# "Profiling behaviour: the social construction of categories in the detection of financial crime"

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*This thesis is dedicated to Joana, Martim and João:*

*Joana was the reason I started the PhD, Martim the force that drove me to its*

*completion and João the rock that made it all possible.*

# Abstract

Profiles are knowledge constructs that represent and identify a data subject. While not a new phenomenon, the use of profiling has exploded and its ubiquity is likely to increase, as a result of the widespread adoption of monitoring technology. The literature on profile development tends to refer to the practice, the technique or the technology of profiling, separately. Little has been written on how the perspectives interact with each other and, ultimately, shape the emerging behaviour profile. In order to map out the elements that impact on behaviour profiling, this thesis uses organisational semiotics, enhanced with classification theory, for key constructs.

The study views profilers as agents who interpret and act on available information according to particular sets of technical, formal and informal factors and who, in the presence of incomplete or ambiguous stimuli, may fill in or distort information. Furthermore, the thesis examines how the position of the interpreter in the profiling process influences the result of the exercise. A case study conducted in a British financial institution demonstrates how technical systems and profilers acting in particular contexts influence each other in a dialectical process, whereby the characteristics of the data available impact the analysts' ability to interpret an event and, at the same time, the analysts tend to look for in the data only what they consider conceivable.

The discussion centres on the influence of the type of stimuli available, the relational context and the actions of individual profilers in shaping the emerging meaning, in the context of financial crime detection. In addition, it considers the role of technical, formal and informal systems to overcome eventual variances in meaning.

The thesis extends the applicability of organisational semiotics with classification theory. Inspired by models of sequential encounters, the thesis provides a methodological contribution by developing a tool for the analysis of sequential meaning making processes. A practical contribution emerges from mapping the impact of the profilers' perceptions into the emerging profile, and by suggesting mechanisms for shaping those perceptions.

# Acknowledgements

# Contents

# Acronyms

AML: Anti Money Laundering

ATMS: Automated Transaction Monitoring System

FATF: Financial Action Task Force

FIU: Financial Intelligence Unit

FSA: Financial Services Authority

JMLSG: Joint Money Laundering Steering Group

KDD: Knowledge Discovery and Development

KYC: Know Your Customer

MLRO: Money Laundering Reporting Officer

PEP: Politically Exposed Person

SAR: Suspicious Activity Report

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# 1. Introduction

The thesis examines the process of development and use of profiling for the purpose of detection of one particular form of financial crime: money laundering. It investigates the topic by analysing the procedure at a UK financial institution, and adopting a subjectivist perspective on the phenomenon. The thesis draws on semiotics, enhanced with classification theory, to study how technology, employee and context interact with each other and impact on the emerging profile.

The term 'profiling' has particular uses and synonyms among specific communities. In North America, for instance, the term is sometimes associated with racial classification and some authors (e.g., see Schauer 2003) consequently suggest the use of alternative terms such as 'modelling' or 'generalisations' to refer to general applications. However, this thesis uses the term 'profiling' as the overall term describing the representation of data subjects' behaviour, independently of the context or the purpose of the profiling initiative.

## 1.1 Problem domain and scope of research

The term profiling has its origins in the Latin word *profilare*, which means, literally, *to draw a line forward*[1]. The same dictionary also offers the following definitions of profiling: '*to draw or shape a profile of; to produce a profile of*'. With profile further being defined as: '*a side view of an object or structure; a representation of an object or structure seen from the side; an outline of an object; a biographical essay presenting the subject's most noteworthy characteristics and achievements; a formal summary or analysis of data, often in the form of a graph or table, representing distinctive features or characteristics*'. In summary, profiling consists of developing a partial representation of an object, structure or person. Such representation consists of a '*set of correlated data that identifies and represents a data subject*' (Hildebrandt and Backhouse 2005).

The profiling process consists of studying patterns of behaviour of particular data subjects, and grouping such subjects according to exhibited behaviour. Such study of patterns requires capturing

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[1] Source: http://dictionary.reference.com/search?q=profiling

records of events and actions overtime and using these stored interactions to determine typical behaviour, as well as deviations from that behaviour (Lenzen 2004). In this sense, a profile does not represent any particular person; rather, profiles represent an abstraction of observed patterns of behaviour. The abstraction does not necessarily contain all the details of the original behaviour. Furthermore, at high enough levels of abstraction, it becomes very difficult to identify any one particular example that corresponds to the profile, entirely.

The traditional method to classify data subjects based on records of behaviour relied on manual analysis and interpretation. Nowadays, however, the process is highly automated and dependent on computer technology, which is justified by the increase in size of the typical transactional database (Hardy 2004) and by a desire to keep costs under control (Canhoto and Backhouse 2004). In particular, data mining technology and techniques are routinely used to analyse the vast amounts of data available (Hosein 2005). Hildebrandt and Backhouse (2005) point out that profiling is also a practice and that, in that sense, profiling reflects a specific way of doing things within specific contexts and with specific purposes. In this sense, the profiling process is subjective and prone to be influenced by the circumstances surrounding, as well as the goal informing, profile development.

The thesis subscribes to the conceptualisation of profiles as abstract, subjective representations of behaviour. It investigates the process of profile development, examining the extent to which factors surrounding the development and use of profiles affect the outcome.

## 1.2 Relevance of the study

Organisations routinely capture and incorporate in a database records of almost every aspect of daily life, from magazine subscriptions to financial transactions (EPIC 2004) and develop models – the behaviour profiles – of who people are and what they do. Profiles are knowledge constructs that represent and identify a data subject, and enable private and public organisations to assess the risks and opportunities of that same data subject (Hildebrandt and Backhouse 2005). Subsequently, the profiles inform decision making in a variety of areas, including non-commercial applications

such as crime prevention and detection. In circumstances where there is no universal empirical support for the profile – because it is not possible to empirically verify the behaviour - the resulting decisions are made under conditions of ambiguity (Schauer 2003; Stein 2004; Durlauf 2005).

Some authors defend that profiling has negative consequences for the persons being profiled (Custers 2004; Risse and Zeckhauser 2004; Stein 2004). For instance, data subjects may suffer discrimination as a result of profiling (Schauer 2003; Durlauf 2005), or be wrongly allocated to categories that they do not belong to (Angell and Backhouse 2004). Additionally, there is potential for abuse of the system in the form of intensive surveillance and breach of one's right to privacy (Etzioni 1999; Levi and Wall 2004; Hosein 2005).

Other authors are optimist, however, and regard profiling as not only inevitable but even desirable (NSF 2003; Schauer 2003). According to profiling supporters, today's society is so complex that we need to make decisions and judgements very quickly, something that is possible, only, through the identification and understanding of underlying patterns in situations and behaviours (Gladwell 2005). Some authors go even further and suggest that profiling is a critical factor in ensuring the long term viability of organisations (Inhoff 2004), because it allows organisations to optimise production (Hill, Menda et al. 1998), rationalise the use of limited resources (Feinberg, Krishna et al. 2002), increase sales (Parsons, Zeisser et al. 1998; Peltier, Schibrowsky et al. 2002), prevent fraud (Brockett, Derrig et al. 2002), detect identity theft (Harris 2002) or even aid in the fight against terrorism (Swartz 2002).

The importance and frequency of profiling has exploded in the information society, regardless of the profound disagreement in the literature regarding the net benefit of the activity. While profiling is not a new phenomenon – fingerprinting has been practised for a long time - technologies such as RFID, road pricing systems and mobile technology are likely to accelerate the extension of profiling to ever more areas of social life, and augment the mass of information that must be coped with. Selection of the relevant bits of information, its meaning and how to act on it are some of the big issues of the 21$^{st}$ century (Hildebrandt and Backhouse 2005). Understanding the subjective nature of profiling and identifying the sources of bias is particularly important given that software tends to consolidate

and hide away the 'arguments, decisions, uncertainties and the processual nature of decision making' surrounding its development (Bowker and Star 1994). Additionally, a clear understanding of the extent to which outcomes may be affected by the process would be of obvious interest to practitioners, in the sense that it could inform potential corrective measures.

In summary, the process of development and use of profiling is a problem domain of central significance, bound up in the growing debate about the role of profiling in the information society. The thesis contributes to understanding this problem domain at both the conceptual and the practical levels, as described in the final chapter.

## 1.3 Status of research on profiling

The literature on profile development, while abundant, tends to refer to the practice, the technology or the technique of profiling, separately, as discussed in chapter two. The literature focusing on profiling practice examines factors contributing to or hindering its adoption in particular industries. In the case of the banking industry, the empirical subject of this thesis, the literature points to an array of cultural and structural factors that may influence the adoption and deployment of profiling initiatives in an organisation. The literature on profiling technology considers the instruments used in the profiling process, including, but not limited to, information technology. The literature focusing on the technique addresses issues such as how to extract information from the database or select among different profiling algorithms. Some authors acknowledge that the analyst can interfere with the profiling exercise and highlight the need to identify the sources of, and minimise, that interference (e.g., (Chung and Gray 1999; Pazzani 2000; Kohavi, Rothleder et al. 2002)).

Little has been written on how the three elements – technique, technology and practice - interact with each other and, even less, how they shape the emerging behaviour profile. In particular, calls have been made for research that provides a deep understanding of cognitive (e.g., (Gersh, Lewis et al. 2006)) and contextual (e.g., (Lavrac, Motoda et al. 2004)) factors in profiling.

The lack of an integrated view offers very limited prescriptive value regarding the content of profiles, or categories in general. The limited understanding of how definitions come to be construed, in turn, grants little scope for developing solutions for ineffective or undesirable profiles. Profiles are an overarching feature of the information society, and the consequences of acting on flawed profiles can have disastrous consequences for individuals and organisations. In order to understand the multi-faceted process of profile development, it is necessary to develop an integrated understanding of the various aspects of information processing. The present thesis addresses that challenge by applying an information systems' lens to the study of profiling.

## 1.4   Information Systems and Profiling

Information systems are, according to Avgerou and Cornford (1998), 'information and data handling activities in human organisations' (page 1) and 'essentially an organisational rather than a technological phenomenon' (page 2). In other words, information processing extends beyond the sphere of technology. Moreover, as a discipline, information systems studies technology as part of a social system (Avgerou 2000). Information systems research lies at the intersection of people, organisations, and technology (Silver, Markus et al. 1995; Hevner, March et al. 2004), thus offering the so much needed integrated approach to the study of profiling.

Individuals construct and work with computers, communication networks and other artefacts within a particular organisational setting which, in turn, exists within a wider environmental context (Heeks 2000). Similarly, profiling is an activity increasingly dependent on artefacts, which takes place in particular organisational settings and, as per the focus of this thesis, within the wider banking industry practice and regulatory requirements.

In the field of Information Systems, early conceptualisations of technology as sources of societal change have been replaced by a focus on the interplay between technology and human actions, within an institutional setting (Avgerou 2000). In particular, the study of the context has emerged as a major theme in the recent Information Systems literature, accompanied by a theoretical emphasis on the social shaping or construction of technology (Lewis and Madon 2004). Two recent examples

are Williams's (1999) study of the role of context in the implementation of information systems' innovation, and Ciborra's (2002) description of the bricolage and improvisation surrounding the development and use of complex information systems in organisations. These and other studies, examining the role of context in shaping technology, tend to use detailed case studies, depicting the ways in which organisations' members shape the meaning and usage of information technology.

Based on the conceptualisation of information systems as social phenomena, and the interest in research on the interaction between technology and human actors, within particular organisational settings, the author of the present thesis suggests that the study of profiling is both relevant and timely in the field of Information Systems.

Information systems have been described as being composed of three different but interrelated levels (Liebenau and Backhouse 1990; Liu 2000; Stamper, Liu et al. 2000; Lewis and Madon 2004).The informal level embodies the culture, systems of belief and politics that govern the perception, expectations, behaviour and values of the individual members of the system. The formal level refers to the attributes of the system that have been formalised and officially documented in rules, procedures, policies and other forms of bureaucracy. The technical level contains the hardware, software and data protocols, as well as elements of the design of the technology, such as the layout and interface of the system. The technical system is embedded in the formal system, which, in turn, resides in the relevant informal system. The three layers are mutually constitutive and interdependent.

Metaphorically, there is a 'Russian doll' effect where the informal is the outer shell containing the formal, and this contains the technical. Such a conceptualisation implies that the technical cannot be examined without first considering the outer layers in turn (Backhouse 2005; Halperin 2006). The decomposition of the information system into these three sub-systems enables the analyst to examine situations where groups acting in different informal environments react differently to the same formal or technical element. One example of such a situation has been described by Eckfeldt (2005) who indicates that consumer acceptance of RFID technology stems not from the attributes of the technology itself, or from legal initiatives concerning privacy protection, but rather from

consumer perceptions. Similarly, Kamp and colleagues (2007) note that compliance with European data protection legislation[2] materialises in markedly different technical solutions across different industries, in particular retail and credit services. The conceptualisation of profiling information systems as layered structures assist the researcher in revealing how profiles become '*frozen organisational discourse*' (Bowker and Star 1994). This thesis analyses profiling over and above the technical aspects, devoting special consideration to the informal and formal contexts where the profiles emerge.

## 1.5   Goals and contributions – Research questions

The present thesis is informed by the 'Russian Doll' conceptualisation of Information Systems described in the previous section. The thesis compares profiling to an act of communication occurring at three levels: 1) the technical level that captures and manipulates the data, 2) the formal level that regulates and administers the process and 3) the informal level of the analysts participating in the profiling process. Looking at profiling as a communication issue, facilitates the individual analysis of each element in the system, thus leading to an '*incremental understanding within the system*' (Smith, Blackman et al. 2003).

The research focuses on the particular case of detection of financial crime, a secretive and illegal activity whose profiling is profoundly marked by ambiguity and uncertainty. Financial intelligence - the systematic collection and analysis of data relating to financial transactions - makes extensive use of technology. Indeed, the use of automated monitoring systems is often seen as a powerful ally in the fight against money laundering and terrorist financing (e.g., (McCue 2006)). As a result, there is a burgeoning industry providing sophisticated computer technology and complex mathematical models to mine financial data and single out unusual patterns of transactions. Yet, research in the field has been limited to either the technology, or the technique or the practice, and does not present the integrated approach advocated by Hildebrandt and Backhouse (2005). The current thesis, by adopting an information systems perspective, presents an holistic understanding of the phenomenon.

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[2] Namely, article 7 of the directive 95/46/EC

The thesis examines how the effect of the technical, formal and informal levels of the organisation impact on profiling. Specifically, it is guided by the question *'How do categories come to be construed and used in profiling, when only limited empirical support is available to support the emerging profile?'*. This question can be divided in two secondary questions, namely *'How do classifications emerge?'* and *'What are the implications of the technical, formal and informal elements for the emerging profile?'*. The relationship between the research questions is depicted in figure 1.1.

