolic expression of inner tensions that each person has but fails to control (Lilly et al. 2007: 26).

One of the best known neopsychoanalytic theories on (juvenile) delinquency is Bowlby's notion of maternal deprivation, arguing that children who were deprived from consistent and continuous maternal care prior to reaching the age of five, may have difficulty later on in establishing relationships (Palmer 2003: 12; Newburn 2007: 150). While empirical support for this theory appeared missing in quite some follow-up studies, it had a major and lasting influence on, for example, the training of social workers (Morgan 1975, in Hopkins Burke 2005: 76).

6.4.2   Psychometry

Personality theory distinguishes criminals from normal, law-abiding individuals on the basis of abnormal, inadequate, or specifically criminal personalities (e.g. a psychopathic, antisocial, or sociopathic personality type) or personality traits (e.g. impulsiveness, aggressiveness, sensation seeking, rebelliousness, hostility, etc.) (Akers and Sellers 2009: 74). In *Crime and Personality* (1977), Eysenck claims the extroverted personality to be more delinquent or criminal than the introverted or inhibited personality, which is mainly due to their impulsiveness (Hopkins Burke

2005: 81; Newburn 2007: 163; Hagan 2008: 134). Individuals that score high on the psychoticism scale are claimed to be characterized as being cruel and inhumane, hostile to others, aggressive, troublesome, insensitive, and lacking in feeling (Coleman and Norris 2000: 37; Williams 2004: 176). According to Eysenck, the degree of socialization in any individual is dependent on a combination of the biological makeup of the child and the nature of conditioning experiences of the individual (Coleman and Norris 2000: 38).[26] Various combinations of the different personality dimensions within an individual affect their ability to learn not to offend, with the 'stable introvert' being the most effectively conditioned personality (Eysenck 1977, in Hopkins Burke 2005: 80).

According to Yochelson and Samenow, two of the more recent advocates of the existence of a distinctive criminal personality, socio-environmental constraints on individual criminality are irrelevant (Hagan 2008: 135). The criminal personality is imprinted at birth and its characteristics include a search for the excitement of crime, exploitation of interpersonal relationships, untrustworthiness, intolerance of others, lack of empathy, and so forth (Newburn 2007: 157–158; Hagan 2008: 135). Most contemporary personality theorists, however, agree that the performance of behaviour is best understood as resulting from an interaction between dispositional and situational factors (see e.g. Wortley 2012: 184).

Other psychometric explanations for criminality focus on intelligence. Back in the early twentieth century, Goddard studied the link between criminality and 'feeblemindedness', which he would later measure by means of IQ tests (Williams 2004: 239). More recently, we have witnessed a revival of the idea that intelligence plays a role in crime and delinquency. Based on an extensive literature review, Hirschi and Hindelang argue that the intelligence quotient is at least as good a predictor of delinquency as race, social class, and upbringing (Williams 2004: 240; Newburn 2007: 164; Hagan 2008: 136); and based on a longitudinal study carried out

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[26] Eysenck got his inspiration partly from psychologist B.F. Skinner, who believed that through a process of what he called 'behavioral modification', unacceptable behaviour can be engineered toward acceptable behaviour (Hagan 2008: 134). According to operant learning theory, strongly associated with the work of Skinner, behaviour that results in consequences felt to be desirable will tend to increase in frequency, whereas behaviour that results in undesirable outcomes will tend to decrease (Newburn 2007: 152).

by the Cambridge University Institute of Criminology, it was found that a low IQ seemed as closely related to criminality as other, more widely accepted factors such as parental conflict, separation or instability, unsatisfactory child-rearing, and so on (Williams 2004: 240).

6.4.3   (Contemporary) Cognitive Theories

Quite a number of theoretical approaches within psychology focus on the relationship between cognition and crime, and as Newburn (2007: 157) indicates, such ideas have close connections with elements of rational choice theory. In suggesting to have identified the thinking patterns and flawed ways of thinking that characterize criminals, Yochelson and Samenow's personality theory discussed above is sometimes captured under this heading (see e.g. Newburn 2007: 157–158). Whereas most people are able to make rational decisions, Yochelson and Samenow argue that the criminal personality features a range of 'thinking errors' grouped into character traits, automatic errors, and errors associated with criminal acts (Ibid).

 Contrary to Yochelson and Samenow, Piaget and Kohlberg focus on moral development (Newburn 2007: 159). Following up on Piaget's work investigating the intelligence of young children (Palmer 2003: 29), Kohlberg identified a set of levels and stages of moral development, arguing that progression from one stage to another depends on cognitive development (Ibid.). He divided his six stages of moral development into three levels of two stages each: preconventional reasoning, conventional reasoning, and postconventional reasoning (Palmer 2003: 33).

> At the preconventional level, an individual's moral reasoning shows little or no understanding of social rules and conventions. Rules about acceptable behaviour are perceived as being external to the individual and imposed by society. […] At the conventional level, reasoning moves on to reflect an understanding of society's conventions and the need to maintain them. […] Finally, the postconventional level represents an understanding that behaviour within a society is based on underlying moral principles. (Kohlberg, in Palmer 2003: 33–35)

According to Kohlberg, the relationship between the individual and social norms and rules differs depending on the stage of moral reasoning that the individual has reached (Newburn 2007: 160), and offending is associated with a delay in the development of moral reasoning (Hollin 2002: 159). When presented with an opportunity to offend, those associated with a less mature level of moral reasoning (i.e. a 'preconventional' or 'premoral' level) don't display the reasoning that would allow them to control and resist temptation (Hollin 2002: 159; Newburn 2007: 160). 'The restricted ability to think in more complex moral terms restricts individual decision-making and, in combination with other factors, makes rule-breaking more likely' (Newburn 2007: 160).

Contemporary cognitive psychologists definitely see a role in cognitive factors such as moral reasoning, deficient problem-solving, egocentrism, and empathy in explaining criminal behaviour, but recognize that these factors are not 'necessary factors' offering a full explanation for offending (see e.g. Andrews and Bonta 1998, in Hollin 2002: 163) and that the role for psychological variables is located in a broader social context (Hollin 2002: 163).

6.5   Sociological Mainstream Theories

With the exception of early economic and ecological theories; the classical, biological, and psychological traditions in criminology fully focus on the individual criminal as the unit of analysis (Hagan 2008: 145). In the 1930s, we see the development of sociological approaches with a focus on societal conditions, groups, social disorganization, and conflict (Ibid.). This competing vision of crime as a social product or construct rejected the individualist explanations of crime that were central to the theories described above. According to this new vision, the key to unlocking the mystery of crime was to be found in its social roots (Lilly et al. 2007: 34). Some of the mainstream sociological theories include social process theories, anomie and strain theories, social bonding and control theories, and developmental and life course theories. Each of these will be explained briefly in the following sections.

6.5.1 Anomie and Strain Theories

For Durkheim, a French sociologist and one of the founding fathers of sociology, the notion of crime reflects particular social conventions that may vary according to time and place (Newburn 2007: 170).

> We must not say that an action shocks the conscience collective because it is criminal, but rather that it is criminal because it shocks the conscience collective. We do not condemn it because it is a crime, but it is a crime because we condemn it. (Durkheim 1972, quoted in Newburn 2007: 171)

Durkheim, whose work represented a return to the thinking and orientation of the theories advocated by Quetelet and Guerry (see supra), considered crime to be a normal phenomenon or necessary feature in society because group reactions to deviant actions assist human groups in defining their moral boundaries (Williams 2004: 305; Newburn 2007: 170–171; Hagan 2008: 147). A society, according to Durkheim, is based on a sharing of basic values to which not everyone will subscribe (Jones 2009: 117). Difference of opinion is inevitable, and therefore a society without crime is nothing but a utopia (Ibid).

Durkheim originally employed the term 'anomie'[27] to describe a state of normlessness or lack of social regulation as a condition that promotes higher rates of suicide in modern society (Jones 2009: 119). This notion of anomie would influence a great number of criminological (subcultural) theories, and constitute a theoretical school of thought within conventional criminology (Hagan 2008: 147). His thoughts were first taken up by the Chicago School and then by the American sociologist Merton, who applied the approach in the late 1930s to the condition of modern industrial societies, questioning what it is about society and cultural institutions that causes deviance (Hagan 2008: 147; Akers and Sellers 2009: 183; Jones 2009: 121).[28] While the Chicago School (see infra) was of the idea that the roots of crime were predominantly embedded in the

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[27] The term 'anomie' is derived from the Greek 'a-nomos', which means 'lawless' (Jones 2009: 117).

[28] Merton developed his theory in the aftermath of the period of depression in the USA and built it on a critique of particular elements of American culture (Newburn 2007: 175).

city slums and that people became criminal by learning deviant cultural values, Merton identified 'the American dream' as the key ingredient to crime (Lilly et al. 2007: 54–55). He saw anomie as resulting from the absence of means to achieve socially desired aspirations and refers to it as the form that societal malintegration takes when there is a dissociation between valued cultural ends and legitimate societal means to those ends (Newburn 2007: 175; Akers and Sellers 2009: 183). This discrepancy (or strain) between aspirations and achievement are key to Merton's strain theory.

> The dominant pressure of group standards of success is, therefore, on the gradual attenuation of legitimate, but by and large ineffective, strivings and the increasing use of illegitimate, but more or less effective, expedients of vice and crime. The cultural demands made on persons in this situation are incompatible. On the one hand, they are asked to orient their conduct toward the prospect of accumulating wealth and on the other, they are largely denied effective opportunities to do so institutionally. The consequences of such structural inconsistency are psychopathological personality and/or anti-social conduct, and/or revolutionary activities. (Merton 1938, quoted in Newburn 2007: 176)

According to Merton, individuals can adapt to the societal condition of anomie by means of 'conformity' (i.e. accepting the state of affairs and continue to strive for success within the restricted conventional means available); 'innovation' (i.e. maintaining commitment to success goals but taking advantage of innovative, sometimes illegitimate means to attain them); 'rebellion' (i.e. rejecting the system altogether and replacing it with a new one); 'retreatism' (i.e. giving up both the goals and the efforts to achieve them, and becoming a societal dropout); or 'ritualism' (i.e. giving up the struggle to get ahead and concentrate on retaining what little has been gained by adhering rigidly and zealously to the norms) (Coleman and Norris 2000: 62–63; Akers and Sellers 2009: 184; Jones 2009: 122–123). The latter four are referred to as 'deviant modes of adaptation' (Lilly et al. 2007: 57).

Two important books on juvenile gangs that appeared in the 1950s and early 1960s prompted a renewed interest in Merton's work (Idem: 60).

In Cohen's version of strain theory, strain is produced by the inability to gain status and acceptance in conventional (American) society (Akers and Sellers 2009: 185). For Cohen, an undergraduate student of Merton, delinquency is a lower-class reaction to middle-class values (Hagan 2008: 151). Adolescents are confronted by middle-class criteria of respectability and acceptance. If they find themselves unable to live up to these criteria, which is mostly the case for lower-class youths, their 'status deprivation' produces 'status frustration', resulting in the formation of a delinquent subculture as a collective response to this frustration (Hopkins Burke 2005: 106; Akers and Sellers 2009: 186). Within this subculture, they are able to achieve a status that legitimates all that is rejected in the 'official' culture, such as hedonism, aggression, dishonesty, vandalism, and so forth (Hopkins Burke 2005: 106). As such, the subcultures offer a means of protection and of striking back against values and behavioural expectations the lower-class youth is unable to fulfil (Hagan 2008: 151).

In their differential opportunity theory of delinquency, Cloward and Ohlin combine anomie, differential association and social disorganization by proposing that deviant adaptations are explained by location in both the legitimate and illegitimate opportunity structures (Akers and Sellers 2009: 186). They argue that 'just as there is unequal access to role models and opportunities to fulfil conforming roles, there is unequal access to illegitimate roles and opportunities' (Idem: 187). In the American society, where success in life is valued so greatly, the failure of slum youths faced with the problem of lacking the opportunity to be successful and gain status, presents them with the strain of status discontentment.

> The disparity between what lower-class youths are led to want and what is actually available to them is the source of a major problem of adjustment […] causing intense frustrations […] and the exploration of nonconformists alternatives may be the result. (Cloward and Ohlin 1960, quoted in Lilly et al. 2007: 62–63)

Drawing on the writings of the Chicago theorists, Cloward and Ohlin concluded that people are not free to become any type of criminal or deviant they would like, as to become a certain type of criminal, access to the requisite illegitimate means is required (Lilly et al. 2007: 63). Contrary

to Cohen, they identify different types of delinquent subcultures resulting from specific illegitimate opportunities available (Akers and Sellers 2009: 187–188). While the 'criminal subculture' is characterized by youth gangs organized primarily to commit income-producing offences such as theft, extortion, and fraud; the 'conflict subculture' is expressed in assaults, vandalism, and gang fights (Hopkins Burke 2005: 108; Akers and Sellers 2009: 187–188). The 'retreatist subculture', as a third subcultural form, is primarily focused on the consumption of drugs and alcohol and composed of members who have given up on both goals and means, whether conventional or illegal (Akers and Sellers 2009: 187–188). Successful crime reduction, according to Cloward and Ohlin, can be achieved through increasing the legitimate opportunities for the underprivileged, for example, by means of improving education, job creation, and the organization of lower-class neighbourhoods into community action groups (Jones 2009: 142).

After having received quite some criticism in the 1970s, Merton's anomie or strain theory saw a revival in the 1980s. The first revival, known as Messner and Rosenfeld's institutional anomie theory, identifies the American dream as containing at least four value orientations conducive to criminal behaviour, being a strong achievement orientation, individualism, a strong emphasis on universalism, and a fetishism on money (Newburn 2007: 182; Akers and Sellers 2009: 194–195). According to Messner and Rosenfeld (2001, quoted in Newburn 2007: 182), the American dream encourages an anomic cultural environment in which people are encouraged to adopt an 'anything goes' mentality in the pursuit of personal goals. They extend Merton's theory to consider the roles played by a variety of (economic, political, family, and educational) institutions of which the economic ones are being given pre-eminence to the detriment of the social control functions of the non-economic ones.

> Anomic societies will inevitably find it difficult and costly to exert social control over the behaviour of people who feel free to use whatever means prove most effective in reaching personal goals. Hence, the very sociocultural dynamics that make American institutions weak also enable and entitle Americans to defy institutional controls. If Americans are exceptionally resistant to control—and therefore exceptionally vulnerable to criminal

temptations—the resistance occurs because they live in a society that enshrines the unfettered pursuit of individual material success above all other values. In the United States, anomie is considered a virtue. (Messner and Rosenfeld 2001, quoted in Akers and Sellers 2009: 196)

In a restatement of their original theory, Messner and Rosenfeld broaden their claims beyond American society, stating that institutional imbalance per se produces high crime rates (Akers and Sellers 2009: 196). According to their revised institutional anomie theory, economically dominant societies produce 'anomic crimes' (which involve material gain), while politically dominant societies produce a 'moral cynicism' (Ibid.). Societies dominated by kinship or religion, on the other hand, 'tend to develop an "extreme moral vigilance" that produces crimes in defence of the moral order such as vigilantism and hate crimes' (Ibid.).

The second revival of Merton's theory, known as Agnew's general strain theory, expands on the connection between sources of strain, strain-induced negative emotion, and individual criminal behaviour (Akers and Sellers 2009: 194). Agnew considers crime and delinquency an adaptation to stress and identifies three major types of deviance-producing strain: the failure to achieve positively valued goals or goods, the removal of positive or desired stimuli from the individual (e.g. moving to a new neighbourhood, poor relations with parents or teachers, etc.), and the confrontation of the individual with negative stimuli such as physical pain, punishment, embarrassment, or some form of psychological trauma (Williams 2004: 314; Akers and Sellers 2009: 199; Jones 2009: 128–129). He views strain as a more general phenomenon than the discrepancy between goals and means, adding additional sources of strain such as being confronted with negative circumstances (Lilly et al. 2007: 66; Hagan 2008: 150). As Agnew (1992, in Lilly et al. 2007: 67) points out, 'crime and delinquency may take place when people respond to this adversity by seeking to escape (e.g. running away from home), to eliminate or obtain revenge against the source of the stress (e.g. murder an abuser), or to dull the psychic pain by taking drugs'. His general strain theory views crime and delinquency as only one of several possible adaptations to strain. Whether a conforming or deviant mode is adopted depends on a number of internal and external constraints on the individual such as peer associations, beliefs,

attributions of causes, self-control, and self-efficacy (Akers and Sellers 2009: 199). Yet according to Agnew (2001, quoted in Newburn 2007: 181), the likelihood that strain will lead to deviant behaviour increases where the strain is perceived as being unjust (i.e. when people feel that they have been treated unfairly); when strain is high in magnitude; where strain is caused by, or associated with, low social control; where strain lowers the level of social control; or where the strain creates pressure to engage in 'criminal coping'. From a preventive point of view, Agnew identified a range of factors that diminish the risk of a criminal adaptation (Agnew 1992, in Lilly et al. 2007: 67). These include the availability of other goals to substitute for blocked goals, individual coping resources, the delivery of social support from others, the fear of the consequences of legal punishments, the presence of strong social bonds, and the denial of access to illegitimate means (Ibid.: 66–74).

6.5.2   Social Process Theories

Both anomie and social disorganization theories propose that social order, stability, and integration are conducive to conformity, whereas disorder and malintegration are conducive to crime and deviance (Akers and Sellers 2009: 177). As stated before, sociologists and sociological thought increasingly dominated criminology from the First World War onwards. Initially, the focus of much criminology was upon the nature of the city, its structures and processes, and how these relate to patterns of crime and delinquency (Newburn 2007: 188). This was to a great extent a merit of a group of scholars working in or trained at the Department of Sociology at the University of Chicago, commonly referred to as the 'Chicago School', who shifted the focus of the study of crime away from the individual towards the social structures that shaped, influenced, and defined the social ecology (Hollin 2002: 149).

According to Park, a former crime reporter who was extremely influential in shaping the work of the Chicago School, the development and organization of the city were not random but patterned (Hopkins Burke 2005: 97; Jones 2009: 93). 'Human communities, like plants, live together symbiotically' (Hopkins Burke 2005: 97). Yet according to Park,

the development and organization of the city could be understood in terms of basic social processes, and the nature of these processes as well as their impact on human behaviours (such as crime) could be ascertained only through careful study of city life (Hopkins Burke 2005: 97; Lilly et al. 2007: 36).

Burgess elaborated on this model of a living ecological environment and saw the city as an organism growing largely from the centre in a series of concentric zones or circles (Williams 2004: 272; Newburn 2007: 191). This pattern was explained by reference to a theory of urban ecology.

> This chart brings out clearly the main fact of expansion, namely, the tendency of each inner zone to extend its area by the invasion of the next outer zone. This aspect of expansion may be called succession, a process which has been studied in detail in plant ecology. (Burgess 1925, quoted in Newburn 2007: 191)

The highest rates of delinquency were found in what Burgess referred to as the 'transition zone', characterized by physical decay, the influx of waves of immigrants, poor housing, incomplete and broken families, lacking social integration, high rates of illegitimate births, and an unstable, heterogeneous population (Akers and Sellers 2009: 178; Jones 2009: 93). In addition to high rates of delinquency, this area had high official rates of adult crime, drug addiction, alcoholism, prostitution, and mental illness (Akers and Sellers 2009: 178). All the forms of deviance and lawlessness that were found in this transition zone were interpreted as the outcome of social disorganization and the breakdown of social control, as 'normal responses of normal people to abnormal social conditions' (Ibid.).

Shaw and McKay, who tested Burgess' theory in the early 1940s, confirmed that the high levels of delinquency found in the transition zones were to be seen as the product of social disorganization and not as dependent upon the people who inhabit those regions (Williams 2004: 273; Hopkins Burke 2005: 97; Newburn 2007: 192). In these transition zones, families and other conventional institutions such as schools, churches, and voluntary associations were found to be either strained or broken apart due to rapid and concentrated urban growth, transiency, heterogeneity, and poverty (Lilly et al. 2007: 38). As a

result, juveniles growing up in these areas received neither the guidance and support nor the supervision or social controls required to develop into law-abiding citizens. They were 'left to their own devices', free to seek excitement and friends in the city streets (Ibid.). With regard to crime prevention, Shaw and McKay argued that delinquency and social problems could be reduced through the development of greater social stability (Jones 2009: 104). They further introduced the idea of cultural transmission, arguing that (delinquent) values are transmitted or passed on from generation to generation, resulting in the establishment of delinquent (city) areas (Newburn 2007: 193). Disorganized neighbourhoods, according to Shaw and McKay, helped to produce and sustain criminal traditions which competed with conventional values and could be 'transmitted down through successive generations of boys, much the same way that language and other social forms are transmitted' (Lilly et al. 2007: 39).

These latter ideas were taken up and modified by Sutherland, who argued that criminal conduct is learned in interaction with others, being communicated between groups and generations (Newburn 2007: 193). Sutherland, influenced by the work of Tarde and Mead and amongst other known for his pioneering work on white-collar crime, proposed differential association theory as an explanation of individual criminal behaviour and differential social organization as the cause of differences in group or societal crime rates (Newburn 2007: 193; Akers and Sellers 2009: 86). Conduct is learned through coming into contact with social norms, and the norms that are present in the particular groups of which an individual is a member and those of other group members will influence the nature of that individual's conduct (Newburn 2007: 151).

According to differential association theory, criminal behaviour is learned in a process of symbolic interaction with others or, to put it differently, 'individuals become predisposed toward criminality because of an excess of contacts that advocate criminal behavior' (Hagan 2008: 158). The principle of differential association, according to Sutherland, is 'that a person commits criminal acts because he or she has learned definitions (i.e. rationalizations and attitudes) favourable to violation of [the] law in excess of the definitions unfavourable to violation of [the] law'.

If persons are exposed first (priority), more frequently, for a longer time (duration), and with greater intensity (importance) to law-violating definitions than to law-abiding definitions, then they are more likely to deviate from the law. (Akers and Sellers 2009: 87)

Yet according to Sutherland, the above goes for very divergent types of illegal activity, including white-collar crime.

White-collar workers might 'start their careers in good neighborhoods and good homes [and then] graduate from colleges with some idealism'. At that point, however, they enter 'particular business situations in which criminality is practically a folkway and are inducted into that system of behaviour just as into any other folkway'. Similar to slum youths and offenders who become professional thieves, their association with definitions favorable to violation of law eventually shapes their orientations and transforms them from white-collar workers into white-collar criminals. In effect, a criminal tradition has been transmitted. (Lilly et al. 2007: 43).

De Fleur and Quinney reworded the essence of Sutherland's differential association theory by stating that:

overt criminal behaviour has as its necessary and sufficient conditions a set of criminal motivations, attitudes, and techniques, the learning of which takes place when there is exposure to criminal norms in excess of exposure to corresponding anticriminal norms during symbolic interaction in primary groups' (1966, quoted in Blackburn 1993: 89).

Concentrating on the delinquency of lower-class male gangs in economically deprived neighbourhoods, Miller proposed that delinquent behaviour is a youthful adaptation to a distinct lower-class culture (Akers and Sellers 2009: 188). According to Miller, lower-class youth learn and act according to the central values or 'focal concerns' of lower-class adults (i.e. trouble, toughness, smartness, excitement, fate, and autonomy), but express and carry out these values in an exaggerated (masculine) way (Newburn 2007: 200; Akers and Sellers 2009: 188; Jones 2009: 139). Lower-class boys, according to Miller, are 'simply striving to be "real men"' (Jones 2009: 140).

In the late 1950s, Matza and Sykes explained delinquency as the result of adolescents using 'techniques of neutralization', being justifications and excuses for committing delinquent acts (Akers and Sellers 2009: 127). Justifications or excuses that may be used to explain or neutralize criminal acts include the denial of responsibility, the denial of harm, the claim that the victim deserved the harm caused, the claim that everyone commits an offence at one time or another, or the approval obtained from the group or gang which is deemed more important than the approval of family or society (Williams 2004: 323–324; Newburn 2007: 199). These neutralizations were later incorporated by Matza into his 'drift' theory of delinquency, which proposes that the techniques of neutralization are ways in which adolescents can get 'episodic release' from conventional moral restraints, allowing them to drift into and out of delinquency (Akers and Sellers 2009: 127).

The interest in the ecological and social disorganization theories of crime resurged in the late 1970s and 1980s with the formulation of the routine activity approach to crime causation (Hagan 2008: 156; see supra). This sociological theoretical perspective was developed in an effort to explain criminal trends in the USA between 1947 and 1974 as a result of changes in labour force participation and single adult households (quoted in Samonas 2013: 7). The basis for the routine activity approach, as stated by Felson (2008: 70), is the theory of human ecology. Crime was seen as a function of major changes in the basic structure of society (Idem: 73). Over the years, as we have seen, the routine activity approach has evolved in several ways. As it assumes that there are always motivated offenders at hand who are inclined to commit crime should a favourable opportunity present itself, the approach is nowadays often found liaised with situational crime prevention and models of offender choices (see e.g. Samonas 2013: 9). Other obvious linkages are those with crime geography, crime pattern theory, and environmental criminology (Felson 2008: 73).

A variation of Sutherland's theory on differential association can be found in social learning theory which is often captured under psychological approaches to crime causation (see supra). This theory emerged in the 1970s as the product of behaviourism and cognitive psychology, combining the ideas that observational learning and direct conditioning are both

important in understanding human behaviour (Newburn 2007: 153). In the field of psychology, social learning theory is primarily associated with the work of Bandura (Ibid.). In contemporary criminology, it refers primarily to the theory of crime and deviance that was proposed by Akers and Burgess as a behaviouristic reformulation of Sutherland's differential association theory of crime (Newburn 2007: 155; Akers and Sellers 2009: 85). Social learning theory retains all of the differential association processes in Sutherland's theory and integrates it with differential reinforcement and other principles of behavioural acquisition, continuation, and cessation (Akers 1985, quoted in Akers and Sellers 2009: 88).

> The probability that persons will engage in criminal and deviant behaviour is increased and the probability of their conforming to the norm is decreased when they differentially associate with others who commit criminal behaviour and espouse definitions favorable to it, are relatively more exposed in-person or symbolically to salient criminal/deviant models, define it as desirable or justified in a situation discriminative for the behaviour, and have received in the past and anticipate in the current or future situation relatively greater reward than punishment for the behaviour. (Akers 1998, quoted in Akers and Sellers 2009: 89)

Akers moved beyond Sutherland in specifying the dimensions of the definitions that can prompt wayward behaviour.

> Some definitions are 'general', such as religious values on right and wrong, and some definitions are 'specific' and, therefore, pertain to whether crime is permissible in certain situations. Some definitions are 'negative' and some are 'positive' toward criminal behaviors; still others are 'neutralizing' in the sense that they encourage offending by 'justifying or excusing it'. (Akers 2000, quoted in Lilly et al. 2007: 49)

In addition to definitions, according to Akers, people can become involved in crime through imitation; and while definitions and imitation are particularly instrumental in determining initial forays into criminal behaviour, social reinforcements (i.e. rewards and punishments) determine whether any behaviour is repeated and, as such,

whether offenders continue to be involved in crime and become stabilized in a criminal way of life (Lilly et al. 2007: 49).

6.5.3   Social Bonding and Control Theories

While positivistic theories assume that everyone will conform to social and legal norms in the absence of specific factors motivating them to commit crime, control theories assume that crime will occur unless prevented by strong social and personal controls (Gottfredson and Hirschi 1990, quoted in Akers and Sellers 2009: 124). In its strictest sense,[29] there is a universal or natural motivation to commit crime, and if social controls break down or weaken, that motivation will result in crime and deviance (Akers and Sellers 2009: 124). In other words, people only conform to social and legal norms because social controls prevent them from doing otherwise.

Reiss was one of the first to introduce the concept of social control in criminology by attributing the cause of delinquency to the failure of 'personal' and 'social' controls (Idem: 125).

> Delinquency results when there is a relative absence of internalized norms and rules governing behaviour in conformity with the norms of the social system to which legal penalties are attached, a breakdown in previously established controls, and/or a relative absence of or conflict in social rules or techniques for enforcing such behaviour in the social groups or institutions of which the person is a member. (Reiss 1951, quoted in Newburn 2007: 229)

Nye, who expanded on Reiss' work, identified three main categories of social control that prevent delinquency: direct control (e.g. parents imposing punishment or rewarding compliance to their offspring), indirect control (e.g. youth refraining from delinquency because they know it might cause pain and disappointment for parents), and internal control

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[29] Please note that, as argued by Akers and Sellers (2009: 124), different control theories vary considerably in the extent to which they limit or exclude the study of the positive motivations behind crime.

(e.g. one's conscience or sense of guilt) (Akers and Sellers 2009: 126). He considered the family to be the most important agent of social control over adolescents, and pointed out that the different modes of social control were mutually reinforcing (Lilly et al. 2007: 87).

The basic proposition in Reckless' containment theory of delinquency and crime, developed around that same period, is that inner and outer 'pushes' and 'pulls' will produce delinquent behaviour unless they are counteracted by inner and outer containment (Newburn 2007: 230; Akers and Sellers 2009: 126).

> Outer containment includes parental and school supervision and discipline, strong group cohesion, and a consistent moral front. Inner containment consists primarily of a strong conscience or a good self-concept, which renders one less vulnerable to the pushes and pulls of a deviant environment, is the product of socialisation in the family, and is essentially formed by age twelve. (Akers and Sellers 2009: 126)

According to containment theory, individuals have various social controls that assist them in resisting pressures that draw them towards criminality (Hagan 2008: 165). Various external factors such as poor living conditions, minority group membership, media influences, bad companions, adverse economic conditions, or the lack of legitimate opportunities; and a range of internal factors such as inner tensions, feelings of inferiority, mental conflict, or organic defects exert pushes and pulls on the individual (Ibid.). These interact with both internal and external protective barriers that add the element of free will in resisting criminality (Ibid.). Internal containments (or protective barriers) refer to the internalization of conventional behavioural values and the development of personality characteristics that enable one to resist pressures, while external (or outer) containments are represented by effective family and near support systems that assist in reinforcing conventionality and insulating the individual from the assault of outside pressures (Idem: 165–166). Reckless particularly took the view that inner containment was crucial in understanding deviance (Newburn 2007: 231).

According to Sykes and Matza (see supra), delinquency occurs when youths escape the control that conventional society has over

them (Lilly et al. 2007: 92). By means of a series of techniques of neutralization (i.e. denial of responsibility, denial of injury, denial of the victim, condemnation of the condemners, and appeal to higher loyalties), the conventional social norms can be temporarily suspended, allowing youths to freely commit certain delinquent acts in particular circumstances without the necessity of rejecting the norms themselves (Ibid.). In his drift theory (see supra), Matza developed the concept of neutralization techniques further by arguing that delinquency was a matter of 'drift' facilitated by the existence of a 'subterranean convergence' between the delinquent's own techniques of neutralization and certain ideologies of the authorities representing the official moral order (Lilly et al. 2007: 93).

The control theory proposed by Hirschi, commonly seen as the main control theorist, is usually referred to as social bonding theory. The general proposition in this theory is that delinquent acts result when an individual's bond to society is weak or broken, reducing personal stakes in conformity (Newburn 2007: 231; Hagan 2008: 166; Akers and Sellers 2009: 129). This bond to society is made up of four highly intercorrelated elements: attachment to others (i.e. the extent to which we have close affectional ties to others, admire them, and identify with them so that we care about their expectations), commitment (i.e. the extent to which individuals have built up an investment in conventionality or a stake in conformity that would be jeopardized or lost by engaging in law violation or other forms of deviance), involvement (i.e. one's engrossment in conventional activities, such as studying, spending time with the family, and participation in extracurricular activities), and beliefs (i.e. the endorsement of general conventional values and norms, especially the belief that laws and society's rules, in general, are morally correct and should be obeyed) (Coleman and Norris 2000: 68; Akers and Sellers 2009: 129).

> The stronger these elements of social bonding with parents, adults, schoolteachers, and peers, the more the individual's behaviour will be controlled in the direction of conformity. The weaker they are, the more likely it is that the individual will violate the law. (Akers and Sellers 2009: 129)

In a collaboration with Gottfredson, Hirschi later moved away from his classic social bonding formulation of control theory to propose a theory of crime based on self-control as the single type of control (Coleman and Norris 2000: 69; Akers and Sellers 2009: 134). Self-control theory, positioned as 'a general theory of crime', states that at all periods of life, individuals with high self-control will be substantially less likely to engage in criminal acts compared to those with low self-control (Williams 2004: 331; Akers and Sellers 2009: 135). Self-control allows us to resist temptation, including the temptations of criminal opportunity (Newburn 2007: 235). The circumstances, however, will need to be right for the lack of self-control to produce crime (Akers and Sellers 2009: 135). As such, it is the combination of criminal opportunities and low self-control that leads to offending (Newburn 2007: 235; Lilly et al. 2007: 108).

> [The offender] is neither the diabolical genius often portrayed by the police and the media nor the ambitious seeker of the American dream often portrayed by the positivists. On the contrary, the offender appears to have little control over his or her own desires. When such desires conflict with long-term interests, those lacking self-control opt for the desires of the moment, whereas those with greater self-control are governed by the restraints imposed by the consequences of acts displeasing to family, friends, and the law. (Gottfredson and Hirschi 1990, quoted in Newburn 2007: 235)

Crime, according to Gottfredson and Hirschi (1990, in Rock 2002: 57), 'is likely to be committed by those who are impulsive, insensitive, physical […] risk-taking, short-sighted, and non-verbal'. More recently, Hirschi proposed a slightly revised version of self-control theory, asserting that social control and self-control are one and the same thing.

> Redefined, self-control becomes the tendency to consider the full range of potential costs of a particular act. This moves the focus from the long-term implications of the act to its broader and often contemporaneous implications […] Put another way, self-control is the set of inhibitions one carries with one wherever one happens to go. Their character may be initially described by going to the elements of the bond identified by social control

theory: attachment, commitments, involvement, and beliefs. (Hirschi 2004, quoted in Akers and Sellers 2009: 143)

By a focus on the person's consideration of the full range of anticipated costs of behaviour, this new concept of self-control replaces the focus on a latent trait characterized by impulsivity, short-term hedonism, and other elements in Gottfredson and Hirschi's earlier concept (Akers and Sellers 2009: 143).

In his power-control theory of crime, Hagan argues that power relationships between father and mother influence the control exercised over sons and daughters.

> In traditional patriarchal households, boys are exposed to fewer controls than girls and are, therefore, greater risk takers and more delinquent than girls. In more equalitarian family structures, both sexes are subject to similar social controls and have more similar delinquency levels. (Hagan 2008: 168)

Personal orientations such as risk-taking or self-control, according to Hagan, are established by the nature of parenting, and families are considered incubators for or prophylactics against criminal involvement (Lilly et al. 2007: 113).

According to Tittle's control balance theory of crime and deviance, each individual has a certain amount of control that he or she is under as well as a certain amount of control that he or she exerts (Lilly et al. 2007: 114).

> The amount of control to which an individual is subject, relative to the amount of control he or she can exercise, determines the probability of deviance occurring as well as the type of deviance likely to occur. (Tittle 1995: 135, quoted in Lilly et al. 2007: 114)

When a person becomes 'acutely aware of his or her control imbalance and realizes that deviant behavior can change that imbalance either by overcoming a deficit or by extending a surplus', and when that person is 'provoked to experience a negative emotion; being a feeling of being

debased, humiliated, or denigrated that intensifies the thought that deviance is a possible response to the provocations', a deviant motivation can be developed (Tittle 2000: 320, quoted in Lilly et al. 2007: 115). When the opportunity is there and constraints are overcome, such deviant motivation can result into deviant behaviour (Lilly et al. 2007: 115).

In recent years, particularly in relation to situational control theories, control theory has become especially influential (Newburn 2007: 241). While Hirschi tends to object to the integration of elements of control theory with elements from theories that are based on different assumptions about human nature, he considers the approach compatible with theories such as rational choice theory (Coleman and Norris 2000: 69). Control theories further provide considerable support for policies and programs fostering integration into the social order, strengthening families, and effective child-rearing (Lilly et al. 2007: 119). They suggest prevention and reintegration policies aimed at moving adults into stable social networks of employment, community activities, and so on; or capable of 'demonstrating the payoff of hard work toward conventional goals to draw both adolescents and adults into positions of personal commitment in which there is too much of a stake in conformity to lose by a return to delinquency or crime' (Idem: 119–120).

6.5.4 Developmental and Life Course Theories

Developmental and life course theories are concerned with the development of offending and antisocial behaviour, with risk factors at different ages and with the effects of life events on the course of development (Loeber and LeBlanc 1990, 1998, in Farrington 2002: 658). Some consider the two constructs as synonyms, while others consider them as slightly different criminological approaches. Where developmental theories assume that people grow up in predictable ways, life course theories portray the growth process as heading along (conformist or criminal) trajectories with random changes triggered by certain (life)events (Cullen et al. 2012: 25). The main developmental and life course theories, according to Cullen et al. (Ibid.), include Gottfredson and Hirschi's self-control theory, Moffitt's taxonomy theory, Hawkins and Catalano's sociological

theory, Farrington's integrated cognitive antisocial potential theory, Hagan's theory of criminal embeddedness, and Sampson and Laub's age-graded theory.

According to self-control theory (see supra), the precursors to crime are laid down early in the life course (Gottfredson and Hirschi 1990, in Cullen et al. 2012: 26). The most important developmental events, according to Gottfredson and Hirschi, can be found in the relationships and interactions that children have with their parents in the first decade of life (Cullen et al. 2012: 27). Children that receive 'good parenting' (i.e. parents that monitor their children for signs of misbehaviour, recognize misbehaviour when it occurs and punish such misbehaviour in a firm and consistent manner) will gradually develop self-control and turn into normal, conforming, and prosocial individuals (Ibid.). Children that receive ineffective parenting, on the contrary, will develop low self-control and become attracted to crime (Ibid.).

According to Moffitt's taxonomy theory, most children engage in 'adolescence-limited' offending, meaning that they are prosocial during childhood, get in trouble in adolescence, and mature afterwards (Cullen et al. 2012: 28). A small group of children, by contrast, start life 'on a pathway to life-course-persistent offending' and engage in a wide variety of criminal and antisocial behaviours throughout the life course (Ibid.). The latter group, according to Moffitt (1997: 18, in Cullen et al. 2012: 28), is composed of children with a difficult temperament (resulting from neuropsychological deficits) that are born to parents who are ill-equipped to handle the child's problems.

Social development theory specifies how (individual, family, school-based, etc.) protective and risk factors interact to encourage either pro-social or antisocial development (Hawkins et al. 2007, in Cullen et al. 2012: 30). It grounds on ideas derived from social bond theory, differential association, and social learning theory and argues that youths on the antisocial pathway can be saved if exposed to a new set of social experiences (Cullen et al. 2012: 30).

Based on a number of observations derived from large-scale longitudinal studies of criminal careers that were conducted from the 1980s onwards, Farrington set the task of developmental and life course theories

at specifying risk factors and protective factors for persisting in or quitting criminal activity (Hagan 2008: 169).[30] This risk-factor paradigm was imported from public health where it had been used for many years to tackle illnesses (Farrington et al. 2012: 46). Risk factors, according to Farrington, can be categorized into long-term risk factors that encourage the development of criminal tendencies and short-term environmental risk factors that immediately encourage criminal events (Cullen et al. 2012: 32). Examples include individual factors such as hyperactivity, impulsivity, intelligence, and attainment; family factors such as child-rearing methods, child abuse, parental conflict, and disrupted families; and social factors such as socio-economic status, peer influence, and neighbourhood factors (Farrington et al. 2012: 48–60). In Farrington's description of the ideal scenario, risk and protective factors should first be identified, and following that identification risk factors should be reduced while protective factors are being enhanced (Farrington 2002: 661–662). According to Cullen et al. (2012: 33), his theory suggests that 'crime can be prevented by discouraging the development of criminal tendencies and by using situational crime prevention approaches to reduce the likelihood that criminal individuals will engage in crime'.

According to Hagan's developmental theory of street crime, young people who live in disadvantaged communities are drawn to the promise of what he refers to as the 'deviance service industry' (Cullen et al. 2012: 36). As a result, they become isolated from conventional employment and educational trajectories, and embedded in a criminal lifestyle (Cullen et al. 2012: 36–37).

In *Crime and Deviance over the Life Course* (2003), finally, Sampson and Laub locate the answer to the question on what accounts for persistence or desistance in social interaction with adult institutions of social control (Hagan 2008: 170). The timing and ordering of significant life events affect criminality, and particularly jobs and marital relations serve as inhibitors of crime. According to Sampson and Laub (2003, quoted in Hagan 2008: 171), 'social bonds to adult institutions of informal social control (such as family, education, neighborhood and work) influence

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[30] As an example, desistance after age 20 is found to be predicted by life events such as marriage, employment, military service, and better residential environments (Hagan 2008: 169).

criminal behavior over the life course despite an individual's delinquent and anti-social background'. They further argue that the importance of social controls varies across the life course of an individual. While family, school, and peer groups are important in childhood and adolescence, they become replaced by higher education, training, work, and marriage in early adulthood; and by work, marriage, parenthood, and community in later adulthood (Cullen et al. 2012: 37–38).

As stated by Akers and Sellers (2009: 315), 'life-course criminologists view age or life stage as the central focus of criminology in much the same way that Marxist and conflict theorists focus on class and race and feminist theorists focus on gender.' Sampson and Laub proposed that 'abrupt turning points and gradual changes that come with growing older, such as getting married and finding stable employment, increase social bonds to society' and explains 'why most who were delinquent at a younger age discontinue law violations later in life while those who do not experience these changes or have disruptive family or employment experiences are more likely to persist in offending' (Akers and Sellers 2009: 315). In a revision of their initial analysis, Laub and Sampson continued to rely on their theory of age-graded or age-related informal social control, but added various nuances by explicitly referring to other general criminological theories such as bonding, learning, strain, and routine activities theories (Akers and Sellers 2009: 316).

6.6   Sociological Critical Theories

Emerging in the 1960s and 1970s, critical criminology consists of five major types of theoretical approaches that challenge basic assumptions of mainstream criminology (Hagan 2008: 176). These approaches include the labelling (or societal reaction) perspective, conflict theory and the feminist, new critical, and radical (Marxist) perspectives. According to Hagan (Ibid.), they have a number of characteristics in common, including the fact that they consider crime as a label attached to behaviour, that this labelling process is controlled by and in the interest of more powerful groups in society, and that crime is often a rational

response to inequitable conditions in capitalistic societies. Yet according to Hagan (Idem: 177), critical criminologists feel that mainstream theories seemed to ignore economic, racial, and sexual inequality; and consider themselves to be 'champions of the underdog' or 'prophets of a new social order'.

6.6.1 Labelling and Reintegrative Shaming Theory

Labelling theory, which became a major criminological approach in the 1960s, focuses on the (in)formal application of stigmatizing, deviant 'labels' or 'tags' on some of society's members (Hagan 2008: 177; Akers and Sellers 2009: 151). According to labelling theorists, individuals are deviant mainly because they have been labelled as such by social control agencies and others. Tannenbaum, whose work on juvenile delinquency contained some of the elements of what would later become broadly recognized as 'labelling theory', referred to the process of attaching labels to deviants as 'the dramatization of evil'.

> The process of making the criminal is a process of tagging, defining, identifying, segregating, describing, emphasising, making conscious and self-conscious; it becomes a way of stimulating, suggesting, emphasising and evoking the very traits that are complained of … The person becomes the thing he is described as being … The way out is through a refusal to dramatise the evil. (Tannenbaum 1938, quoted in Newburn 2007: 213)

According to labelling theorists such as Lemert, Becker, and Tannenbaum, not rule-breaking in itself but the application of labels is crucial to the creation of deviance (Newburn 2007: 215). As Becker argues, no behaviour is deviant or criminal until it is defined as such either by a section of society or by society as a whole (Williams 2004: 372).

> Social groups create deviance by making the rules whose infraction constitutes deviance, and by applying those rules to particular people and labelling them as outsiders. From this point of view, deviance is not a quality of the act the person commits, but rather a consequence of the

application by others of rules and sanctions to an 'offender'. The deviant is one to whom that label has successfully been applied; deviant behaviour is behaviour that people so label. (Becker 1963, quoted in Akers and Sellers 2009: 151)

As Akers and Sellers (2009: 151) point out, these labels can be viewed as both a dependent variable (i.e. attempting to explain why certain behaviour is socially defined as wrong and why certain persons are selected for stigmatization and criminalization) and an independent variable (i.e. hypothesizing that discrediting labels cause continuation and escalation of the criminal or delinquent behaviour). According to labelling theorist, the control agents imposing them mostly function on behalf of the powerful in society, who decide which behaviour will be banned or discredited as deviant or illegal (Ibid.). Branding persons with stigmatized labels, therefore, 'results more from who they are than from what they have done' (Akers and Sellers 2009: 152).

The application of sanctions and stigmatizing labels is treated by labelling theorists as an independent variable that fosters criminal and deviant behaviour and, as such, is hypothesized to be an independent cause of criminal and delinquent behaviour, referred to by Lemert as 'secondary deviance' (Lemert 1972, in Lilly et al. 2007: 129). While initial (or 'primary') deviance would most likely remain sporadic and unorganized in the absence of a strong societal reaction, individuals labelled as deviant by a person or institution that has the authority to make that label stick are likely to take on a deviant self-identity and become even more deviant as a result of the labelling experience (Akers and Sellers 2009: 153–154; Jones 2009: 160).[31] As such, labelling persons as deviant and applying social sanctions to them in the form of punishment or corrective treatment is believed to increase rather than decrease deviance (Akers and Sellers 2009: 155). According to Akers and Sellers (Idem: 153), it is this aspect what most clearly distinguished labelling theory from other theoretical perspectives on crime and deviance.

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[31] It is important to note that labelling theorists do not claim that stigmatizing labels inevitably lead an individual to become more deviant. As Becker (quoted in Akers and Sellers 2009: 155) pointed out, the outcome of the labelling process is to be regarded as the result of an interaction process that can lead in various directions.

This is a large turn away from the older sociology which tended to rest heavily upon the idea that deviance leads to social control. I have come to believe that the reverse idea, i.e., social control leads to deviance, is equally tenable and the potentially richer premise for studying deviance in modern society. (Lemert 1967, quoted in Hagan 2008: 179)

Yet according to labelling theorists, the criminal law should intrude as little as possible into people's lives, and when it is absolutely necessary to invoke criminal sanctions, the system must somehow prevent the (first-time) offender from feeling devalued (Jones 2009: 166). As noted by Empey (1982, in Lilly et al. 2007: 135–138), labelling theorists embraced four policies in order to limit the impact of state intervention, being decriminalization (i.e. the removal of many forms of conduct from the scope of the criminal law), diversion (e.g. diverting offenders from prisons and placing them in the community under intense probation supervision or under house arrest), due process (i.e. provide offenders with protections against any state abuse of discretionary power), and deinstitutionalization (i.e. move from a prison system to a system that corrects its wayward members in the community).

Through the concept of reintegrative shaming, Braithwaite attempted to establish when a criminal label is likely to have the effect of producing a criminal self-concept and future criminal behaviour, and when it is likely to have the opposite effect of crime prevention (Newburn 2007: 219; Akers and Sellers 2009: 161). Braithwaite refers to the effect of provoking additional crime as disintegrative shaming, and opposes this to reintegrative shaming which is assumed to produce less crime (Braithwaite 1989, quoted in Newburn 2007: 219). Instead of stigmatizing the offender, reintegrative shaming intends to reintegrate or reaccept the offender into the community of law-abiding citizens (Braithwaite, quoted in Akers and Sellers 2009: 162; Jones 2009: 169). In order to make the shift from stigmatizing towards reintegration, offenders need to be confronted with victims in order to provide the shaming necessary for the process, and the process itself needs to take place in front of those who care about the offenders (Williams 2004: 380–381).

6.6.2 Conflict Theory

Criminological expressions of the sociological tradition of conflict theory can be traced back to Marx, Engels, and Bonger (see supra), and later to Dahrendorf and Vold (Williams 2004: 398; Hagan 2008: 181). As argued by Akers and Sellers (2009: 228), 'conflict theory views the whole process of law-making, law-breaking, and law enforcement as implicated in the conflict and power differentials among social, economic, and political interest groups […] and criminal behaviour as a reflection of this ongoing collective conflict'.

> Conflict theory explains crime and deviant behaviour as the ordinary, learned, and normal behaviour of individuals caught up in cultural and group conflict. Crime is an expression of that conflict and results when persons acting according to the norms and values of their own group violate those of another group that have been enacted into law. (Sellin 1938; Sutherland 1947; Sutherland and Cressey 1978, quoted in Akers and Sellers 2009: 228–229)

According to Vold, criminal law and justice as well as criminal behaviour are explained by group conflict.

> The whole political process of law making, law breaking, and law enforcement becomes a direct reflection of deep-seated and fundamental conflicts between interest groups and their more general struggles for the control of the police power of the state. Those who produce legislative majorities win control over the police power and dominate the policies that decide who is likely to be involved in violation of the law. (Vold 1958, quoted in Akers and Sellers 2009: 215)

Crime, yet according to Vold, can be explained as a product of intergroup conflict that expresses the political struggle of these groups (Hagan 2008: 181). Groups, according to Vold, inevitably come into conflict because of their differing interests. He considers this a normal part of the functioning of any society (Newburn 2007: 250). Where competing groups are of a similar strength, the intergroup conflicts are often resolved by compromise. Where they are of a different strength,

the interests of the most powerful group will be enforced, for example, by passing criminal laws (Williams 2004: 400).

In the 1960s, this conflict approach was further developed by criminologists such as Turk, Chambliss, Seidman, and Quinney, who argued that criminological theory had focused for too long on explaining criminal behaviour, and that attention should be shifted towards the explanation of criminal law (Akers and Sellers 2009: 215).[32] Turk saw social conflict as an inescapable part of social life and social order as being based on a coercion-consensus model, with a clear task for authorities to ensure that the balance between the two is maintained (Williams 2004: 401). Chambliss and Seidman viewed criminal law as representing the interests of the most powerful forces in society and deviance as a political rather than a moral question; and for Quinney 'crime is a definition of human conduct created by authorized agents in a politically organized society' (Hopkins Burke 2005: 155; Newburn 2007: 251–254; Hagan 2008: 182).

6.6.3 Feminist Theories

The objective of feminist theory that developed in the USA in the late 1960s and in the UK in the late 1970s was to produce a distinctly, feminist approach to crime and criminal justice, and a deeper understanding of gender relations in society and how they affect both crime and criminal justice (Newburn 2007: 300; Akers and Sellers 2009: 267). The failure to understand the profound significance of gender and sex roles in society was identified as 'the major blind spot in traditional "malestream" criminological theory', and criminal justice decisions were explained as 'reflecting the male dominance and functioning to support patriarchy by discriminating against women and reinforcing traditional female sex and family roles' (Akers and Sellers 2009: 267–268).

The common theme in feminist theories on crime is that all etiological theories to that date expressed an androcentric bias, in a sense that they

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[32] As argued by Hagan (2008: 182), the early works of Chambliss and Quinney contain statements of conflict theory, while their later works would evolve into more radical perspectives.

were designed to explain only male criminality and had been tested only with male populations, making them incapable of explaining female criminality or the male/female differences in crime (Hagan 2008: 184; Akers and Sellers 2009: 273). On the other hand, there is no 'one' feminism, just as there is no 'one' criminology (Gelsthorpe 2002: 112). According to Chesney-Lind, the earliest feminist criminology dealt with victimization issues and created new crimes and criminals to study (Hagan 2008: 184). Research topics that were added at a later stage include women as workers in policing, courts, and correctional facilities; as well as female offenders (Ibid.). According to Adler, a representative of the liberal feminist approach, the trajectory of the nature and extent of female crime in the USA in the 1970s was showing to converge with those of male crime, resulting from changes brought about by the women's liberation movement (Akers and Sellers 2009: 274).

> In the same way that women are demanding equal opportunities in fields of legitimate endeavour, a similar number of determined women are forcing their way into the world of major crimes … formerly committed by males only … Like her sisters in legitimate fields, the female criminal is fighting for her niche in the hierarchy of crime […] It would, therefore, seem justified to predict that if present social trends continue women will be sharing with men not only ulcers, coronaries, hypertension, and lung cancer (until recently considered almost exclusively masculine diseases) but will also compete increasingly in such traditionally male activities as crimes against the person, more aggressive property offenses, and especially white collar crime. As women invade the business world, there is no reason to expect them to be any more honest than men. (Adler 1975, quoted in Akers and Sellers 2009: 274–275)

Contrary to Adler's proposition, Simon argued that only property crimes committed by female offenders increased as a result of the liberation movement. Violent offences, on the other hand, were considered not likely to rise as 'increasingly educated and independent women will no longer accept victimization and will thus extricate themselves from violence-prone relationships and situations' (Akers and Sellers 2009: 275).

As a rival to earlier liberation hypotheses, the economic marginalization hypothesis argues that contrary to increased opportunities, it is female poverty, unemployment, and a lack of alternatives to criminal means that cause the increase in female crime.

> Feminization of poverty, not women's liberation, is the social trend most relevant to female criminality … The economic pressures on women caused by unemployment, poorly paid employment, and/or inadequate welfare payments, combined with the increasing numbers of female-headed households supporting dependent children, lead more and more women to seek the benefits of criminal activity as supplements or alternatives to employment. In other words, economic necessity is forcing the emancipation of women from more law-abiding standards of conduct. (Simon and Ahn-Redding 2005, quoted in Akers and Sellers 2009: 276)

As stated in Akers and Sellers (2009: 280), later feminist theories of crime moved away from themes of female liberation and sex-role differentiation in family socialization, replacing them by themes such as the pervasiveness of male dominance in patriarchal society and its impact on crimes committed both by and against women. As Newburn (2007: 308) puts it, 'a substantial strand of [contemporary] feminist scholarship has focused on the development of new theoretical tools and on the utilisation of particular methodological approaches'.

6.6.4   New Critical Criminology

New critical criminology includes perspectives such as left realism, peacemaking criminology, and postmodernism, in which the causes of crime are viewed as due to class, ethnic, and patriarchal relations endemic in society (Hagan 2008: 185).

Postmodernists argue for 'a plurality of interpretations of the law and an abandonment of standard theories of crime causation' (Bohm 1997, quoted in Hagan 2008: 187). Crimes, for postmodern criminologists, are linguistic constructions made by official institutions (Lilly et al. 2007: 185).

According to left realism, crime is a real problem that has destructive effects on communities, and often a problem for the poor and the marginalized (Williams 2004: 427).[33] According to Young, one of the most prominent writers in the field, 'the central tenet of left realism is to reflect the reality of crime, that is in its origins, its nature and its impact' (Young 1986, quoted in Coleman and Norris 2000: 80). For left realists, the study of crime should include all the actors involved (Williams 2004: 427). In this respect, Young puts forward the 'square of crime' as to depict victims, offenders, formal agencies of social control, and the public (and the interrelationships between them) as the four definitional elements that need closer examination (Coleman and Norris 2000: 80; Williams 2004: 428; Newburn 2007: 267). Although left realism accepts that many factors help to cause crime, social and relative deprivation are recognized as the main cause (Williams 2004: 432). It is further argued that the more a state is economically divided, the stronger relative deprivation will be and the more likely it is that offending will result (Williams 2004: 432). As to successfully control crime, according to left realists, the crime problem should be addressed from all (four) perspectives.

> To control crime from a realist perspective involves intervention at each part of the square of crime: at the level of the factors which give rise to the putative offender (such as structural unemployment), the informal system (such as lack of public mobilisation), the victim (such as inadequate target hardening), and the formal system (such as ineffective policing). (Young 1988, quoted in Newburn 2007: 267)

Having its origins in the writings of Quinney (see supra) and Pepinsky, advocates of peacemaking theory propose that crime can be eliminated once we establish peace and justice (Hagan 2008: 186). According to Quinney, crime will cease when social justice is accomplished and suffering ended (Hagan 2008: 186). While conflict is accepted as the root of crime, peacemaking criminology advocates a response that refuses to escalate this conflict in favour of policies of conciliation and mediation

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[33] According to Lilly et al. (2007: 191), left realism was explicitly but not exclusively concerned with the origins, nature, and impact of crime in the working class.

(Lilly et al. 2007: 180). It aims to build trust and a sense of community, suggesting that conflict can be best resolved by building social bonds among people (Ibid.).

6.6.5 Radical (Marxist) Theories

Contrary to conflict theory that posits a pluralistic conflict model, Marxist or radical criminology advocates a singularistic conflict model (Hagan 2008: 193). As do conflict theorists, Marxist criminologists concentrate on criminal law and the criminal justice system rather than on the causes of criminal behaviour. Marxist theory rejects the multigroup conflict image of society that is found in conflict theories and 'endorses a power-elite model of society in which social, economic, and political power has been concentrated into the hands of a small ruling class in late-stage capitalism' (Akers and Sellers 2009: 237). The law, according to Marxist theorists, is structured to serve only the interests of the ruling elite.

According to Quinney (who later turned into an advocate of peace-making theory), 'the criminal justice system is designed not to protect society against crime but, along with other institutions of the capitalist state, to repress the people' (Akers and Sellers 2009: 239). For the then orthodox Marxist Quinney, the crime problem could only be resolved by the establishment of a socialist state (Hagan 2008: 192).

According to Chambliss (1975, quoted in Hagan 2008: 193), 'crime diverts the lower classes' attention from the exploitation they experience and directs it toward other members of their own class rather than toward the capitalist class or the economic system.' Crime is considered 'a reaction to the life conditions of a person's social class, and exists only as it is created by those in the society whose interests are served by its presence' (Ibid.).

6.7 Integrated Criminological Theories

From a general point of view, the main goal of theory integration is to identify commonalities in two or more theories in order to produce a synthesis that is superior to any one theory on its own (Akers and Sellers

2009: 301). Integrated criminological theories attempt to combine various theoretical traditions into one single theory. Examples of such theories include Elliott's integrative theory of juvenile delinquency (combining elements of strain theory, social control theory, and learning theory); Thornberry's interactional theory of delinquency (combining elements of social structure theory, social control theory, and social learning theories); Krohn's social network analysis (drawing on both social learning theory and social bonding theory); and Tittle's control balance theory (combining elements of control theory, rational choice theory, routine activities theory, differential association, strain theory, and labelling theory) (Newburn 2007: 238; Hagan 2008: 195–198; Akers and Sellers 2009: 312). Depending on the type of classification used, the range of theories captured under the heading of 'integrated theories' can be either limited or extremely broad. In the classification used by Hopkins Burke (2005), for example, integrated theories include sociobiological theories, environmental criminology, social control theories, and left realism. Each of these has been touched upon in various sections throughout this chapter.