### Figure 1.1 – Research questions
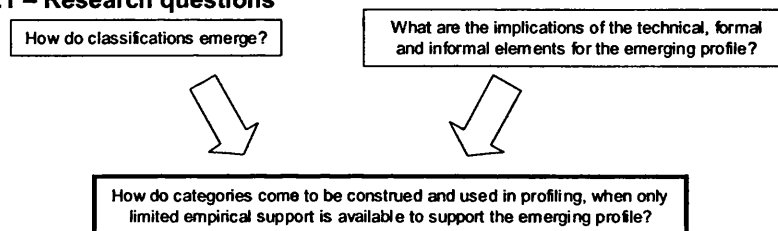


In order to study the profiling activity as a communication process, the study draws on organisational semiotics, a well developed body of communication theory that has been used to analyse a wide range of artefacts and social practices (Pagel and Westerfelhaus 2005). However, while semiotics specifically acknowledges the role of the agent in creating meaning, it does not address the agent's cognitive process. Schauer (2003) described profiles as *'generalisations in street clothes'*, and conceived of profiling as an activity that draws on the use of categories, even when the attributes of the category do not accurately describe the subject - person or otherwise - being profiled. The concept of 'category' is a fundamental one in cognitive science. Namely, categories are mental constructs, rooted in people's experience and, as such, not uniform in their composition (Medin, Lynch et al. 1997; Medin, Lynch et al. 2000). In order to investigate the role of the user in profiling, the thesis expands organisational semiotics with insights from classification theory.

The primary objective of this research is to examine the effects of technology, employee and context in financial crime profiling. Furthermore, the thesis makes practical contributions to the problem domain, suggesting ways to detect sources of subjectivity. Moreover, the study contributes

to methodology by developing a tool for the analysis of sequential meaning making processes and by proposing techniques to model individual perceptions.

## 1.6 Thesis structure

The thesis is organised in seven chapters. The present chapter set the research project in context, and defined the scope of the study and the research questions. Chapter two provides a broad perspective on the topics of relevance for this study, by reviewing the literature on the practice, technology and technique of profiling.

Building on the previous chapters, chapter three describes the theoretical framework that guides the research analysis. Two distinct theoretical approaches are used to understand the development and use of profiles: organisational semiotics and classification theory. The chapter includes a discussion of the contributions and limitations of the two theoretical approaches to the study of profiling. Chapter four presents the research methodology and design. It describes the approach to the research, details the selection of the case study and introduces the data collection and data analysis techniques.

The empirical exercise forms chapter five. The chapter first presents the organisation under study, and then proceeds to present the contextual, personal and technical elements that form the information system of the case study. Chapter six contains the analysis of the empirical data and highlights the key findings from the study. The chapter goes on to address, specifically, the thesis's research question and sub-questions, and provides a new understanding of the profiling process. Chapter seven concludes the thesis, providing an overview of the research exercise and its contributions. Additionally, the final chapter discusses the limitations of the study and emphasises emerging options for research on the topic of profiling.

# 2. Literature Review

The review presented in this chapter includes the three areas identified in Hildebrandt and Backhouse's (2005) definition of profiling namely *practice, technique* and *technology*. The chapter presents the literature according to focus on particular topics, rather than whether it originated in one particular academic community or another. Having said that, it is noticeable that particular communities tend to research and write about specific topics. Section 2.1 examines literature on the practice of profiling in the banking system. Section 2.2 reviews literature on the profiling technology used for the detection of money laundering. Section 2.3 focuses on the technique that organisations employ to develop profiles of their users, data mining. Section 2.4 reflects on the insights obtained from the literature surveyed, as well as its limitations in providing insight into the role of the context and the user in profiling, and sets the overall context of the thesis.

## *2.1 Profiling practice in the banking industry*

This section examines some of the existing works on profiling in the chosen industry, and outlines key emerging themes. It examines the practice from a comprehensive point of view, establishing a preliminary foundation in the topic.

The Financial Services Authority (FSA), the entity that regulates the financial services industry in the UK and henceforth referred to as the regulator, defines banks as firms with permission to carry on regulated activities such as accepting deposits or other repayable funds from the public and granting credit (FSA 2006). In particular, banks act as intermediaries between borrowers and lenders (McDonald and Keasey 2002). Financial services, and in particular retail banks, touch the life of most, if not all, citizens in the western world:

> 'As the chief means of managing the wages and investments of the population, [retail finance] affects directly or indirectly all of the population of 'developed' countries'. (Leyshon and Thrift 1999)

### 2.1.1 Historical influences

The analysis of the literature suggests that there were two key historical drivers of the development of profiling: changes in the industry and changes in banking behaviour. The former focuses on the

changes that the banking industry has been going through since the 1980s as a result of regulatory and economic factors, and leads to viewing profiling as a necessity. The latter centres on the way that technology has influenced the way that payments are processed and customers interact with the institutions, and treats profiling as an opportunity. The two angles are described next.

Regulatory and economic factors

Regulatory reform during the early to mid-1980s enabled firms from different parts of the financial system to move into each other's markets (Brooks 1989; Molyneux 1990). The result was a sharp intensification of competition between the various institutions, leading to aggressive cost cutting and promotion of new products:

> 'The traditional values and mores based around sobriety, convention, long and faithful service, and skill in judicious lending were giving way to a new emphasis on marketing, selling, change, growth targets, performance-related pay, customer service and quality... The new priorities were cost-cutting and the aggressive selling of new products. ((Storey, Edwards et al. 1997), page 63)

The period of growth was followed by recession in the 1990s, leading to the contraction of the branch networks of banks and building societies and a reduction in profit margins (Meadows and Dibb 1998). Specifically, Leyshon and Thrift (1999) report that between 1989 and 1995, the British financial industry registered a decrease of 19% in the number of bank and building society branches, a number that reached 25% for Barclays Bank. Additionally, the rise of the Internet and e-commerce from the mid-1990s onwards led to the development of Internet-based financial services, promising 'to efface space and place, and to bring about an anytime, anyplace, anywhere, 24/7 economy for retail consumers' (French and Leyshon 2004). The growth of the Internet also enabled consumers to access information at little or no cost. Easy and inexpensive access to information, consequently, empowered the consumers and eroded the advantage formerly held by established intermediaries in the value chains of all kinds of businesses (Evans and Wurster 1997; Evans and Wurster 1999). Furthermore, it gave rise to new intermediaries (French and Leyshon 2004) - a spurt of demutualisations and acquisitions followed, promoting a huge growth from within the UK banking industry (Datamonitor 2004). By the end of 2001, there were circa 108 million personal bank accounts in the UK, including 69 million current accounts and ensuring that there were considerably more current accounts than adults in the UK (Mintel 2003).

The significant structural changes described meant that, for a firm to be profitable, it had to be responsive to consumer needs (Knights, Sturdy et al. 1994). Profiling has long been advocated as the way by which organisations identify and address such needs:

> '*Viewing a heterogeneous market as a number of smaller homogeneous markets (...) provides for greater maximisation of consumer or user satisfactions, tends to build a more secure market position and to lead to greater over-all stability* (Smith 1956).

The reason why profiling increases effectiveness is that by placing customers in groups that are as similar as possible, the behaviour variation within the groups decreases and, therefore, the outcomes of the targeting efforts will increase (Lenzen 2004).

Behavioural factors

In addition to the structural factors mentioned in the previous section, the turn of the century has seen a marked change in the way in which the banking industry processes payments. As illustrated in figure 2.1, there is now a growing dependency on electronic transfers, such as direct debit or standing orders, an expanding network of cash machines and a generalisation of payment of workers' wages directly into their bank accounts, at the expense of the traditional cheque (Mintel 2003). The ubiquitous use of money in electronic forms means that transactions are easily registered and traceable (deGoede 2004):

> '*Each movement and transaction... leaves a trail of electronic traces, which means that individuals cannot easily disappear*' (Levi and Wall 2004)

**Figure 2.1 - Evolution of payment mode**
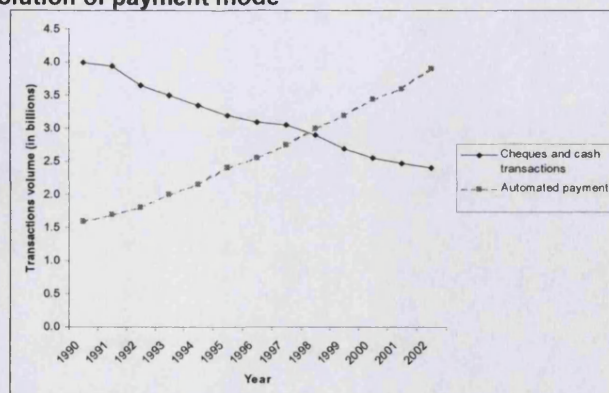


*Source*: adapted from Mintel (2003)

The wide availability of data fomented a fundamental change in attitude towards customer data (Leyshon and Thrift 1999). Organisational strategists gained access to a wealth of data with which to group consumers into homogeneous groups regarding product preferences or exhibited buying behaviour (Lambin 2000; Kotler and Keller 2006). The profiles tell organisations whom the customers in each segment are, what they do and their motivations to buy from the organisation, an effort greatly aided by the increasing availability of technological solutions that enhanced the capacity of organisations to store and manipulate customer information (Wedel and Kamakura 2000; Dibb 2001).

Comparison

In summary, adoption of profiling seemed to be, first, a response to the competitive pressures brought about by structural changes in the banking industry. Later, profiling was seen as an opportunity created by the wide availability of data resulting from the changes in processes and in banking behaviour. What these two influences have in common is the presence of an economic and administrative rationale.

## 2.1.2 Evolution of the content and type of profiling

The review also revealed that the content of the profiles in use has changed over the years. Initially, the data held in most corporations' databases focused on data necessary for the transaction, and the customer was fully aware of its collection. Nowadays, however, there is a trend towards capturing as much data as possible (Dodge and Kitchin 2005), including personal information from various sources (Tavani 1999; Cary, Wen et al. 2003), in the belief that obtaining increased volumes of data will lead to better marketing opportunities (Nash 2001), improved security (Lyon 2003) and a better understanding of customer behaviour (Elliot 2004).

Moreover, the data capture often goes unchallenged because it is often promoted as an inherent part of the service, as in the case of loyalty cards (Humby, Hunt et al. 2003), or because the default settings are defined in such way that customers have to consciously opt out of data capture (Dodge and Kitchin 2005). Additionally, those that attempt to avoid data capture often face penalties such as degradation of service, additional costs or even service denial (Bennett 2001; Dodge and Kitchin

2005). There are even some instances of data capture where the customer is not aware that personal information is being compiled, as in the case of electronic monitoring of actions or communications over the Internet (Cary, Wen et al. 2003).

Profiling seems to be evolving from a transaction oriented, permission based practice, to an all-inclusive one, that happens by default. The organisation's efforts to collect, monitor and process vast amounts of information on individuals' identities and actions is arguably in conflict (Seigneur and Jensen 2004) with the fundamental human right of those same individuals to 'be left alone' (Cooley 1888). Legal mechanisms such as the Data Protection Act of 1998 in the UK, attempt to regulate the procedures for collection and use of information regarding an individual's identity and actions, but such legal tools are useful only as long as they are relevant and enforceable (McCarthy 2003). Technological mechanisms such as password and firewalls attempt to prevent unauthorised access to such information, but these safeguards are useless in the face of determined attackers (Langheinrich 2001; Langheinrich 2002).

While every society values privacy, the expressions of this privacy vary significantly across cultures (Westin 1967), social groups (Raab and Bennett 1998; Perri6 2005) and situation (Brunk 2002; Jiang, Hong et al. 2002; Kobsa and Schreck 2003; 2004; Seigneur and Jensen 2005). The issue of privacy is extremely important for banks, as well. According to Donaghy (2002):

> '[In Western society] *monetary privacy is seen as a fundamental tenet... most financial institutions, businesses and their clients view money and privacy as being two sides of the same coin'*.

There is an apparent conflict between, on the one hand, the business rationale of profiling as discussed in section 2.1.1 and, on the other hand, the beliefs of particular groups of customers as well as the cultural traditions of the banking industry.

Another trend noticeable in the literature reviewed is the move from profiles that merely describe past behaviour, to attempts to predict future behaviour based on specific attributes. Examples of predictive profiling include the calculation of the propensity that a particular person will consume a given product, based on the fact that he or she lives in a particular place (Dodge and Kitchin 2005). Predictive profiling is also used to determine whether or not to grant access to service, as in the

case of credit scoring (Leyshon and Thrift 1999), or to estimate which consumer segments will be the most profitable in the long term and, therefore, to determine which level of service to offer to each segment (Danna and GandyJr. 2002; Leyshon, Signoretta et al. 2006).

Trying to predict the future behaviours of customers is, to a certain extent, speculative. As noted by Schauer (2003), Stein (2004) and Durlauf (2005), when it is not possible to empirically verify the behaviour being profiled, the resulting decisions are made under conditions of ambiguity. What the trend described in the literature reviewed in section 2.1.2 implies, therefore, is that the level of uncertainty surrounding the use of profiles is increasing.

## 2.1.3 The use of profiling

According to the literature reviewed, there are numerous applications of profiling. Organisations profile their customers in order to be able to predict future needs and assist in the development of new products (Germain 2000), decide which customers to target with initiatives such as targeted advertising and price discrimination (Feinberg, Krishna et al. 2002), cross-sell to existing customers (Parsons, Zeisser et al. 1998; Peltier, Schibrowsky et al. 2002), or prevent customers from leaving the company (Dibb and Meadows 2001). Profiling is also used in risk management, such as the assessment, via credit scoring techniques, of a customer's ability to repay a loan (Bofondi and Lotti 2006). In addition, profiling assists in fraud prevention or detection, as in the cases of identity theft or the fraudulent use of credit cards (Harris 2002). In summary, the applications of profiling range from revenue maximisation to cost reduction.

An important question that emerges is whether the specific application for which a profile is used impacts on the emerging profile. Speed and Smith (1992), who conducted an extensive review of profiling in the financial services industry, found two distinct approaches: a priori and ad-post strategies. The former requires the analyst to select a segmentation variable, typically age, social class and life cycle, and then allocate customers to each of the groupings, accordingly. The latter strategy consists of dividing the market based on how consumers respond to a number of variables.

Speed and Smith argue that aspects of the market as well as the company's position within it affect the choice between the two approaches mentioned.

An interesting study by Kamp and colleagues (2007) examined to what extent two instances of profiling – customer loyalty and credit scoring – complied with European data protection legislation, in particular article 7 of the directive 95/46/EC. The study's authors noted significant differences between the practices analysed, as summarised in table 2.1.

**Table 2.1 - Analysis of two profiling applications**

|  | Customer loyalty | Credit scoring |
|---|---|---|
| *Data collected* | Extensive collection of personal data. | Extensive collection of product related, as well as personal, data. |
| *Information given to the customer regarding extension of data collection* | Systematic failures identified. | It is clear that personal data will be collected and examined. |
| *Data mining techniques* | Association, classification and clustering. | Mostly classification. In some cases, also regression. |

The study by Kamp and colleagues is valuable for the purpose of this thesis in the sense that emphasises how the general practice of profiling discussed in section 2.1.1 may be operationalised differently in different contexts. The insights of Kamp et al. study are limited, however, because this is a descriptive work and does not offer, or attempts to offer, an understanding of the differences observed.