7   Further Discussion

In this chapter, it is illustrated how the early application of script analysis in criminology coincided with the emerging focus on the proximal influences on criminal behaviour, on the relevance of situational variables, and on the role of opportunity. It is further illustrated how the concept fits in with the crime-specific orientation found in environmental criminology, and argued that the procedural analysis of offending is historically deemed most relevant and supportive to situational crime prevention. One of the main theoretical foundations of the latter has been receiving much criticism due to its emphasis on rationality in offender decision-making. Proponents of the rational choice perspective have been defending themselves against this criticism by distinguishing it from the strict expected utility models originally employed in social sciences (see e.g. Leclerc and Wortley 2014b: 3). While early rational choice theorists clearly depicted offenders as pure rational calculators, contemporary proponents of the rational choice perspective developed a more cautious

and subjective understanding of criminal choice, referring to such terms as 'limited rationality', 'bounded rationality', or 'quasi-rationality' (see e.g. Clarke and Cornish 1985; Pease and Laycock 2012; Copes and Cherbonneau 2014).

It is by no means the intention to fully explore the debate on rationality in human decision-making in this volume, nor to make the case for or against the rational choice perspective. In order to avoid, however, that the mere reference to such debate would unduly influence the reader's perspective on the value of script analysis and situational crime prevention, this final section lists a number of potential fallacies that are worth taking note of. It further includes a rather pragmatic argument that may explain the (growing) popularity of situational crime prevention in a business environment and, to some extent, the rationale for writing this book.

7.1   The Incompatibility Fallacy

As illustrated in the previous sections, theories of criminal behaviour vary considerably in whether they focus on 'crimes' as specific criminal acts or events, or on 'criminality' as a disposition to engage in such acts (Hirschi and Gottfredson, quoted in Blackburn 1993: 23). As Lilly et al. (2007: 265) put it, most (traditional) criminological theories examine why it is that some individuals develop an orientation to commit crime whereas others do not. They present hypotheses on the more distant (or 'root') causes of criminal behaviour and are not so much engaged in exploring the ways in which more proximal factors such as opportunities presented by the immediate environment influence crime causation and criminal decision-making. They seek to explain how biological factors, developmental experiences or social forces create the criminal offender (Wortley and Mazerolle 2008: 2). Quite a lot of these theories are grounded on the assumption that criminals are somehow pathologically different from the vast majority of people who are fundamentally non-criminals (Brantingham and Brantingham 2012: 241), and once the criminal has been created, crime is seen as more or less inevitable and the exact location and timing of the criminal act as of little interest (Wortley and

Mazerolle 2008: 2). Putting the emphasis on distal causal factors, they attempt to account for criminality or extended involvement in criminal activity rather than for the actual behavioural act of breaking the law (Blackburn 1993: 23; Lilly et al. 2007: 265).

In contrast to dispositional theories, crime theories or opportunity theories consider the interaction between the (already motivated) offender and the immediate situation (Johnson et al. 2012: 338). In the environmental perspective, the focus is on proximal factors, being the more immediate circumstances surrounding the commission of a crime (Blackburn 1993: 23). How offenders come to be the way they are is of little immediate relevance (Wortley and Mazerolle 2008: 2). This shift in focus from the offender to the offence is clearly illustrated by Wortley and Smallbone (2006) in a meritorious attempt to develop a framework for applying situational prevention principles to understanding and preventing sexual offences against children.

As illustrated in Table 3.1, the distinction between a focus on criminal acts versus a focus on an individual's tendency to become engaged in criminal behaviour or delinquency translates into the types of strategies or interventions proposed to prevent crime and criminality.

Developmental and community crime prevention primarily focus on preventing individuals to embark on a life of crime and on the improvement of social conditions and institutions (Clarke 1992b; Cullen et al. 2012; Messner and Zimmerman 2012; Sullivan and Jolliffe 2012; Smith and Clarke 2012). The prevention of crime is seen in terms of changing offenders' fundamental criminality through enriching their childhoods, removing social disadvantage and, once they have offended, providing them with rehabilitation programmes (Wortley and Mazerolle 2008: 2). Situational crime prevention, on the other hand, is about 'intervening in proximal crime situations to inhibit the operation of crime event generating causal mechanisms or to trigger new mechanisms which will counter the criminogenesis of the situation' (Ekblom 1994, quoted in Newman 1997: 4). To put it in more simple terms, situational crime prevention aims to modify the environment in which crimes take place in order to discourage potential offenders, to frustrate offenders' goals and to disrupt their plans (see also Ekblom and Gill 2015).

Table 3.1 Developmental, community and situational crime prevention

Strategy	Focus/description	Example theories
Developmental prevention	Early interventions to improve the life chances of children and to prevent them from embarking on a life of anti-social conduct and crime	Self-control theory Taxonomy theory Social development theory Differential association Social learning theory Social bonding and control theories Integrated cognitive anti-social potential theory Strain theory Labelling theory Routine activity theory Cognitive theory Theory of criminal embeddedness Age-graded theory
Community prevention	Design of programmes and policies to improve the social conditions and institutions that influence offending (i.e. community-level interventions designed to change the social conditions and institutions that influence offending in residential communities)	Human ecology and the Chicago School Social disorganization theory Systemic model of crime Collective efficacy Cultural transmission and cultural attenuation 'Broken windows' Differential association Social learning theory Social control theory
Situational prevention	Modification or manipulation of the physical environment, products, or systems to reduce everyday opportunities for crime	Rational choice perspective Routine activity theory Crime pattern theory

Source: Clarke (1992a), Cullen et al. (2012), Messner and Zimmerman (2012), Sullivan and Jolliffe (2012), Smith and Clarke (2012)

The fact that theories on criminality pay little attention to the ways in which the environment can be managed in order to prevent or reduce offending, however, does not mean that they oppose against such interventions. While theories on crime and criminality are often seen as competing, incompatible, or mutually exclusive, they should rather be perceived as complementary (see also Eck and Weisburd 1995: 4). As argued by Blackburn (1993: 23), to contrast situations and dispositions, or proximal and distal factors as causes of crime, is a false dichotomy. Yet according to Blackburn (Ibid.), it is similarly a false dichotomy to assert that 'criminogenic social conditions' rather than 'dispositional variables' explain criminality. 'Social conditions are among the factors which account for the dispositions a person has, but do not in themselves account for criminal acts, since people respond differently to the same conditions' (Ibid.).

7.2   The Rational Offender Revisited

It would also be a mistake to disregard the value of situational crime prevention solely because Clarke and Cornish decided to label the choice model that it is based on as a 'rational' choice model (or perspective). First and foremost, it needs to be recognized that proponents of the rational choice perspective generally accept the fact that offenders do not always operate through a wholly rational decision-making process (see supra). In his introduction to a recent edition of *The Reasoning Criminal* (Cornish and Clarke 2014), Clarke states that it 'might have avoided much fruitless criticism' if they had decided to call the rational choice perspective the 'bounded rational choice perspective' instead, stressing the fact that their version of rational choice was clearly (meant to be) different from the conventional economic model.

Furthermore, it is worth noting that only the first three groups of situational techniques are derived from the rational choice perspective while the fourth group is derived from psychological theory and the fifth from ideas developed by Matza and Bandura (Clarke 2008: 183). According to Newman and Freilich (2012: 216), these fourth and fifth groups of techniques are 'soft' on rational choice and open the door for applying

situational crime prevention techniques without the assumption of rational choice but invoking psychological or even biological states.[34] Yet according to Newman and Freilich (Ibid.), 'this is potentially a big door, since it engages the traditional preoccupations of criminology against which situational crime prevention originally claimed exception'.

Finally, it is evident that some situational interventions will work no matter whether an offender decides and acts in a 'rational' or 'irrational' manner. As illustrated by Newman (1997: 14), there would be no credit card fraud without credit cards, and no drink-driving or car theft without cars.

7.3   The Monopoly Fallacy

While script analysis is often referred to as 'an important development', 'extension', or 'elaboration' of the rational choice perspective's event model (see e.g. Tompson and Chainey 2011: 185; Cornish 2014: xix; Leclerc and Wortley 2014b: 6), it would further be a mistake to claim that this model holds a monopoly over script analysis. As indicated in Chap. 2, the concept was first borrowed from cognitive science and merely developed further into an investigative tool to break down the crime-commission process into a sequence of actions that lend themselves to careful and detailed analysis. Apart from its application in cognitive science and criminology, it is further applied in a range of other fields. In the transactional school of clinical psychologists, the term 'script' has been used in analysing behaviour (Steiner 1975, in Schank and Abelson 1977: 63), and script theory and analysis have also been used extensively by those involved in studying organizational behaviour and marketing, be it as a

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[34] This is especially the case for the techniques that have been added following Wortley's criticism regarding situational precipitators. Captured under the heading 'reducing provocations' and based on the observation that immediate environments might precipitate criminal responses, these techniques find their roots in psychological theory. As Wortley (2008: 51) argues, 'learning theory explains how situational cues can prompt individuals to perform criminal behaviour. Social psychology examines the social forces that exert pressure on individuals to offend. Social-cognitive theory describes how situational factors can help weaken moral prohibitions and so permit individuals to engage in normally proscribed behaviour. Finally, environmental psychology outlines how situationally-induced emotional arousal can provoke a criminal response.'

basis for eliciting information about the procedures involved in buying or selling goods or services, or in complaining (Cornish 1994: 166).[35]

7.4   The Scope for Intervention by Private Businesses

Finally, it is crucial to raise a pragmatic comment that may further explain why situational crime prevention appears to grow popularity in private sector attempts to reduce crime. As argued before, the situational approach to crime prevention differs significantly from the approach taken by more traditional (dispositional) crime prevention strategies (Smith and Clarke 2012: 291). Most of the theories that have been discussed in this chapter provide clear guidance on effective crime prevention (see also Table 3.2). Their preventive implications, however, are often beyond the immediate influence of the private sector.

While businesses have a clear potential and responsibility to contribute to social welfare (e.g. through job creation and the provision of legitimate means to earn a living) and to the improvement of society and its institutions (e.g. through investments in corporate social responsibility, through supporting diversity and condemning discrimination and exclusion, through improving education and strengthening bonds to society, etc.), their impact on the early development of criminality or the treatment of the underlying factors that are claimed to contribute to criminal behaviour is rather limited. Furthermore, the impact of an investment in social crime prevention often extends over longer time scales and seldom provides an answer to the crime problems that organizations face on a daily basis. Investments in situational crime prevention, on the other hand, prove to have a direct impact on the risk levels that organizations are exposed to. They enable companies to comply with a broad range of government programmes and requirements, to reduce direct and indirect losses resulting from criminal victimization, to retain and expand

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[35] As Cornish (1994: 166) points out, 'research [in these areas] has looked at overall processes of selling; at parts of the process, such as the initial sales call; at the negotiation phase of the buying process; at differences between the initial buy situation and the "re-buy" one; and at differences between novices and experts.'

Table 3.2 Examples of criminological theories and their preventive implications

School of thought	Example theories	Preventive implications
Demonological explanations	–	The threat of cruel and savage punishments as the primary deterrent
Early and classical theories	Classical theory	Potential offenders will not commit the crime if they believe that the legal penalty and the likelihood that they will be caught threaten more pain than the probable gain produced by the crime Punishment produces specific and general deterrence
	Right realism and contemporary rational actor theories	Crime can be prevented or contained by pragmatic means that make the choice of criminal behaviour less likely (e.g. reducing opportunities, increasing the chances of detection, increasing perceptions of detection through rigorous policing, improving the consistency of the criminal justice system, general situational crime prevention)
	Economic theory	Most crime would be eliminated in a socialist system in which the goods and wealth of society would be equally distributed
Biological positivism	Early biological positivism	One needs to discover the basic cause of crime through the application of the scientific method, and then prescribe appropriate treatments in order to cure the individual deviant Focus should be on the rehabilitation of the 'sick' offender rather than on the punishment of the 'rational' actor
	More recent biological positivism	Crime can be prevented by means of a variety of interventions such as drug therapy, psychosurgery, sterilization, dietary adjustments, restricting the use of alcohol and drug, and so on. Environmental and social influences on criminal behaviour are important and should be studied in parallel with biological factors and genetics

(continued)

Table 3.2 (continued)

School of thought	Example theories	Preventive implications
Psychological positivism	Freudian theory	Crime can be prevented by tackling underlying mental illnesses, emotional disorders, mental conflicts, or psychic disturbances through treatment, therapy, and rehabilitation
	Psychometry	Focus should be placed on the conditioning and monitoring of those with complex personality dimensions, low IQ's, and so on.
Sociological (mainstream) theories	Anomie and strain theories	Crime reduction can be achieved by means of increasing the legitimate opportunities for the underprivileged, by improving education, through job creation, by strengthening social controls and institutions, by tackling poverty, by encouraging goals other than the pursuit of wealth (e.g. education, parenting, serving the community), by strengthening social bonds, by denying access to illegitimate means, and so on.
	Social process theories	Delinquency and social problems can be reduced through the development of greater social stability and through reforming and re-developing communities
		Crime can be countered by means of treatment programmes that attempt to reverse offenders' criminal learning
		Offenders should be removed from settings and individuals that encourage crime, and placed in settings where they will most likely receive prosocial reinforcement
	Social bonding and control theories	Crime can be prevented by improving social control and self-control (e.g. through effective child rearing, through improving parental and school supervision and discipline, and through improving group cohesion and living conditions), and by strengthening bonds to society (e.g. with parents, adults, schoolteachers, and peers)

	Developmental and life-course theories	Good parenting is necessary in order for children to develop self-control and turn into normal, law-abiding, and prosocial individuals
		Youths on an anti-social pathway should be exposed to a new set of social experiences
		Risk factors should be reduced and protective factors enhanced
		The development of criminal tendencies should be discouraged and situational crime prevention should be used to reduce the likelihood that individuals will engage in crime
Sociological (critical) theories	Labelling and reintegrative shaming theory	The criminal law should intrude as little as possible into people's lives, and if it does it should somehow be prevented that the (first time) offender feels devalued
		The impact of state intervention should be limited by means of decriminalization, diversion, due process, and deinstitutionalization
		The offender should be reintegrated or reaccepted into the community of law-abiding citizens rather than stigmatized
	Peacemaking theory	Crime can be eliminated by the establishment of peace and (social) justice
	Left Realism	To control crime, intervention is required at each part of the square of crime: at the level of the offender, the informal system, the victim, and the formal system
	Radical (Marxist) theories	The crime problem can be resolved by the establishment of a socialist state

their customer base, and, consequently, to support business continuity (see also Haelterman 2015). Although primarily out of self-interest, these are all good enough reasons for companies to increasingly invest in situational crime prevention.

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4

Scripting Crime Against Business

1   Introduction

In this fourth chapter, it is argued that crime script analysis can prove to be a useful tool to assist management and crime prevention practitioners in assuring that the required controls to mitigate crime are in place and fit for purpose. It links the scripting exercise to (enterprise) risk management and goes on to explore the main building blocks and key features of a somewhat simplified scripting methodology tailored to those tasked with designing or redesigning controls in a workplace environment. Using a step-by-step approach, it further shows how to develop and visualize a proper crime script, how to identify potential intervention points and what to take into consideration when selecting or (re)designing the most adequate preventive controls. Prior to touching upon each of these topics, this chapter will first position script analysis in the wider context of (crime) risk management.

2   The Risk Management Process

Risk management is considered a strategic component of any organization's survival and development. As risks that materialize can have severe consequences in terms of economic performance and professional reputation, managing risk effectively can assist in improving bottom line positions as well as in improving the likelihood of overall business success (Waring and Glendon 1998: 7; ISO 2015).

> A successful enterprise risk management (ERM) initiative can affect the likelihood and consequences of risks materialising, as well as deliver benefits related to better informed strategic decisions, successful delivery of change and increased operational efficiency. Other benefits include reduced cost of capital, more accurate financial reporting, competitive advantage, improved perception of the organisation, better marketplace presence and, in the case of public service organisations, enhanced political and community support. (AIRMIC, Alarm and IRM 2010: 2)

Risk management, according to Waring and Glendon (1998: 3), may be defined as 'a field of activity seeking to eliminate, reduce and generally control pure risks; and to enhance the benefits and avoid detriment from speculative risks'. The risk universe that organisations are exposed to comprehends a range of strategic, operational, financial, and compliance risks. All of these need to be assessed based on, amongst others, impact and vulnerability. This is normally done by means of assessing the inherent or gross risk first, followed by an assessment of the residual or net risk, which is the portion of inherent risk that remains after initial risk responses have been executed. In the COSO[1] Enterprise Risk Management Framework, risk management is composed of risk identification, risk assessment, and risk response (Deloitte and Touche 2012: 2). These same components form part of the risk management process

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[1] COSO—the Committee of Sponsoring Organisations of the Treadway Commission—is a joint initiative of five private sector organizations and is dedicated to providing thought leadership through the development of frameworks and guidance on enterprise risk management, internal control and fraud deterrence. For more info, see www.coso.org

set forth in the international standard ISO 31000 'Risk Management—Principles and Guidelines' (ISO 2015). According to the latter, a risk management process is 'one that systematically applies management policies, procedures and practices to a set of activities intended to establish the context, communicate and consult with stakeholders, and identify, analyze, evaluate, treat, monitor and review risk' (Praxiom Research Group n.d.). Establishing the context means defining the (external and internal) parameters that organizations should consider when managing risk, and once this unique context has been established, each risk should be identified, analysed, and evaluated (Ibid.). These activities, in turn, precede the formulation and implementation of tailored risk treatment plans (Ibid.).

The way in which these standards and frameworks are to be implemented in an effective and (cost) efficient manner will depend on the entity's size, complexity, industry, culture, management style, and a range of other attributes (COSO 2004: 3). A crucial prerequisite to its successful implementation is that the individuals involved in the risk management process speak a common language, are qualified for the job, and supported by the proper tools and procedures. It is key to include those functions that are close to the actual risks as without their involvement the outcome of the risk management process will never cover its initial objectives, and response measures will either be insufficient or overdone.

2.1   Risk Identification

A risk is the product of the likelihood of an event (i.e. the probability of an adverse event occurring, also referred to as 'hazard' or 'threat')[2] and its impact or consequences (see e.g. Williams 2004: 527; Tusikov and Fahlman 2009; Albanese 2010). Risk identification, as a key activity in the risk management process, involves finding, recognizing and describing the risks that could affect the achievement of an organization's

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[2] 'Threat' and 'risk' are often incorrectly used interchangeably. 'Risk' is rather a product of 'threat' and 'harm', with threat usually taken to represent the probability of harm being realized (see e.g. Tusikov and Fahlman 2009: 148; Hamilton-Smith and Mackenzie 2010: 261).

objectives (Praxiom Research Group n.d.). The purpose of this activity is to establish the full range of strategic, financial, operational, and compliance risks that constitute the enterprise-wide risk universe and risk profile. Strategic risks are defined as those risks which endanger the organization's corporate or business strategy, including its survival (Waring and Glendon 1998: 9). They are the type of risks that 'threaten to disrupt the assumptions at the core of a company's strategy' and have the potential to destroy the value creation and profit generation model of a company (Deloitte 2014: 12). Financial risks are those risks that relate to an organization's financing (methods),[3] and operational risks as those that a company undertakes when it attempts to operate within a given field or industry.[4] Compliance risks, finally, are defined as 'the risks of legal or regulatory sanctions, material financial loss, or loss to reputation an organisation may suffer as a result of its failure to comply with laws, regulations, rules, related self-regulatory organisation standards, and codes of conduct applicable to its activities' (BIS 2005: 7).

The process of identifying (adverse) events includes the consideration of a variety of internal and external factors that may give rise to risks, and the methodology to do so may comprise the use of a combination of techniques such as event inventories, facilitated workshops, interviews, questionnaires, surveys, and process flow analyses (COSO 2004: 21). Internal factors encompass the organizational structure, company culture, strategy, and so forth. External factors include the political, economic, social, and technological context in which the organization operates, often referred to as 'PEST' or 'STEP' (see e.g. Vander Beken 2004).

2.2   Risk Assessment

The risk assessment, as a central component of the risk management process, is designed as a means to find an economic balance between the impact of risk on the enterprise and the cost of implementing

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[3] Source: www.businessdictionary.com.

[4] Source: www.investopedia.com.

preventive and protective measures (Broder 2000, cited in Hamilton-Smith and Mackenzie 2010: 262). By means of this assessment, organizations establish how significant each of the identified risks is in relation to the achievement of the overall goals and objectives. It is based on a predefined set of assessment criteria and is to be undertaken at all levels of the organization (e.g. local entities, business units, and corporate functions). In the COSO framework it is further suggested to include large capital projects in the scope of this exercise (Deloitte and Touche 2012: 2).

Both inherent and residual risks require assessment. The inherent (or gross) risk is the combination of internal and external risk factors in their pure, uncontrolled state without taking any risk-reducing factor into account. Residual (or net) risk is the portion of inherent risk that remains after initial risk responses have been executed. It reflects 'the risk remaining after management's intended actions to mitigate an inherent risk have been effectively implemented' (COSO 2004: 34). These risk-mitigating actions may reduce the likelihood of occurrence of a potential event, the impact of such an event, or both (Ibid.).

2.2.1 Assessment Criteria

The most common criteria for rating identified risks are 'impact' and 'likelihood'. The latter represents the possibility that a given event will actually materialize. Impact (also referred to as 'consequence' or 'harm') refers to the extent to which a risk event might affect the organization (Deloitte and Touche 2012: 3). Certain risk events may have a financial impact, others may have reputational, environmental, or operational consequences. As indicated by Waring and Glendon (1998: 3), damage resulting from a risk event may relate to health and safety of employees, to company equipment and installations, to the environment, to financial assets, to the credibility and bargaining power of the organisation, and so on. The consequences of such damage may involve business interruption, loss of markets, stock losses, loss of public and customer confidence, and loss of staff morale, to name but a few (Idem: 4).

As argued by Curtis and Carey (Deloitte and Touche 2012: 3), impact and likelihood are extremely important measures though not sufficient to answer a range of key questions such as how fast a risk could arise, how fast an organization is able to respond or recover, or how much downtime can be tolerated. In order to answer these questions, it is key to gauge vulnerability and speed of onset (Ibid.). Velocity (or speed of onset) refers to 'the time it takes for a risk event to manifest itself, or in other words, the time that elapses between the occurrence of an event and the point at which the company first feels its effects' (Deloitte and Touche 2012: 7). Vulnerability refers to 'the susceptibility of the entity to a risk event in terms of criteria related to the entity's preparedness, agility and adaptability' (Idem: 6). If an organization has the proper controls in place to mitigate risks and is capable to respond and adapt quickly to potential risk events, the vulnerability will decrease significantly. If, on the other hand, controls and response capabilities are lacking, insufficient, or not operating according to design, the vulnerability will increase.

2.2.2   Assessment Tools

Risk assessment methods or techniques can be either qualitative or quantitative, and an entity's risk assessment methodology mostly comprises a combination of both (COSO 2004: 36–38). As argued by Curtis and Carey (Deloitte and Touche 2012: 8), most organizations first apply qualitative techniques to conduct an initial screening of risks, followed by a more quantitative treatment of the most important risks lending themselves to quantification. This quantitative treatment brings more precision and is often used in more complex and sophisticated activities to supplement qualitative techniques (COSO 2004: 35).

The most commonly applied qualitative assessment techniques are interviews, cross-functional workshops, surveys, benchmarking, and scenario analysis; with the quality of the assessment depending to a great extent on the knowledge and judgement of the individuals involved, their understanding of potential events, and the surrounding context and dynamics (Idem: 36). Quantitative techniques, on the other hand,

include probabilistic,[5] non-probabilistic,[6] and benchmarking techniques[7] (Idem: 38). They can be used when enough information is available to estimate risk likelihood or impact using interval or ratio measures (Ibid.).

2.2.3   Assessing Risk Interactions

Risks do not exist in isolation. As they interact with other events and conditions, even seemingly insignificant risks have the potential to cause great damage or create significant opportunity (Deloitte and Touche 2012: 2). For that reason, 'enterprises are gravitating toward an integrated or holistic view of risks using techniques such as risk interaction matrices, bow-tie diagrams, and aggregated probability distributions' (Ibid.). Grouping related risks into broad risk areas and assigning ownership and oversight for them, is considered a simple way to consider risk interactions (Deloitte and Touche 2012: 12).

2.3   Prioritizing Risks

The total of risks that an organization faces is referred to as the risk universe or risk portfolio, which needs ranking and prioritizing. The most common way to achieve this is to designate a risk level to each risk area (e.g. 'very high', 'high', 'medium', or 'low'), based on the risk assessment criteria and taking into account the organization's risk appetite (Deloitte and Touche 2012: 15). This evaluation of priority levels can be enhanced

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[5] Probabilistic techniques include 'at-risk' models (e.g. value at risk, cash flow at risk, and earning at risk), assessment of loss events, and back-testing. They measure the likelihood and impact of a range of outcomes based on distributional assumptions of the behaviour of events (COSO 2004: 38).

[6] Commonly used non-probabilistic techniques are sensitivity analysis, scenario analysis, and stress testing. Contrary to probabilistic techniques, they are used to quantify the impact of a potential risk event but do not assign likelihood of event occurrence (COSO 2004: 41).

[7] Benchmarking techniques are used as they can provide management insight into the likelihood or impact of risks based on experiences of other organisations. They can equally be applied internally, for example, to compare measures of one department or division with others of the same entity (COSO 2004: 44).

or supported by the use of risk classification systems, as such systems have the potential to enable the identification of accumulations of similar risks and, likewise, to identify which strategies, tactics, and operations are most vulnerable (AIRMIC et al. 2010: 5).

2.4   Risk Response

When all relevant risks have been properly assessed, a decision will need to be made on how to respond to them. Management can either decide to avoid the risk, to accept it, to reduce it by putting additional controls in place, or to share it (e.g. through an insurance or through the outsourcing of certain business processes). Crowe (2000: 31) refers to five major functions of risk management: risk avoidance, risk reduction, risk spreading, risk transfer, and risk retention. Risk avoidance refers to the process of limiting or eliminating opportunities for loss, for example by reducing a number of activities or exposures, or by a complete alteration or cessation of (human) activities and functions which are vulnerable to risk (Ibid.). As highlighted in a 2012 report issued by Deloitte and Touche on behalf of COSO, 'strategic-minded enterprises do not strive to eliminate risk or even minimize it'. This perspective, yet according to Deloitte and Touche (2012: 1), represents a critical change from the traditional view of risk as 'something to avoid'. Avoiding the total of risks faced would hinder activities to an extent that the organization is unable to survive or to compete in the market place. As such, residual risk should be reduced to a level that management can accept (Cascarino 2013: 171). This acceptancy level is directly linked to the company's risk appetite, which is commonly defined as the level of risk that an organization is prepared to accept in pursuit of its mission and vision. While some organizations express risk appetite in terms of a risk map, others use more sophisticated approaches using quantitative techniques, market measures, or risk-based capital (see e.g. COSO 2004: 17–18).

Apart from avoiding or reducing the risk, one can choose to spread it, which is defined as 'the division of resources and assets for the purpose of lowering loss exposure' (Crowe 2000: 31). Another option is to transfer the risk to a third party (e.g. a subcontracting party or insurance com-

pany), or to simply accept or retain the risk, meaning that the potential of a loss is simply assumed without taking out any specific insurance or without investing in risk-mitigating factors. It goes without saying that a common response to risks entails a combination of these various approaches.

3   Crime Risk Management

This common-sense approach to risk management can also be applied to crime risk management. As with other risk categories, the risk of criminal victimization needs to be identified, assessed, and prioritized. In his introduction to the second volume of '*Crime at Work*', Gill (1998) describes crime risk management as a process that starts with an assessment of the situation on the basis of which a decision is to be made whether to tolerate, transfer, avoid, spread, or reduce the risk. To tolerate a risk, according to Gill (Ibid.), basically means to take no action and to just accept the fact that a certain incident can occur. Transferring it could mean taking out insurance, or to subcontract the work to a third party. One can choose to avoid the risk by eliminating it altogether (e.g. a transport company that decides to refuse high-value shipments to avoid the risk of hijackings). Another strategy to tackle the risk is to introduce (situational) controls, which is where script analysis comes into play.

While many organizations historically tended to react to crime problems in a reactive mode, the increasing impact of (corporate governance) legislation and recent societal changes have highlighted the need to combat crime in a more proactive manner (see e.g. Cascarino 2013). As we speak, most multinationals and large corporations have internal control frameworks in place that are designed to mitigate pre-identified risks, including the risk of fraud or criminal victimization in general. As Cascarino (Idem: 130) argues, 'ensuring the integrity of systems and personnel enables the organisation to focus on its primary business objectives regardless of the nature of the industry or governmental function'. The design and implementation of a system of internal control that limits the possibility of offences occurring is nowadays considered a desirable and effective approach to crime prevention (Idem: 143). As Cascarino

(Idem: 146) continues, controls are generally classified into preventive controls (designed to stop unwanted events from happening); detective controls (designed to alert management that an undesirable event has occurred), and corrective controls (designed to limit the extent of damage, to recover from damage and to prevent damage from recurring). For each control it should be clear what the control objective is, and this objective should be in line with the overarching business and operating objectives (Idem: 147). Once the control objectives have been detailed, yet according to Cascarino (2013: 148), 'a system of internal control can be designed to ensure that individual controls, working together, can raise to a high probability the likelihood of achieving the control objectives'.

As argued by Tusikov and Fahlman (2009: 149), threat and risk assessments can range from high-level, broadly based assessments to tightly focused ones. With regard to the risk of criminal victimization, an organization can conduct a high-level corporate assessment of the likelihood and impact of crime (or specific crime phenomena) to the business objectives. Typical examples of such crime phenomena include theft, burglary, fraud, vandalism, arson, terrorism, corruption, and so on. As a result of these assessments it is often decided that the risk of victimization will need to be reduced, for example by means of introducing dedicated (situational) crime prevention measures.

4   (Re)designing Controls Using Script Analysis

Crime risk management is anything but a one-off activity. In order to add sustainable value, it needs to be dynamic and responsive to changing circumstances (AIRMIC et al. 2010: 3). The risk universe and risk appetite are subject to change, and controls that are effective at one stage may become less effective as offenders adapt and learn to circumvent them (Ekblom 2003: 241, quoted in Gilmour 2014: 52). For that reason it is key to continuously analyse the organization's own victimization (patterns) and to keep track of what is happening in the outside world. This section will describe how script analysis can be applied in a

proactive, reactive, and hypothetical mode to identify control gaps and control deficiencies, and to select the most appropriate controls and control improvements that will help to prevent (repeat) victimization.

4.1   Reactive, Proactive, and Hypothetical Scripting

Scripts can be developed in a reactive, proactive, or hypothetical mode. While reactive and proactive scripting result in the draft of a 'performed' script, the latter activity is more of a thought experiment that results in the draft of 'potential' scripts (see infra).

4.1.1   Reactive Scripting

'Reactive' scripting refers to the application of script analysis in the aftermath of a criminal event that occurred within the organization. If an incident is detected, management attention will initially focus on business continuity and loss reduction. The incident is recorded and reported on internally and/or externally (e.g. to law enforcement and, where relevant, to the insurance company). An inventory is made of the exact consequences in terms of physical, material, financial, and reputational damage; and depending on the available resources, an internal or external investigation is initiated into the exact circumstances and root causes. All too often, however, the scope of such investigation remains purely reactive, focusing on the identification and apprehension of the likely offender(s) and on the recovery of the loss while paying little attention to the MO displayed during crime commission.

Making the development of a crime script part of the standard response to any incident that occurs within the organization has a great potential to protect that organization from repeat victimization.[8] This is especially

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[8] In attempting to develop a more comprehensive typology of repeat victimization, Farrell and Pease (2008: 121) distinguish between various types of repeats, acknowledging that, in practice, many of them overlap and more than one will be present for any given crime. In their typology of repeats, 'tactical repeats' are referred to as repeats where the same tactics are being applied. Other types of repeats include 'spatial', 'temporal' and 'crime-type' repeats (Farrell and Pease 2008: 122).

relevant since research has shown that targets already victimized are at much greater risk than others (Grove and Farrell 2012: 404). As argued by Farrell and Pease (2008: 123), 'high rates of repeat property victimization are typically found to characterise crimes against businesses such as commercial burglary, robbery and shop theft'; and a classic study into repeat victimization found that 1 % of people experience 59 % of personal crime, including violence; and that 2 % of households experience 41 % of property crime (Pease 1998, in Grove and Farrell 2012: 404). Targets that are similar in design and geographically close are found to be more likely to be victimized (Townsley et al. 2000, quoted in Farrell and Pease 2008: 121), and research further indicates that crimes are often repeated quickly, minimizing the likelihood that anything has changed (Grove and Farrell 2012: 404), and that the same or similar targets may also become victimized by different offenders (Idem: 405).[9] It is extremely important, therefore, to ensure that the necessary control improvements are identified and implemented without delay.[10]

4.1.2   Proactive Scripting

Contrary to reactive scripting, 'proactive scripting' refers to the development of crime scripts based on information retrieved from the outside world (e.g. shared within industry bodies, gathered from the press, from professional or academic literature, from seminars and networking activities). By means of developing and interpreting scripts in a proactive manner, those responsible for designing controls have the ability to assess whether their own organization has the necessary controls in place to avoid becoming a next victim.

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[9] This phenomenon is also referred to as 'near repeats'.

[10] In the case of repeat victimization by the same offender, it is argued, this offender often has a very precise script activated which involves no search time and no capable guardian, as the target is already known in advance (Bouloukos and Farrell 1997: 226). If measures have been put in place to prevent repeat victimization, however, this anticipated script is interrupted, which may cause the offender to desist (at least until a new plan can be formulated) or to give up entirely (Ibid.).

4.1.3 Hypothetical Scripting

'Hypothetical scripting', finally, refers to what is commonly known as 'thinking thief' (Wortley and Mazerolle 2008a). It refers to putting oneself in the mind of the offender and viewing the task of breaching existing controls from an offender perspective (Ekblom, quoted in Moreto and Clarke 2014: 216).[11] In order to identify security loopholes in the information security set-up of an upper-tier hotel in London, Samonas (2013) conducted such thought experiment through constructing three hypothetical cases of insider computer-assisted cash fraud. More specifically, these cases were constructed with the aim to challenge the existing organizational paradigm of the hotel, and the detailed activity in each scenario was presented with the help of a crime script (Samonas 2013: 13). The first scenario revolved around the use of reverse or adjustment postings in guest ledger or accounts/receivable accounts primarily used for group bookings. The second scenario was based on the manipulation of room rates and the third and final one on the routing of charges. For each of these scenarios a detailed script was developed encompassing the various stages that the offender would need to go through to commit the fraud, as well as a range of situational controls that would hinder the offender during crime commission. The potential controls that were derived from these scripts, range from pre-employment screening, user authorization, and segregation of duties to password protection and random auditing (Samonas 2013).

The type of scripts that are commonly derived from these thought experiments are referred to as 'potential scripts'. Potential scripts, according to Borrion (2013: 4), describe hypothetical sequences of actions, highlighting the various tracks that an offender could follow to commit a crime.

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[11] Leclerc (in Ekblom and Gill 2015) refers to a script as 'a journey into the head of the offender during the commission of a crime', a journey that holds the potential to reveal the offender's motives as well as other previously unseen situational aspects.

They are closely related to Heuer and Pherson's definition of scenarios, [being] 'plausible and provocative stories about how the future might unfold' and to misuses cases. For example, an attack scenario against a nuclear power plant can be built from a potential crime script that represents the various tracks that a terrorist could follow to break into the plant. (Borrion 2013: 4)

The approach, yet according to Borrion (2013: 4), can be quite risky as the scripts may not be sufficiently realistic or specific to develop effective measures. In many cases, however, producing potential scripts may be the only option available to derive risk scenarios for crime events that are considered rare (Ibid.).

Planned scripts, according to Borrion (Ibid.), are a subset of potential scripts and represent 'sequences of actions that someone intends to execute'.

Typically they are generated from information obtained through the collection of intelligence. An example of a planned script may be an instrumental script that has been selected for a specific operation, for example a bank robbery. Planned scripts can be established on the basis of incomplete, uncertain, and sometimes incorrect contextual information. If the context has changed since the planning phase, the actualization of a planned script may result in a (performed) script that only shares a few similarities with the planned script. This would be the case if, for example, covert control measures successfully influence the course of a robbery. (Borrion 2013: 4)

4.2   Completed versus Aborted Scripts

An offender does not necessarily need to be successful in order for a script to provide valuable data to work from. Scripts can equally be used to study attempted, failed, or aborted crimes (see e.g. Cornish 1994: 163). Such scripts can shed light on the planning failures that gave rise to the script breakdown, on the extent to which offenders use standing decisions to enter or abort scripts, on the reason why they change direction during

crime commission, on errors in performance due to incompetence,[12] and on the effectiveness of existing preventive or discouraging measures (Cornish 1994; Ekblom and Gill 2015). As such, they also provide a means to evaluate the effectiveness of existing controls.

4.3 The Problem of Generalization

When deciding on what controls best to implement, it is required to be crime specific. This requirement is one of the seminal and perhaps most important themes in situational crime prevention (see e.g. Cornish and Smith 2012: 30). As indicated by Moreto and Clarke (2014: 210), situational crime prevention 'must be focused upon highly specific forms of crime because the facilitating conditions and "Modus operande" for any specific form of crime or disorder will differ in important respects from those of even apparently similar forms'. As such, it is argued, one must not distinguish between broad categories of crime such as burglary and robbery, but between the different kinds of offences that fall under each of these specific categories (Clarke 1997a).

The 'generalisation of various aspects of a collective process which may invariably differ due to location, time, and the people involved' is an often recurring concern (Gilmour 2014: 39). In Chap. 2, it is argued that the script concept can operate at different levels of abstraction.[13] Operating at a relatively high level of generality, master scripts provide a useful tool for organizing what often comprises a complex sequence of component crimes (Cornish 2014: xx). Although they may enhance

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[12] Connecting procedural analysis of crime with the wider "human factors" literature on performance errors', according to Ekblom and Gill (2015), may significantly extend the scope of situational crime prevention. Errors in performance that are due to incompetence, yet according to Ekblom and Gill (Ibid.), may stem from 'failure to select the script best able to meet the agent's goals in that situation; failure to understand that improvisation, not stereotyped response, is necessary in particular circumstances; failure to combine script elements in appropriate sequence; or failure in execution'.

[13] As Cornish (1994: 169) points out, 'the potential cost-effectiveness of crime prevention strategies that can address crime "genera" rather than crime "species" makes it tempting to pursue generalization to ever-higher levels of abstraction'. By doing so, however, one may overlook the complexity of much crime as well as the impact of the situational conditions that impact crime commission in its specific setting.

the analysis of specific complex crimes at a strategic level and may be appropriate for an introduction to broad topics such as human trafficking or child sexual abuse, they are often too vague to be of practical use (Brayley et al. 2011: 135; Cornish 2014: xx). As Cornish (2014: xx) argues, 'they do not tell one much about the content of the contributory subscripts, some of which may vary in important ways from one instance of a specific complex crime to another'. As such, when one wants to introduce (situational) controls at a tactical level it is crucial to focus on the individual component crimes rather than on the overarching crime phenomenon. This, however, does not rule out all forms of generalization (Cornish 1994: 169). As argued by Cornish (Idem: 170), generalization across different scripts or protoscripts, for example, may be beneficial where instrumental scenes and their associated activities (e.g. stealing a car, breaking into company premises) are shared.

4.4   Crime Script Development

The actual scripting exercise is composed of two main stages: the development of the crime script and its consequent analysis and interpretation (which includes the identification of potential intervention points, controls, and control improvements). This first section deals with the development phase. It identifies a range of different data sources, highlights what data elements are required, and goes on to explain how these data elements can be captured and translated into a proper script that is accurately labelled for future reference.[14]

4.4.1   Data Sources

Script analysis is, in essence, an analytical technique. As with any analysis, the value of the output will depend on the quality of the data that

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[14] In an attempt to define how crime scripts should be developed and what information should be included, Borrion identifies the following 12 quality assurance criteria: typology, traceability, transparency, consistency, context, completeness, parsimony, precision, uncertainty, usability, ambiguity, and accuracy. Yet according to Borrion (2013), these criteria are aimed at supporting the specification, verification, and validation of functional requirements for control measures.

is gathered and processed. The more detail that can be obtained on the offender's (hierarchy of) goals, decisions, actions, and interactions with the environment and other agents; the more potential for successful intervention. Various data sources are available to gather relevant information to build upon when developing a script. Primary sources include participant observations and the subjective accounts obtained from the various agents participating in the crime event (e.g. offenders, victims, or crime controllers). Data derived from the offender's account include information about the way that the crime scene was assessed, about the skills he or she required, the effort involved, the way crime opportunities were perceived, the financing and tools required to carry out the crime, and about his or her technical expertise (Tompson and Chainey 2011: 186).

Secondary sources include other sources of information such as police reports, internal investigation reports, CCTV footage, wiretappings, case studies, and a broad range of open sources. In a crime script analysis of the online stolen data market, Hutchings and Holt (2014: 3) utilize posts from 13 Russian- and English-language online forums engaged in the sale of illegally acquired data and related services,[15] and in a two-year study to test the suitability of crime scripts as a method for improving the overall understanding of the money laundering process and the applicability of situational crime prevention to disrupt that process, Gilmour (2014: 40) analysed 170 questionnaire responses and 12 in-depth interviews with anti-money laundering experts and practitioners from across 11 professional anti-money laundering backgrounds.[16]

Especially with the use of the latter type of data sources, one should be careful not to make assumptions but to always remain objective when interpreting behaviour (see also Ekblom and Gill 2015). As a general rule, combining data elements obtained from various sources is often the best recipe for accuracy and completeness.[17]

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[15] Based on a qualitative analysis of 1889 posts, the authors were able to identify a number of key processes and actors including sellers, buyers, suppliers, moderators, administrators, and teachers (Hutchings and Holt 2014: 15–16).

[16] This particular study further included a detailed assessment of several open-source case studies (Gilmour 2014: 40).

[17] In this respect, however, it is worth noting that offenders, victims, witnesses, or crime controllers do not always provide accurate accounts of their own perceptions, actions and decision making (see

4.4.2   Data Elements

In the previous chapters, it is argued that crimes may be considered events with a specific location in time and place (Cornish 1994: 155); and that script analysis provides an ideal means to describe, visualize, and (ideally) explain the relationship between actors (or agents),[18] tools, and locations. Obtaining information on 'actors', 'tools', 'time', and 'setting' should therefore be considered key for the development of any script. Likewise, it was argued that the crime script represents the complete sequence of actions adopted prior to, during, and following the commission of a particular crime (Leclerc and Wortley 2014: 6), which makes it necessary to identify the various (decisions and) 'actions' and to cluster them into sequential 'stages'. As the unfolding of a crime further involves 'a variety of sequential dependencies within and between elements of the action', it is equally important that sufficient data is collected on these elements, including situational contingencies, goals, and opportunities (Cornish 1994: 156). Finally, as scripts are developed and analysed in order to identify control gaps and potential control weaknesses, it is key to capture information on existing controls that were found to be compromised or circumvented by the offender (if any). Given the nature of the exercise, these various data elements are essential to come to a useful display of the crime-commission process and to enable crime prevention practitioners to virtually get closer to the crime scene.

4.4.2.1   Date and Time

Crimes are considered events with a specific location in time. Although the exact date and time of day is extremely beneficial for future analysis, it is not considered a strict requirement.[19] As a minimum, however, one will

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also Eck and Weisburd 1995: 18), which means that data obtained from these parties will often need to be verified with that retrieved from other sources.

[18] Ekblom and Gill (2015) define 'agents' as people in general with offenders being a specific subset.

[19] As Cornish (1994: 156) point outs, identifying the time scales involved may prove to be very difficult as some opportunities noted on one particular occasion may be exploited at a much later

need to be able to at least establish the sequence of events, as this requirement is inherent to the procedural analysis of offending.

4.4.2.2 Stages

Crime scripts are composed of a series of sequential actions and decisions and are designed to help identify every stage of the crime-commission process (Cornish and Clarke 2008: 31). As to ensure that the focus of attention covers the entire (end-to-end) process and not just parts of it, Cornish (1994) made use of a classification of generic stages (i.e. 'preparation', 'entry', 'pre-condition', 'instrumental pre-condition', 'instrumental initiation', 'instrumental actualization', 'doing', 'post-condition', and 'exit'). These generic stages form the standardized scenes of what Cornish refers to as the 'universal crime script' (see supra). According to Cornish (Idem: 163), 'using a general procedural framework to make sense of the data, rather than "extracting" a plan from the data themselves, is that it explicitly encourages the investigator to consider all aspects of the crime-commission process'. As Cornish (Ibid.) continues, 'by interrogating the data in this way, omissions, such as missing information about preparations or aspects of the offense's aftermath, are much more likely to be identified'.

Apart from ensuring that end-to-end focus, the clustering of decisions and actions into generic or standardized stages facilitates the organization, discussion, and comparison of decision-making information within and between research projects (Ibid.). It further allows crime prevention practitioners to gain efficiency and identify potential spillover effects of preventive measures (see also Chap. 6), or to assess to what extent certain aspects of a script may be applicable to those of scripts describing other crime types.[20] As Cornish and Clarke (2008: 36) argue, although the

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date. Similarly, a variety of preliminary activities may be carried out over a period of days, weeks, or even longer before the actual crime event (Cornish 1994: 156).

[20] In their analysis of the online market for stolen data, Hutchings and Holt note that although their study is based primarily on stolen data markets, some aspects of the script process may also be applicable to other online black markets such as those that specialize in drugs or weapons (Hutchings and Holt 2014: 16).

Table 4.1 Examples of labels used to identify stages in the crime-commission process

Crime type	Stages	Source
Child sex trafficking	Find, groom, abuse	Brayley et al. (2011)
Illegal waste smuggling	Creation, storage, collection, treatment, transport, disposal	Tompson and Chainey (2011)
Human trafficking for sexual exploitation	Recruitment, transportation, exploitation, aftermath	Savona et al. (2014)
Foreign fighting	Orientation, co-offending, operational, finalization, departure	de Bie et al. (2015)

content of each stage will be specific to the crime that is being described, the stages of the crime script are relatively uniform across crimes.

When clustering decisions and actions into stages, however, it is important to use a classification scheme that is appropriate and recognizable by peers, and at the same time sufficiently detailed. Headings such as the ones proposed by Cornish have the benefit of being generic but may appear rather complex to end-users, with a risk that certain actions or decisions would be captured under the wrong heading, which would make it impossible to benefit from the spillover effects suggested above. In order to counter this complexity, it is important to use a language that is more universally understood without compromising the need for detail. Some authors have chosen to 'simplify' Cornish's classification into four main stages, being 'preparation', 'pre-activity', 'activity', and 'post-activity' (see e.g. Tompson and Chainey 2011). In a systematic investigation to empirically examine the process of child sexual offending, Kaufman et al. (2006: 105) proposed a temporal framework intended to describe the behaviour of the offender 'prior to', 'during', and 'following' sexual abuse. This framework 'places behaviours along a temporal continuum, beginning with offenders' efforts to access victims and including strategies to lure the victim, gain the potential victim's and their family members' trust, obtain the victim's compliance in sexually abusive behaviors, and maintain the victim's silence following the onset of the abuse' (Kaufman et al. 2006: 105).[21] Others, as indicated in Table 4.1, go for

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[21] According to the authors, 'behaviors that are observable and can be identified as common patterns in sexual offending represent excellent targets for the development of prevention efforts

a more problem-oriented classification, focusing on the problem that is being addressed (see also Savona et al. 2014: 146).

These problem-oriented labels have the benefit of being extremely specific, which comes in handy when examining single crime types or crime phenomena. For the purpose of general crime prevention in a business environment, however, it makes more sense to use a classification that is sufficiently detailed to identify separate stages, but generic enough to tailor for various crime types. Such generic classification could comprise a 'preparation', 'entry', 'execution', 'exit', and 'post-activity' stage. In this generic classification the preparation stage covers a range of preparatory activities such as assembling tools for a break-in, the theft of a runaway vehicle, gathering inside knowledge on high-value transport movements, being on a stake-out to observe routines in people or vehicles entering or exiting a facility, and so on. The entry and execution stage cover the necessary steps to be taken by the offender to get access to the crime scene, either physically (e.g. to commit a burglary) or remotely (e.g. to commit computer-related fraud), and to execute the crime. Following execution, the exit stage covers the way the offender exits from that crime scene, and the actions performed in the aftermath of the crime (such as dismantling a stolen vehicle, storing stolen property in a warehouse, or selling stolen trade secrets to the highest bidder) can be captured in the 'post-activity' stage.

4.4.2.3 Setting

Apart from the requirement to be crime specific there is also a need to consider each individual action in its particular setting. This requirement follows from the very nature of situational crime prevention, which is in essence situation-bound (Newman 1997: 10). As argued by Kaufman et al. (2006: 117), 'the various features and patterns at a (target) location can either hinder or facilitate the interplay among the three crime elements and thus affect how easily a crime might occur in a specific location'. It is key to analyse the situational conditions that provide

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involving parents, family members, professionals and community members' (Kaufman et al. 2006: 106).

opportunities and permit or facilitate the commission of the crime under study as detailed and accurately as possible, as effective responses can only be developed if all factors contributing to the event are known (see also Mayhew et al. 1976; Hirschfield 2005; Morgan and Cornish 2006).

When explaining crime events, crime places or settings are usually regarded as very small areas (Eck and Weisburd 1995: 1). They are defined as geographic units where offenders and targets meet and characterized by five related features: a known geographical location in space; clear boundaries; a principal function such as work, recreation, or transport; control by a person or organization that can be held accountable for place management and a certain, preferably small, size (Eck and Guerette 2012: 356). Facilities, as homogeneous sets of places, are defined as places with a single function such as stores and car parks (Idem: 357). The proximate causes of a seemingly identical event in a given situation may differ significantly in another setting, requiring a different intervention strategy (Newman 1997: 9). As such, 'the situation is considered prime in the analysis of the cause of a particular event or crime' (Ibid.).

4.4.2.4   Actors

Crime scripts can display the decisions and actions of one single individual (e.g. a sole offender), or those of a series of individuals that perform complementary, competing, or conflicting roles. The first are referred to as 'single-actor' scripts and the latter as 'multi-actor scripts'.[22] As argued in Chap. 2, they can further range from single-perspective to interpersonal scripts, with the latter displaying the decisions and actions of agents that perform different roles in one single script template. Capturing the interactions and the exchange of behaviours between offenders, co-offenders, victims, place managers,[23] and the public in general, interpersonal scripts

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[22] Organized crime is a classic example of a crime type where multiple offenders are involved.

[23] According to Madensen (2007, in Eck and Guerette 2012: 358), place managers have four main functions. They organize the physical environment, regulate conduct, control access, and acquire resources. They make decisions about the physical and social environment of places and may produce crime by failing to take the right decisions (or to take no decisions at all).

may prove to be extremely valuable for crime prevention purposes. Combining all actors into one script template further avoids having to distinguish between various typologies such as 'perpetrator scripts', 'victim scripts', and the like (see e.g. Borrion 2013: 8–9).

When listing the various actors involved in the crime-commission process, it is equally important to try and gather insight on their specific roles, skills, and competences. Competences, in this respect, should not be confused with performance. As Ekblom and Gill (2015) argue, 'competence is a static potential by which to generate certain actions in certain ways in certain classes of situation,' while 'performance is a process of generating actual sequences of behaviour in specific real-world situations'. Empirical observations of performances during crime commission, yet according to Ekblom and Gill (2015), can be used to hypothesize competence.[24] Obtaining knowledge about such competence, in turn, assists in assessing the adaptability of offenders (Ibid.). Furthermore, as competence is considered a resource that agents bring to situations, an offender's self-knowledge on his or her competences may shape the decisions made during crime commission, 'including whether to treat a particular situation as an exploitable crime opportunity' (Ibid.).

4.4.2.5 Tools

In coping with or exploiting situational contingencies, offenders may require the possession and use of particular tools. It is important, therefore, to capture detail on the tools that are gathered and used to progress certain actions during crime commission, as this may provide valuable input for the design of future controls.

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[24] As Ekblom and Gill (2015) continue, the competence–performance distinction is central to linking functional and causal perspectives on behaviour sequences. Its practical significance 'resides in understanding and influencing how offenders acquire, develop and evolve procedural competences as resources for committing crime' and in 'how competence is converted into performance on specific occasions' (Ekblom and Gill 2015). 'The versatility of competences and the capacity for improvisation where these reach the limits of their scope during performance both determine the adaptability of offenders' (Ibid.).

4.4.2.6   Goals

In situational crime prevention and, likewise, in procedural crime scripts, the actions of an offender are considered to be essentially goal oriented (Newman 1997: 9). It is assumed that crime is purposive, goal-oriented behaviour, 'designed to meet the offender's commonplace needs for such things as money, status, sex, and excitement, and that meeting these needs involves the making of (sometimes quite rudimentary) decisions and choices, constrained as they are by limits of time and ability and the availability of relevant information' (Clarke and Felson 2004: 6). It is important, therefore, to gather as much detail as possible on the offender's (strategic and tactical) goals and the hierarchy thereof (Ekblom and Gill 2015). This comprises the offender's main goal as well as the set of sub-goals that drive the various stages of crime commission.

4.4.2.7   Actions

Any script obviously requires as much detail as possible on the actions (or units of behaviour) of the offender, the victim, or any other individual that has an impact on the overall chain of events. Likewise, as far as it is possible to capture the actor's account in a particular incident, it is important to gather as much detail as possible on the decision-making involved.[25] With regard to the latter, Clarke distinguishes between involvement decisions and event decisions (see supra). The first refer to the processes through which individuals choose to become involved in particular forms of crime, to continue, and to desist (Clarke and Felson 2004: 6). They are multistage decisions that extend over periods of time (Ibid.). Event decisions, in contrast, are frequently shorter processes. It is the latter type of decisions that are of interest in the scripting exercise, as they may reveal crucial information that can be taken into consideration when designing or redesigning preventive controls.

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[25] As argued by Ekblom and Gill (2015), an understanding of scripts can be far richer if the 'traditional crime science focus on decisions' would be extended to incorporate dual-process thinking and behaviour, meaning a focus on both a 'frequent, unconscious, habitual process' as well as on a 'rarer, narrow-capacity, deliberative process'.

4.4.2.8   Controls and Control Deficiencies

Finally, as the intent of script analysis is to identify and tackle existing control weaknesses, it is important to highlight what controls were already in place. Apart from identifying these controls, it is equally important to try to establish how they were compromised. They may turn out to be poorly designed or, as will be shown in some of the case studies captured in Chap. 5, poorly executed. It goes without saying that any information that may lead to such conclusions is to be obtained for further analysis and interpretation.

4.4.3   Data Capturing

Table 4.2 provides an example of a very basic data gathering sheet that can serve as a main input for the visualization of the crime script.

When developing the script one must strive to be as complete, specific, and detailed as possible. On the other hand, one should avoid including unnecessary detail, being information about those elements that are not relevant to the stakeholders' high-level requirements (see e.g. Borrion 2013: 8–9). Yet according to Borrion (Ibid.), scripts should be comprehensive to those expected to use them, and their content should be clear in a sense that it should not be possible to interpret the information in more than one way.

4.4.4   Crime Script Visualization

The input retrieved from the scripting exercise can be visualized as a process flow based on which possible intervention points are to be identified and linked to the existing control framework. In general, script analysis requires no specialist or expensive software. Due to the lack of standardized script creating rules, there is also no commonly agreed typology of symbols used to depict actions, decisions, and the like. For the purpose of this volume, all example scripts have been visualized as tables, indicating the main stages, the various actors and their actions, as well as potential

Table 4.2 Basic data-gathering sheet

Time	Stage	Setting	Actor	Action	Goal	Tools	Controls
To be completed	To be completed	To be completed	To be completed	To be completed	To be completed	To be completed	To be completed
To be completed	To be completed	To be completed	To be completed	To be completed	To be completed	To be completed	To be completed
To be completed	To be completed	To be completed	To be completed	To be completed	To be completed	To be completed	To be completed

Table 4.3   Example script 'Curtain-Slashing' (2)

Stage	Offender	Potential controls
Preparation	Steal a van or light truck	Install car alarms, ignition or steering locks, or immobilizers
	Replace number plates	Increase formal surveillance on public roads
	Gather tools	Control markets for 'multi-purpose' tools, record purchases for future reference
Entry	Enter unsecured parking lot	Provide access control to parking lots, employ parking attendants
	Circle parking lot	Patrolling on site, CCTV monitoring
	Select soft-sided trailer to hit upon	Replace soft-sided trailers with hard-sided trailers
	Close in on selected trailer	Enhance visibility and natural surveillance
Execution	Cut hole in the tarpaulin	Intrusion detection, anti-slashing strips
	Break seal/lock of the trailer's back door	Intrusion alarms, security locks on trailer's back doors
	Offload cargo into escape vehicle	Patrolling on site, CCTV monitoring
Exit	Leave parking lot	Provide exit control measures
Post-activity	Sell goods on the black market	Disrupt markets for stolen goods, identify products to make them traceable and less easy to sell on the black market

control improvements (see infra). Table 4.3 provides an example of such table, based on our initial (hypothetical) example of cargo theft from a parked trailer.

4.4.5   Labelling Scripts

Each script that is developed will need to be labelled for future (cross-) referencing. Such label should ideally contain some key information such as a unique identifier, the crime type(s) displayed, the success rate for each of these crime types (i.e. stating whether it concerns a performed or aborted script), some generic information on when and where the incident took place, and some basic detail on the information source(s)

that was relied upon to develop the script. As argued in a previous section, information sources can vary from primary sources (e.g. details obtained directly from an actor involved in the crime-commission process) to secondary sources such as case files, CCTV footage, and so on. Ideally, information from primary and secondary sources is combined to come to a final script. As argued by Borrion (2013: 8–9), the script label should further include a mention of the precise context in order to allow a more accurate understanding of the constraints and conditions that could impact on the effectiveness of control measures.

4.5   Identifying Possible Intervention Points and Controls (or Control Improvements)

As argued in Chap. 2, crime scripts provide an ideal template for the identification of a broad scope of opportunities for situational interventions (Leclerc and Wortley 2014: 6). These interventions may include control improvements or the design and implementation of additional controls that were previously missing. They are identified by means of finding the answer to a very straightforward question: What can be done to prevent, disrupt, or strengthen the impact of this particular action (depending on the actor's viewpoint), or to influence this particular decision? Answering this question for each step that was identified in the script results in an overall inventory of potential controls and/or control improvements. When preparing such inventory, some important considerations need to be taken into account. First, it should be noted that each process step that lends itself to preventive intervention requires its tailor-made solution. This, however, does not mean that a certain measure has no potential to help mitigate more than one risk or to influence multiple offender actions. As will be argued later on, diffusion of benefits is a phenomenon that is to be included in any cost–benefit analysis that is being conducted when assessing alternative measures or controls prior to their implementation. Second, it is worth noting that often a combination of measures will prove to be most effective in reducing a risk or crime problem. According to Clarke (2008), 'a situational project is more effective when it adopts a package

of measures, each of which is directed to a particular point of the process to committing the crime'.