In reference to Kamp et al.'s study, Canhoto (2007) suggested that the differences highlighted in table 2.1 were not the result of random factors; rather they were a result of the different nature and goals of the two practices. Canhoto noted that customer loyalty programs aim to encourage or reward actions that are considered positive by the organisation. This type of practice is relatively recent, is exploratory and focused on the individual. By opposition, risk scoring programs aim to discourage particular types of behaviour. Such programs are based on long established profiles, are confirmatory and focused on classes. As a result, customer loyalty applications tend to be rather more intrusive than credit scoring ones, but the latter may be more discriminatory than the former and often result in denial of service. Canhoto's comments are, however, a suggestion for an

interpretation of Kamp et al's results, rather than a conclusion based on extensive analysis of numerous profiling practices. Therefore, Canhoto's comments are hardly generalisable.

Particularly insightful for the purpose of this thesis is Meadows and Dibb's (1998) study of profiling practices at seven major UK financial institutions. The authors identified four barriers to profiling in the banking industry, summarised in table 2.2. The first barrier is *customer data requirements* and occurs because even though banks may be collecting a wealth of customer data, it is traditionally focused on account balances and transactions, offering limited customer information, only such as address and date of birth. Banks rarely collect, or systematically share, data that marketers tend to value, such as a customer's lifestyle, family or interests. Some of the organisations interviewed by Meadows and Dibb were trying to fill in the gaps using personal interviews and questionnaires, but such exercises are slow and expensive. The second barrier identified by Meadows and Dibb is the *strategic background to segmentation*, that is, the fact that many banks have a ethos of public service and an egalitarian approach to the market, which is not supportive of an approach that differentiates between consumers. The third barrier mentioned in Meadows and Dibb's study is the *fit between distribution channels and segmentation*. The authors note that the implementation of segmentation affects a wide range of staff types, linked with diverse functions such as marketing staff in the back office, customer dealing staff in branches and call centres, financial advisers, etc... and that have different expectations and needs. The fourth and last barrier is the *organisational context surrounding segmentation*, in particular the fact that banks have, traditionally, been product rather than customer oriented. The staff is usually organised into product teams, and are not necessarily aware of developments in another team, even though it may affect their own activities.

**Table 2.2 – Barriers to segmentation in the banking industry**

| Barrier | Origin |
|---|---|
| Customer data requirements | Banks rarely collect or systematically share with the marketing department the type of data that marketers tend to value. |
| Strategic background to segmentation | Ethos of public service and egalitarian approach to the market not always supportive of differentiated approach to servicing the customer. |
| Fit between distribution channels and segmentation | Differing expectations and needs of the various types of staff roles involved in serving the customer. |
| Organisational context surrounding segmentation | Banks have, traditionally, been product rather than customer oriented and the various units tend to work in silos. |

The barriers identified by Meadows and Dibb, and summarised in table 2.2, suggest that the content of the profile is related to the nature of the business, in the sense that different organisations may collect different types of data. Adoption of profiling may be affected by the organisation's ethos and the extent to which it requires the participation of staff in diverse functions. Finally, profiles drawing on information from more than one type of product are likely to be particularly difficult to develop. In other words, the implementation of profiling in a given organisation may be limited by hard and soft factors. Hard factors refer to the type of data available, whereas soft factors include the cultural and operational characteristics of the organisations.

It is also important to note that the findings outlined in table 2.2 are, to a certain extent, surprising when contrasted with the literature described in section 2.1.1. The literature presented earlier depicted profiling as a profit-enhancing activity, highly desirable in a customer-oriented scenario. The study now presented, however, highlights some points of conflict between, on the one hand, the concept of profiling and, on the other hand, its application.

In summary, as the focus of the literature surveyed moved from the general practice to the specific applications, nuances are noticeable. Apparent conflicts and contradictions emerge, as well as an indication that the profile's goal and context influences its operationalisations. The next section examines a specific area of customer profiling in the banking industry: the attempt to detect particular instances of financial crime.

## 2.1.4 Detection of financial crime

Financial institutions in the UK face a regulatory requirement to observe due diligence with respect to their customers' account activity, in order to aid in the prevention and in the detection of one particular form of financial crime: money laundering (Johnston and Abbot 2005). The requirement includes prosecutorial threats, as well as the possibility of corporate penalties (Levi and Gilmore 2002).

Money laundering refers to the processing of funds resulting from criminal activity, with the intent of disguising their illegal source (Treasury 2004). Since 2001, money laundering control has been extended to also include the processing of funds to finance criminal activity – e.g., terrorism - regardless of whether those funds had had a legal origin or an illegal one. To reflect the fact that the money to fund criminal activities may have had a licit origin, some sources (e.g., (Cassella 2003)) refer to this activity as *reverse money laundering*.

Money laundering causes major economic and social disruption across borders. Whilst not a new phenomenon, formal initiatives to detect and combat this criminal activity are relatively recent - the first international agreement making money laundering a criminal act was the *United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances*, also known as the Vienna Convention, signed in 1988. The international fight against money laundering gained further momentum in the wake of several high profile terrorist attacks worldwide, most notably, the attacks of September 11th 2001 in the USA. Figure 2.2 depicts the possible sources and applications of money laundering, and highlights the several stages of the process.

**Figure 2.2 - Money laundering in a broader framework**

| | Legitimate behaviour | Criminal behaviour | |
|---|---|---|---|
| *Type of activity and source of profit* | Legal business concern | Illegal business concern (e.g., drug trafficking, corruption, tax evasion, insider trading, racketeering, gambling, charities and other front companies, etc...) | |
| *Type of financial transaction / intermediary* | Legal transaction through bona fide institution | Money laundering through regulated institution | Money laundering through informal financial or non-regulated institution |
| *Use of funds* | Legitimate consumption / investment / development | Criminal activity | Illegitimate consumption / investment / development |

*Source*: Adapted from Kaufmann (2002)

UK regulations mandate banks to participate in anti money laundering (AML) efforts (JMLSG 2006) even though they may not derive any direct business benefit from the exercise. There is a regulatory imperative to profile customers, which is a novel driver not considered in the literature reviewed in the previous sections. It is worth exploring how the nature of this driver might affect the profiling of money laundering.

According to a survey of 281 financial institutions, AML is perceived as a very expensive exercise for the organisations and one that may even lead the organisation to lose its customers (Yeandle, Mainelli et al. 2005). Some retail banks' interviewees in that same survey believed that the organisation might be able to derive customer knowledge from the effort, but not the type of insight that could be used to the advantage of the organisation. Detection of money laundering is, therefore, not only driven by a factor not previously considered in the literature surveyed, but it is also a practice informed by conflicting rationales.

There is, also, some scepticism among senior managers in retail banks regarding the effectiveness of the whole initiative to detect and prevent money laundering (KPMG 2004; Webb 2004). A survey of 30 London banks, consisting of interviews with the person in charge of money laundering detection at each institution – the Money Laundering Reporting Officer (MLRO) - found that 27% of MLROs had a positive attitude towards AML initiatives, 40% were neutral and 33% had a negative attitude (Webb 2004). In addition, 60% believed that the related regulations were ineffective in reducing money laundering and that the costs greatly exceeded any benefits. Interestingly, large retail banks tended to have more positive attitudes towards money laundering monitoring than medium and small ones, and than wholesale banks in general. Unfortunately, Webb's paper does not offer any explanation for the difference in attitudes. Webb's survey of 30 London banks also identified that where the MLRO is a senior manager, with direct access to the management board, it is easier to obtain resources than otherwise, and recommendations are likely to be acted upon faster. In summary, there is a generalised climate of disbelief regarding the effectiveness of the use of profiling for financial crime detection which, according to Meadows and Dibb (1998), hinders the development and deployment of this particular profiling application.

Use of the application

One of the fundamental difficulties of monitoring financial crime in general, and money laundering in particular, is that there is virtually no convincing empirical evidence on the extent of money laundering that is actually occurring within the economy (Harvey 2005). By its very nature, money laundering occurs outside the normal range of economic statistics and remains unobservable. There are numerous studies discussing how large a phenomenon money laundering is. However,

money laundering being an illegal activity, there are no official measures of its size[3]. The UK's HM Customs and Excise estimates that the annual proceeds of crime in the UK might be in the region of £25bn (NCIS 2003), which represents about 7% of the total value of deposits in the UK's personal accounts.

Given the volume of money involved, it is no surprise that many national governments and international organisations have developed several initiatives to combat money laundering. AML programmes are seen as essential in crime prevention, by visibly removing the financial reward for those engaging in criminal activity:

> 'Most organised crime is not worth anything to a criminal unless they can launder the money. A high percentage of criminal gangs have money laundering as a secondary activity' (ARA 2003).

The underlying assumption in national AML programmes is that effective counter money laundering regulation increases the costs to the launderer, therefore reducing his or her ability to carry out criminal activity. Furthermore, as a result of the reduced opportunity for laundering, the criminal should not be able to profit from the proceeds of his or her crime, eventually leading to a reduction in the underlying criminal activity (Harvey 2005).

AML initiatives have a role of detecting criminal activity either directly, by triggering a criminal investigation, or indirectly by contributing to an existing investigation – e.g., by uncovering links between associates, by demonstrating the movement of money or goods, or by eliciting the *modus operandi* of a given criminal group. Given the role of the banks as a point of entry of cash in the financial system, and a major facilitator of movements of cash globally, it is not surprising that AML initiatives worldwide focused on 'curtailing money laundering through the front door' (Zdanowicz 2004). The British Bankers' Association campaign 'Proving your identity - How money laundering prevention affects opening an account', for instance, highlights the role of retail banks in hindering criminals' access to the financial system, by stepping up identity checks (BBA 2005). The leaflet states that:

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[3] The difficulty in measuring the size of money laundering activity is further compounded by the fact that different institutions tend to adopt different definitions of money laundering, thus hindering the comparison of estimates produced by the different sources.

*'A key defence against money laundering is to prevent accounts being opened in false identities (...) It is necessary to make checks on everyone'* (BBA 2005).

When financial institutions identify suspicious activity, they submit a Suspicious Activity Report (SAR)[4] to the Serious Organised Crime Agency[5], the British financial intelligence unit (FIU). The FIU then decides whether or not to inform the relevant enforcement authorities who, in turn, may take further action (Backhouse, Canhoto et al. 2005). SARs are considered one of the key variables in the subsequent number of prosecutions for money laundering activity (Bell 2001), and an effective SAR regime should lead to an increase in the amount of criminal assets recovered through the use of such reports, as well as to an increase in convictions and other disruptions of criminal activity (Roule and Kinsell 2002; KPMG 2003).

What the literature mentioned in this section does not seem to consider is that the role of banks in the fight against money laundering, ultimately, runs against the traditional strategic objectives of these institutions. Additionally, the traditional banking activities of accepting deposits, granting credit and intermediating between borrowers and lenders are very different in nature from the monitoring and quasi law enforcement actions required by the regulations mentioned. Adoption of profiling for the detection of money laundering is not only driven by a rationale different from the ones informing the adoption of other instances of profiling, but it is also bound to face-strategic and practical barriers.

Content of the profiles

Rules regarding what and how to monitor are, according to Angell and Demetis (2005), formulated by a three level hierarchy of organisations: transnational organisations such as the *Financial Actions Task Force* (FATF), national organisations such as the regulators, and local organisations such as the banks themselves. Recommendations and requirements from the transnational level are passed onto the national level, where they are interpreted according to national priorities before

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[4] Also known as Suspicious Transactions Report

[5] The Serious Organised Crime Agency is a law enforcement agency which assumed functions on 1 April 2006, taking over functions from the National Crime Squad and the National Criminal Intelligence Service, among others. Prior to April 2006, regulated institutions would submit their Suspicious Activity Reports to the National Criminal Intelligence Service (NCIS).

being delivered as procedural requirements to the local level. Organisations then formulate their own internal policies and strategies. Appendix 1 provides an overview of the main regulations and guidance issued at each of the three levels.

It is important to highlight that banks bear the responsibility for threshold vigilance, but have no say in public policy and regulations' development. Another important difference between the regulator and the banks is that the regulator covers a wide range of public interests, while the communication between banks and the public tends to be limited to their client relationship (Veyder 2003).

The variety of actors, with their own respective interests, issuing regulation and guidance on AML profiling is not the only hurdle in the development of profiles, however. The FSA puts forward two instruments for AML control: know your customer (KYC) and monitoring. KYC is described as *'obtaining and using information about a customer over and above the basic identification information'*, whereas monitoring is *'being alert to how a customer is using a firm's products and services and therefore to signs of money laundering'* (FSA 2003). The requirement to detect suspicious activity demands from financial institutions knowledge of the normal and reasonable account activity of their customers so that they have a means of identifying transactions which fall outside of the regular pattern of activity (Basel 2001; IFAC 2004)., Yet, as the CEO of Searchspace, a leading provider of AML profiling solutions, noted:

> *'Knowing someone through his or her behaviour is inherently bespoke, and interactions between a corporation (bank) and customer on this mass scale is new.'* (Kingdon 2004)

There are numerous difficulties associated with the development of profiles of money laundering behaviour, as noted by the Office of Technology Assessment of the US Congress (OTA) and summarised in table 2.3. Firstly, there is an extremely low incidence of money laundering compared to the overall volume of financial transactions. Secondly, there are no tested profiles of money laundering behaviour, because it is an extremely broad phenomenon whereas the institutions' view is limited to its own business area. Referring specifically to the monitoring of wire transfers, the OTA report (1995) notes:

*'Building traditional knowledge-based systems involves interviewing an expert about a relatively narrow problem area (e.g., diagnosing bacterial diseases) and constructing a computer based model of the reasoning process of that expert (...) Analysts and law enforcement agencies have little expertise analysing wire transfer on the scale envisioned by the proposals and until they do, it will be difficult or impossible to construct a traditional knowledge based system to analyse wire transfers automatically.'* (OTA 1995)

The third difficulty identified in the OTA report is that monitoring money laundering requires analysis of transaction patterns across time and space. Such analysis emphasises the importance of examining data from multiple locations and time periods, making localised screening very difficult and placing heavy requirements in terms of databases and analysis tools. Fourthly, there are many forms of laundering money. Any system attempting to identify money laundering needs to evaluate a limited set of transactions against multiple money laundering mechanisms. In addition, money launderers are believed to change their modes of operation frequently, quickly rendering obsolete any known methods. Fifthly, many transaction patterns associated with money laundering differ little or nothing from legitimate transactions. Lastly, money laundering monitoring may be done at different levels of analysis, ranging from the level of one particular transaction to the level of the criminal network, and including the individual or account level and the business or organisational level. Analysis that focuses at any one level, risks missing activity that is detectable at the aggregate level. Yet, different institutions are best positioned to do analysis at different levels and may be unable to conduct a multiple level analysis altogether (OTA 1995).

**Table 2.3 – Difficulties in developing AML profiles**

| | |
|---|---|
| o | Low incidence of money laundering over total volume of transactions |
| o | Lack of tested profiles |
| o | Temporal and spatial dimensions of the profiles |
| o | Dynamic nature of criminal conduct |
| o | Similarity between licit and illicit conduct |
| o | Need for multiple level analysis |

The OTA report is admittedly over 10 years old. However, the situation does not seem to have changed much, at least as far as AML profiling in the UK is concerned. Gill and Taylor (2003) examined the profiling criteria used by numerous financial organisations in the UK concluding that there was a generalised focus on cash transactions over and above specific thresholds. Besides that common factor, however, the criteria used to determine suspicion varied significantly, as illustrated in table 2.4. Some organisations monitored specific clients, locations or organisations.

Others monitored departures from usual customer, account or product behaviour. Organisations tended to monitor a variety of features simultaneously, though there were also those that focused on one feature, only.