4.6   Selecting the Most Promising Controls for Implementation

Before moving on to the actual assessment of potential measures or controls,[26] the next section will first provide some more detail on the various situational techniques that are available to policy makers and crime prevention practitioners.

4.6.1   Situational Measures

As indicated in Chap. 2, the set of situational crime prevention measures or techniques available to policy makers and security practitioners has evolved quite significantly over the past decades. The most recent classification contains a total of twenty-five situational techniques, listed under five basic strategies. As Clarke (2008: 183) argues, the first three groups of opportunity-reducing techniques are derived from the rational choice perspective. The fourth group is derived from psychological theory, and the fifth and last group from ideas developed by Matza and Bandura (Clarke 2008: 183).

4.6.1.1   *Increasing the Effort*

The first set of techniques is designed to make it more difficult for the offender to commit a particular crime by blocking or limiting the offender's actions or movements (Smith and Clarke 2012: 305). This can be achieved by means of target hardening, access control, exit screening, deflecting offenders, or controlling tools and weapons. The intent of target hardening is to obstruct a potential offender by physical barriers such as locks, screens, or reinforced materials (Clarke 1997b: 17). Examples of

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[26] In this section, 'controls' and 'measures' are used interchangeably.

such barriers include anti-bandit screens on post office counters, transparent screens to shield bus drivers, strengthened coin boxes in public telephones, steering locks on cars, the use of immobilizers, on-board safes on buses, the use of damage-resistant materials, and so on (Clarke 1997b: 17, 2005: 46; Clarke and Eck 2003: 6–3; Morgan and Cornish 2006: 16). All of these measures include the design of a physical obstacle between the potential offender and its target, be it a post office clerk, bus driver, desirable car, or hard currency. Access control measures are designed to exclude potential offenders from targeted facilities or, in more general terms, from potential crime scenes (Clarke 1997b: 17). Some examples taken from literature include the use of electronic personal identification numbers, entry phones, electronic access control systems, manned reception desks, and the introduction of baggage and passenger screening (Clarke 1997b: 17; Clarke and Eck 2003: 6–3). Exit screening refers to ensuring that those exiting a building, facility, or some other place have not stolen anything, have paid the required fees or taxes, and so on (Clarke 1997b: 19). Examples of this technique are the use of electronic (merchandise) tags in shops and libraries, export documents, border controls when exiting a country, and parking tickets to exit station car parks (Clarke and Eck 2003: 6–3; Morgan and Cornish 2006: 16). Deflecting offenders refers to leading potential offenders away from potential crime targets; and the idea behind controlling crime facilitators such as tools and weapons is self-explanatory (Clarke 1997b: 18–19). Examples of the latter two techniques include the segregation of rival groups of soccer fans in the stadium to reduce the risk of a fight, the use of toughened beer glasses or plastic mugs to prevent glasses being used as weapons, the introduction of Caller-ID in order to reduce obscene phone calls, placing photos on credit cards, and so on (Clarke 1997b: 18–19; Clarke and Eck 2003: 6–4).

4.6.1.2   Increasing the Risk

The second series of techniques aims at increasing the (perceived) risk of being apprehended and is based on the assumption that offenders worry more about the risks of being apprehended than about the consequences

of being caught (POP Center n.d.). In order to increase this perceived risk, one can extend guardianship through the introduction of 'capable guardians' such as alarm systems, neighbourhood watch schemes, and so on (Clarke and Eck 2003: 6–5; POP Center n.d.). One can decide to assist natural surveillance, for instance by trimming bushes or enhancing lighting conditions around premises in order to enhance visibility and natural surveillance by people passing by (Clarke and Eck 2003: 6–5); or to take measures to reduce anonymity and enhance social control. A fine example of the latter is to introduce the requirement for staff to wear name tags, making them stand out from unauthorized individuals. One can try to get maximum profit out of place managers such as surveillance systems and surveillance roles performed by, for example, shop assistants, hotel doormen, car park attendants, or bus or train conductors; or to try and strengthen formal surveillance provided by police, security guards, store detectives, or other agents whose main function is to furnish a deterrent threat to potential offenders (Clarke 1997b: 20; Clarke and Eck 2003: 6–5).

4.6.1.3   *Reducing Anticipated Rewards*

A third set of techniques is designed to reduce the anticipated rewards for the offender, being material rewards or other rewards such as sexual release, intoxication, excitement, revenge, respect from peers, and so forth (Clarke and Eck 2003: 6–6). These techniques include the concealment or removal of targets, the identification of property, the disruption of markets for stolen goods, and the denial of benefits of crime. Concealment of targets relates to hiding valuables to prevent burglary, avoiding parking desirable vehicles on the street during night time, using unmarked transportation units for transporting high value goods, and so on (Ibid.). Targets can further be removed altogether (Clarke 1997b: 21). Examples of the latter include the replacement of cash money transfers by electronic systems such as credit cards or phone cards, discouraging patients to keep cash money in their hospital rooms, or discouraging staff to take valuables with them when they come to work. One can decide to identify property to make it traceable and less easy for resale on the

black market, or to try and disrupt markets for stolen goods by means of public awareness campaigns (Smith and Clarke 2012: 307). Examples of measures intended to deny the benefits of crime include the installations of road humps to deny the benefits of speeding, the use of ink tags on brand clothing, or the application of security codes in car radios (Felson 1998: 180; Clarke and Eck 2003: 6–6).

4.6.1.4   Reducing Provocations

A fourth strategy reflects the influence of Wortley and is aimed at reducing provocations, being situations that precipitate or induce crime (Wortley 2001; Smith and Clarke 2012: 308). In order to do so, one can try and reduce frustration and stress in order not to provoke violent or unwanted behaviour (e.g. by facilitating traffic flow to avoid that people have to stand in a queue for hours without any proper explanation), avoid disputes that may escalate into criminal behaviour, reduce emotional arousal (e.g. by prohibiting convicted paedophiles from taking jobs involving close contact with children), neutralize peer pressure, or discourage imitation (Wortley 2008: 63; POP Center n.d.). Some examples of the latter technique include measures to prevent children watching violent TV shows, or efforts to discourage media from publishing details of crime incidents and techniques used by offenders (Clarke and Eck 2003: 6–8; Morgan and Cornish 2006: 16).

4.6.1.5   Removing Excuses

A fifth and final set of techniques aims at removing excuses for unwanted behaviour. Offenders often make moral judgments about their behaviour and use excuses to justify their actions. In order to tackle this behaviour one can set rules and formalize what behaviour is acceptable and what not, or post instructions in public in order to prevent people claiming ignorance of those rules. One can also try to alert conscience, focusing on specific forms of crime in discrete, highly limited settings with

the purpose to alert and stimulate feelings of conscience at the point of committing a specific type of offence (Clarke and Eck 2003: 6–10). Other techniques listed in this category include efforts to assist compliance by putting things in place that aid in following the rules of conduct (e.g. public lavatories to avoid urinating in the streets, or litter bins to avoid illegal dumping), or efforts to control disinhibitors such as alcohol or drugs, as these are believed to undermine inhibitions or impair perception and cognition so that offenders are less aware of breaking the law (White and Humeniuk 1994, cited in Clarke 1997b: 25; Clarke and Eck 2003: 6–10).

4.6.2 The Problem of Choice

As Shapland (2000) rightly states, the weakness of having a full palette of measures to choose from is the difficulty of making the choice. As Duff and Marshall (2000) put it, the introduction of any measure 'brings some benefits and imposes some costs, such as the material resources required to implement it, the degree of inconvenience it creates, and its possible deleterious impact on such interests as freedom, autonomy or privacy'. All too often countermeasures are selected without considering any potential side effects or interdependencies. These side effects and interdependencies will eventually come to the surface once these measures have been implemented, resulting in the need for abandoning initial approaches, the need for adjustments or 'damage repair' or, even worse, resulting in the conclusion that the measures are totally ineffective and time, efforts, and resources have been completely wasted.

When all potential controls and control improvements have been derived from the crime script, it is important to make an informed decision on what controls or measures to implement and what not. As argued in previous work (see supra),[27] an ex ante consideration of preventive measures provides an ideal means to guide this selection process. An ex ante consideration incorporates an assessment of the costs and benefits of

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[27] See also Haelterman (2009, 2011, 2013) and Haelterman et al. (2012) for more detail.

each individual measure, as well as an assessment of any interdependencies that may be present and a range of preconditions that need to be fulfilled. Before moving on to the next chapter, the following sections will first explain each of these (clusters of) assessment criteria in a bit more detail.

4.6.3   Preconditions

Certain preconditions need to be in place in order for any intervention to be effective. This is the case for the availability and practicability of a measure (or control) to end-users, as well as for the knowledge and expertise that is required to implement and execute it. Furthermore, end-users have to be aware of the need for implementing that measure. They have to believe in its effectiveness and committed to cooperate with others to make things work.

4.6.3.1   *Availability*

If a measure is unavailable (e.g. because local law does not permit its use or implementation), it simply cannot be introduced. Examples of measures that are unavailable in quite a number of jurisdictions are intrusive monitoring and detection methods such as the use of hidden cameras or the monitoring of e-mail and internet usage.

4.6.3.2   *Practicability*

If a measure is available to end-users but its introduction would impact core business processes to an extent that their execution becomes extremely difficult or impossible, or when its introduction would negatively impact competitiveness on the market, there is little guarantee for success. As Beck and Willis (1994) argue, there is always a delicate balance to be struck between meeting security imperatives and maximizing business opportunities.

4.6.3.3   *Knowledge and Expertise*

The same applies when the implementation of a certain measure requires a level of knowledge or expertise that is unavailable to end-users or extremely hard to obtain. A poor understanding of how to implement, execute, or adhere to certain security measures may render all preventive efforts useless. As Knutsson and Clarke (2006) put it, 'seemingly simple measures can be rather difficult to implement for a variety of technical, managerial and social reasons'. It's important, therefore, to only implement those measures for which it is clear from the start that those required to implement, execute, or adhere to them, have the capabilities to do so.

4.6.3.4   *User Awareness, Belief, and Commitment*

Other preconditions include the need for end-users to be aware of the problem that is being dealt with, to believe in the effectiveness of the proposed solution, and to be committed to solve the problem and to co-operate with other stakeholders to reach the desired outcome. Those who need to initiate action (e.g. conduct specific security checks, monitor compliance to key procedures) need to be aware of their responsibility to do so. They need to be committed to act, and to achieve the necessary coordination among all parties concerned. Especially the latter can prove to be quite challenging. Crime prevention is often about partnerships, in that 'each of the players has a role which complements and must be coordinated with the others in a system of mutual co-operation' to ensure that controls are effective (Hardie and Hobbs 2005). As illustrated by Newman and Clarke (2003) in a case study on the reduction of credit card fraud, there are numerous cases where situational crime prevention has succeeded through forging partnerships among the crucial players. As illustrated in some of the case studies presented in Chap. 5, there are also numerous examples of cases where controls completely failed due to a lack of adherence to the prescribed security procedures. The fact that a lack of commitment or co-operation causes preventive action not to reach its full potential is further illustrated in a study on

ram raiding where it was discovered that police recording practices and a lack of commitment of some retailers made it difficult to collect useful data to tackle the problem (Jacques 1994). As Tilley (2005) points out, 'competing demands on the organisations and individuals belonging to them; differences in philosophy, culture and organizational style; a lack of dedicated resources; differences over leadership; a historic lack of trust; an apparent indifference or apathy amongst some; and so on; all conspire to create obstacles to the operation of effective formal partnerships'.

4.6.4   Interdependencies

Prior to deciding on what measures are best to implement, it is essential to recognize what interdependencies exist between the proposed measures and potentially related ones, and to verify how to overcome them. If any interdependent measures have been identified, these should all be assessed on an individual basis, and the outcome of this assessment should be taken into account in the overall selection process.

Common examples of interdependencies include those between the installation of electronic access control systems and the roll-out and communication of effective access control procedures; or those between investing in expensive CCTV or intrusion detection systems and the provision of sufficient and capable resources to respond to alarms or irregularities. As Farrell and Pease (2008: 119) put it, 'any amount of security hardware is irrelevant insofar as an offender perceives that help will not be summoned or, if summoned, will not arrive'.

4.6.5   Assessing the Cost of Preventive Measures

Apart from assessing preconditions and potential interdependencies, it is key to assess the cost of each potential solution prior to making a decision on whether or not to implement it. The total cost that results from the implementation of a measure is composed of a series of cost components. All these components will need to be assessed in detail in order to come to a proper assessment of what the actual impact of introducing a measure comprises.

4.6.5.1 Financial Cost

The financial or monetary cost related to the implementation of a measure or control refers to a range of cost items such as management and overhead costs, personnel costs, capital expenditures, cost of (security) equipment and services, maintenance costs, and the like (see also Welsh and Farrington 1999). Apart from these cost items, the implementation of preventive controls in a business environment may further have an impact on certain core processes, delaying normal operating procedures and adding additional costs to the business. It goes without saying that the cost resulting from that impact will need to be taken into account in the total cost calculation (see also Bichou 2008). As Laycock (2005) rightly states, some ideal responses may be far too expensive to be acceptable in financial terms. It is important, therefore, that proposals are realistic and not overambitious or overexpensive. As Gill (1994) argues, being expensive in financial terms does not qualify as a guarantee for success. The most effective crime prevention measures, yet according to Gill (Ibid.), are often cheap or even free. It has long been established, for example, that signs of occupancy are the factor most likely to deter potential burglars of a domestic dwelling, making the encouragement not to leave a note of absence on the front door, or not to let the newspapers build up in the letter-box, an effective and cost-efficient preventive measure. Vice versa, measures that may initially be thought of as being less expensive than alternative solutions may actually prove to be the contrary once they have been implemented. A good illustration of the latter results from a study into the cost of electronic article surveillance in retail stores, where it was found that the cost of tagging goods eventually proved to be the equivalent of employing a full-time employee for a whole year (Bamfield 1994). It is important, therefore, to carefully measure and balance the financial cost of introducing a certain measure against that of alternative solutions.

4.6.5.2 Ethical Cost

The fact that a given solution to prevent crime may appear to be cost-efficient from a financial perspective does not automatically make that

solution acceptable without further consideration. When applied without reflection, or by their very nature, preventive measures can easily backfire and lower the quality of life in our society. Certain members of society may become labelled, feelings of intolerance and distrust may be stimulated, social conduct may be hindered, and human rights violated (Vettenburg et al. 2003; Newburn 2007). Translated into a workplace environment, staff members may feel labelled and discriminated as a result of the introduction of certain controls, or hindered in their freedom of movement, alienating them from their colleagues and from their employer. As Duff and Marshall (2000) illustrate, 'if an employer decides to introduce exit searches on employees as they leave work, not only the cost-effectiveness of this measure, but also the attitude it displays towards the employees should be questioned, as well as the conception it implies of their role in the enterprise in which they are engaged'.

While the ethical and social cost of situational crime prevention is obvious in some cases, it should not be ignored that not every measure is likely to be susceptible to the critical concerns raised above, and that 'people are willing to surrender some freedoms or endure some inconvenience in specific contexts if they gain protection from crime' (Clarke 2005). A good example of the latter is the general acceptance of the need for additional precautions when checking in on a passenger aircraft. Other examples include the general acceptance of a range of security procedures for online banking, or the acceptance of an extensive pre-employment screening when applying for a job at a nuclear power plant.

4.6.5.3   Esthetical Cost

Apart from their financial and ethical cost, certain measures may have a negative impact on the esthetics of the environment and, as such, pose an additional cost compared to those that are equally effective but blend in with their surroundings. Examples of esthetical costs derived from literature include the installation of floor-to-ceiling turnstile railings in subway stations; creating a prison-like, 'draconian' environment (Clarke 1997b); gating-off pay phones in public spaces to prevent shoulder surfing (Bichler and Clarke 1997); having armed guards patrolling in

a shopping mall; or the installation of bollards or shutters outside listed buildings (Jacques 1994).

4.6.5.4   Consequential Costs

Finally, there has been extensive publishing on various reverse effects that may result from the implementation of situational crime prevention measures (see also supra). The most common side effects that are referred to in literature are effects of displacement (Eck and Weisburd 1995; Clarke 1997a; Bowers and Johnson 2003; Tilley 2005; Newburn 2007; Guerette 2009; Ekwall 2009; Johnson et al. 2012). This is the phenomenon where the introduction of preventive measures results in crime being displaced elsewhere, to some other time or target, being committed in another way or being substituted for some other type of offence. The first phenomenon is referred to as 'geographical' or 'spatial displacement', and the latter as 'temporal', 'target', 'tactical' and 'crime type displacement' (Clarke 1992; Bowers and Johnson 2003; Guerette and Bowers 2009).[28] Furthermore, one may actually produce crime and do more harm than good in the course of combating it. Some initiatives or measures may inspire adaptive behaviour on the part of the offenders that can entail more inventive, devious, or violent activity (Grabosky 1996; Clarke 2005). Finally, by dramatizing certain aspects of unwanted behaviour, one may actually advertise that behaviour, either by bringing it to the attention of those who would otherwise be oblivious or only vaguely aware, or by enticing the potentially rebellious.

It is essential, therefore, to identify the possibility and likelihood of displacement and other reverse effects as part of an ex ante consideration of alternative measures. To effectively manage displacement upfront, for example, one needs to identify what criminal opportunities are left unat-

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[28] As argued by Bowers and Johnson (2003), research indicates that crime displacement is not a necessary outcome of crime prevention activity, and it is also possible that crime reduction schemes may have a diffusion of benefits. Furthermore, it has been argued that even where displacement occurs, there may be some benefit to this (e.g. offenders choosing to commit less serious types of crimes than those prevented). A systematic review of 102 evaluations of situational crime prevention initiatives by Guerette and Bowers (2009) further supports the view that crime does not necessarily relocate in the aftermath of situational interventions.

tended once a measure has been introduced, and try to anticipate how the offender might attempt to circumvent or counter that measure, for example by means of hypothetical scripting.

4.6.6   Assessing Potential Benefits

The main benefit resulting from the implementation of a measure is the reduction of the risk that was identified and to what purpose that measure was selected and introduced. Apart from fulfilling this main purpose of (sustainable) effectiveness, the introduction of situational measures can further result in a range of beneficial side effects that go beyond mitigating predefined risks or problems. As argued by Hamilton-Smith (2002), immediate crime reduction gains can 'spill out' beyond the property or people that have initially been targeted. This phenomenon is commonly referred to as 'diffusion of benefits' (see e.g. Johnson et al. 2012: 338). These benefits can also spill over to other time periods, other places and other crime types (e.g. anti-terrorism measures resulting in reduced opportunities for cargo theft).[29] Furthermore, introducing preventive measures can also result in improvements in other key business processes.[30] According to Ritter et al. (2007), an investment in security should be focused on value creation, and companies 'that implement security initiatives which are quantifiable more effective and more comprehensive than those of their competitors should expect to be rewarded accordingly by the marketplace'.

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[29] According to Clarke and Weisburd (1994, in Johnson et al. 2012: 338), crime-control benefits might be diffused through two mechanisms. First, as offenders will rarely be aware of the full scope and boundaries of a preventive intervention, they may overestimate its coverage and perceive an unjustified increase in the risk of being apprehended. Second, offenders may perceive the effort required to seek alternative opportunities (i.e. opportunities outside the scope of the intervention), or the effort associated with targeting those that are more difficult to attack as a result of the intervention, as outweighing the perceived benefits (Clarke and Weisburd 1994, in Johnson et al. 2012: 339).

[30] Improved customer loyalty and employee commitment, higher supply chain visibility and improved efficiency are just some examples of beneficial side effects (or 'collateral benefits') that are frequently referred to in literature as resulting from the introduction of (anti-terrorism) supply chain security measures (Tyska and Fennelly 2001; Rice and Spayd 2005; Peleg-Gillai et al. 2006).

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5

Case Studies

1   Introduction

This chapter presents a number of case studies that illustrate the use of script analysis in a business environment. All cases are to some extent based on real-life examples reported upon in the press or shared by practitioners in the field. Where relevant and required, names of individuals and locations have been changed or removed to ensure strict confidentiality. The main purpose of this chapter is to demonstrate the potential of script analysis for preventive purposes. The crime types that were selected have deliberately been kept simple and straightforward as to allow the reader to gain sufficient understanding of the approach itself rather than to become distracted by the complexity of the incidents that are described. From gaining such initial understanding it will become evident that the value of script analysis becomes even more obvious when dealing with more complex crime types.

The case studies that made it to the final selection are captured under two broad headings, being offender scripts and interpersonal scripts. The

first provide detail on the actions adopted by one or more offenders in pursuit of their goals. In the second type, both offender actions and those of other agents that have an active role in the crime-commission process are displayed. These include victims and 'third parties' that, often without being aware, hinder or facilitate crime commission.

Following some background on the crime phenomenon at hand, each case study provides a brief introduction into the incident that was selected for further analysis. The information obtained on the MO that was displayed by the offender is then translated into a crime script, breaking the crime-commission process down into a number of generic stages (see supra). For each of the steps recorded under these stages, it is then assessed what potential controls or control improvements are available to prevent or disrupt crime commission. Finally, an initial assessment is made of the financial, ethical, and esthetical cost of these controls and control improvements. It is important to note, however, that the latter assessment is included for illustrative purposes only, and that no detailed assessment of the various cost factors has taken place.[1] Likewise, no detailed assessment is included of any potential interdependencies that may exist between the control improvements that were identified and other, related measures; nor of the preconditions that need to be in place for these control improvements or measures to be effective.

2   Offender Scripts

This first section presents two separate case studies. The first translates into a single offender script and relates to expense reimbursement fraud. Common examples of this type of occupational fraud include employees submitting false or inflated receipts for business expenditure, or submitting the same receipt on multiple occasions. More spectacular examples referred to in literature include a business executive expensing the cost of his daughter's wedding (rationalizing it to be a business expense as some customers were attending) or an employee submitting expenses for hiring

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[1] See Haelterman et al. (2012) for an example of a detailed assessment of financial, ethical, and esthetical costs of situational crime prevention measures.

an escort, claiming that to be part of his relocation expenses (Cougar Mountain n.d.). The case study captured in this section presents a less uncommon example of expense reimbursement fraud, being an employee claiming reimbursement for expenses that are not (or not fully) business related.

The second case study translates into a multi-actor script and relates to a rather innovative means of cargo theft from a (moving) vehicle. It presents an example of how offenders were able to remove high value products from a moving vehicle during an intra-European transport movement and identifies a series of potential measures to interrupt or disturb the crime-commission process.

2.1   Expense Reimbursement Fraud

Expense reimbursement fraud is considered one of the easiest ways for employees to steal from a company. In its 2012 *Report to the Nations on Occupational Fraud and Abuse*, the Association of Certified Fraud Examiners (ACFE) states that this type of fraud accounted for approximately 14.5 % of all asset misappropriations that were investigated (ACFE 2012). Out of a total of 1388 cases of occupational fraud reported and investigated globally, 201 related to schemes in which an employee makes a claim for reimbursement of fictitious or inflated business expenses, resulting in a median loss of USD 26,000 (ACFE 2012: 12). In its 2014 version of the Report, which is based on an analysis of 1483 cases of occupational fraud, the median loss amounted up to USD 30,000 (ACFE 2014).

Red flags for an organization to be aware of include expenses claimed during holiday periods or on dates or times when employees are normally not working, high numbers of expense claims submitted for amounts that are just under the threshold requiring additional reviews or controls, expenses that are significantly over budget compared to previous years, supporting documents that are regularly missing or difficult to read, significant differences in an employee's expense reports compared to colleagues in comparable positions, and so on (see e.g. Breuer 2014). According to Marasco (n.d.), employees claiming reimbursement for

fictitious business expenses and those inflating actual business expenses are the two primary schemes perpetrated. Fictitious expenses include those expenses that either never incurred or materialized (e.g. meals with customers or contractors that never took place, cancelled airline tickets, cancelled seminar or convention registration fees, office supplies that were never purchased), or those that did incur but not for business reasons (e.g. claiming personal travel expenses or, as indicated in the case study below, claiming reimbursement for purchases that are not or not entirely business related). Examples of inflating business expenses include adding tips to expense claims that were never actually left or inflating mileage when seeking reimbursement for business travel by car. Another frequently observed scheme includes 'double-charging' (e.g. a sales representative claiming the same expense twice but under different sales trips, or claiming the same expense first on the company credit card and later as a cash claim using the same receipt).

2.1.1   Case Study One: Expense Reimbursement Fraud

Case Summary

As Company 'ABC' traditionally considered its sales force most knowledgeable of the personal preferences of its customer base, it had been common practice for years to let the sales representatives decide what end-of-year gift to offer to what customer. The majority of the sales representatives would typically go for a nice bottle of wine, whiskey, or champagne; or for a box of exclusive soaps or chocolates. The choice was all theirs, as long as the gift was considered 'appropriate' and as long as its value did not exceed the maximum value that was defined by the Sales and Marketing Director. In summary, each sales representative would decide what to offer to what customer, and where to purchase it. Afterwards they would claim for reimbursement of their expenditure via the company's expense claim procedure, which would only require submission of the original invoice or receipt with a brief description of the purpose of the expenditure (e.g. 'Christmas gifts 2013'). After some time, however, the Sales and Marketing Director started to receive remarks from customers

stating that 'Company ABC was rather grudging when it comes to seasonal gifts and entertainment'. Further enquiries revealed that several of his sales representatives had only been handing out part of the gifts that they purchased and claimed reimbursement for. To make a long story short, their employer had been paying for their private Christmas gifts for years, and nobody would have noticed in the absence of some 'critical' customers.

Crime Script

The script presented in Table 5.1 captures the actions of one particular sales representative and demonstrates a MO shared amongst many of his colleagues. It breaks the crime-commission process down into three stages and seven separate actions, enabling the identification of eight possible control improvements.

Possible Controls and Control Improvements

As stated by Kahaian and Roth (2013), most organizations typically aim to control the risk of expense reimbursement fraud through the introduction of a solid approval process based on the 'four-eyes principle' (i.e. the employee's manager and the finance function approving the expenses before they are being reimbursed), or through the requirement for dual signatures for expenses exceeding a certain threshold. Other safeguards against expense reimbursement fraud that are commonly reported on in literature include the development and maintenance of a (travel and expense) reimbursement policy with detailed guidelines; the requirement for employees to submit original receipts, invoices or documentation; the introduction of proper training for those tasked with performing reviews; routine questioning of expenditures that look extraordinary or abnormal; the use of corporate charge cards for business expenditures with structural reviews of credit activity reports or the use of prepaid debit cards; the introduction of annual audits or random spot checks; 'leading by example'; and prosecuting known offenders to set an example to other

Table 5.1 Crime script ('Expense Reimbursement Fraud')

Stage	Offender	Potential controls
Preparation	Count the number of customer contacts in portfolio that qualify for receiving a Christmas or New Year's gift (based on company policy)	Introduce a central count of eligible receivers for each sales representative, either as a double-check or as the (standard) process
	Decide what gift to offer to what customer (e.g. bottle of champagne)	Central decision on the type of gifts to be offered, preferably made in consultation with (a representation of) the sales force
	Purchase bottles of champagne from local merchant	Central purchasing of all end-of-year gifts
	Obtain invoice or receipt from local merchant	
Execution	Submit expense claim for total amount and attach the invoice/receipt	Central invoicing
		Improve expense claim policy and procedures
Post-activity	Distribute gifts to most 'visible' customer contacts only (i.e. those that have frequent dealings with management higher in the hierarchy)	Require formal confirmation from sales representatives on what person received what gift and conduct spot-checks
		Train (finance) staff on common MOs and best practices for monitoring compliance
	Distribute remaining bottles to family members and friends as a Christmas or New Year gift	Central distribution of end-of-year gifts via express courier or postal company

staff members (see for example Kahaian and Roth 2013; Marasco n.d.). In this particular case study, eight potential controls or control improvements have been identified:

- a central count of all eligible receivers of a Christmas or New Year's gift by an independent person or department, avoiding that sales representatives are able to cheat or are being made responsible for the count without being supervised;
- a central decision on what type of gift(s) to offer to customers, preferably made in consultation with a representation of the sales community;
- the implementation of a central purchasing process for (end-of-year) gifts;
- central invoicing of all expenditure on (end-of-year) gifts;
- an upgrade (i.e. strengthening) of the expense claim policy, procedures, and guidelines;
- the introduction of a formal confirmation of receipt with regular spot checks;
- the introduction of awareness training for (finance) staff tasked with monitoring compliance;
- the central distribution of gifts via an express courier or postal company.

As illustrated in Table 5.2, all of these control improvements qualify as situational crime prevention measures. They are designed to either increase the risk of being apprehended, to reduce the potential rewards for the offender (e.g. by means of target removal), to reduce provocations or to remove excuses for unwanted behaviour.

An initial assessment of the financial, ethical, and esthetical cost related to (or resulting from) the implementation of these measures is captured in Table 5.3. While the financial cost associated with the option to outsource the distribution process to an external party may be considered significant, the implementation of all other measures is deemed to result in a low to medium financial cost. Some options (e.g. central purchasing) are even expected to result in a considerable cost saving through the achievement of benefits of scale. The esthetical cost of all measures listed

Table 5.2 Classification of control improvements ('Expense Reimbursement Fraud')

Measure	Increase effort	Increase risk	Reduce rewards	Reduce provocations	Remove excuses
(M1) Central count of all eligible receivers by an independent person (either as a double-check or as part of the standard procedure)		X		X	
(M2) Central decision on what type of gift(s) to offer to customers			X	X	
(M3) Central purchasing process for (end-of-year) gifts			X	X	
(M4) Central invoicing of all expenditure on (end-of-year) gifts			X	X	
(M5) Strengthening of the expense claim policy, procedures, and guidelines	X				X
(M6) Formal confirmation of receipt with regular spot checks	X				
(M7) Awareness training for staff tasked with monitoring compliance	X				
(M8) Central distribution of gifts via an (external) express courier			X	X	

Table 5.3 Cost of control improvements ('Expense Reimbursement Fraud')

Measure	FC	EC	ESC
(M1) Central count of eligible receivers	Low	Medium	Low
(M2) Central decision on type of gifts	Low	Medium	Low
(M3) Central purchasing	Low	Low	Low
(M4) Central invoicing	Low	Low	Low
(M5) Improve expense claim policy and procedures	Low	Medium	Low
(M6) Formal confirmation with spot checks	Low	High	Low
(M7) Staff awareness training	Medium	Low	Low
(M8) Central distribution of gifts	High	Low	Low

as potential control improvements is also considered low to non-existent, and apart from a few exceptions, the same goes for their ethical cost.

2.2   Cargo Theft

Cargo theft has been identified as a major concern to industry, with the declared value of the loss being only a small part of its total impact (Burges 2012a). According to Burges (2012b), 'the costs associated with replacing the load, loss of market share, increased insurance premiums and, in some industries, product recalls and loss of brand trust must all be factored in when analysing how cargo theft impacts a company's bottom line'. For the USA only, the total estimated cargo related theft loss value in 2011 amounted up to approximately USD 130 million; with prepared food and beverage, electronics, base metals, apparel, and animals or animal products representing 59.4 % of all commodity types reported stolen (CargoNet 2012). According to a European Parliament study conducted in 2007 on the organized theft of commercial vehicles and their loads, the annual cost of cargo theft to business was in excess of EUR 8.2 billion (TAPA EMEA 2014: 3). It is assumed that this amount has continued to increase ever since (TAPA EMEA 2014: 3).

Based on incident information retrieved from law enforcement agencies, the media and its member base, TAPA EMEA recorded a total of 1145 incidents of cargo theft in 2013, a number that is considered to merely represent the tip of the iceberg (TAPA EMEA 2013: 2). The average loss value for those incidents where a loss value was indicated, is estimated to

be around EUR 235,000 with non-electronics (e.g. tyres and car parts) and consumer electronics (e.g. PCs, laptops, tablets, smartphones, and flat screen TVs) being amongst the types of commodities most targeted (TAPA EMEA 2013: 8–9).[2] In 2014, TAPA EMEA recorded a total of 1102 thefts with an average loss value of EUR 205,624 (TAPA EMEA 2014: 5).[3] The types of products targeted most include food and beverage products, consumer electronics, tyres, and car parts (TAPA EMEA 2014: 9).

MOs displayed in cargo theft range from cutting the curtain or breaking the lock of a vehicle parked on a mostly unsecured parking or truck stop to truck hijackings, cargo facility burglaries, violent robberies, fraudulent pickups, and so on (TAPA EMEA 2013: 11–13). These MOs, according to Ekwall and Lantz (2015) may be assumed to exhibit seasonal patterns by time of year and time of week. The type of cargo theft dealt with in this second case study represents a rather recent and somewhat spectacular MO referred to as theft from a moving vehicle or, alternatively, as 'theft in motion'.[4] In 2013, TAPA EMEA (2014: 7) recorded 23 such incidents, compared to seven in 2014. As highlighted in a dedicated report issued to raise awareness amongst its member organizations, this particular MO first appeared in Western Europe in 2008 with cargo thieves using specifically prepared cars or minivans to steal cargo from a moving truck on Europe's highways (TAPA EMEA n.d.: 2). These trucks would typically arrive at their destination with broken locks and parts of their loads missing, leaving police forces and security practitioners bewildered as the tracking devices on the trucks would indicate that the vehicles had never stopped while in transit. In some cases only a small number of boxes appeared missing, whilst on other occasions this number amounted up to a couple of hundred, leading transport operators to suspect the involvement of organized crime (Ibid: 4). Some real-life observations and a number of police arrests made

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[2] Average amount for the cargo theft incident reports (i.e. 332 in total) that contained information on the loss value (TAPA EMEA 2013: 7).

[3] Average amount for the cargo theft incident reports (i.e. 363 in total) that contained information on the loss value (TAPA EMEA 2014: 5).

[4] Initially the phenomenon was referred to as the 'Romanian Method'. While this particular modus operandi originally stems from incidents that first occurred in Romania, TAPA EMEA emphasizes that it is by far not only Romanian criminals that appear to display it (TAPA EMEA n.d.: 2).

in Germany and Eastern Europe eventually shed more light on this rather unusual MO, which led to an increased focus and awareness in industry and amongst law enforcement (Ibid: 4).

2.2.1 Case Study Two: Theft from a Moving Vehicle

Case Summary

The incident analysed in this second case study presents an example of how offenders were able to remove high value products from a moving vehicle during an intra-European transport movement. Upon arrival of the truck at its final destination, it was found that the load had been compromised. GPS data confirmed that no stops had been made between the destination address and the overnight park stop where the driver was instructed to take his mandatory break. A thorough review of the CCTV footage at the overnight parking facility further showed that the load was intact at the time of departure from that facility, eliminating the most obvious clarifications for the loss. Based on a full-scale investigation conducted in co-operation with the police, it was believed that the transport was hit by a group of criminals working in team, moving cross borders and using several specially prepared vehicles and heavy duty equipment such as angle grinders to gain access to the cargo loaded in the trailer.[5]

Crime Script

The multi-actor script derived from this case study (see Table 5.4) describes the actions adopted by the offenders allegedly involved in the incident; being the drivers of the three vehicles, the offender breaking

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[5] As the actual incident was not witnessed in real time and as no CCTV equipment was fitted on the trailer, it is unclear how many offenders or vehicles participated in the theft. While in some occasions only one vehicle is involved, there is evidence of offenders using up to three or more vehicles, either to carry the load that is taken off the trailer, to drive in front of the truck to control its speed, or to drive next to the truck to prevent it from changing lanes. For the sake of this case study, we assume that the offenders used three vehicles, two normal cars, and one vehicle big enough to carry the loot.

Table 5.4 Crime script ('Theft from a Moving Vehicle')

Stage	Offender 1 (driver)	Offender 2 (driver)	Offender 3 (driver)	Offender 4	Offender 5	Potential controls
Preparation	Arrange vehicles and select/recruit co-offenders. Replace the number plates of all three vehicles with false ones. Mount platform on the hood of one of the vehicles. Gather the necessary tools (e.g. angle grinder) to break the locks on the trailer back doors					
Entry	Access motorway and close in on selected truck (all vehicles)					Driver training to emphasize the need to stay alert for suspicious vehicles and activities
	Drive vehicle in front of the truck and maintain constant speed	Drive vehicle next to the truck to prevent it from changing lanes		Approach back of the trailer and maintain constant speed		Provide security escorts
						Drive in convoy when transporting high value goods

Execution			
	Climb through the sunroof and onto the hood		Install rear-view camera
		Hand tools to colleague through sunroof	
	Break lock and gain access to trailer		Mount Spanish locks (NAVA locks) high up the trailer door bars
			Install audible or silent alarms on trailer (doors)
	Gain access to the load		Load two stack of empty, shrink-wrapped pallets on the back of the trailer to prevent offenders from reaching high-value products
	Identify boxes of interest		

Table 5.4 (continued)

Stage	Offender 1 (driver)	Offender 2 (driver)	Offender 3 (driver)	Offender 4	Offender 5	Potential controls
				Remove box and hand to offender five		
					Place box inside the escape vehicle	
				Repeat activity until all boxes of interest are off-loaded from the trailer and loaded into the escape vehicle		
				Get back inside the vehicle		
Exit	Drive away from the crime scene (all three vehicles)					

into the trailer and offloading the cargo, and the offender assisting him to load the boxes into one of the escape vehicles. The script breaks the crime-commission process down into four stages and 15 separate actions, enabling the identification of eight intervention points for which potential control improvements could be identified.

Possible Controls and Control Improvements

Situational measures applied to prevent cargo theft include measures designed to increase the effort for the offender (e.g. locks and seals on vehicles and containers, secured cages to store valuable assets, the use of hard-sided and hard-roofed trailers, anti-ram posts or other physical barriers to protect ground floor warehouse windows); or to increase the (perceived) risk of being caught (e.g. CCTV coverage of shipping and receiving yards to cover the movement of vehicles and individuals, motion detection alarms inside warehouses, GPS tracking devices and geofenced routing, identity checks on persons entering cargo facilities, pre-employment screening of new hires). They further include measures to reduce the rewards for the offender (e.g. avoid preloading of assets in trailers parked on the premises of cargo facilities); or to remove excuses for unwanted behaviour (e.g. the communication of security policies to employees and third parties). Eight potential (situational) controls or control improvements have been derived from this particular case study (see also Table 5.5). These include:

- the provision of driver training to emphasize the need to stay alert for suspicious vehicles, movements, and/or activities;
- the provision of (overt or covert) security escorts;
- the requirement for trucks carrying high value loads to always drive in convoy;
- the installation of rear view cameras to alert the driver of suspicious movements;
- the installation of Spanish locks high up the trailer door bars to make it more difficult for the offender to reach and break them;
- the installation of audible alarms on the trailer back doors, connected to the truck cabin and alerting the driver when something is wrong;

Table 5.5 Classification of control improvements ('Theft from a Moving Vehicle')

Measure	Increase effort	Increase risk	Reduce rewards	Reduce provocations	Remove excuses
(M1) Driver training to emphasize the need to stay alert for suspicious vehicles, movements, and/or activities		X			X
(M2) Overt or covert security escorts	X	X			
(M3) Driving in convoy when carrying high value	X	X			
(M4) Rear-view cameras to alert the driver of suspicious movements		X			
(M5) Spanish locks high up the trailer door bars	X				
(M6) Audible alarms on the trailer back doors, connected to the truck cabin		X			
(M7) Silent alarms on the trailer back doors, connected to a remote monitoring room		X			
(M8) Two stacks of empty, shrink-wrapped pallets on the back of the trailer	X		X		

Table 5.6 Cost of control improvements ('Theft from a Moving Vehicle')

Measure	FC	EC	ESC
(M1) Driver awareness training	Medium	Low	Low
(M2) Overt or covert security escorts	High	High	Medium
(M3) Drive in convoy when carrying high value	Low	Medium	Medium
(M4) Rear-view cameras	Medium	Low	Low
(M5) Spanish locks	Low	Low	Low
(M6) Audible alarms connected to truck cabin	Medium	Low	Low
(M7) Silent alarms with remote monitoring	High	High	Low
(M8) Pallet wall on back of trailer	High	Low	Low

- the installation of silent alarms on the trailer back doors, connected to a remote monitoring room;
- the loading of two stacks of empty, shrink-wrapped pallets on the back of the trailer to prevent the offenders from gaining access to the products even when the doors are compromised.

An initial assessment of the implementation cost for these measures is captured in Table 5.6. The financial cost that relates to providing security escorts is deemed to result in a substantial personnel or outsourcing cost, and that of installing silent alarms with remote monitoring is also deemed substantial as it combines the investment cost in equipment and the personnel or outsourcing cost resulting from the monitoring and intervention activities. The financial cost of loading two stacks of empty, shrink-wrapped pallets on the back of each trailer results from the loss of loading capacity, and can be moderate or extensive depending on the number of trailers in use. The cost of providing driver awareness training equally depends on the size of the business and on the number of drivers that need to be trained. This cost results from the development of training material, the provision of trainers and training facilities, and the cost of replacing drivers when they are participating in a training session.

The ethical cost is considered high when it comes to the provision of security escorts or the provision of silent alarms with remote monitoring. It is deemed that drivers may perceive these as impacting their freedom of movement or feeling of privacy. This, however, is only an assumption that would need to be validated in a living lab environment.

While the provision of overt security escorts and the requirement to drive in convoy may potentially invoke negative feelings to the general public, no significant esthetical costs have been identified for the measures in scope.

3   Interpersonal Scripts

As indicated in the previous chapters, interpersonal crime scripts display the actions of the offender(s) as well as those of a range of other individuals (e.g. victims, crime controllers) that influence or shape the

crime-commission process. This section contains seven such scripts, ranging from rather simple to more complicated ones. The first three case studies relate to fraudulent cash withdrawals. Although they result in the same outcome (i.e. the withdrawal of cash from an account that belongs to someone else), they present three alternative ways to establish such outcome. In the first case study the fraudulent withdrawal was accomplished by means of a stolen identity card. In the second case study the victim's bank card and personal PIN code were obtained while the victim was withdrawing money from a cash machine. In the third example, the offender was able to collect sufficient details on the victim and his bank account to impersonate him and withdraw a significant amount of cash from that bank account.

Case studies six and seven deal with fraudulent money transfers. As with the first three case studies, they present alternative ways in which a similar goal is achieved and can, consequently, be considered different tracks or variants of the same overarching, more generic script (see also Beauregard et al. 2007: 1071).

Case study eight, finally, presents a type of fraud that is commonly referred to as 'CEO-fraud'. Derived from a real-life example, the script provides detail on the actions taken by the offender and by a number of other individuals that, without being aware, facilitated crime commission.

3.1   Fraudulent Cash Withdrawals

The case studies presented in this section all relate to fraudulent cash withdrawals, either from a cash machine or made over the counter in a bank branch. Although one could argue that the main victim of these fraud schemes is predominantly an individual rather than a commercial organization, financial institutions will often reimburse the loss to their customers, either as part of a dedicated insurance, as part of a legal requirement or as a gesture of goodwill. Furthermore, fraud schemes such as the ones illustrated below often get the attention of the press and consumer organizations and, consequently, may cause significant reputational damage to the financial institution involved. It is deemed appropriate, therefore, to consider these types of fraud as crimes against business, at least for the purpose of this volume.

3.1.1 Case Study Three: Fraudulent Cash Withdrawal (Stolen ID-Card)

The first case study refers to a fraudulent cash withdrawal by means of a stolen identity card and bank card with the aim to pursue an account takeover and, consequently, withdraw cash from the victim's account in a bank branch other than the one frequented by that victim.

Case Summary

The incident first came to light when the victim noticed an unfamiliar transaction upon checking his account details online. The victim consequently raised a complaint with the police and with his account manager to contest a cash withdrawal of EUR 1200 over the counter in a bank branch other than the one he used to frequent. Further investigation revealed that a few weeks prior to the disputed withdrawal, the identity card and bank card of the victim had been stolen. Using the stolen identity card, the offender was able to impersonate the victim and withdraw the money from his account. Despite the fact that this card holds a picture and signature of its rightful owner, the counter assistant that processed the transaction failed to notice that the person withdrawing the money was in fact a fraudster impersonating the genuine account holder.

Crime Script

The script presented in Table 5.7 breaks the offender actions and those of the counter assistant down into four stages and 12 separate steps, revealing a total of nine potential intervention points.

Possible Controls and Control Improvements

The potential controls or control improvements that could be derived from the script include:

Table 5.7 Crime script ('Stolen Card Fraud I')

Stage	Offender	Counter assistant	Control improvements
Preparation	Steal victim's identity card and bank card (modus operandi unknown)		Immediately report theft to the authorities, to the bank, and to the card company
			Record theft incident in customer database
	Select bank branch other than the one frequented by the victim (in order to avoid being recognized)		Hold customer pictures on file to assist (visual) identification and authentication process (e.g. in customer database)
	Retrieve bank account number from stolen bank card		No (or partial) bank account details displayed on bank cards
Entry	Enter bank branch		
Execution	Request to withdraw EUR 1200 from the (victim's) bank account (impersonating the victim)		Check account holder details in customer database
		Request identification	
	Show stolen identity card as a means of identification		Conduct a proper (visual) identity check
			Provide staff training on common MOs and on ways to detect identity fraud
		Authenticate 'customer'	Upgrade authentication process (e.g. using security questions)
		Process request	
	Sign withdrawal slip (imitating the victim's signature)		Compare signature with the one held on file (customer database)
	Receive EUR 1200 in cash		
Exit	Leave bank branch		

- the introduction of a strict requirement for customers to immediately report lost or stolen cards to the authorities, to the financial institution, and to the card company;
- the recording of loss or theft incidents in the customer database for future reference and checks;
- holding customer pictures on file (e.g. in the customer database) to assist a proper (visual) identification and authentication process;
- avoid displaying bank account details on bank cards, or displaying partial account numbers only;
- the introduction of a requirement for counter assistants to check the account holder details and specifics in the customer database prior to processing a transaction;
- the requirement for counter assistants to conduct a proper identity check on individuals requesting a transaction;
- the provision of staff training on common MOs and on ways to detect (identity) fraud;
- an upgrade of the account holder authentication process (e.g. by using security questions in addition to document checks)[6];
- the introduction of a strict requirement for counter assistants to properly compare signatures with those held on file (e.g. in a customer database).

As indicated in Table 5.8, these controls or control improvements all qualify as situational controls, with the majority focusing on increasing the risk for the offender of being apprehended.

Apart from making the necessary arrangements for holding customer pictures on file (i.e. electronically), the financial cost related to the implementation of these various measures is assessed to be 'low' to 'medium' (see also Table 5.9). The same is the case with regard to the ethical and esthetical cost resulting from the implementation. This cost is deemed 'medium' for four out of nine measures (i.e. those controls that may provoke feelings of distrust or discomfort to the person imposing or

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[6] Please note that as they often relate to rather common customer features, the answers to such security questions can easily be retrieved by an offender via, for example, social engineering.

Table 5.8 Classification of control improvements ('Stolen Card Fraud I')

Measure	Increase effort	Increase risk	Reduce rewards	Reduce provocations	Remove excuses
(M1) Mandatory reporting of loss or theft incidents		X	X		
(M2) Recording of loss or theft incidents		X			
(M3) Hold customer pictures on file to assist a proper (visual) identification and authentication process		X			
(M4) No (or only partial) bank account details displayed on bank cards	X			X	
(M5) Mandatory check of account holder details/ specifics in customer database		X			
(M6) Conduct proper identity check		X			
(M7) Provide staff training on offender modus operandi and on how to detect (identity) fraud		X			X
(M8) Upgrade authentication process (e.g. by using security questions in addition to document checks)		X			
(M9) Compare signatures with those held on file (e.g. in customer database)		X			

Table 5.9 Cost of control improvements ('Stolen Card Fraud I')

Measure	FC	EC	ESC
(M1) Mandatory reporting of loss or theft incidents	Low	Low	Low
(M2) Mandatory recording of loss or theft incidents	Low	Low	Low
(M3) Holding customer pictures on file	High	Low	Low
(M4) No or partial account number on bank card	Medium	Low	Low
(M5) Mandatory check of account holder details	Low	Medium	Medium
(M6) Proper identity checks	Medium	Medium	Medium
(M7) Staff (awareness) training	Medium	Low	Low
(M8) Upgrade of authentication process	Medium	Medium	Medium
(M9) Comparison of signatures with those held on file	Medium	Medium	Medium

undergoing it, and those that are effectuated in front of other customers and that may result in people queuing in bank branches).

3.1.2 Case Study Three (Continued)

As part of a follow-up investigation into the incident it further became clear that two days following the theft of the victim's bank- and identity card, the offender presented himself at yet another branch of the same bank impersonating the victim and requesting the replacement of 'his' bank card. The request was processed but the new card was never collected by the offender; potentially because the collection was considered too risky, because such replacement usually takes time, or because the daily or weekly limit imposed on cash collections from a cash machine was considered an obstacle. Although the exact reason for this attempt was never clarified, the script that can be developed based on these additional circumstances (see Table 5.10) provides a good example of an 'abandoned' or 'interrupted' crime script (see supra). It breaks the crime-commission process down into five stages and ten separate steps, revealing a total of ten potential controls or control improvements (nearly identical to the ones identified in the previous script).

Table 5.10 Crime script ('Stolen Card Fraud II')

Stage	Offender	Counter assistant	Control improvements
Preparation	Steal victim's identity card and bank card (modus operandi unknown)		Immediately report theft to the authorities, to the bank, and to the card company Record theft incident in customer database Hold customer pictures on file to assist (visual) identification and authentication process (e.g. in customer database) No (or partial) bank account details displayed on bank cards
	Select bank branch other than the one frequented by the victim (in order to avoid being recognized) Retrieve bank account number from stolen bank card		
Entry	Enter bank branch		
Execution	Report loss/theft of bank card to the counter assistant (pretending to be the lawful owner)		Report theft/loss of identity card and bank card internally (Customer Administration Department) to avoid future misuse
	Request replacement of the bank card		
		Request identification	
	Show (fake) 'Certificate of Loss or Theft of Identity Card' (holding only name details and no picture) as a means of identification		Improve identification process (e.g. by requesting additional documents such as a driver's license) Consult customer picture held on file to assist identification Provide staff training on common MOs and on ways to detect (identity) fraud

	Authenticate 'customer'	Upgrade authentication process (e.g. by using security questions)
	Initiate replacement of the card	Compare signature with the one held on file (customer database)
	Sign 'Request Form' (imitating the victim's signature)	
Exit	Leave bank branch	
Post-activity	Abandon action and change strategy (see previous script)	

According to CardWatch (n.d.), card fraud is and remains a serious problem. Fraudsters prove to be extremely inventive, and as soon as card issuers, merchants, or governmental bodies develop countermeasures to tackle known MOs, fraudsters develop new methods to obtain sensitive information (Ibid.). Common MOs displayed by fraudsters, according to the UK National Fraud and Cyber Crime Reporting Centre, include ATM (cash machine) fraud, lost or stolen card fraud, identity fraud, and the use of counterfeit cards (Action Fraud n.d.).[7] Card issuers such as banks and card companies are trying to prevent card frauds by means of raising awareness, through improving user authentication processes and through investing heavily in advanced technology such as monitoring software designed to detect unusual behaviour and transactions (CardWatch n.d.). Countermeasures taken by merchants include 'PAN truncation' (i.e. hiding parts of the card number on receipts), imposing additional authentication requirements, and 'tokenisation'[8] (Ibid.). Regulatory and governmental bodies, finally, assist in tackling card fraud by enacting laws to protect consumer interests; by assessing and examining card issuers; and by monitoring and publishing standards, guidelines, and recommendations with regard to card security and fraud prevention (Ibid.).

In the following example of a fraudulent cash withdrawal, the offenders were able to steal the victim's bank card and to also obtain the personal PIN code. The latter was achieved by means of shoulder surfing, which is one of the key phenomena that financial institutions warn their customers against. According to statistics maintained by Financial Fraud Action UK (i.e. a banking industry body that was set up to combat fraud), card fraud by means of shoulder surfing has clearly been on the rise since a few years (Sky News 2013). The technique, which is considered widespread all over Europe, typically involves an offender looking over one's shoulder

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[7] The data to produce such counterfeit cards is obtained through electronic copying of the card data, for example, by means of tiny skimming devices fitted in a false front that is installed on cash machines, or by an unscrupulous employee in a restaurant putting the card into an electronic copying device out of sight of the victim (Experian 2013: 10; CardWatch n.d.).

[8] 'Tokenisation' is the process by which sensitive information is being replaced with a randomly generated token or symbol as to ensure that this information is not transmitted or stored in an unsecure format (Kovacs 2014).

while this person is carrying out a transaction at a cash dispenser, point-of-sale terminal, or petrol station in the hope to get hold of the person's secret code (Safe Internet Banking n.d. a). This is exactly what happened in the following case study.

3.1.3   Case Study Four: Fraudulent Cash Withdrawal (Stolen Card Fraud III)

Case Summary

In May 2012 a video was posted on the internet requesting the public to provide information that could assist in the identification of two offenders who had stolen an elderly lady's bank card with the intent to withdraw money from her account.[9] The offence was captured on the CCTV system installed in the bank office, and although the images don't allow the identification of the perpetrators (as both wore dark clothes and caps); they provide sufficient detail on the MO for preventive purposes. The CCTV footage shows how the two offenders follow the lady into a bank office pretending not to know each other. While one of the offenders is diverting the victim's attention away from the cash machine that she is using, the other offender removes her card from the machine. While 'assisting' her in retrieving her bank card, the second offender is able to look over the woman's shoulder while she is entering her secret PIN code. He then withdraws money from the woman's account using the stolen card and code. The entire event (i.e. from the moment that the victim enters the bank office until the fraudulent cash withdrawal) takes less than four minutes.

Crime Script

Table 5.11 captures the various actions of the victim and the two offenders during crime commission. It breaks the crime-commission process down into four stages and 19 separate steps.

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[9] Video accessed on 20 July 2015 via https://www.youtube.com

Table 5.11 Crime script ('Stolen Card Fraud III')

Stage	Offender 1	Offender 2	Victim	Control improvements
Entry			Enter bank branch and walk towards the second cash machine placed on the right	Access control on entry doors outside office hours, forcing visitors to use their personal bank card to enter the branch
	Enter bank branch and walk towards the cash machines placed near the opposite wall			
		Enter bank branch and walk towards the cash machines placed near the opposite wall		
	<Offenders pretend not to know each other>			
			Enter card and secret code to initiate a transaction	
Execution		Place object on the floor just behind the victim and return to the cash machines near the opposite wall		
		Approach the victim and alert her that she may have dropped something		

Never lose sight of bank card when making a transaction. Remove the card if needed and start over when being distracted

Turn away from the cash machine and face offender

Pick up the object from the floor and show it to the victim

Keep talking to the victim for a short while, diverting her attention away from the cash machine

Remove the victim's card from the cash machine while the victim is still talking to the other offender

Return to the cash machines placed near the opposite wall

[Exit offender 2]

Finish conversation with the victim and leave bank branch

Face cash machine and notice that card has disappeared

Report the fact that the card is retained by the machine immediately to the card company, ideally using your mobile phone while remaining in front of the machine

(continued)

Table 5.11 (continued)

Stage	Offender 1	Offender 2	Victim	Control improvements
	Approach the victim to assist with retrieving her card			Don't accept help from seemingly well-meaning strangers and never allow yourself to be distracted
	Look over the victim's shoulder while she enters her secret code in an attempt to retrieve her code			Stand close to the cash machine and use free hand and body to shield code from prying eyes or hidden cameras
[Exit victim]			Leave bank branch following an unsuccessful attempt to retrieve the card	
	Immediately withdraw EUR 1000 from one of the cash machines near the opposite wall, using the stolen card and code			
Exit	Leave the bank branch			
Post-activity	Withdraw another EUR 1000 later that day (location unknown)			

Possible Controls and Control Improvements

Five potential controls or control improvements could be derived from this crime script:

- the provision of an electronic access control system on the bank branch entry doors forcing visitors to use their (bank) card to enter outside office hours as to avoid unauthorized access and, simultaneously, provide log files on who entered when;
- awareness building amongst the public, alerting customers (1) to never lose sight of their bank card when making a transaction, (2) to never get distracted, for example by accepting help from seemingly well-meaning strangers, (3) to stand close to the machine and always use their free hand and body to shield their secret code from prying eyes or hidden cameras and (4) to report the fact that their card has been retained by the machine immediately to the card company, preferably using their mobile phone while still in front of the machine.

As with the previous examples, all of them qualify as situational measures (see Table 5.12). They either increase the effort required to obtain the card or secret code, increase the risk of being caught, reduce the rewards for the offender (e.g. by concealment of the secret code), or reduce provocations (e.g. by avoiding cards to remain unattended).

Apart from the provision of electronic access control on the bank branch entry doors, the financial cost of the other measures is considered limited to non-existent, depending on what medium to use to spread the relevant awareness messages (i.e. hard copy posters, leaflets, or brochures will obviously be more expensive than electronic communications). From an ethical cost perspective, only the refusal of assistance from strangers is considered 'medium', at least in case these strangers have the intention to provide assistance willingly and without alternative motives. None of the potential measures identified is deemed to present any significant esthetical cost (see also Table 5.13).

While card fraud typically occurs when criminals steal an individual's bank card to gain access to funds in his or her account (see case studies three and four), the next case study illustrates that the physical theft of a

Table 5.12 Classification of control improvements ('Stolen Card Fraud III')

Measure	Increase effort	Increase risk	Reduce rewards	Reduce provocations	Remove excuses
(M1) Control access to branches outside normal working hours (i.e. by means of installing an electronic access control system)	X	X			
(M2) Never lose sight of bank card when processing a transaction	X	X		X	
(M3) Never get distracted, for example, by accepting help from seemingly well-meaning strangers	X	X			
(M4) Always use free hand and body to shield secret code from prying eyes or hidden cameras	X		X	X	
(M5) Immediately report the fact that a card has been retained by the machine, preferably while still in front of the machine		X	X		

Table 5.13 Cost of control improvements ('Stolen Card Fraud III')

Measure	FC	EC	ESC
(M1) Access control on entry doors to all branches	High	Low	Low
(M2) Raise awareness to never lose sight of bank card	Low	Low	Low
(M3) Raise awareness to never accept help from strangers	Low	Medium	Low
(M4) Raise awareness to always shield secret code	Low	Low	Low
(M5) Immediately report card-retention to card company	Low	Low	Low

bank or identity card is not a strict prerequisite for unauthorized transactions to occur. Often it is enough for the criminal(s) to obtain sufficient details on the victim and his or her account to take money from it or to run up credit in the victim's name (Action Fraud n.d.). This is exactly what happened in the following case study.