**Table 2.4 – Criteria used to identify potentially suspicious transactions**

| Criteria | % using | |
|---|---|---|
| | in isolation | with others |
| Over a particular sum | 18.6 | 45.9 |
| By certain clients | 9.0 | 46.5 |
| From certain locations | 6.3 | 48.0 |
| From offshore entities | 5.4 | 42.9 |
| Departing from past client behaviour | 11.1 | 59.0 |
| Departing from normal account, product or service behaviour | 12.1 | 61.6 |

*Source*: Gill and Taylor (2003)

The variety of criteria presented in table 2.4 is symptomatic of the relative novelty of the profiling application to which it refers, as well as of the difficulties mentioned in the OTA report. A detailed analysis of the literature reveals several factors that contribute to the ambiguity in profiling financial crime. First, strictly speaking, money laundering does not correspond to any one particular behaviour (IFAC 2004; Yeandle, Mainelli et al. 2005). Indeed, it emanates from many types of predicate crime such as drug trafficking, illegal arms sales, prostitution, people trafficking, fraud and embezzlement, insider trading, bribery, corruption, tax evasion or siphoning off of aid funds (Johnson 2001; Treasury 2004). Since 2001, money laundering control has been extended to include the financing of terrorist activity. In practice, the money launderer tends to commit various forms of crime – for instance, smuggling and tax evasion will occur simultaneously because the person who brings goods to a country without declaring them to customs is also unlikely to pay taxes on the profits of such activity (Canhoto and Backhouse 2005). Second, money laundering may involve a variety of actors, ranging from individual criminals that launder the money to highly sophisticated organised crime groups that have their own 'financial director'. The extent of these networks is driven by a number of factors, such as the volume of money to be processed or the type of predicate crime committed (Bell 2002). Third, the form that money laundering takes is continuously evolving (Masciandaro and Filotto 2001). Launderers are constantly responding to regulatory initiatives by experimenting with novel strategies and instruments (Boorman and Ingves 2001; Harvey 2005), such as moving money over the Internet, or using online casinos and e-

banking (Lilley 2000; Philippsohn 2001; Angell and Demetis 2005). Fourth, the few elements of information available are held by different institutions that do not exchange information easily, owing to legal[6], strategic[7] and operational[8] reasons (Backhouse, Canhoto et al. 2005). Without appropriate sharing of information, it is extremely difficult to verify the reliability and effectiveness of money laundering profiling.

In summary, there are various international, national and local organisations that publish regulation and guidance on AML monitoring. In that sense, banks are agents of other institutions. It is important to note, however, that the rules dictate what banks have to do, but not how to do it, resulting in a variety of criteria in use by these AML agents. In addition, the general guidance is difficult to translate into practice because of numerous technical difficulties linked with the nature of the phenomenon being profiled.

### Emerging trend

Similarly to the general trend observed in section 2.1.2, the fight against financial crime is ever more reliant on predictive profiling. This type of profiling is particularly valued in the field of crime detection and prevention (Gersh, Lewis et al. 2006; McCue 2006):

> 'Using predictive analytics, we can accurately model complex interactions, associations or relationships and the use these models to identify and characterise unknown relationships or make reliable predictions of future events. Employed in military strategy development and planning, data mining and predictive analytics can facilitate the attainment of dominant battle space awareness.' (McCue 2005)

McCue's optimism, however, is contra balanced by other authors (e.g., (Kunreuther 2002)) who note that it is extremely difficult, if not impossible, to empirically verify the behaviour being modelled and predict the evolving money laundering scheme, or where and how the next terror attack will occur.

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[6] E.g., data protection obligations

[7] E.g., in order not to compromise ongoing investigations

[8] E.g., existence of limited human resources

The emphasis in predictive profiling in crime detection assumed particular relevance in the wake of major terrorist attacks in the US, Madrid and elsewhere:

> '(I)t actually represents a marked shift towards planned actuarial strategies that rely upon the analysis of secondary data obtained through the convergence of technologies and databases to surveil individuals and suspect groups who have previously been identified as a potential risk. It also symbolises a deepening and widening of the use of data mining away from (a) reacting to events by the surveillance of suspect individuals within suspect groups that have been identified by traditional forms of intelligence gathering, towards (b) the proactive surveillance of what effectively become suspect populations, using new technologies to identify 'risky groups' by their markedly different patterns of "suspect behaviour".' (Levi and Wall 2004)

AML is, in summary, both similar to and distinct from other profiling practices. As IFAC (2004) noted, in reference to AML terminology, 'with near ubiquity, these terms are strongly contextual and highly judgemental'. Money laundering monitoring seems to occur regardless of the (dis)belief in the goals of the activity, the lack of confidence on the effectiveness of the tools in use and the numerous technical difficulties encountered.

This section reviewed the practice of profiling in the banking industry, from its inception to emerging issues that are likely to shape the intensity and form of profiling in the industry. The next section focuses on the technology used in profiling.

## 2.2 Profiling technology

Profiling technology refers to the instruments used in the profiling process. In order to illustrate the concept, Hildebrandt and Backhouse (2005) use the example of fingerprinting:

> '[Fingerprinting] is a technology, involving hardware (ink and cards and/or electronic imaging devices). Fingerprinting is a good example because it has been practiced for a long time before the computer took over; thereby demonstrating that profiling is not new.'

The collection and processing of data is an activity increasingly reliant on technology, both because advances in information technology have made it increasingly ubiquitous in organisations, and because there is a growing demand for evidence-based information to support decision making in organisations (Sund 2003):

> 'The growing pervasiveness of identification codes and informational systems that match, trace, monitor and regulate populations (...) coalesce as a metatrend, that of the creation of a machine readable world.' (Dodge and Kitchin 2005)

The increasing availability of computer systems and software applications, the generalised adoption of Internet and, in certain fields, the compulsory record keeping mandated by government regulation mean that data is being produced and warehoused at unprecedented rates. Additionally, there is an emerging trend to view information as a product in itself, with high market value. Companies that collect valuable data are in a position to become an information broker by reselling, as reports, the data collected (Berry and Linoff 1997). As a result, the number of records or objects in a typical database has increased exponentially, as has the number of fields or attributes describing each object (Fayyad, Piatetsky-Shapiro et al. 1996; Hand 1998; Bruha 2000). The consequence is that the size of the typical database increased dramatically, with some sectors registering an increase of 9,999 times in the 5 years between 1999 and 2004 (Hardy 2004). Consequently, numerous companies emerged offering software to profile customers and/or databases of particular segments of the population. Examples of commercial organisations whose revenue streams come from providing technologies and data products to corporations and governmental bodies include Acxiom, ChoicePoint, Claritas, Equifax, Experian and Lexis-Nexis, among many others (EPIC 2004).

Alongside the supporters of the increasing use of computer platforms to profile behaviour, there are those who alert to risks such as threats to privacy (e.g., (Jennings and Fena 2000; Lyon 2003)) or security problems (EPIC 2004), among others. This thesis does not wish to adopt a position regarding the benefits and disadvantages of technology. Rather, it entirely espouses the view that 'Technology in itself is neither good nor bad, but its effects are never neutral' (Hildebrandt and Backhouse 2005) and, therefore, investigates how and to what extent technology impacts on profiling outcomes.

## 2.2.1 Technology in AML profiling

The FSA has been reluctant to state that banks must buy AML software, but it often implies that staff cannot manually check against blacklists and monitor transactions for suspicious activity (Maguire 2005). In practice, the detection of suspicious activity is a complex and resource-intensive task, accomplished by a range of manual and technology based methods.

In a KPMG survey, 90% of the respondents based in Western-Europe stated that they rely on staff vigilance, among other methods, to identify potential money laundering (KPMG 2004). Gill and Taylor (2003) reported, additionally, that over 80% of UK banks with 1,000 or more staff have adopted automated transaction monitoring systems. However, that percentage is much smaller for banks below the 1,000 staff threshold as, according to the same survey, less than 20% use software to monitor transactions.

The specific solutions adopted by each bank vary widely, and may include vendor solutions, employment of in-house data miners to develop ad-hoc queries or the adoption of models developed by the relevant FIU (RSM 2002; Canhoto and Backhouse 2004; KPMG 2004). Of those financial organisations that use automated solutions to monitor money laundering, it is estimated that only a minority use bespoke software, whereas the rest are roughly equally divided between those using adapted and unadapted standard software (Gill and Taylor 2003).

## 2.2.2 Attitudes towards AML technology

Gill & Taylor (2003) reported that around three quarters of the organisations that the authors surveyed considered that too much reliance is placed on technology to monitor money laundering. This attitude was similar among those that use money laundering systems and those that did not adopt automated solutions, therefore suggesting that there is not only scepticism about what the technology can contribute but also dissatisfaction among those that did adopt technological solutions.

In a report investigating the use of technology for the automated detection of money laundering, the OTA of the US Congress gloomily concluded that:

> 'Automated computer screening of transactions for money laundering is virtually impossible'
> (OTA 1995)

The OTA report advanced several reasons, summarised in table 2.5, that make detection of money laundering, via automated monitoring, difficult. OTA's analysis focused on the case of wire

transfers, but the findings are easily transferable to other financial transactions, in general. The OTA noted that the banking system handles massive volumes of transactions, daily, therefore generating large volumes of data to be analysed. Yet, the potential for information contained in each of these transactions is very low. Some institutions use exclusions to reduce the volume of data to be analysed, but that decision carries the risk that money launderers could attempt to use the non-monitored transactions to launder their funds. Another factor concerns the difficulties and the risks associated with the transmission, processing and storage of large volumes of customer data. Difficulties originate, for instance, in capacity constraints or systems' integration. Risks arise from possible security leaks of the stored records. A third factor relates to incomplete or faulty data. Organisations do not need to collect, for commercial purposes, information that is necessary for AML detection. In situations where the data is collected, it is not always reliable owing to processing errors or even deliberately wrong information provided by the customer, who wishes to confound analysis. Furthermore, information regarding the individual and business names and addresses is usually entered in free form text, resulting in numerous variations in format or misspellings. The fourth factor mentioned by OTA is that transactions vary greatly in their characteristics, which produces a wide variability of data formats and data types. The fifth factor is that detection of money laundering requires the comparison of behaviours of different individuals and companies to general profiles of behaviour for types of individuals and companies, for instance in the relevant socio economic group or type of business activity. Yet, monitoring institutions have fragmentary records of their customer only. The sixth and final factor refers to the difficulty in obtaining confirmed models of money laundering for data analysis[9]. The long list of hindering factors, led OTA to conclude that:

> 'Analysing the relatively small amount of data in each [transaction] presents a surprising array of problems.' (OTA 1995)

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[9] The difficulty arises because years often elapse between the transaction occurs and the eventual law enforcement investigation leads to prosecutions and, therefore, specific information about the type of transactions used. Additionally, there is the argument that law enforcement agencies may be able to catch only the incompetent money launderer, whose behaviour is not representative of sophisticated schemes. Finally, law enforcement agencies do not identify or prosecute all money laundering activity and, therefore, any reference models that eventually emerge will always be limited in scope.

**Table 2.5 – Issues in automated transaction monitoring**

| | |
|---|---|
| o | Large volume of data to be analysed |
| o | Difficulties and risks associated with data transmission, processing and storage |
| o | Incomplete or faulty data |
| o | Heterogeneous data formats and types |
| o | Fragmentary records |
| o | Difficulty in obtaining confirmed cases of ML for data analysis |

OTA's view is mirrored in the following statement by the CEO of Searchspace, the provider of a leading AML monitoring software (RSM 2002):

> 'More sophisticated analysis has used intelligent systems to enhance manual investigations (...) Data mining techniques are more useful when an investigation is already under way, because they are suited to agencies that pursue criminal investigations. They are less useful for industries attempting to prevent the abuse in the first place.' (Kingdon 2004)

It is also difficult to understand which, if any, of the various automated products available has a technically superior approach. Despite the power and sophistication of the various AML technologies in the market, none has yet proved to be irrefutably better than the others at identifying launderers (RSM 2002).

Similarly, choosing a technological solution based on economic factors is fraught because calculating the return on investment of an AML system is particularly difficult. Harvey (2005) suggests that the costs of AML should be sought in the investments that institutions are forced to make in physical and human capital. However, firms experience considerable difficulty in identifying these costs (Yeandle, Mainelli et al. 2005), not least because changes in regulations require changes in their systems, and those changes are both unpredictable and outside the control of the organisation. Additionally, AML also impacts the bank's relations with its customers, incurring possible loss of business, as well as additional management costs of products such as loans and deposits (Masciandaro and Filotto 2001). As far as the benefits of AML are concerned, there may be some gains from being better able to place a financial or credit product, as a result of the additional information collected on the client (Masciandaro and Filotto 2001), but the main value factor seems to be that certain downsides are avoided, namely fines and reputation damage (Harvey 2005). Kitano (2005) goes further and suggests that the high adoption rate of such systems was partly driven by the series of fines imposed by the financial regulator on several UK financial institutions that breached AML requirements. The total amount of fines between 2002 and mid 2005

exceeded £6 million, with the highest single fine applied in 2003, exceeding £2 million (FSA 2003; Kitano 2005).

In summary, the method to profile money laundering behaviour in the UK is heavily reliant on staff, and not necessarily making use of bespoke or specially adapted software. There is a trend towards increasing use of information technology to detect money laundering, despite generalised scepticism regarding the suitability of technology to monitor this particular type of behaviour and the difficult in assessing the technical value or the net benefits of alternative automated monitoring systems.

## 2.3 The profiling technique

Organisations develop profiles using data mining systems, which comb through data collected from various online and off-line customer touch points (Mattison 2000; Danna and GandyJr. 2002; Hosein 2005), and extract useful patterns or models from the data (Hand, Manila et al. 2001). The purpose of the data mining exercise may be to explain or to monitor behaviour. In the former, the objective is to produce an overall summary of a set of data to identify and describe the main features of the shape of the distribution, whereas in the later, the objective is to identify departures from the norm and detect unusual patterns of behaviour (Jackson 2002). As testified by Buck (2001):

> 'The retail and financial industries have been among the first to embrace data mining technologies, first with the analysis of data in large corporate warehouses, and more recently in the analysis of online web-based activities'

Organisations traditionally justify investment in data mining solutions by the phenomenal expansion of the data space (Anand, Bell et al. 1996) and the resulting sharp increase in the size of the typical database (Hardy 2004):

> 'There is no alternative to heavy reliance on computer programs set to discover patterns for themselves with relatively little human intervention' (Hand 1998).

Lavrac et al. (2004), however, contest this argument, and note:

> 'The data mining community takes as its starting point that we are deluged with data, and the fundamental problem is dealing with the overwhelming quantity of observations. While

*this may be true for some business applications, for (others) this is the exception rather than the rule.'*

Whether data miners have to deal with overwhelming quantities of observations or not, the fact is that data mining is now common in numerous commercial applications such as loan requests screening (Langley and Simon 1995), corporate bankruptcy prediction (Kyung Sung, Chang et al. 1999) or machinery control (Evans and Fisher 2002), as well as scientific applications in the fields of astronomy, biology and many others (Langley 2000). Money laundering is no exception. AML systems process the financial transactions using data mining techniques that employs both statistical modelling tools and also artificial intelligence tools to flag non-obvious relationships between pieces of data in large input data sets, or to look for unusual patterns of behaviour, such as sudden cash movements in a previously dormant account (Brenneman and DeLotto, 2001, Complinet, 2005, RSM, 2002).