3.1.4 Case Study Five: Fraudulent Cash Withdrawal (Account Takeover)

Case Summary

In this third and final example of a fraudulent cash withdrawal, a customer of a financial institution raised a complaint to contest the withdrawal of GBP 4270 from his personal bank account. A few weeks earlier, an individual impersonating the victim contacted the bank's call centre by phone to request the balance on the victim's savings account. As the caller was able to answer the security questions in a correct manner, the call centre agent on duty provided the information that was requested for. Some days later the offender, still pretending to be the victim, contacted the call centre again to order the withdrawal of GBP 4270. He would collect the money in person at a bank branch of his choice. The call centre agent recorded the request in the bank's IT system. Some days later the offender visited a bank branch to collect the money. He impersonated the victim and identified himself by means of his (own) driver's licence. Even though the picture of the genuine account holder was captured in the bank's IT system, the counter assistant only compared the picture on the driver's licence with the person standing in front of him, and subsequently processed the request. It appears that he fully relied on the fact that the collection was pre-alerted in the bank's IT system by one of his call centre colleagues.

Crime Script

The script presented in Table 5.14 breaks the crime-commission process down into four stages and 20 separate steps, revealing a total of eight potential intervention points.

Table 5.14 Crime script ('Account Takeover')

Stage	Offender	Call centre		Counter assistant	Control improvements
		Agent 1	Agent 2		
Preparation	Contact call centre pretending to be the genuine account holder				
	Request detail on the balance in the victim's savings account				Consider not to provide sensitive information over the phone
		Check mobile phone number with that in customer database and request caller to answer a number of security questions			
	Answer security questions in a correct manner				
		Provide the information that was requested for			Upgrade caller identification and authentication procedures

			Follow security procedures (e.g. security questions, call number verification) at all times
	Contact call centre and request GBP 4270 to be collected from bank branch 'Y'	Process request and update in system	
Entry	Visit bank branch 'Y'		
Execution	Pretend to be the genuine account holder visiting the bank office for a pre-ordered cash collection		Request for identification (passport)
	Inform counter assistant that passport is with the authorities as part of a visa application		

Table 5.14 (continued)

Stage	Offender	Call centre		Counter assistant	Control improvements
		Agent 1	Agent 2		
	Inform counter assistant that UK nationals only hold a passport and not an ID card			Request identity card as alternative means of identification	Always check the account holder details/ specifics in the customer database prior to processing a transaction
	Suggest to hand over driver's license as a means of identification				Staff training on common MOs and on ways to detect (identity) fraud
				Compare picture on driver's license with person standing in front of the counter	Hold customer pictures on file to facilitate a proper (visual) identification and authentication process
					Contact domicile office to double-check in case of doubt

Sign withdrawal slip (imitating the victim's signature)
Receive GBP 4270 in cash
Leave bank branch

Write driver's license number on transaction document
Process request

Compare signature with the one held on file (customer database)

Exit

Possible Controls and Control Improvements

The controls or control improvements derived from this script include:

- deciding to stop providing bank account details and other sensitive information over the phone;
- an upgrade of the caller identification and authentication procedures, for example, to make it more difficult for an offender to guess or retrieve the answers to security questions;
- the enforcement of a strict requirement for staff to always adhere to the (existing) security procedures;
- the introduction of a strict requirement for call centre agents and counter assistants to always check the account holder details and specifics in the customer database prior to processing a transaction (please note that according to the customer database, the genuine account holder in this particular case did have an identity card. As such, chances are that a verification in that system would have disclosed the fraud);
- the provision of staff training on common MOs and on ways to detect (identity) fraud;
- holding customer pictures on file (e.g. in the customer database) to assist a proper (visual) identification and authentication process (please note that in this particular case, the customer database did contain a picture of the genuine account holder. Consultation of that picture in the database would have disclosed the false identity of the so-called 'customer');
- the introduction of a strict requirement for staff to always double check with the customer's domicile office when in doubt;
- the introduction of a strict requirement for employees to properly compare signatures with those held on file (please note that in this particular case, the signature placed on the receipt was found to be significantly different from that of the genuine account holder that was captured in the customer database).

In this example, many controls were in place but failed to sufficiently disrupt the crime-commission process, either because they were not adequate enough (e.g. the security questions were very generic and the answers could easily be obtained through social engineering), or because

they were not properly adhered to (e.g. the verification of the 'customer's' signature with that held on file, the consultation of the customer's picture and details in the system). As such, this case study clearly shows that the human factor remains key in achieving proper security levels. This case study further shows that there is always a balance to be struck between implementing security provisions and maintaining service levels (see supra). This is, for example, the case where it concerns the provision of sensitive information over the phone. If one particular financial institution would decide to stop doing so while all competitors would keep providing balance details over the phone, this could clearly result in a commercial disadvantage. Certain security measures, therefore, will only be introduced when there is a common willingness to do so and an industry-wide monitoring and enforcement (e.g. by the relevant industry bodies, consumer organizations, governments).

As illustrated in Table 5.15, all control improvements that have been identified in this case study qualify as situational measures. Again, the majority is directed at increasing the risk of detection.

Table 5.16 provides an illustrative assessment of the financial, ethical, and esthetical costs related to the implementation of these controls.

3.2   Fraudulent Money Transfers

As with fraudulent cash withdrawals, fraudulent money transfers present a serious problem to governments, industry, and the public. This section provides two case studies on the topic. The first case study presents an international money transfer initiated by a fraudulent fax message allegedly sent by the genuine account holder. In the second case, a fraudulent transfer order was submitted by e-mail.

3.2.1   Case Study Six: Fraudulent Money Transfer (Account Takeover II)

Case Summary

This first example deals with a fraudulent order for an international money transfer initiated by a fax message that was allegedly sent by

Table 5.15 Classification of control improvements ('Account Takeover')

Measure	Increase effort	Increase risk	Reduce rewards	Reduce provocations	Remove excuses
(M1) No provision of sensitive information over the phone	X				
(M2) Upgrade caller identification and authentication procedures	X	X			
(M3) Impose strict adherence to existing security procedures	X	X			X
(M4) Mandatory check of account holder details/specifics prior to processing a transaction		X			
(M5) Provide staff training on common MOs and on ways to detect (identity) fraud		X			X
(M6) Hold customer pictures on file to assist proper (visual) identification and authentication process		X			
(M7) Double check with domicile office when in doubt		X			
(M8) Proper comparison of signatures with those held on file		X			

Table 5.16 Cost of control improvements ('Account Takeover')

Measure	FC	EC	ESC
(M1) Stop providing sensitive information over the phone	High	Medium	Low
(M2) Upgrade caller identification and authentication procedures	Low	Medium	Low
(M3) Impose strict adherence to existing security procedures	Low	Medium	Low
(M4) Mandatory check of account holder details	Low	Medium	Medium
(M5) Staff (awareness) training	Medium	Low	Low
(M6) Holding customer pictures on file	High	Low	Low
(M7) Double check with domicile office when in doubt	Medium	Medium	Medium
(M8) Comparison of signatures with those held on file	Medium	Medium	Medium

the genuine account holder. The offender, impersonating the account holder, first contacted the bank branch by phone requesting the transfer of EUR 8000 to an overseas account. As the counter assistant on duty did not know the customer in person, he requested to send a signed and dated fax order to initiate the transaction. Upon receipt of this fax order, the counter assistant first processed a transfer of EUR 5000 from the account holder's savings account to his current account. Consequently, he processed the transfer of EUR 8000 to the overseas account indicated in the fax message. Two weeks later, the genuine account holder came to notice the transfer and filed a complaint with the police. Upon an attempt to block the overseas account, the money had already been withdrawn.

Crime Script

The script below (see Table 5.17) captures the various actions of the offender and the counter assistant during crime commission. It breaks down the crime-commission process into three stages and nine separate steps.

Table 5.17 Crime script ('Account Takeover II')

Stage	Offender	Counter assistant	Control improvements
Entry	Contact bank branch by phone (pretending to be the genuine account holder)		Check phone number with that held on file (e.g. in customer database) and follow enhanced identification and authentication procedures in case the dial-in number differs from that held on file Staff training on common MOs and on ways to detect (identity) fraud
Execution	Request international money transfer (EUR 8000) to an oversees account	Request identification (name, address, and date of birth)	Check customer profile in customer database Upgrade caller identification and authentication process (e.g. by means of security questions)
		Request 'customer' to confirm the request by submitting a signed fax order	Sign fax agreement upfront, covering the conditions and security arrangements for transfer/payment requests submitted by fax Stick to existing security procedures (e.g. no fax agreement in place means no transaction)
	Prepare fax order requesting two transactions: (1) the transfer of EUR 5000 from saving account to current account and (2) the transfer of EUR 8000 from the current account to an oversees account		

Submit transfer orders by fax	Verify signature on fax order	Verify fax number with that held on file (e.g. in customer database) and follow enhanced identification and authentication procedures in case the number differs from that held on file
		Compare signature with that held on file (e.g. in customer database)
	Process transactions	
Post-activity	Withdraw money from oversees account	

Possible Controls and Control Improvements

Eight potential controls or control improvements could be identified from the above script. As indicated in Table 5.18, all of them qualify as situational measures:

- the introduction of a strict requirement for staff to always check the phone number with that held on file (e.g. in the customer database) before processing a transaction and, subsequently, to initiate enhanced caller identification and authentication procedures when the dial in number differs from that held on file;
- the provision of staff training on common MOs and on ways to detect (identity) fraud;
- the introduction of a strict requirement for call centre agents to always check the account holder details and specifics in the customer database prior to processing a transaction;
- an upgrade of the caller identification and authentication procedures (e.g. by means of introducing security questions);
- have fax agreements signed upfront, covering the conditions and security arrangements for transfers and payment requests submitted by fax;
- impose strict adherence to existing security procedures;
- the introduction of a strict requirement for staff to always check the fax number with that held on file (e.g. in the customer database) before processing a transaction, and to initiate enhanced identification and authentication procedures when the number displayed on the incoming fax differs from that held on file;
- the introduction of a strict requirement for employees to properly compare signatures with those held on file.

As with the previous case, some of these controls appeared already in place but were not (properly) adhered to. The genuine account holder, for example, always uses home banking and had never dialled in to request for an international money transfer before. As such, he also never signed a

Table 5.18 Classification of control improvements ('Account Takeover II')

Measure	Increase effort	Increase risk	Reduce rewards	Reduce provocations	Remove excuses
(M1) Strict requirement to check the incoming phone number with that held on file		X			
(M2) Provide staff training on common MOs and on ways to detect (identity) fraud		X			X
(M3) Mandatory check of account holder details/specifics prior to processing a transaction		X			
(M4) Upgrade caller identification and authentication procedures	X	X			
(M5) Sign fax agreements upfront with customers, covering the conditions and security arrangements for fax orders	X				
(M6) Impose strict adherence to existing security procedures	X	X			
(M7) Strict requirement to check the incoming fax number with that held on file		X			
(M8) Proper comparison of signatures with those held on file		X			

fax agreement with his bank. A verification of the account holder's profile in the customer database would have revealed this information and, as such, should have alerted the counter assistant. Equally, the missing fax agreement between the bank and its customer should have been sufficient for the counter assistant to put the transaction to a halt. Finally, a proper verification of the signature on the fax form with that held on file (which was already part of the procedural requirements) should have disclosed the fraud.

From the case details it further showed that the offender was aware of at least some of the controls that the bank had in place. As to avoid, for instance, that the fax number would have been flagged as 'suspicious' following a standard check with the number held on file, he apparently ensured that he turned off the number recognition features on the fax machine. As a result, no number was displayed on the incoming fax message and, consequently, no number verification could take place.

An initial assessment of the financial, ethical, and esthetical cost related to the implementation of the control improvements that were identified, is captured in Table 5.19.

Table 5.19 Cost of control improvements ('Account Takeover II')

Measure	FC	EC	ESC
(M1) Check incoming phone number with that held on file	Low	Low	Low
(M2) Staff (awareness) training	Medium	Low	Low
(M3) Mandatory check of account holder details	Low	Medium	Low
(M4) Upgrade caller identification and authentication	Low	Medium	Low
(M5) Sign fax agreements with customers	Medium	Low	Low
(M6) Impose strict adherence to existing security procedures	Low	Medium	Low
(M7) Check incoming fax number with that held on file	Low	Low	Low
(M8) Comparison of signatures with those held on file	Medium	Medium	Medium

3.2.2 Case Study Seven: Fraudulent Money Transfer (Account Takeover III)

Case Summary

This second example of a fraudulent money transfer equally relates to a request to transfer money to an overseas account. This time, however, the transaction was initiated by means of hacking the mailbox of the genuine account holder and, subsequently, submitting the fraudulent transfer order by e-mail. The offender accessed the mailbox of the account holder and sent an e-mail to the account holder's regular contact person at the bank, requesting guidance on how to initiate a transfer from 'his' account in order to pay an outstanding invoice. The counter assistant that replaced the regular contact person (who happened to be on sick leave) didn't suspect any wrongdoing as the e-mail address corresponded with that captured in the customer database. He further double checked with the regular contact person who confirmed that these types of requests are normal for this customer. Following the request to transfer EUR 7500 to the overseas account, the counter assistant transmitted the order forms to the 'customer' by e-mail with a request to sign and return them. The offender, still monitoring the incoming traffic in the mailbox of the regular account holder, intercepted, signed, and returned the order. He even attached a copy of an order that was sent previously (by the genuine account holder) to evidence the fact that his request was valid. Upon receipt of the signed order, the counter assistant processed the transfer. Two weeks later, the actual account holder noticed and disputed the transaction.

Crime Script

Table 5.20 captures the various actions of the offender and the counter assistant. It breaks down the crime-commission process into four stages and 19 separate steps.

Table 5.20 Crime script ('Account Takeover III')

Stage	Offender	Employee on duty	Regular contact	Control improvements
Preparation	Gain access to the victim's mailbox (i.e. hacking)			Improve IT security provisions to avoid unauthorized access
	Browse through mailbox and obtain information on victim's payment habits and bank contacts			
Entry	Send e-mail to victim's regular contact person (pretending to be the genuine account holder)			
	Request what action is required to order an international money transfer to settle an outstanding invoice			Don't accept requests for international money transfers by e-mail
	Note: message contains lots of spelling mistakes			Strictly adhere to existing security procedures
				Check customer profile in customer database

Execution	Request transfer of EUR 9000 to oversees account to settle an outstanding invoice	Receive e-mail and verify e-mail address with that captured in the customer database	Verify in person or initiate call-back. Do not rely on electronic communication only
		Respond on behalf of the victim's regular contact person (who's off sick)	Seek advice from colleague when in doubt
			Request copy of invoice
	Request to transfer EUR 7500 to the oversees account	Reply that there is only EUR 7725 in the account	Never provide this type of information (e.g. balance details) via e-mail without prior (personal) confirmation
		Contact victim's regular contact person to seek confirmation	Provide staff training on common MOs and on ways to detect (identity) fraud

Table 5.20 (continued)

Stage	Offender	Employee on duty	Regular contact	Control improvements
	Intercept transfer order in account holder's mailbox Imitate victim's signature to sign transfer order and return to counter assistant *Note: add copy of a previous (already processed) order to put counter assistant at ease*	Prepare transfer order and send to 'customer' via e-mail (with request to sign and return)	Reply that these types of requests are not abnormal. *Note: account holder lives abroad and often sends requests via e-mail. He would then e-mail the transaction orders back to the customer with a request to sign and return them*	Upgrade identification and authentication procedures, especially given the customer's profile Seek colleague's advice on other 'red flags' (e.g. the amount of spelling mistakes, the fact that the 'customer' first requested the transfer of EUR 9000 to settle an outstanding invoice, etc.)

Verify signature with the one held on file (customer database)

Verify signature with that on the previous order that was submitted by the 'customer'

Process transaction

Confirm completion of the transaction via e-mail

Send e-mail to request confirmation

Thank employee for services provided

Exit

Possible Controls and Control Improvements

Eleven potential controls or control improvements, all situational by nature, could be derived from this script (see also Table 5.21). They include:

- the improvement of IT security measures to avoid unauthorized access to the (victim's) mailbox;
- deciding to prohibit the processing of international transfers requested by e-mail;
- the introduction of a strict requirement for staff to always check the account holder's profile in the customer database prior to processing a transaction;
- instructing staff to strictly adhere to the existing security procedures;
- introduce the requirement for staff to never rely on electronic communication only, but to verify in person or to initiate a call-back;
- introduce the requirement for staff to seek a colleague's opinion when in doubt or when being confronted with 'red flags';
- introduce the requirement for staff to request supporting documentation (e.g. a copy of the invoice that was supposedly outstanding) whenever in doubt;
- Restrict providing sensitive information (e.g. balance details) via e-mail without prior (personal) confirmation;
- the provision of staff training on common MOs and on ways to detect (identity) fraud;
- an upgrade of the existing identification and authentication procedures (especially for customers that have a habit of requesting transactions by e-mail);
- the introduction of a strict requirement for staff to properly compare signatures with those held on file.

Again, a number of these controls were already in place but not adhered to. The instruction not to accept international transfer orders by e-mail, for instance, was allegedly in place but breached by the customer's regular contact person as well as by the employee that was replacing him while on sick leave.

Table 5.21 Classification of control improvements ('Account Takeover III')

Measure	Increase effort	Increase risk	Reduce rewards	Reduce provocations	Remove excuses
(M1) Improve IT security to avoid hacking (attempts)	X	X			
(M2) Prohibit processing of international transfers by e-mail	X		X		
(M3) Mandatory check of account holder profiles		X			
(M4) Impose strict adherence to existing security procedures	X	X			
(M5) Verify in person or via call-back and never rely on electronic communication only	X				
(M6) Seek second opinion in case of doubt or 'red flags'		X			X
(M7) Request supporting documentation when in doubt	X				
(M8) No provision of sensitive information via e-mail without prior confirmation	X				
(M9) Provide staff training on offender MOS and on how to detect (identity) fraud		X			X
(M10) Upgrade existing identification and authentication procedures	X	X			
(M11) Proper comparison of signatures with those held on file		X			

Table 5.22 Cost of control improvements ('Account Takeover III')

Measure	FC	EC	ESC
(M1) Improve IT security	Medium	Low	Low
(M2) Prohibit international transfer orders by e-mail	Medium	Medium	Low
(M3) Mandatory check of account holder profile	Low	Low	Low
(M4) Impose strict adherence to existing security procedures	Low	Medium	Low
(M5) Prohibit relying on electronic communication only	Medium	Medium	Low
(M6) Seek second opinion when in doubt	Low	Medium	Low
(M7) Request of supporting documentation when in doubt	Medium	Medium	Low
(M8) Restrict provision of sensitive information via e-mail	Medium	Medium	Low
(M9) Staff (awareness) training	Medium	Low	Low
(M10) Upgrade identification and authentication procedures	Low	Medium	Low
(M11) Comparison of signatures with those held on file	Low	Low	Low

Table 5.22 provides an initial assessment of the expected costs resulting from the implementation of these controls.

3.3   CEO-Fraud

This final case study illustrates a rather recent and innovative type of fraud, often referred to as 'CEO-fraud'. This fraud scheme is considered a plague to multinationals in the USA and across Europe.[10] According to the Dutch Fraud Helpdesk (Fraudehelpdesk, 2015), at least three multinationals in the Netherlands, Sweden, and the USA nearly lost between EUR 4 and 5 million as a result of it, which is considered only the tip of the iceberg. In France and Germany, yet according to the Fraud Helpdesk, the phenomenon has been considered a plague

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[10] *Source*:   http://www.securitymanagement.nl/nieuwe-fraudemethode-plaag-voor-multinationals/ (accessed 20 July 2015).

for years; and for 2014 only, the total loss resulting from known cases is estimated at EUR 205 million globally (Fraudehelpdesk 2015). By means of this MO in which the company's Chief Executive Officer (CEO) unsuspectingly plays a prominent role, criminal organizations operating cross borders have been able to target many multinationals (Ibid.). The ways in which offenders pursue their mission show quite some similarities: a non-executive employee working for the company's finance department receives a phone call from the (so called) CEO (or an e-mail coming from his email account) with the instruction to transfer a substantial amount of money to an often overseas account.[11] In order to verify the accuracy of the amount and the account details, the employee is requested to contact an outside legal counsel who is either part of the fraudulent set-up or who is being used as a 'money mule'.[12] The instruction coming directly from the most senior official in the company, the fact that the finance employee has often never met or corresponded with that CEO, and the involvement of an external legal counsel often appear sufficient reasons for the employee to process the transaction without further questions (Ibid.).

3.3.1   Case Study Eight: CEO-Fraud

Case Summary

The case study discussed below provides a good illustration of a common MO underlying CEO-fraud. An in-house accountant working in the finance department of Company 'ABC' received an e-mail from the CEO explaining that he is in the process of negotiating a potential acquisition. As the acquisition is of strategic importance, the case is to be considered highly confidential. All future communications on the deal

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[11] In some occasions the e-mail account is hacked and accessed by the criminals. In other instances an account is created which is very similar (but still distinct) from the CEO's genuine e-mail account.

[12] Money mules are individuals that serve as intermediaries for criminals and criminal organizations and that transport fraudulently gained money to fraudsters, sometimes without being aware (*Source*: Safe Internet Banking 2015a, b).

will go through the CEO's private e-mail address, and the accountant is instructed to discuss the matter with nobody except with the CEO and with an outside legal counsel assigned to conduct a due diligence and to support in the administration of the acquisition process.[13] The offender made all necessary arrangements to counter potential suspicions (e.g. via the launch of a fake website representing the alleged acquisition candidate), and the accountant had made two instalments of EUR 1 million and EUR 2 million respectively before the fraud scheme eventually came to light.

Crime Script

The crime script detailed in Table 5.23 breaks the crime-commission process down into three stages and nine separate steps.

Possible Controls and Control Improvements

Six potential controls or control improvements could be derived from the script (see also Table 5.24):

- always beware of business partners with a corporate website registered through an anonymous service;
- the improvement of IT security measures to avoid unauthorized access and related security breaches;
- the introduction of a strict requirement for staff to never rely on electronic communication only, and to double check suspicious instructions by approaching the sender by phone or in person;
- instruct staff to turn to their manager or colleagues for a second opinion when in doubt;
- train staff on common MOs and on ways to avoid victimization;
- instruct staff to never provide sensitive information (such as balance details) via e-mail.

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[13] In this particular case, the outside legal counsel was not aware of any fraudulent set-up but got unintentionally involved to make the scam look more credible.

Table 5.23 Crime script ('CEO-Fraud')

Stage	Offender	External counsel	Internal accountant	Control improvements
Preparation	Create fake website representing an alleged acquisition candidate using an anonymous web service			Beware of business partners with a corporate website registered through an anonymous web service
	Hack CEO's company e-mail account			Increase IT security to avoid unauthorized access and other security breaches
	Gain sufficient knowledge to represent himself in a credible way to the accountant and to the external lawyer			
	Create bank account number and private e-mail address similar to the CEO's private e-mail address			
Entry	Approach lawyer via CEO's company e-mail account			Don't rely on electronic communication only. Double check by approaching the sender by phone or in person

(*continued*)

Table 5.23 (continued)

Stage	Offender	External counsel	Internal accountant	Control improvements
	Request lawyer to provide assistance in the due diligence and acquisition process			Don't rely on electronic communication only. Double check by approaching the sender by phone or in person
	Approach accountant via CEO's company e-mail address and inform her of the potential acquisition and of the involvement of the lawyer for future directions			Turn to manager or colleagues for a second opinion when in doubt
				Train staff on common MOs and on what to do to avoid victimization
Execution	Instruct lawyer to request accountant to make a first instalment of EUR 1 million (using private e-mail address)	Send request to accountant to make a first instalment of EUR 1 million		

Inform accountant that a second payment request for EUR 3 million will follow from the lawyer in a couple of days

Instruct lawyer to request accountant to make a second instalment of EUR 2 million

Send request to accountant to make a second instalment of EUR 2 million

Transfer EUR 1 million to bank account of acquisition partner

Respond that there is only EUR 2 million in the company bank account

Never provide this type of (sensitive) information via e-mail

Transfer EUR 2 million to bank account of acquisition partner

Table 5.24 Classification of control improvements ('CEO-Fraud')

Measure	Increase effort	Increase risk	Reduce rewards	Reduce provocations	Remove excuses
(M1) Beware of business partners with a corporate website registered through an anonymous service		X			
(M2) Upgrade IT security measures to avoid unauthorized access and related security breaches	X	X			
(M3) Instruct staff to never rely on electronic communication only and to approach the sender by phone or in person to double check on suspicious/ unusual requests	X	X			X
(M4) Instruct staff to turn to their manager or colleagues for a second opinion when in doubt		X			X
(M5) Provide staff training on offender MOS and on ways to avoid victimization		X			X
(M6) Never provide sensitive information via e-mail	X				

Table 5.25 Cost of control improvements ('CEO-Fraud')

Measure	FC	EC	ESC
(M1) Beware of corporate websites registered through an anonymous server	Low	Low	Low
(M2) Upgrade IT security measures	Medium	Low	Low
(M3) Approach sender by phone or in person to double-check	Medium	Medium	Low
(M4) Request second opinion from manager or colleagues when in doubt	Low	Medium	Low
(M5) Staff (awareness) training	Medium	Low	Low
(M6) Never provide sensitive information via e-mail	Medium	Medium	Low

An initial assessment of the financial, ethical, and esthetical cost related to the implementation of these controls is captured in Table 5.25.

4   Further Discussion

The various case studies presented in this chapter clearly illustrate the use and value of script analysis in a business environment. They demonstrate how a script can be developed from the information available on the MO displayed by the offender and on the actions or reactions of other agents that influence crime commission. They further illustrate how potential controls or control improvements can be derived from that script, and that most (if not all) of these control improvements qualify as situational measures. The latter observation confirms the fact that situational crime prevention offers great potential for implementation in a workplace environment.

The selection of the various case studies was by no means random. As to distinguish between single-perspective and interpersonal scripts, the chapter is divided into two broad sections (i.e. 'offender' and 'interpersonal scripts'), and as to illustrate the difference between single-actor and multi-actor scripts, section one provides both a single-offender and a multi-offender script. Likewise, as to distinguish between performed and aborted scripts, an example is included of a script that was initiated and later aborted for reasons that remain unknown to date (see case study three).

In all but one instance (i.e. case study four), the information that was used to develop the script was obtained from practitioners involved in the actual investigation of the incident. As these practitioners were kept unaware of the method that would be used to analyse the case data, they simply submitted everything that was known about the MO displayed by the offender(s). The scripts that were developed accordingly provide detail on the various data elements that are deemed required to come to a useful display of the crime-commission process (see supra). They provide detail on the chronology of events; on the setting in which certain events take place (e.g. a bank branch or the public road); on the agents involved; on the various actions taken and decisions made; on the goals and sub-goals of the offender; on the tools that were used to commit or facilitate crime commission (e.g. angle grinders; escape vehicles; fake bank accounts, websites, or e-mail addresses) and on the controls that were circumvented or proven to be ineffective or completely lacking. They further illustrate the fact that certain stages in the crime-commission process are often better articulated than others, leaving analysts and designers of situational crime prevention measures with fragmentary information to work from (Cornish 1994: 160). While all of the scripts provide detail on the actual execution stage, none of them provides detail on all five stages of the crime-commission process (i.e. 'preparation', 'entry to the crime scene', 'execution', 'exit from the crime scene' and 'post-activity'). Detail on the latter stage is only included in three out of eight scripts, meaning that only limited intervention points could be identified that focus on the actions that the offender(s) took in the aftermath of the crime event. While one may initially question the benefit of such measures (as the incident had already taken place anyway), situational measures such as disrupting markets for stolen goods or identifying product to make it more difficult for the offender to sell them on the black market, have proven to be very effective crime prevention measures.

Quite an extensive number of controls or control improvements could be identified from the various scripts. In some cases these controls appeared to be already in place within the organization that was victimized but, unfortunately, rendered useless due to the fact that staff did not adhere to them. The latter observation, it was argued, illustrates the fact that a measure may become totally ineffective if end-users are either unaware of the fact that they exist, or not committed to support them.

The various case studies further provide an initial assessment of the financial, ethical, and esthetical cost related to the implementation of these various controls and control improvements. Although these assessments have been included for illustrative purposes only, they already show that quite a number of situational measures present a (very) limited financial cost. This observation supports the earlier statement that effective crime prevention measures are often cheap or even free (Gill 1994).

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6

Wider Benefits and Future Development Needs

1   Introduction

In the previous chapters, the script concept was primarily positioned as a pragmatic means to break down the crime-commission process with the aim to identify potential intervention points, to strengthen existing controls, or to introduce additional ones. In this final chapter, it is argued that script analysis may also serve wider purposes, both to an academic as to a practitioner audience. In order to embrace its full potential, however, some further developments are deemed required.

2   Wider Benefits of Script Analysis

With the introduction of script analysis in the field of criminology, Cornish provided crime prevention practitioners with a useful framework to guide the implementation of situational crime prevention measures (Leclerc 2014b: 13). Practical utility apart, he also pointed at some wider

benefits of the approach. The script concept, according to Cornish (1994: 171), can be used to throw light upon the evolutionary, adaptive, and innovatory aspects of crime commission. It can be applied to present evidence identifying 'webs of interconnected criminal events' (Cornish and Clarke 2002: 51, in Gilmour 2014: 38), as well as to identify dependencies that exist between sequences of events (Lavorgna 2014, in Gilmour 2014: 38). Cornish and others further argue that crime script analysis has a broad range of practical implications, amongst others, for strategic and problem-oriented policing, for offender and geographic profiling and, when applied in a structural manner, for identifying (and consequently gain from) spillover effects resulting from preventive interventions. This section will zoom in on some of these aspects.