Policing and intelligence agencies worldwide adopt the same data-warehousing techniques generally associated with commercial business activities (Jensen 2005; McCue 2005; McCue 2006):

> *'Many of the [tools to detect crime] already exist. The business community has exploited data mining and predictive analytics for several years. The same tools and techniques that are used to determined credit risk; discover fraud, and identify which consumers are likely to switch cell-phone providers also can be exploited in the fight against terrorism'* (McCue 2005).

Despite the generalised adoption of data mining in profiling, including AML, the field is not without controversies, as described next.

## 2.3.1 Central debates

The traditional technique to process data and classify data subjects relied on manual analysis and interpretation, as explained by Hand (1998):

> *'What we are describing here is nothing but exploratory data analysis, an activity which has been carried out since data were first analysed (...) But there is a difference (...) the sheer size of the data sets now available (...) containing many millions or even billions of records (...) Special storage and manipulation techniques are required to handle data collections of this size'.*

In order to start a data mining project, the organisation needs to have some kind of data storage with query facilities in place. Furthermore, ideally, the organisation should already have experimented extensively with more traditional query and reporting tools, and adopted data mining solutions only after concluding that the traditional solutions do not work or are too labour intensive (Lavrac, Motoda et al. 2004).

The emergence of data mining requires a specific method of data inquiry:

'Traditionally the task of identifying and utilising information hidden in data has been achieved through some form of traditional statistical methods. Typically, this involves a user formulating a guess about a possible relationship in the data and evaluating this hypothesis via a statistical test. This is a largely time-intensive, user driven (...) approach to data analysis. With data mining, the interrogation of the data is done by the data mining algorithm rather than by the user. Data mining is a self organising, data influenced (...) approach to data analysis. Simply put, what data mining does is sort through masses of data to uncover patterns and relationships, then build models to predict behaviour' (Chan and Lewis 2002).

Chan and Lewis's description suggests that the use of data mining tends to minimise – or, even, eliminate - the influence that analysts have in the process of data collection and analysis. This view is echoed by other researchers who define data mining as an exercise that 'strives to discover new knowledge from data, effectively letting the data speak for itself' (Williams 2006). The data driven view of data mining is, in turn, supported by numerous success stories such as the deployment of a system at Bell Atlantic to allocate technicians to solve telephone problems and that, arguably, saved the organisation more than $10 million per year due to the accuracy of its allocation decisions (Danyluk, Provost et al. 2002), or the system implementation at American Express to screen loan applications and that could predict loan default in 70% of the cases, whereas human experts could only do so in 50% of the cases (Langley and Simon 1995).

As a result, the data mining community has invested considerable research effort on issues of learning how to classify data and of finding natural clusters of data (Olafsson 2006), or issues of processing and visualising enormous data sets (Abbiw-Jackson, Golden et al. 2006; Yang and Olafsson 2006; Zhang, Liu et al. 2006). The list of topics discussed in the leading conference in the field (table 2.6) offers a similar perspective.

**Table 2.6 – Main topics discussed at KDD conferences**

| | KDD-89[10] | KDD 2006[11] |
|---|---|---|
| Topics | Expert database systems<br>Scientific discovery<br>Fuzzy rules<br>Using domain knowledge<br>Learning from relational<br>  (structured) data<br>Dealing with text and<br>  other complex data<br>Discovery tools<br>Better presentation<br>  methods<br>Integrated systems<br>Privacy | Applications of data mining<br>Data and result visualisation<br>Data warehousing<br>Data mining for community generation, social network<br>  analysis and graph-structured data<br>Foundations of data mining<br>Interactive and online data mining<br>KDD framework and process<br>Mining data streams<br>Mining high-dimensional data<br>Mining sensor data<br>Mining text and semi-structured data<br>Mining multi-media data<br>Novel data mining algorithms<br>Privacy and data mining<br>Robust and scalable statistical methods<br>Pre-processing and post-processing for data mining<br>Security issues<br>Spatial and temporal data mining |

On the contrary, there are sources that posit that, even though the data mining process is largely quantitative and automated, it is still mainly influenced by factors other than the technical platform. In particular, Chang et al. (2003), in a study of adoption of data mining solutions among Taiwanese financial services organisations, found that adoption was influenced by a mixture of organisational and personal factors. Namely, adoption of data mining was positively related to the size of the host organisation and the emphasis that it put on data availability. Additionally, the authors found a direct relationship between adoption of data mining and individual decision making styles, with adoption highest among organisations where the relevant decision makers relied primarily on data, rather than personal experience, for decision making. Hwang and colleagues (2004) also investigated organisational factors influencing the adoption of data warehouse technology and, indirectly data mining, and concluded that adoption was positively influenced by the size of the bank, internal needs and competitive pressure, as well as person-related characteristics such as support from top management and existence of a technology champion.

Additionally, Lavrac et al. (2004) point that project management skills are one of the most important factors in guaranteeing the success of a data mining initiative:

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[10] First edition; Source: (Piatetsky-Shapiro, 2000)

[11] Most recent edition; Source: http://www.acm.org/sigs/sigkdd/kdd2006/workshops.html

*'A well defined process is of importance to achieving successful data mining results, particularly if the number of participants involved in carrying out the data mining tasks is large, involving teams of individuals with different expertise, skills, habits and cultural backgrounds.'*

The analyst can also influence the process itself. Tim Mason, the director of one of the most famous applications of profiling in the UK – Tesco's Clubcard – is quoted as saying that, far from being a straightforward and objective process, the mining of customer data requires the use of *'intuition and creativity as well as statistical know-how, and you have to hope you have identified the right things to test'* (Humby, Hunt et al. 2003).

Finally, personal characteristics influence which patterns in the data are deemed useful or interesting (Agrawal, Imielinski et al. 1993; Fayyad, Piatetsky-Shapiro et al. 1996; Pazzani, Mani et al. 2001) and, in this away, the perceived success of the whole data mining initiative.

The present thesis adopts the ontological view that data mining, and hence profiling, is indeed affected by the individual agents participating in the process. Therefore, the researcher needs to understand and model the user's influence on the process, with a view to developing means to either leverage on or minimise that influence. The next section reviews the data mining literature in an effort to uncover whether and how analysts influence what the data *'tells'* them.

## 2.3.2 The data mining process

The processing of data includes several steps ranging from definition of a goal for the data mining exercise to the evaluation of its effectiveness. Different data mining authors have proposed a varying number of stages in this process, as illustrated in table 2.7.

**Table 2.7 – Alternative views on the data mining process**

| (Fayyad, Piatetsky-Shapiro et al. 1996; Chung and Gray 1999) | (Berry and Linoff 1997) | (Peacock 1998) | (Chapman, Clinton et al. 2000) |
|---|---|---|---|
| 1) Learning the application domain | 1) Identifying the business problem | | 1) Understanding the project objectives |
| 2) Creating a target dataset | 2) Transforming data | 1) Data Funnelling | 2) Data collection and preliminary analysis |
| 3) Cleaning and preparing the dataset | | 2) Data pre-processing | 3) Data preparation |
| | | 3) Exploratory data analysis | |
| 4) Transforming the data | | 4) Data recoding and transformation | |
| 5) Choosing the algorithm's function | | 5) Querying the data | 4) Data modelling |
| 6) Choosing the data mining algorithm | | 6) Development of models | |
| 7) Querying the data | | | |
| 8) Interpreting the data outputs | | 7) Model validation | 5) Evaluation of the model |
| | | 8) Model scoring 10) Recalibration of the model | |
| 9) Using the discovered knowledge | 3) Acting on the information | 9) Reporting the results | 6) Deployment of the results |
| | 4) Measuring the results of the exercise | | |

A well-known model of data mining, and the one that is emerging as the standard model for practitioners (Jackson 2002; Lavrac, Motoda et al. 2004) is CRISP-DM, which stands for CRoss Industry Standard Process for Data Mining. The CRISP-DM model emerged from a consortium of four industrial partners, under the auspices of the European Commission. According to this standard, data mining is conceived of as a cycle, as illustrated in figure 2.3, consisting of the following six steps (Chapman, Clinton et al. 2000; CRISP-DM 2006): 1) Understanding the project objectives and requirements from a business perspective, and then converting this knowledge into a data mining problem definition, and a preliminary plan designed to achieve the objectives, 2) data collection and preliminary analysis in order to form hypotheses for hidden information, 3) data preparation, covering all activities to construct the final dataset from the initial raw data, 4) data modelling, 5) evaluation of the model developed in stage 4, in order to determined whether some important business issue that has not been sufficiently considered and 6) deployment of the results, which can be as simple as generating a report or as complex as implementing a repeatable data

mining process. The sequence of the CRISP DM phases is not strict, and the analyst is encouraged to move back and forth between different phases. The outer circle in the figure symbolises the cyclic nature of data mining itself, in the sense that the lessons learned during the process can trigger new, often more focused business questions (CRISP-DM 2006).

**Figure 2.3 – CRISP DM**
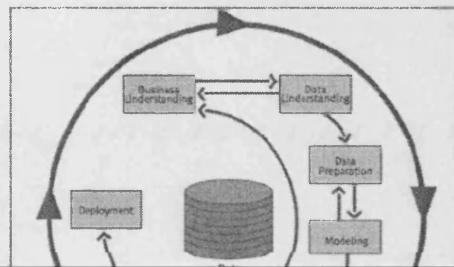
*'Depending on the scale and scope of the project, multiple individuals may assume each of the various roles. For example, a large project would likely need several data mining analysts and data mining engineers.'*

The divisions of tasks noted above, as well as others found in the literature, will more or less distinguish between those users that will have solely, or mostly, understanding of the business context where the data mining exercise takes place, and those users that will master the technical skills, with little or no understanding of the business domain. When seen in this light, the user is one of the enablers of the process, and the key challenge is to either select or provide the right mixture of skills (Cranford 1998).

## 2.3.4 The user: focus on the process interaction

A second group of readings addresses, specifically, the interaction between the technical component of the system and the user. For instance, adoption and acceptance of data mining technology, like other technical innovations, is thought to be influenced by specific attributes of the user such as previous experience, involvement and training (Guimaraes, Igbaria et al. 1992), or decision making style (Chang, Chang et al. 2003). However, discussion of interaction, at this level, is mostly focused on explaining why some organisations use data mining or not, rather than on discussing the effects of the user on the process, itself. Anand et al. (1995), however, focusing specifically on data manipulation note that:

> *'The ideal situation (...) would be where the discovery process is not biased by the user in any way as this would lead to a pure form of discovery (...) A more realistic discovery tool has within it a role for the human.'*

The role of domain knowledge

One way in which the user may influence the process is via his or her domain knowledge. Domain knowledge consists of information about the data that is already available either through some other discovery process or from the domain expert, such as attributes of interest, relationships between attributes or environment based constraints (Anand, Bell et al. 1995). Such knowledge impacts on the questions being asked from the exercise (Kohavi, Rothleder et al. 2002), the first step on the CRISP-DM model previously described. In a supermarket located in a busy office area, the analyst may seek to answer the question *'What items sell together?'* in order to stock shelves accordingly

(RetailWeek 2003). However, another analyst with knowledge that the majority of purchases, in this particular supermarket, are form lunchtime customers who buy sandwiches may, instead, investigate *'What items sell with sandwiches?'* (RetailWeek 2003). The two questions focus on completely different business problems. The first question focuses on correlations between products, whereas the second question focuses on customers' basket analysis, and the two do not necessarily produce the same result.

Domain knowledge may also influence stage two, when the analyst moves on to an assessment of the existing knowledge and data, as well as an appraisal of the data that needs to be collected. A common problem at this stage is that the inputs which the domain expert considers important are not represented in the raw input data, in a way that the data mining tools can recognise or use directly (Apte, Liu et al. 2002; Danna and GandyJr. 2002), such as when there are too many attributes, i.e. too much detail:

> *'Where very large amounts of data, with correspondingly large numbers of attributes, are available, the scale of the problem may limit the success of [the exercise] due to the vast number of inter-related variables'* (Scotney and McClean 2003).

The data analyst then needs to make several decisions such as regarding which proxies to use, or how to narrow the analysis to those attributes that are particularly informative:

> *'For example, if age and income are the most predictive attributes, one of these may not be selected in the final model because age is highly related to income - as age increases, so does income. Much of the information collected within age and income independently overlaps, and this overlap creates error.'* (Lenzen 2004)

In stage three, the analyst performs such functions as cleansing the datasets obtained in stage two from existing *'noise'*, such as random events that have no perceivable causality (Bruha 2000). The analyst also needs to *'translate'* between data collected from different sources and which are often held in different databases, sometimes incompatible with each other (Scotney and McClean 2003), and errors are likely to occur (Danna and GandyJr. 2002). In fact, even when the architectures are compatible, it is possible that the data encoding is inconsistent over time, or that there are missing data fields such as questions that were not answered in a questionnaire, or attributes not applicable to a given object (Fayyad, Piatetsky-Shapiro et al. 1996; Fayyad, Piatetsky-Shapiro et al. 1996),

and translation is still needed. In summary, there is much potential for the analyst to interfere with the data mining process, even before the actual querying of the data begins.

The potential for interference continues in stage four, when the analyst chooses between various modelling techniques to apply, and calibrates the model's parameters. A key component of this stage is the choice of the algorithm to search the data, which is influenced by the type of data available, the preference criterion and the type of model chosen (Fayyad, Piatetsky-Shapiro et al. 1996). The model informing the process, in turn, reflects the function to be performed, as well as the representational form chosen, as illustrated in figure 2.4. For instance, a classification model emerges after examining the features of a newly presented object and assigning it to one of a predefined set of classes. This task has a discrete outcome, and the analyst expects to be able to assign any record into one or another of the predefined classes. An estimation model is similar to classification, except that it deals with continuous variables. Further, the resulting records may be ranked in order. A prediction model, also referred to in the data mining literature as 'regression' (e.g., (Chan and Lewis 2002)), also has similarities to the classification and estimation models, except for the fact that it refers to the future whereas the other to refer to past events. A clustering model, also referred to as 'segmentation', assigns an object to a class. These classes are determined from the data by finding natural groupings of data items, but it is up to the analyst to determine what meaning to attach to the clusters resulting from the grouping exercise. A summarisation model, also known as 'description', provides a compact description for a subset of the data in a way that increases the understanding of the processes that produced the data in the first place. Finally, an affinity grouping model, also known as 'dependency analysis', 'link analysis' and 'sequence analysis', generates rules from the data that describe significant relations between fields in the database, which can either occur together or in a sequence.

**Figure 2.4 – Factors influencing the choice of algorithm**
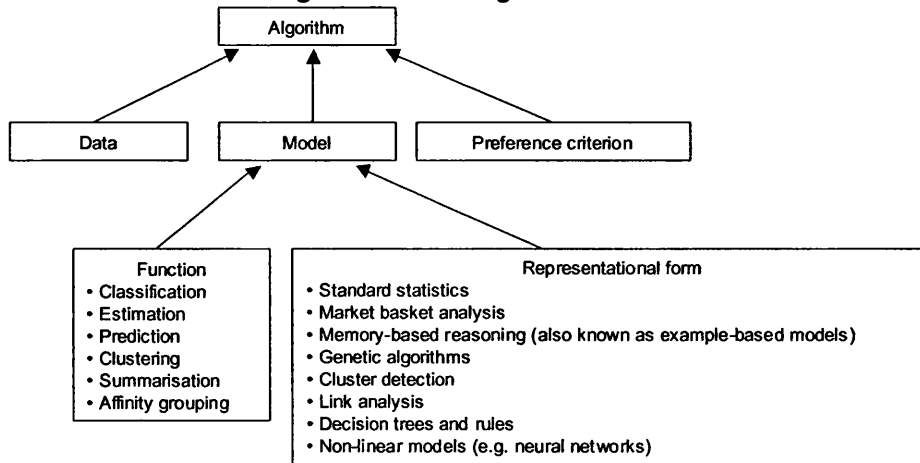


Additionally, models may be represented in many forms. The choice of model representation is, in fact, very important because it determines both the robustness of the model and its interpretability. Popular model representations are standard statistics, market basket analysis, memory-based reasoning (also known as example-based models), genetic algorithms, cluster detection, link analysis, decision trees and rules, and non-linear models (e.g. neural networks) (Kyung Sung, Chang et al. 1999; Danna and GandyJr. 2002). The choice of model representation and the specific parameters of the model are partially influenced by the function to be performed (table 2.8). For instance, complex models such a decision trees are particularly useful for finding structure in high-dimensional problems, such as classification or prediction and, typically, several techniques cam be applied to the same data mining problem (Jackson 2002).

**Table 2.8 – Correspondence between representational forms and functions**

| | | Function | | | | |
|---|---|---|---|---|---|---|
| | | Clustering | Classification | Prediction | Affinity grouping | ... |
| Form | Cluster detection | ✓ | | | | |
| | Neural networks | ✓ | ✓ | ✓ | | |
| | Memory-based reasoning | | | | ✓ | |
| | Decision trees | | ✓ | ✓ | | |
| | ... | | | | | |

However, the choice is also influenced by domain knowledge. In particular, what tends to happen, according to Fayyad et al. (1996), is that while researchers develop and advocate rather complex models, practitioners often use simple models that provide ease of interpretability while guaranteeing a reasonable robustness.

*'[The data mining analyst] interacts with a domain expert. (...) We use feedback on whether the domain expert finds the solution acceptable to adjust the data's format (such as by adding or deleting variables) or the learning algorithm's parameters (such as the significance level of the over fitting avoidance method) until we find an acceptable solution. (...) We must adjust the available parameters with indirect control over these criteria until we satisfy the domain expert'* (Pazzani 2000)

Stage five refers to the assessment of the degree to which the model meets the business objectives, where success is defined as a function of the findings (Jackson 2002). This is a key stage as, ultimately:

*'The success of data mining depends on the (...) ability of data miners to distinguish meaningful correlations from misleading patterns in the data'* (Cary, Wen et al. 2003)

A major problem at this stage is the gap between the volume of rules generated in the previous step, and the capacity to inspect manually these rules in order to gain insight from the data mining exercise, in which case it is necessary to prioritise which patterns to analyse (Liu, Hu et al. 2000). A number of studies present measures of 'interestingness' of the patterns identified (e.g., (Silberschatz and Tuzhilin 1996)). These measures can be classified as objective when they depend solely on the structure of the pattern and the underlying data used in the data mining effort, and are classified as subjective when they also depend on the users examining the data mining output. Geng and Hamilton (2006), put forward, following a survey of measures of interestingness, the following two subjective measures:

*'Novelty: A pattern is novel to a person if he or she did not know it before and is not able to infer it from other known patterns (...)*
*Surprisingness: A pattern is surprising (or unexpected) if it contradicts a person's existing knowledge or expectations (or if it) is an exception to a more general patterns which has already been discovered.'*

The survey goes on to present complex methods and formulae identified in the literature to measure the subjective interestingness of a data mining project's findings.

Another important issue in stage five is that the analyst has to judge whether the outcomes are possible, internally consistent, and plausible. These results will typically raise further questions, sometimes in conflict with previously believed knowledge therefore leading to the generation of new hypotheses and the start of a new data mining cycle.

The final stage of the CRISP-DM model, stage 6, is where the output of the exercise is acted upon, for instance when sales managers reflect on the effect of particular sales policies in customer retention, or product managers derive insights from the effect of past marketing campaigns and incorporate them in further marketing efforts (Berry and Linoff 1997). Acceptance of the mined output is strongly influenced by domain knowledge:

> 'Domain knowledge influences what kind of experiments we will perform, what phenomenon we will observe, what kind of data will we gather, or what data base or repository we will query. The data we obtain in this way is analysed and results are interpreted to test our working hypothesis, potentially discovering new findings and verifying their consistency with the existing body of knowledge, which is updated accordingly.' (Zupan, Holmes et al. 2006)

Zupan et al.'s claim regarding updates on previous knowledge is, however, contradicted by findings from research on medical data mining, which found that where insights obtained from a mining exercise go against previously existing domain knowledge, users tend not to accept the results (Pazzani 2000; Pazzani, Mani et al. 2001; Kohavi, Rothleder et al. 2002; Maojo 2004).

The effect of domain knowledge on the exercise, according to the data mining literature, is summarised in table 2.9.

Table 2.9 – The effect of domain knowledge on the data mining process

| Effect | Source |
| --- | --- |
| Choice of question | (Kohavi, Rothleder et al. 2002) |
| Choice of input | (Apte, Liu et al. 2002; Danna and GandyJr. 2002; Lenzen 2004) |
| Data transformation | (Fayyad, Piatetsky-Shapiro et al. 1996; Fayyad, Piatetsky-Shapiro et al. 1996; Bruha 2000) |
| Choice of model | (Fayyad, Piatetsky-Shapiro et al. 1996; Pazzani 2000) |
| Evaluation of the output | (Geng and Hamilton 2006) |
| Implementation of findings | (Pazzani 2000; Pazzani, Mani et al. 2001; Kohavi, Rothleder et al. 2002; Maojo 2004; Zupan, Holmes et al. 2006) |

The role of personal bias

A second way in which the user influences the data mining exercise is via personal bias, which includes such factors as the users' preference for certain attributes, or the level of uncertainty that he or she is prepared to accepted for the rules discovered (Anand, Bell et al. 1995). Personal bias may affect stage one of the data mining exercise, as noted by Humby *et al.* (2003):

> 'The best data analysts are not like most people. They are mathematicians, of course, but they are also creative thinkers. When they look at a seemingly insurmountable problem

*they are at their happiest. They think: if we can't answer that question, how can we redefine the question so that we can answer it? There is always a solution'* (page 143).

Furthermore, Berry and Linoff (1997) note that the choice of particular data mining technique, in stage two of CRISP-DM, is determined partly by the preferences of the data mining analyst (page 423).

Analysts' intuition seems to play a critical role in determining whether or not a rule is novel, useful or even understandable (Pazzani 2000), a method that lacks substance (Gaines 1996). Furthermore, the lack of formal, definitive criteria is very troubling in the case of counterintuitive rules, such as the one reported by Pazzani (2000):

> *'In screening for Alzheimer's disease, we found the following counterintuitive rule: "if the years of education of the patient is greater than 5 and the patient does not know the date and the patient does not know the name of a nearby street, then the patient is normal." We would usually associate the behaviours in the precondition with an impairment of memory, yet the conclusion was that of normal memory. My experience has been that finding counterintuitive results is not unusual in practice'.*

Finally, it has been shown that familiarity of the user with a particular representation system is a key factor in determining a model's acceptability (Pazzani 2000; Pazzani, Mani et al. 2001). Moreover, analysts tend to use rather informal judgment to determine whether an unexpected finding should be considered sufficiently convincing for rejecting previous knowledge (Lindsay 1997). In the words of Fisher (1959):

> *'No scientific worker has a fixed level of significance at which from year to year, and in all circumstances, he rejects hypotheses; he rather gives his mind to each particular case in the light of his evidence and his ideas.'* (page 42)

The effect of personal bias on the data mining, according to the data mining literature, is summarised in table 2.10.

**Table 2.10 – The effect of personal bias on the data mining process**

| Effect | Source |
|---|---|
| Choice of question | (Humby, Hunt et al. 2003) |
| Choice of model | (Berry and Linoff 1997) |
| Evaluation of the output | (Pazzani 2000) |
| Implementation of findings | (Fisher 1959; Lindsay 1997; Pazzani 2000; Pazzani, Mani et al. 2001) |

Table 2.11 outlines the sources of user influence on the data mining process, and the specific effects that such users may have, based on the literature reviewed in this section. Some branches of the data mining community defend that users do influence the data mining process. However, most effort has been in the role of domain knowledge and even there the subject is treated as a marginal issue. This is so much important as data mining is an iterative process, with frequent feedback loops in which information feeds back and influences prior steps in the process (Chung and Gray 1999) and, therefore, the opportunities for users to influence the process are multiplied.

Table 2.11 – Summary of sources and effects of user influence on data mining

| Effect | Domain knowledge | Personal bias |
|---|---|---|
| Choice of question | X | X |
| Choice of input | X | |
| Data transformation | X | |
| Choice of model | X | X |
| Evaluation of the output | X | X |
| Implementation of findings | X | X |

Figure 2.5 illustrates how the analyst may interfere in the data mining process. The column on the left outlines the various stages of a data mining exercise. The column in the centre provides examples of actions that the analyst may take, at each stage, and that impact on previous stages – for instance, in the final stage, the analyst examines the outcome of the data analysis. If the analyst is satisfied with the outcome, a particular action may be taken, for instance making an offer to a customer or reporting a suspected criminal to a law enforcement agency. If the analyst is dissatisfied with the outcome, he or she may move back to the previous stage in the process, and refine the query by changing a particular threshold, for instance. Finally, the column to the right provides examples of decisions that the analyst makes at each stage, and which impact on the result of that stage. For instance, in order to search through the data, the analyst needs to choose a model. Fayyad et al. (1996) noted that while researchers develop and advocate rather complex models, practitioners often use simple models that provide ease of interpretability. Such decision has a big impact on the data analysis stage because it determines both the robustness of the model and its interpretability.

**Figure 2.5 – Iterative and interactive nature of data mining**

| Stages | Iteration | Interaction |
|---|---|---|
| Problem specification | e.g.: choose subset of original problem domain | e.g.: business user imparts domain |
| Data selection | e.g.: select alternative source | e.g.: analyst's choice of proxies |
| Processing | e.g.: further data | e.g.: analyst's criteria for attribute |
| Data analysis | e.g.: fine tune | e.g.: choice of model |
| Interpret outcome | | e.g.: capacity to analyse all rules |
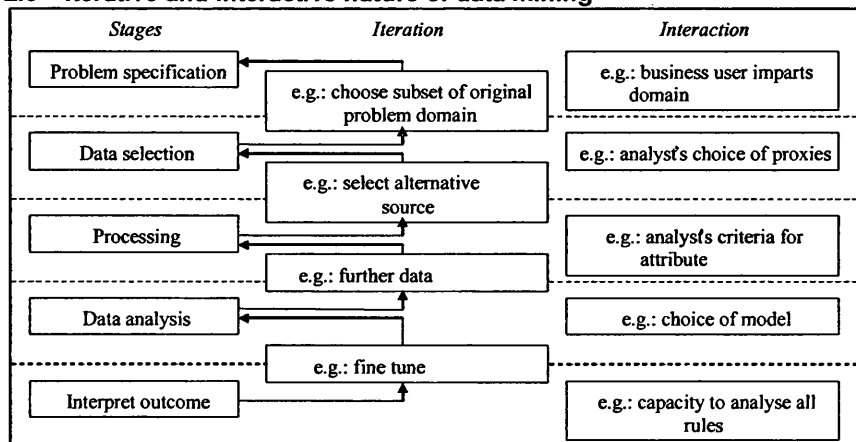
The data mining literature is not prepared, however, to explain how that happens or to suggest mechanisms to correct, or leverage on, such influence. As a result, the same literature has limited prescriptive and corrective value for subjectivity in data mining. This is because the disciplines traditionally informing data mining research are not prepared to answer issues concerning the human mind (Siau 2004):

> 'It's time for [data mining] to draw on cognitive psychology in addition to databases, statistics, and artificial intelligence. By taking the human cognitive process into account, we might be able to increase the usefulness of [data mining] systems.' (Pazzani 2000)

Other authors called for the integration of data mining and sense making (Gersh, Lewis et al. 2006), as well as knowledge of the specific characteristics of the context where the data mining applications are deployed (Lavrac, Motoda et al. 2004). At the end of the day, as noted by Jackson (2002):

> 'Data mining helps organisations focus on the most important information available in their existing databases. But data mining is only a tool; it does not eliminate the need to know the business, to understand the data, or to understand the analytical methods involved.'

The current study departs from existing work on data mining in that it focuses on the conditions surrounding the data mining project, including the user.

## 2.4 Overview of the profiling literature surveyed

The first section of this chapter looked at profiling as a practice. Hildebrandt and Backhouse (2005) define practice as a specific way of doing things, within specific contexts and with a specific

purpose. Accordingly, section 2.1 reviewed the existing literature of profiling in the specific context of the banking industry, and for the specific purpose of money laundering. The literature reviewed emphasised that the banking industry has gone through significant structural and behavioural changes and that, as a result, the industry entered a quantitative revolution (Leyshon and Thrift 1999), with increased focus on customer profiling, driven by an economic and administrative rationale. The content of the profiles in use has changed over the years, progressing from a transaction oriented, permission based practice to an all-inclusive one, that happens by default. Such trend is in conflict with the beliefs of particular groups of customers as well as the cultural traditions of the banking industry. In addition, the recent emphasis on predictive profiling may be accompanied by an increase in the level of uncertainty surrounding the use of profiles.

Section 2.1 also surveyed the numerous applications of profiling in the banking industry, ranging from revenue maximisation to cost reduction and, subsequently, explored the questions of whether the specific application for which a profile is used impacts on the emerging profile. Preliminary evidence is that the implementation of profiling in a given organisation may, indeed, be limited by structural and organisational factors, and that the use of profiles in practice is not as easy and unanimously supported as some of the literature would suggest.

The discussion of the literature focusing on profiling for the purpose of money laundering detection unearthed a different type of rationale for adoption of profiling: the regulatory imperative. The role of banks in AML, ultimately, runs against the traditional strategic objectives of these institutions, and the supporting monitoring activities are very different in nature from the traditional ones associated with banking. The existing rules mandating banks to monitor their customers are rather vague and result in the use of a wide variety of criteria. In addition, the general guidance is difficult to translate into practice because of numerous technical difficulties linked with the nature of the phenomenon being profiled.

Section 2.2 focused on the technology used in profiling, namely AML monitoring. The current method of profiling money laundering behaviour in the UK is heavily reliant on staff. Information technology is more and more used, however, despite generalised scepticism regarding the

suitability of technology to monitor this particular type of behaviour and the difficult in assessing the technical value or the net benefits of alternative automated monitoring systems.