2.1   Advancing Research through the Use of Script Analysis

This section aims to illustrate that the script concept has much to offer to academics as a research tool that can be applied to explore the evolutionary, adaptive, and innovatory aspects of crime commission; to study local resource implications of criminal activity; to explore and study the transfer of criminal expertise across crimes and the consequent development of links between them; and to study broader crime phenomena.

2.1.1   Exploring the Evolutionary, Adaptive, and Innovatory Aspects of Crime Commission

As Cornish (1994: 171) rightly states, viewing crime commission in terms of the development of knowledge structures provides a useful way of accounting for and exploring the routinization of criminal decision-making and the continuing scope for improvisation and innovation. As argued in Chap. 2, the fact that scripts can be characterized as routinized plans does not mean that they are necessarily rigid, stereotyped sequences of actions (Abelson 1981, in Cornish 1994: 171), nor chains of serially dependent scenes carried out in an invariant order (Cornish 1994:

171). Scripts are inherently flexible. They provide anticipations that will either be confirmed or modified by the environment as the action proceeds (Ibid.). This inherent flexibility is even more prominent in crime-commission scripts as they tend to be personal scripts in which other actors may be reluctant or unwitting participants, and as they often operate in a hostile rather than a facilitating environment (Ibid.).[1] These additional features of crime-commission scripts, according to Cornish (1994: 172), make routinization develop in a complex way.

During crime commission, offenders are often confronted with sudden obstacles that need to be overcome. These obstacles force them to abandon the anticipated basic script and alter the course of action, for example, by turning to more elaborated scripts or by innovation through improvisation (see also Ekblom and Gill 2015). As argued by Cornish (1994: 177–179), scripts may be elaborated to maximize the likelihood of goal achievement,[2] or to maximize or multiply payoffs (e.g. extending scenes by borrowing from other crimes,[3] or adding scenes to broaden the variety of motivational pay-offs). As Cornish (Idem: 172) continues, 'some triggers may cause elements of the action to be re-ordered, abbreviated, carried out in parallel or omitted; and where decisions to enter or abort a script are made frequently on similar grounds, they may become routinized as standing decisions or policies'. Alternative responses that prove to be effective become routinized through practice into available paths for the offender to take when confronted with a given situation. As such, contrary to beginning or occasional offenders, experienced criminals will have a broader and more articulated range of alternative scripts to turn to. These scripts, according to Cornish (Ibid.), 'are likely to be structured in ways which allow for the choice of rapid alternative responses in reaction to the range of unwanted but foreseeable contingencies specific to the crime-commission track in question', and their

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[1] According to Ekblom and Gill (2015), an understanding of 'script clashes' is pivotal to situational crime prevention.

[2] Some examples of actions aimed at maximizing the likelihood of goal achievement, include learning how to use violence instrumentally, how to secure escape routes, how to dump stolen vehicles in inconspicuous places and how to dispose of goods and bodies carefully (Cornish 1994: 177).

[3] In this respect, Cornish (1994: 181) also points to the role and responsibility of media presenting crime as entertainment and, as a result, promoting the diffusion of new methods.

activation may be triggered by a range of factors that relate to personal circumstances (e.g. specific incentives) or situational factors such as the presence of experienced co-offenders, attractive targets, or sudden opportunities (Abelson 1981, in Cornish 1994: 172).

Existing scripts may get adapted in a variety of ways (Riesbeck and Schank 1989, quoted in Cornish 1994: 172). Typical elaborations, according to Cornish (1994: 172), may involve the development of new methods or techniques; the development of shortcuts or alternative pathways through individual scenes in a script; as well as the addition, modification, discarding, or reordering of scenes within the crime-commission process. They usually involve either the extension of one or more scenes, or the addition of extra ones (Idem: 177). They occur as the result of performance and practice, of rehearsing and flaw-hunting, of overcoming obstacles and barriers encountered during crime commission, and as the result of 'debriefing' and sharing accounts of failures with other offenders (Ibid.).

In order to clarify these important features of routinization and flexibility, Cornish (1994: 173) developed a three-dimensional model of a typical crime-commission script made up of a series of sequential scenes. This 'script permutator' shows a variety of potential ways of 'playing' each scene, and displays a number of crime-commission routes leading to the same outcome (Idem: 173–175). Theoretically speaking, his example of a 'ringing' script[4] which comprises five separate scenes in different combinations (i.e. alternative methods of carrying out the action particular to that scene), provides no less than 32 different pathways to the same outcome (Idem: 175).[5] As Cornish (Ibid.) continues, 'such script permutator (or "scene permutator" in the case of simple crimes or component scripts) offers a heuristic device for stimulating thinking about a range of possible, feasible, and actual procedural variations and innovations, both those that might arise spontaneously, and those that might be anticipated to occur in response to situational measures'.

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[4] 'Ringing' refers to stealing and disguising automobiles for eventual resale (Cornish 1994: 173).

[5] As Cornish (1994: 175) points out, even more permutations may emerge in response to particular circumstances.

2.1.2   Studying Local Resource Implications of Criminal Activity

The routinized nature yet inherent flexibility of crime-commission scripts, together with the procedural requirements of specific crimes, have implications for thinking about how criminal activity is patterned in space and time (Cornish 1994: 176). This is especially the case in local areas, where particular crime-commission scripts generate certain demands on local resources. When a particular type of offence occurs repeatedly, these resources (e.g. victims, targets, facilitators, locations) may be shared and some overlapping of activities may occur (Ibid.). As such, the procedural analysis of offending can clarify the local resource implications of criminal activities and, as Cornish (Ibid.) puts it, 'draw attention to scenes or "nodes" which, for a while at least, provide locations for crucial stages in the action of one of more offense scripts'.[6] Analysing the procedural requirements of a broad range of offences may direct attention to such settings or 'hot spots'[7] and, consequently, provide direction to targeted intervention until offenders, confronted with such intervention, displace their activities to alternative locations.

2.1.3   Linking Criminal Activity

Viewing crime commission in terms of the development of knowledge structures further provides a means to explore and study the transfer of expertise across crimes and the consequent development of links between them (Cornish 1994: 171). Existing scenes may be extended using activities borrowed from other crimes, dissociating them from their original function, or to provide a wider variety of motivational pay-offs (see supra). Furthermore, linkages may develop between previously unre-

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[6] Examples of such locations are parking lots (offering the scene for various types of car crime, cargo theft, robbing, raping, vandalism, etc.), shopping malls and entertainment venues (offering the scene for underage drinking, substance abuse, etc.).

[7] According to Cornish (1994), 'hot spots' may be thought of as representing important nodes in networks of procedural knowledge, which may also bind together other shared and crucial components, such as casts, crime-specific locations, props, and so on.

lated activities to form new scripts. Scenes in one script may become shared with other scripts, or the entire script may become a scene in a larger, more complex or totally different criminal enterprise (Idem: 179). During crime commission, an offender may encounter the opportunity to perform another script (e.g. a rape during the course of committing a burglary), or as the result of committing one crime (e.g. car theft) it may become necessary to commit another crime (e.g. gas-station drive-away) (Idem: 180).

As Cornish (2014: xx) indicates, 'the growing number of scripts that are currently being developed provides opportunities for researchers to borrow creatively from existing ones'. An understanding of how victims are recruited for child sexual abuse, for example, may inform our understanding of how men and women are recruited for suicide bombings (Ibid.).

2.1.4   Studying Broader Crime Phenomena

In Chap. 2, it was argued that scripts differ by their level of specificity, ranging from metascripts, over protoscripts and scripts, to specific script tracks. While the metascript level comprises all crime from the same classification, protoscripts distinguish the different subgroups of an offence (Leclerc et al. 2010: 4). The script and track level, finally, provide a detailed breakdown of offences within particular circumstances. As argued before and given the crime-specificity of situational crime prevention (see supra), it is these latter levels of analysis that prove most valuable for identifying intervention points and preventive measures. The more general levels of analysis, however, provide an ideal means to study broader crime phenomena. As such, building up from the most specific track level to more general scripts is deemed an effective means to gain a fuller understanding of such phenomena.

As argued by Tompson and Chainey (2011: 191–192) and in line with Cornish's original recommendation, creating a masterscript best starts with the analysis of a single (known) crime event, being the type of events that were used in the previous chapter to illustrate the application

of script analysis in a business environment. Other crime events that are believed to belong to the same family can be compared to this original or initial script, and different tracks can be created within that script (Tompson and Chainey 2011: 192). Such bottom-up approach may provide valuable insight into broader crime phenomena, allowing interventions at a more strategic rather than tactical level. Such insight may prove to be extremely valuable to researchers and policymakers alike, and may provide practitioners with a useful means to pursue cost-effectiveness within their organizations.

2.2   Practical Implications

When applied in a structural manner, script analysis has practical implications for anticipating crime displacement and other reverse effects; for identifying (and consequently gain from) spillover effects resulting from preventive interventions; for targeting hot MOs and hot products; and for offender and geographic profiling. It can further be applied to support training and product development, and to support strategic and problem-oriented policing practice.

2.2.1   Anticipating Displacement and Other Reverse Effects

As argued in previous sections, script elaborations may result in displacement and other reverse effects. The more elaborated scripts an offender has access to, or the more adaptable an offender is to variations in situations,[8] the more probable these effects are believed to occur. During crime commission, offenders constantly interact with their environment. Certain (situational) triggers 'can cause elements of the action to be re-ordered, abbreviated, carried out in parallel or omitted' (Cornish 1994: 172). Offenders may choose different approaches to carry out the crime-commission process when being faced with particular obstacles (Leclerc et al. 2014: 102). In a best case scenario, they may decide to abandon the

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[8] See also Ekblom and Gill (2015).

process.[9] In a worst case scenario, they may try to overcome the perceived (external) barriers by turning to a more aggressive or violent course of action.[10]

Crime scripts, it is argued, offer the possibility of examining alternative pathways that offenders might follow when confronted with certain obstacles during crime commission. As such, they provide designers of situational crime prevention with a means to anticipate displacement and other reverse effects, and to take these into account when presenting potential solutions to tackle a crime problem. 'Well-constructed script permutators that summarize the state of crime-commission knowledge about specific crimes', according to Cornish (1994: 175), 'may offer useful adjuncts to thinking about, and planning for, the types of "displacement" that might be anticipated as the result of particular situational strategies', and in the case of repeat victimization, 'script analysis can be used to develop an understanding of the likelihood of displacement if a potential repeat crime is prevented' (Bouloukos and Farrell 1997: 225–226).

2.2.2   Diffusion of Benefits

When applied in a structural manner, script analysis has the potential to shed light on linkages that may exist between various offences. In our hypothetical example captured in Chap. 2 (see Table 2.2), the theft of a van or light truck formed part of the preparatory activities for committing a cargo theft from a parked trailer. As such, measures to prevent vehicle theft may have a spillover effect on the latter type of offence. Likewise, identifying similarities between MOs displayed in various offences may drastically increase the scope and benefits of (situational) interventions. As Cornish (1994: 170) puts it:

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[9] Switching to a new target or adopting a new strategy, for example, may require more time, entail more risk, or promise less certain rewards; making (opportunistic) offenders to give up entirely (Bouloukos and Farrell 1997: 226).

[10] This problem of escalation was confirmed in a study by Gill (2000, in Jones 2009: 107) who interviewed over 300 imprisoned commercial robbers and found that the presence of security measures such as screens or security cameras encourages some offenders to act violently.

> Once more is known about crime commission, generalization across scripts or protoscripts may be fruitful for crime prevention purposes, especially where instrumental scenes and their associated activities, such as the theft of a car, the breaking into premises, or use of the same location, are shared. To say otherwise would be to deny the wider prevention potential of some situational measures, and the possibility of diffusion of benefits. (Cornish 1994: 170)

Crime prevention practitioners can borrow knowledge from actions and stages that feature in multiple crime scripts. The act of an outsider stealing assets from an office building and that of someone planting eavesdropping devices in a board room located in that same building, for example, both require the ability for the offender to gain access to that building. Putting proper access controls in place may consequently serve multiple purposes in a sense that it protects the organization against several crime types (in this case theft and industrial espionage). Likewise, the implementation of antiterrorism measures to protect international supply chains from unauthorized interference has proven to result in reduced opportunities for cargo theft (see also Chap. 4).

2.2.3   Targeting Hot MOs and Hot Products

As indicated by Brayley et al. (2011: 133), scripts can be used to deconstruct a wide variety of crimes including new forms of crime and very complex ones. Applying script analysis in a structural manner (further referred to as 'large scale scripting') allows to identify those MOs that appear to be most common and those that appear to be extremely innovative. Targeting the most common MOs increases the impact of preventive interventions (e.g. by achieving benefits of scale), and identifying 'new' MOs assists in tackling tactical displacement and repeat victimization.

Apart from increasing the potential for identifying hot MOs, engaging in large-scale scripting can further assist with identifying 'hot products'. While the latter are mainly referred to as hot targets (e.g. consumer electronics, cigarettes, alcohol, pharmaceuticals, brand clothing), they also encompass products that are used most to enable or facilitate crime commission (see also Ekblom 2008). Knowing what products are 'hot' provides opportunities for informing and directing specific preventive

interventions such as better product design (see e.g. Clarke and Newman 2005) or regulating and disrupting markets for such products.

2.2.4   Offender and Geographic Profiling

In order to establish connections between crime events, investigators often turn to behavioural analyses, which involves an examination of the MO displayed by the offender (Rossmo and Rombouts 2008: 140). As crime scripts provide this information in much detail, they can be of huge benefit in these analyses. In an attempt to identify hunting process scripts and related tracks in a sample of serial sex crimes, Beauregard et al. (2007) considered a series of behavioural and geographical variables to end up with three different scripts of which two present more than one track. Based on their findings, the authors argue that the use of script analysis has practical implications for both situational crime prevention and offender profiling, as both require a comprehensive understanding of the crime-commission process (Beauregard et al. 2007: 1082; Cornish 1994: 187). Based on the finding that 11.91 % of the incarcerated serial sex offenders that participated in the study used to break into the victim's residence and commit the sexual assault while the victim was alone,[11] they were able to disprove the common view that women are safe from rape at home while in danger outside the home (Beauregard et al. 2007: 1082). The authors further argue that through combining both behavioural and geographical variables in a script approach, the results may prove to be useful for geographic profiling (Ibid.). Finally, they argue that 'the relationship between offending and geographic behavior may serve as the basis for integrated criminal-geographic profiling as a unique investigative strategy' (Ibid.).[12]

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[11] The authors refer to this type of hunting process as the 'home-intrusion rape track' (Beauregard et al. 2007: 1079).

[12] In a recent attempt to better connect the script concept to mainstream situational crime prevention, Ekblom and Gill (2015) distinguish between 'empirical' and 'explanatory' scripts. Empirical scripts, it is argued, are 'simple descriptions of recurrent sequences of behaviour in situ' (Ekblom and Gill 2015). They may at the minimum be described as 'bare abstracted sequences of actions or associated events', and may be used for, for example, linking serious offences through MO (Ibid.).

2.2.5 Strategic and Problem-oriented Policing

According to Brayley et al. (2011), script analysis is a viable and cost-effective tool in support of strategic policing. In a study on internal child sex trafficking, the authors show how a script allows to deconstruct a complex crime into its component parts and to create a set of outcome-focused recommendations highlighting the areas for harm-reduction interventions going beyond traditional law enforcement (Brayley et al. 2011).[13] Likewise, the fact that 'much crime is still committed locally and that it involves the reuse of locations, victims and targets' makes script analysis a 'viable way of investigating these issues more thoroughly and of providing relevant information to pro-active place-oriented and problem-oriented policing' (Cornish 1994: 182–183).

2.2.6 Training and Product Development

Acquiring detailed knowledge on the procedural aspects of crime commission can further be extremely useful for training purposes and for the development and fine-tuning of security products. Knowing how offences typically unfold can mean a great help to teach place managers what to look for when going about their daily business. It can further inform product and system developers tasked with developing security products and systems such as, for example, video analytics.

3 Future Development Needs

In order to embrace the full potential of script analysis in the interest of (situational) crime prevention, some further developments are key. These include the need to improve the quality of reporting in order to cap-

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[13] Using combined data from two police operations in the UK, including 25 offenders and 36 victims, Brayley et al. (2011: 134) developed a single (offender-focused) crime script featuring multiple tracks based on the actions and decisions of offenders.

ture as much detail as possible on the crime-commission process, the need to increase the (public–private) exchange of depersonalized data on offender MOs, and the introduction of automation and standardization in the interest of large-scale scripting. Combining the benefits of script analysis and the concept of community alert systems, this section will further touch upon the value of establishing 'scripting communities' with peers that are active in the same (business) sector or based in the same geography. Extensive information sharing within such communities, it is argued, will allow members to access actionable crime data to their own benefit, and to avoid repeat victimization within their broader communities.

3.1   The Quality of Reporting

Sufficient detail is essential to come to any useful display of the crime-commission process. This includes detail on the chronology of the various actions and decisions, on the actors involved, on their goals and sub-goals, on the specific setting in which the various actions take place, on the tools that were used to commit or facilitate crime commission, and on the controls that were circumvented or found to be ineffective. From the case studies captured in Chap. 5, it became obvious that certain details are often missing, leaving analysts and designers of situational measures with fragmentary information to work from (Cornish 1994: 160). This lack of detail poses an even bigger challenge when scripts are developed for research purposes or when one pursues to include the study of what Ekblom and Gill (2015) refer to as the broader dynamics of offending or as 'enriched' processes that go beyond the instrumental/tactical/logistical aspects of action. Scripts developed for these purposes require additional data, for example, on particular opportunities, rewards or facilitators perceived or exploited by the offender during crime commission; on particular risks or barriers perceived; on internal drives or constraints experienced; on the various causal mechanisms mediating scripts; on situational precipitators; on the competences (or stored

sequences) brought to the crime scene and on how these competences were acquired, perhaps combined, and translated into performance; and so forth.[14]

The fact that crime scripts often suffer from fragmented and insufficiently detailed information is a known issue (see e.g. Cornish 1994: 160; Gilmour 2014: 39). As argued by Cornish (1994: 163), 'gaps in available information and problems in the way an incident was reported make it difficult to allocate the procedural data to particular tracks'. It's important, therefore, that the quality of reporting is significantly improved if one wants to embrace the full potential of script analysis. Improving such quality can, amongst other, be achieved by providing police officers, detectives, and security practitioners with proper templates to use and fill out when investigating an incident. As argued by Cornish (1994: 167), 'the adoption of interviewing techniques which address crime commission at the appropriate level of specificity, and which require offenders to recall specific instances of the crime in question when making their reports' may also prove to be extremely helpful.[15]

3.2   Automation and Standardization for Large-scale Scripting

As indicated by Brayley et al. (2011: 133), scripts have varied greatly in form and content. Some authors simply list a range of sequential actions while others present their scripts graphically as a series of boxes linked by arrows to indicate the direction of flows (Ibid.). This variety, yet according to Brayley et al. (Ibid.), results from the fact that there are no commonly accepted rules on creating them. It goes without saying that this lack of standardization has a negative effect

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[14] Secondary sources such as case files or investigation reports will often not provide this type of information. As such, one will have to be in a position to interview the offender post factum and hope that he or she is willing to cooperate. This, however, makes the script development into a more time-consuming and specialist activity.

[15] 'Where hypothetical criminal activity is being investigated', according to Cornish (1994: 167), 'vigorous attempts should be made to select stimulus materials and settings which evoke accounts at the track level of specificity'.

on the possibility to compare scripts and script actions, to identify overlap and linkages, to search for trends, and so forth. Engaging in large scale scripting, therefore, will require at least some common protocols and a common language to be established amongst researchers and practitioners.

Likewise, it is believed that embracing the full potential of script analysis will require at least some level of automation. Such automation is required to support the data gathering process (see supra), to derive scripts from extremely complex or organized crimes,[16] to share scripts amongst practitioners and/or researchers, and to disseminate the knowledge derived from these scripts.

3.3   Public–Private Exchange of Relevant Data

Knowing how to prevent crime in the most effective and efficient manner requires access to actionable crime data. As argued in previous sections, however, data to work from is often in scarce supply. The collection of relevant data is often hampered by data recording deficiencies (see also Tompson and Chainey 2011: 184), and where data is available there is often a reluctance to share it. Data privacy legislation often stands in the way of sharing investigation files amongst public or private actors, and commercial organizations are often afraid of disclosing details on past victimization out of fear for reputational damage and loss of customer trust.

Most if not all of these obstacles, however, can be overcome by engaging in large-scale scripting. Crime scripts merely focus on the MO details and do not require disclosure of the identity of the agents involved. All it takes to start engaging in the exchange of actionable crime data is a proper framework, some common protocols and a network of committed users.

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[16] According to Savona et al. (2014: 158), 'the adoption of flow chart terminology and computer-based semiotics represent the next step and the next challenge for a more precise approach to scripting that permit the analysis of crimes with a high level of complexity'.

3.4   Scripting Communities

As argued throughout this book, a key benefit of script analysis is that it allows to analyse crimes and identify countermeasures that help prevent these crimes from recurring. One can apply the approach on an individual basis (e.g. a company that has been victimized and that wants to apply script analysis to avoid repeat victimization), or collaboratively. As script analysis provides a number of additional benefits when applied in a structural manner and on a larger scale, it makes sense to establish dedicated 'scripting communities' with peers active in the same industry or based in the same geography. Scripting communities can be established to share crime data, crime scripts and relevant knowledge and expertise. If government agencies and law enforcement are invited to join, these communities can be used as a platform to boost the public–private exchange of crime data relevant to its members, and if supported by the proper technology, they can further be used as a community alert system, alerting its members of rising threats, emerging trends, innovative MOs and the like.

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7

Conclusions

Crime prevention efforts and strategies can take many forms, including early interventions to improve the life chances of children and prevent them from embarking on a life of antisocial conduct and crime (often referred to as 'developmental prevention'), the design of programs and policies to improve the social conditions and institutions that influence offending (i.e. 'community prevention') and strategies to intervene in the immediate (physical) environment in which crime takes place (Welsh and Farrington 2012b: ix).[1] This book is about the application of script analysis in the interest of the latter type of interventions.

Developed in the context of a computer simulation of the human cognitive structures and processes involved in the understanding of text, scripts have been positioned as one of the theoretical entities or knowledge structures that form the basis of human memory organization (Schank and Abelson 1977: 17). In cognitive science, a script is referred to as an 'event schema', being 'a predetermined, stereotyped

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[1] A fourth strategy, 'criminal justice prevention', refers to the more traditional (deterrent, incapacitative, and rehabilitative) strategies operated by law enforcement and agencies of the criminal justice system (Welsh and Farrington 2012c: 4).

sequence of actions that define a well-known situation in a particular context' (Schank and Abelson 1977: 41; Leclerc and Wortley 2014: 6). Human understanding, it is argued, comes equipped with thousands of scripts that are acquired through social learning and that are used almost without thinking. Applied to crime, they represent the complete sequence of actions adopted prior to, during, and following the commission of a particular offence; and can be considered as step-by-step accounts of the procedures adopted by offenders to successfully commit that crime (Leclerc et al. 2010: 4; Leclerc and Wortley 2014: 6).

Scripts are used in very diverse fields including artificial intelligence, clinical psychology, marketing, and management consulting (Steiner 1975, in Schank and Abelson 1977: 63; Cornish 1994: 166; Brayley et al. 2011: 133). They were introduced in the criminological domain when Cornish proposed to use them to support situational crime prevention (Cornish 1994; Borrion 2013: 3; Leclerc 2014: 13). According to Cornish (1994: 151), the script concept offers 'a useful analytic tool for looking at behavioral routines in the service of rational, purposive, goal-oriented action', and fits in particularly well with the crime-specific orientation to be found in rational choice and allied approaches to crime control. These approaches, commonly referred to as opportunity theories or crime theories and captured under the broader umbrella of environmental criminology, all share an interest in criminal events and in the immediate circumstances in which these occur (Wortley and Mazerolle 2008: 1). Contrary to more traditional theories that focus on criminality, environmental theories focus on crime (being the actual behavioural act of breaking the law). They seek to explore the ways in which proximal factors such as opportunities presented by the immediate environment influence crime causation and criminal decision making.

Situational crime prevention, the approach to which the concept of script analysis is historically deemed most relevant and supportive, is often seen as a contemporary approach in the environmental tradition (see e.g. Clarke 2008; Cornish and Smith 2012). One of the main theoretical foundations of that approach (i.e. the rational choice perspective) has been receiving much criticism due to its emphasis on

rationality in offender decision making. In this volume, it is argued that this criticism, however, does not impede the value of situational crime prevention nor that of crime script analysis as a methodological tool to break down and analyse the crime-commission process. It is further argued that theories on crime and criminality should not be seen as competing, incompatible or mutual exclusive; and that the growing popularity of situational crime prevention in private sector attempts to reduce crime may well result from the fact that alternative preventive strategies are often beyond the immediate influence of the business community, or extend over time scales that do not meet their immediate needs.

Although the range of situational measures and techniques has evolved quite significantly over the past decades, it is not always clear when and where to implement these measures in the most effective manner. Script analysis, it is argued, has great potential to guide and support the selection and implementation process. As a means to sequence and detail the crime-commission process, it allows researchers and practitioners to get closer to the crime scene and identify those areas (or intervention points) where the introduction of situational measures can create most value. By providing an end-to-end approach and by focusing attention on all the stages of the crime-commission process, the application of script analysis further broadens the scope for preventive intervention and forces researchers and practitioners to go into the required levels of detail to reveal information that may be missed during a more superficial assessment of a criminal event. Translated to our topic of interest, script analysis can be applied in a reactive mode to properly identify control gaps and control deficiencies following an incident, or in a proactive or hypothetical mode to routinely test the effectiveness of an organization's security or control set-up.

The actual scripting exercise comprises two main stages, being the development of the crime script and its consequent analysis and interpretation (which includes the identification of potential intervention points and control improvements). Scripts can be developed from information obtained from various data sources, including the subjective accounts of those that participated in the crime event as well as a broad range of secondary sources such as case files, closed-circuit television

(CCTV) footage, police reports, and internal investigation reports. As with any analysis, its value will depend on the quality and completeness of that data. Data elements that are considered key to work from, include details on the sequence (or chronology) of events, on the setting in which the various actions and events take place, on the agents involved, on the goals and sub-goals that drive the various stages of crime commission, on the tools that are used to progress or facilitate certain actions, on the controls that are already in place, and on the way these controls have been compromised. These various data elements are to be captured and translated into a final script format, which is to be labelled for future (cross-) referencing and which lends itself to a proper analysis. The outcome of that analysis, finally, is a comprehensive inventory of potential controls and control improvements that serves as an input for the decision-making process on what measures to implement and what not. As argued in previous work, an ex ante consideration of preventive measures provides an ideal means to guide the final selection process. This consideration includes an assessment of the costs and benefits of each individual control or control improvement, as well as an assessment of any interdependencies that may be present and a range of preconditions that need to be fulfilled.

Apart from providing a pragmatic means to break down the crime-commission process with the aim to identify potential intervention points, to strengthen existing controls, or to introduce additional ones, script analysis may also serve wider purposes, both to an academic as to a practitioner audience. As Cornish (1994: 171) argues, viewing crime commission in terms of the development of knowledge structures provides a useful way of accounting for and exploring the routinization of criminal decision making and the continuing scope for improvisation and innovation. Likewise, the procedural analysis of offending can clarify the local resource implications of criminal activities and, as Cornish (1994: 176) puts it, 'draw attention to scenes or "nodes" which provide locations for crucial stages in the action of one of more offense scripts'. Viewing crime commission in terms of the development of knowledge structures further provides a means to explore and study the transfer of expertise across crimes and the consequent development of links between them (Cornish 1994: 171);

and building up from the most specific track level to more general scripts is deemed an effective means to gain a fuller understanding of broader crime phenomena. Such bottom-up approach may allow interventions at a more strategic rather than tactical level and may provide practitioners with a useful means to pursue cost-effectiveness within their organizations.

From a more practical perspective, script analysis offers the possibility of examining alternative pathways that offenders might follow when confronted with certain obstacles during crime commission. As such, they provide designers of situational crime prevention with a means to anticipate displacement and other reverse effects, and to take these into account when presenting potential solutions to tackle a crime problem. Applying script analysis in a structural manner further provides a means to identify linkages that may exist between various offences, or similarities that exist between the offender MO displayed on various occasions. Identifying such linkages or similarities, it is argued, may drastically increase the scope and benefits of situational interventions. Likewise, engaging in large-scale scripting allows to identify the most common and innovative MO's, the products that are targeted most and those that are used most frequently to enable or facilitate crime commission. Having such information available, it is argued, provides opportunities for informing and directing specific preventive interventions. Finally, script analysis has practical implications for offender and geographic profiling, for strategic and problem-oriented policing, and for supporting security training and product development.

In order to embrace the full potential of script analysis in the interest of (situational) crime prevention, a number of further developments are key. As crime scripts often suffer from fragmented and insufficiently detailed information, it is important to improve the quality of reporting. Engaging in large-scale scripting will further require some common protocols and a common language to be established amongst researchers and practitioners; as well as a certain level of automation to support the data gathering process, to derive scripts from extremely complex or organized crimes, to share scripts amongst practitioners and researchers, and to disseminate the knowledge derived from these scripts. As data to work from is often in scarce supply, there is also a

clear need to boost the exchange of relevant crime data between public and private sector representatives. Finally, it is argued that the establishment of dedicated scripting communities may provide an ideal platform for such exchange.

Exploiting the full potential of script analysis is work in progress. It is a common statement that criminals will always be one step ahead of those trying to stop them. Although there is an element of truth to that observation and although scripts alone cannot solve crime, they can at least generate novel ideas for trying to prevent them (Brayley et al. 2011: 142).

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