Section 2.3 addressed the profiling technique, that is the method of building descriptive or predictive models of customer behaviour. The review of the literature identified a division between those researchers that describe profiling as an entirely objective process, where the data speaks for itself, and those who defend that it is a subjective process. Section 2.3 presented the data mining literature's view on the role of the user in the process. The field may be roughly divided between those that mention the user as part of the process but do not specifically address the possible interaction between user and the data mining exercise, on the one hand, and those that focus on that interaction, on the other hand. The latter group has demonstrated, convincingly, that users may influence the profiling technique via domain knowledge and personal bias, and that the effects may be felt at the level of the choice of questions, input and model, as well as at the level of data transformation, evaluation of the output and the implementation of the findings. Even though the subjective nature of the profiling technique has been acknowledged by some researchers, the data mining literature does not offer understanding regarding how such influence happens, and is unable to suggest mechanisms to correct, or leverage on, such influence.

The ample literature surveyed in this chapter provides a rich description of the practice, the technology and the technique of profiling. It points strongly to the conclusion that the emerging profile is, indeed, affected by the factors surrounding its development and offers some good starting points for this thesis, regarding specific factors to consider. The literature is, however, limited in the insight that it can offer, for two reasons. The first reason is that the literature is rather compartmentalised. By not treating profiling as the integrated phenomenon described by Hildebrandt and Backhouse (2005), it offers limited understanding of the overlaps and interactions between each of the three aspects of profiling: the practice, the technology and the technique. The second reason is that the literature tends to be descriptive or normative, rather than explicatory, therefore offering limited insight beyond the specific application or the case to which particular papers refer.

The present thesis responds to the call for a deep understanding of cognitive (Gersh, Lewis et al. 2006) and contextual (Lavrac, Motoda et al. 2004) factors in profiling, using a research lens that treats profiling as a complex, multi-faceted phenomenon. It draws on theories of meaning and classification, as described in chapter 3.

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# 3. Theoretical framework

The current chapter describes the two theories informing the research project, and presents the research framework that guides the interpretation of the empirical findings. The thesis investigates the development of behavioural profiles – focusing on the representation of behaviours by employees in an organisation and addressing questions such as what the representation consists of, how it gets shaped and why. As such, it needs a theoretical framework that treats the information systems' capabilities and the organisation's requirements as an integral unit (Liu, Sun et al. 2002). The study needs a framework that bridges the gap between the highly flexible, nuanced and contextualised nature of human activity and the rigid and brittle nature of technical systems (Ackerman 2000; Eatock, Paul et al. 2002).

The semiotic study of information in organisations may be located, exactly, at the junction between technical and social:

> 'Organisational semiotics can meet the needs of the 'hard' sciences for formality and precision without which IT systems cannot be designed. At the same time, it accommodates the concepts and categories essential for solving 'soft' problems in the organisational domain... (it) can link the mechanical to the social, combining as far as possible the strengths of both' ((Stamper 2004), page xiii).

Organisational semiotics constitutes the primary theoretical lens of this study. An overview of this theory, its relevance for the study as well as its limitations is provided in section 3.1. Additionally, because organisational behaviour should also be studied at the level of the individual member of the organisation (Heusden and Jorna 2001), the study draws on classification as the secondary theory. Classification theory helps researchers understand how individual employees 'understand the world, act upon it and react to it' (Edwards 1991). Section 3.2 describes classification theory and its application to the research. Section 3.3 compares and contrasts the two theories. It presents a theoretical framework where the two theories complement each other, and offers a holistic understanding of the technical and social factors that shape profiling. Section 3.3 also discusses the limitations of the theoretical framework proposed.

# 3.1. Primary theoretical lens: organisational semiotics

Semiotics is concerned with the study of signs[12] and emerged as a response to complex issues of meaning and representation (Gottdiener, Boklund-Lagopoulou et al. 2003). Semiotics assumes a relational view of the world (Basunti 2004), where:

> 'The true nature of things may be said to lie not in things themselves, but in the relationships that we construct, and then perceive, between them' ((Hawkes 1977), page 17).

Barley (1983) noted that, in the field of organisation studies, semiotics is ultimately the study of how communication is possible. Organisational semiotics is the study of organisations' treatment and use of information, using the concepts and methods of semiotics (Liu 2000; Liebenau and Harindranath 2002). The next section outlines the philosophical underpinnings of semiotics. Appendix 2 provides a brief overview of the various branches of semiotics for the interested reader.

## 3.1.1 Philosophical origins

From the organisational semiotics perspective, an organisation is essentially an information system where information is created, stored and processed for communication and coordination, and for achieving the organisational objectives (Liu, Sun et al. 2002). The information system is composed of various interrelated sub-systems or layers (Walsham 1993; Stamper 1996; Liu 2000; Stamper, Liu et al. 2000; Walsham 2001; Lewis and Madon 2004), which are mutually constitutive and interdependent (Backhouse 2005; Halperin 2006), as illustrated in figure 3.1.

The informal layer of the information system includes culture, systems of belief and politics that govern the perception, expectations, behaviour and values of the individual members of the system. The formal layer contains attributes of the system that have been formalised and officially documented in rules, procedures, policies and other forms of bureaucracy. The technical layer holds the hardware, software and data protocols, as well as elements of the technology design, such as the layout and interface of the system. Information is processed and communicated at each and any of the three layers.

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[12] The concept of 'sign' is explained in section 3.1.2.

**Figure 3.1 - The Technical–Formal–Informal model of information systems**
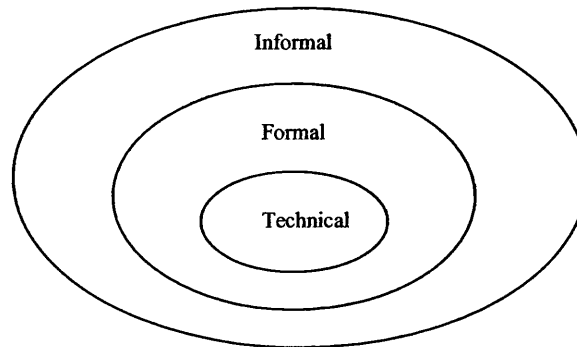


*Source*: Adapted from Stamper, Liu et al. (2000)

Semioticians studying organisations adopt a social subjectivist stance, where the agent plays a key role (Liu 2000), and meaning is understood as behaviour, as per table 3.1.:

> 'This philosophical position states that, for all practical purposes, nothing exists without a perceiving agent nor without the agent engaging in actions. That is to say, each thing depends for its existence upon the existence of its antecedents. Words and expressions we use are names for invariant patterns in flux of actions and events which the agents experience.' ((Stamper, Liu et al. 2000), page 24)

**Table 3.1 – Subjectivist view of key Information Systems concepts**

| Concept | View |
|---|---|
| Reality | Created subjectively and socially with subtle differences between groups of agents |
| Data | A means of indicating intentions and coordinating actions |
| Truth | A temporary consensus reached as a basis for coordinated action |
| Meaning | A relationship between a sign and some pattern of action established as a norm within a group |
| Information System | A semiological system, mainly informal but supplemented by formalised messages |
| Role of the analyst | To assist the users to articulate their problems, discover their information requirements and evolve a systemic solution |

*Source*: Stamper (1993)

In order to understand the emergence of meaning in a particular organisational context, the researcher needs to study two aspects: the vehicle of meaning and the process of meaning. The two are discussed next.

## 3.1.2 The vehicle of meaning: Sign

Eco (1976) defines this key semiotic concept as *'everything that, on the grounds of a previously established social convention, can be taken as something standing for something else'*. Eco's definition highlights, then, that there are three components of a sign: that which stands for something, that which is being signified and the convention. Peirce (1931-58), used the term[13] *representamen* to designate the material form of the sign which may embody any meaning, the term *object* to indicate that for which the representamen stands for, and the term *interpretant* to identify the convention linking the representamen and the object together. The interpretant is one particular interpretation of the representamen, and is embodied in the person involved in reading or interpreting the sign, and to whom the signification makes sense (Liu 2000). For instance, the representamen 'red rose' stands for the object 'labour party', in the interpretant concerning the symbology of UK's political parties.

Peirce emphasised that the sign exists in the intrinsic nature of the triadic correlation as a whole: *'A sign mediates between the interpretant... and its object'* (Peirce 1977). The sign is, therefore, a relation between three correlates (Nake 2002). The relation is not fixed and may differ depending on the context or time. For instance, the representamen red rose, in addition to standing for the object labour party, may also stand for love in Greek mythology, or for martyrdom in Christian iconography. Moreover, the red rose only became the logo of UK's labour party in the mid 1990s, and before that date this particular interpretant was activated by a different representamen.

The way in which the representamen stands for the object is a *representation*. Linguistic and colour conventions are examples of representation[14]. The interpreter's mental process connecting the interpretant and the representamen is an *interpretation*. Lastly, the successful link between interpretant and the actual object of the sign is a *matching* relation (Barr, Biddle et al. 2003).

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[13] Peirce was not particularly consistent in the terminology used which, according to Hervey (1982), reflects Peirce's search for new terms that would express his view appropriately.

[14] For instance, black represents mourning in some cultures, whereas other cultures favour the colour white in such occasions.

Signs are constantly created and consumed within a social and organisational context (Liu 2003). The meaning of the sign can not be fully grasped without the explanation of its components and of the outcome of the mediation (Hervey 1982). Meaning is subjective and, as a result, representation by signs is rarely absolute (Desouza and Hensgen 2005). Moreover, a sign is a stimulus that is capable of evoking responses from the interpreter (Morris 1938/1970; Heusden and Jorna 2001), further emphasising the role of the interpreter in the existence of meaning (Liebenau and Harindranath 2002).

Signs may stand for objects at varying levels of abstractedness. The most concrete level is an iconic sign, which represents the object by similarity. Next is the index, which represents by instruction or cause and effect link. At the highest level of abstraction, a symbol represents by convention (Liu 2000; Gudwin 2004). The role of social conventions in interpreting the sign is the more important, the higher the level of abstractedness. In order to fully grasp the meaning of a sign, and be able to use it in communication, it is necessary to know and abide by the social conventions amongst the users of the sign (Fiske 1990).

The signification of signs cannot all be established in the same way, however. Stamper (1973) distinguishes between the mode and the intention. The mode distinguishes between signs that designate some object of action - denotative signs – and signs that refer to emotions associated with an idea or action – affective signs. The intention distinguishes between signs that describe states of affairs – descriptive signs – and signs that set down courses of action – prescriptive signs. In summary, it is possible to classify signs in one of four categories (table 3.2) that have different signification and, accordingly, are justified in very different ways.

Table 3.2 – Classification of signs according to how they signify

|  | Denotative | Affective |
|---|---|---|
| **Descriptive** | Signs that refer to factual information E.g., Facts | Signs that convey value judgements E.g., Expressions of feelings |
| **Prescriptive** | Signs that state what must be done E.g., Instructions | Signs about the consequences of doing something E.g., Promise of reward |

Stamper (1973) also notes that:

*'Whereas our denotative use of language generally admits the substitution of one word for another without any change of "meaning" in the sense of what is referred to, it is very much more difficult to change one word for another without changing the emotive force of what is being said and therefore changing the "affective" meaning'* (page 64)

The conclusion is, therefore, that affective signification is more conducive to ambiguity and misunderstandings than denotative one.

### 3.1.3 The process of meaning making: Semiosis

Semiosis, the second key concept in semiotics, is the process through which a knowing subject attributes meaning to a sign (Morris 1938/1970). Semiosis leads to the building of knowledge. Liu (2000) identifies the following characteristics of semiosis: 1) it is universal, in the sense that it explains the creation and use of any type of sign processing activity; 2) it is capable of identifying anything present according to a specific norm, and it can make anything not present identifiable and 3) it is subject-dependent in the sense that it depends on the point of view of the interpreter and on the knowledge available.

Semiosis may occur at several levels. Stamper (1996; 2001), building on the work of Morris, proposed six levels of semiosis, that he refers to as the 'semiotic ladder'[15]. Each level represents a different way of understanding signs (Stamper 1973), as illustrated in table 3.3, and described next. Stamper (1973) notes that the study of meaning does not have to include all six levels. Instead, the sets of properties of each level can be studied independently from other levels. Appendix 3 contains descriptions and examples of each of the three levels, for the interested reader.

The first three levels of the semiotic ladder – that is, the physical, empiric and syntactic levels - are mainly concerned with the technical platform and formal aspects of signs, whereas the other three levels focus on the human handling of information and the cultural environment of meaning (Liebenau and Backhouse 1990; Stamper, Liu et al. 2000; Liebenau and Harindranath 2002).

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[15] Morris identified three levels of semiosis: pragmatics, semantics and syntactics. In his early work (1973), Stamper added a fourth level: empirics. The four levels formed a bridge between the social and technical aspects of communication (Liebenau and Backhouse, 1990). It was only in work published from the late 1990s onwards that the social and the technical levels appear as steps to be studied *per se*, rather than as an input or an output of the meaning making process.

Table 3.3 – The six levels of the semiotic ladder

| Level | Units investigated | Phenomena observed |
|---|---|---|
| *Physical* | - Sign tokens: physical objects and events<br>- Categories of tokens – e.g., spoken ones | - The physical properties of sign-tokens (e.g., weight, duration, position) |
| *Empiric* | - Streams of sign-tokens<br>- Apparatus capable of displaying varieties of states (channels, storages) | - Statistical properties of sign-tokens<br>- Combinatorial properties of sign-tokens |
| *Syntactic* | - Forms of sign-types<br>- Well-formed formulas<br>- Formal transformations | - Structure of sign-types and their permitted manipulations |
| *Semantic* | - Sign-types in sign roles<br>- Perceivable things<br>- The labels we give to perceivable things | - Relationships of denotation and signification<br>- How and by whom things are related (e.g., ontological dependency) |
| *Pragmatic* | - Acts performed by agents using unique sign tokens to influence other agents<br>- Signs incorporating expressions of intention | - Success or failure of the sign acts<br>- Relations among agents and other conditions making sign acts effective<br>- Relationships among the acts |
| *Social* | - Attitudes and norms held by individuals<br>- Sign events that change the attitudes and norms | - Regularities of behaviour of the individuals<br>- Rules that signify norms |

*Source*: Adapted from Stamper (2002)

The analysis of information at the physical, empirical and syntactical levels is primarily focused on issues of efficiency - that is, the effect of uncertainty caused by the noise and distortion inherent to the channel being used, in the certainty of the message. Efficiency is critical for assessing whether the message has reached its destination. The analysis at the semantic, pragmatic and social levels addresses issues of effectiveness of the message, namely whether the receiver understands both the message and the sender's intentions, and the social purposes are met (Liu 2000). The distinction between the first and the last three levels of the semiotic ladder has led Backhouse and Cheng (2000) to describe the physical, empirical and syntactic levels as the ontological aspects of meaning, whereas the semantic, pragmatic and social levels constitute the epistemic ones.

A central contribution of organisational semiotics to the understanding of meaning making in organisations is that it identified factors in the environment that affect semiosis and, hence, meaning. While Peirce's semiotics acknowledged the role of context in the emergence of meaning, it was the work of Stamper and others that allowed the formalisation of how and why that happens. In particular, organisational semioticians proposed two key constructs: *affordance* and *norm*, explained next.

Affordance

The semiotic affordance is an extension of the theory of affordances developed in direct perception psychology [e.g., (Gibson 1979; Michaels and Carello 1981)]. Gibson (1979), talking about physical properties of the environment, defined affordances in the following way:

> 'The affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill. (...) Properties... would be physical properties of a surface if they were measured with the scales and standard units used in physics. As an affordance of support for a species of animal, however, they have to be measured relative to the animal. They are unique for that animal'. (page 125)

Gibson's definition of affordance points to a relationship between the objective properties of the environment and the user's subjective utilisation of such environment. In other words, an affordance is a pattern of behaviour made possible by some combined structure of organism and its environment. For example, a user and a web browser together afford surfing the web (DeMoor 2002).

Norman (1999), expanding on Gibson's work, argued for the distinction between the physical characteristics of an object, which he terms *real affordance*, and the characteristics in the appearance of a device that give clues to its proper use, to which he named *perceived affordance*. While both characteristics are important, Norman argued, they have very different attributes and purposes. Real affordances help users with their physical actions, and do not have to be visible, known or even desirable. Perceived affordances guide users in their interaction with the objects, that is such affordances answer the question *'How do you know what to do?'*. Hartson (2003) observed that perceived affordances depend greatly on cultural conventions.

Organisational semiotics extends the theory of affordances from the natural to the social world, in order to study social behaviour:

> 'The society acting as environment makes many patterns of behaviour possible.' ((Liu 2000), page 62)

In the context of a commercial organisation, for instance, employees are afforded different actions depending on their job functions. An employee in the call centre is afforded the reception of

customers' calls, whereas an employee in the sales department is afforded the processing of orders (Simoni and Baranaukas 2004).

Liebenau an Backhouse (1990) emphasise that the realisation of affordances is contingent on its elements:

> 'We can not realise the eating of a pizza without the contingent elements: a pizza and a person' (page 47)

It is sometimes the case that an affordance is ontologically dependent on the existence of another. Where dependency occurs, the dependent affordance becomes available only when the antecedent affordance is available, as well (Bonacin, Baranaukas et al. 2004). For instance, the affordance 'reply to message' depends on the affordance 'receive message'. If the addressee of the initial message did not receive it for some reason, he or she is not able to realise the dependent affordance.

## Norms

Norms have functions of directing, coordinating and controlling collective action (Liu, Sun et al. 2001) and they correspond, at the social level, to the idea of an affordance at the individual agent level (Wright 1963; DeMoor 2002), in the sense that they provide the socially acceptable repertoire of behaviour. Norms comprise the common experience shared by all the people who work together in a particular organisation (Liebenau and Backhouse 1990). For example, the Hippocratic ideals, the health service concern with affordable medicine, political principles of equitability and practices of communication between medical hierarchies all guide the actions of members of a hospital (Liebenau and Harindranath 2002).

Various taxonomies of norms exist, reflecting different study focuses. For instance, norms may be classified according to their formality, their form, the attitudes that they inspire or the tasks that they regulate. The classification of norms according to each of these criteria is summarised in table 3.4, and further described in Appendix 4.

**Table 3.4 – Classification of norms**

| Criterion | Taxonomy |
|---|---|
| Formality | Informal norms<br>Formal norms<br>Technical norms |
| Form | Explicit norms<br>Implicit norms |
| Attitudes | Perceptual norms<br>Evaluative norms<br>Cognitive norms<br>Behavioural norms |
| Regulated task | Substantive norms<br>Communication norms<br>Control norms |

For the purpose of studying meaning, it is more important to understand how norms condition behaviour, rather than become tangled in distinguishing between different types of norms. Norms are cultural phenomena, applicable to specific circumstances (Hechter and Opp 2001). Employees of a given organisation, for instance, share a common culture and will tend to see the world in a similar way, exhibiting common views and assumptions (Liebenau and Backhouse 1990). Members of an organisation, or an organisation's division, have a generalised disposition to the world which generates a propositional attitude that may, but not necessarily will, affect the person's behaviour:

> 'A norm is like a field of force that makes members of the community tend to behave or think in a certain way'. (Stamper, Liu et al. 2000)

It is also important to note that members of an organisation often have multiple group memberships. Each organisational component – for instance, production or distribution or accounting – brings with it a different set of norms (Liu, Sun et al. 2001; Liebenau and Harindranath 2002). Where the influence of these groups differs in form, direction, or magnitude, the corresponding norms will have conflicting influences on the group's members (Greenberger, Miceli et al. 1987).

Consciously or not, people interpret signs according to norms (Liebenau and Backhouse 1990), and may sometimes wittingly deviate from normative behaviour (Liu 2000). Violation of norms, however, makes one vulnerable to sanctioning (Hechter and Opp 2001).

### 3.1.4 Relevance for the study of profiling

Organisational semiotics made major contributions to the understanding of meaning in organisations, which may be summarised in the eight propositions presented in table 3.5. This section reflects on how organisational semiotics may contribute to the understanding of the emergence of particular profiles of money laundering behaviour.

**Table 3.5 – Summary of key propositions**

| # | Description |
|---|---|
| 1 | Meaning is a relationship between a sign and some pattern of action. Furthermore, the vehicle of meaning, the sign, and the process, the semiosis, both determine meaning. |
| 2 | Signs have varying levels of abstractedness, and social conventions play an increasing role in interpreting signs at high levels of abstractedness. |
| 3 | Signs signify via mode and intention. Mode distinguishes between denotative and affective signs. Intention distinguishes between descriptive and prescriptive signs. |
| 4 | Semiosis is universal, capable of identifying anything present and make anything not present identifiable, and subject-dependent. |
| 5 | Semiosis may occur at various levels, each representing a different way of understanding signs. |
| 6 | Semiosis is affected by two factors in the organisational environment: affordances and norms. Whereas the affordances refer to the meanings made possible by particular elements in the environment, the norms refer to the meanings made possible by the rules of the relevant social group. |
| 7 | The realisation of affordances is contingent on its elements. |
| 8 | Each organisational component brings with it a different set of norms. Where the influence of different groups differs in form, direction, or magnitude, the corresponding norms will have conflicting influences on the group's members. |

Organisational semiotics focuses on complex issues of meaning and representation in organisations, considering both human activity and technical systems (Ackerman 2000; Eatock, Paul et al. 2002). Profiles are, inherently, representations of particular instances of behaviour, and profiling consists of deriving meaning from certain observations (Schauer 2003). Researchers from varied fields of study, from those studying particular applications to those developing profiling techniques, recognise that the meaning of a particular set of observations is subjective in the sense that it is likely to be impacted on by various social and technical factors surrounding the use and development of profiles. Organisational semiotics holds promise for deepening understanding of the processes by which profiling agents construe meaning.

According to the subjectivist stance adopted by organisational semiotics, described in section 3.1.1, meaning is relational, depends on the existence of a perceiving agent and is materialised in the

agent's actions. Similarly, in order to study profiling as a meaning making process, the researcher ought to focus on the agents and their actions, rather than on the behaviour being profiled.

The conceptualisation of a sign, the vehicle of meaning, described in section 3.1.2 is also extremely relevant for this thesis. The triadic view of signs distinguishes between that which signifies, that which is signified and the convention for which the signification makes sense. The present thesis proposes a similar view of profiles. The thesis proposes to treat profiles as signs, also composed of three elements. A particular observable pattern of behaviour becomes the representamen, i.e., that which signifies. Suspicious money laundering behaviour is the object to which the profile refers. Additionally, the particular convention establishing that a particular pattern of behaviour stands for money laundering activity becomes the interpretant. The interpreter that embodies the interpretant is, in the case of AML profiling, the profiling agent who observes patterns of behaviour and deems them suspicious, or not. Moreover, profiles are indexes, that is, they signal by means of cause and effect links. Signs have, therefore, moderate level of abstractedness, where social convention plays a relatively significant role in meaning. In order to fully grasp the meaning of profiles, the researcher needs to identify and articulate the social conventions amongst the relevant interpreters (Fiske 1990). Lastly, profiles may be either denotative or affective, and descriptive or prescriptive, and, therefore, be less or more ambiguous.

Lastly, the notion of the process of meaning, as presented by organisational semioticians, and presented in section 3.1.3, is extremely relevant for this thesis, as well. The first concept presented was that of the semiotic ladder, consisting of different ways of understanding signs (Stamper 1973), ranging from a focus on types of signs, to the attitudes and norms among the perceiving agents. While the semiotic study of signs and organisations can focus on any subset of the semiotic ladder, the present thesis will endeavour to include all of the six levels. This effort is because, as mentioned at the end of chapter 2, the strength of this thesis in comparison with existing literature on the topic of profiling is that it treats profiles as complex, multi-faceted phenomena. Furthermore, the thesis actively seeks to develop a framework that integrates the various components of the phenomenon, rather than focusing on particular angles. The second concept presented was that of affordances, denoting the many patterns of behaviour made possible by properties of the context where semiosis

takes place (Liu 2000), and which realisation is contingent on its elements. The implication for the researcher studying profiling is that this instance of meaning making is, too, conditioned by properties of the context where it occurs. One of the tasks of the researcher will be to identify those elements, as well as the meanings that such elements enable. The third and final concept referred to in section 3.1.3 was the norm. Norms guide the actions of the members of a group, and are likely to differ for different groups. The variance of norms may lead to ambiguity, or even conflict, in meaning. It was also noted that, even though norms guide behaviour, ultimately agents may opt to deviate from particular norms and accept the eventual consequences. In order to fully understand how profiles emerge, the researcher has to unearth the norms guiding behaviour of the relevant interpreters, as well as to identify possible conflicts between norms and circumstances where the agents ignore norms.

In summary, it makes sense to treat profiles as signs and profiling as meaning processes. Organisational semiotics enables the researcher to treat profiling in an integrated manner, thus contributing to the fulfilment of the objectives of this thesis. Like any other theory, however, organisational semiotics is a way of both seeing and not seeing (Walsham 1993), with its own limitations. The next section examines the shortfalls of organisational semiotics in accounting for certain aspects of meaning in organisations.

### 3.1.5 Critique of organisational semiotics

Although organisational semiotics makes a real contribution to Information Systems on issues of meaning, it has some significant drawbacks. In recent years, several authors (e.g., (Andersen 2004)) have noted that the body of work developed by Stamper and his followers fails to account for major aspects of meaning. Organisational semiotics is, primarily, a theory of meaning as behaviours, informed by an 'agent in action ontology' (Stamper et al., 2000). Consequently, the researchers' attention is channelled to the externalisation of meaning. While the outcome of meaning may be behavioural, the process is, essentially, a mental one. Stamper's approach to meaning deliberately focus on actions and does not analyse phenomena that happen at the mental level. As a result, the critics of Stamper's line of work (e.g., (Andersen 2004; Jorna and Van

Heusden 1998)) believe that several shortfalls may arise if organisational semiotics is used as the only theoretical lens with which to study meaning making.

Firstly, organisational semiotics offers little understanding of sign awareness. The interpreter's reading of the sign may be divided in the direct effect actually produced by the sign upon the interpreter (Noth 1995) and the link established by the interpreter between that occurrence of the sign and a more general rule or habit (Andersen 2004). The direct effect occurs, according to Andersen (2004), because interpreters have guidelines regarding the occurrence and the meaning of the sign:

> 'If these rule-oriented interpretations were not available we would have no reason for seeing the [representamen] as signs of [an interpretant].' (page 41)

In the absence of such mental rules, the argument goes, the representamen would not be noticed by the interpreter, or even if noticed would not have been associated with the interpretant. An important question emerges, then, concerning what makes an interpreter notice a representamen and ignore others. Is it something to do with the representamen or, instead, with the interpreter? Organisational semiotics does not offer a conclusive answer to this question.

A second limitation of organisational semiotics relates to semiosis. Semiotics studies the creation of meaning by an abstract interpreter, who can be an individual, a group or a social community (Liu 2000). Regardless of the definition of the interpreter, the focus of analysis is, always, how the technical and social contexts influence the interpretation. Yet, as noted by Helmhout and colleagues (2004), Charrel (2004) and many others, organisations are environments in which actors work together. Furthermore, the actions of referent others have a determining impact on subsequent behaviour, regardless of initial beliefs (Miller and Thomas 2005). The implication is that, when studying meaning, the researcher needs to examine not only the existence of multiple perceivers, but also the effect that one interpreter may have on another.

> 'When actor A interacts with actor B to complete a certain task, both actors have to come to a certain agreement as to under which conditions a relation starts, under which conditions a relation ends and under whose authority this is taking place. Agreements are often reached by conflicts and compromises. In, for example, the employer-employee relationship, the employer wants wages to be as low as possible, while an employee wants the opposite. If both actors come to an agreement, the relation starts.' ((Helmhout, Gazendam et al. 2004), page 175)

In the situation described by Helmhout and colleagues (2004) there is a two way interaction and, hence, the possibility to correct misunderstandings and review decisions. In other organisational circumstances, however, the interaction is sequential, rather than simultaneous. The effect of individual interpreters in one another is particularly relevant in the case of sequential encounters given that, in such circumstances, the employee who first encounters the problem makes a 'go' or 'pass' decision that, in fact, limits the strategic options available to the employee located next in the decision chain (Andersen 2005):

> '*The service agent who initially encounters a client may determine how other agents regard the client. First, initial encounters serve as gate-keeping functions as agents collect information about the client and communicate it to others as input for further processing. Thus, service agents must edit and filter information and neatly define the client. (...) Second, a further effect of this selectivity is that others downstream often lack the necessary information to form their own conclusions. Third, standardised procedures and forms for reporting such information are typically geared toward efficiency, and so cannot convey the richness and complexity of idiosyncratic perceptions.*' (Ashforth and Humphrey 1997)

The output of semiosis by the first interpreter may have an impact in the input for semiosis of subsequent interpreters.

The third limitation of organisational semiotics concerns the role of norms. Helmhout et al (2004) argue that while the concept of norms is well developed in organisational semiotics, this body of research is unable to answer such questions as how actors learn, select and use norms in order to cooperate effectively, which configurations of norms emerge in a certain environment or whether the emergent configurations of norms correspond to known organisational configurations. Recent work in this field draws on the work of cognitive scientists, rather than semioticians (Helmhout, Gazendam et al. 2004). Researchers in the field of cognition noted that agents have limited ability to represent and process information about the environment (Simon 1976; Zandt 1999). In order to compensate for those limitations, the agents developed 'fast and frugal' heuristics (Gigerenzer, Todd et al. 1999; Gigerenzer and Selten 2001) such as the imitation of the behaviour of others who are successful or the use of culturally transferred stereotypes (Bouissac 2003). It is those factors that seem to explain norms learning, selection and use, rather than any other factors traditionally considered in organisational semiotics.

In summary, organisational semiotics, by approaching meanings as behaviours, offers limited insight into the cognitive restrictions (Desouza and Hensgen 2005) that organisations' employees face, as well as into dynamic meaning making processes, particularly those involving sequential interactions. This is not a criticism of the work developed so far by Stamper, Liu and other semioticians. Rather, it is a recognition of the limitations brought about by the ontological foundations of this particular theory – Or, in Walsham's terminology, as mentioned at the end of section 3.1.5, a recognition of what the organisational semiotics lens makes the researcher 'not see'.

Early attempts to address this limitation (e.g., (Ashforth and Humphrey 1997; Jorna and Van Heusen 1998; Andersen 2004)) suggest that cognition based theories may be a valuable complement:

> 'Representational activities can be studied, both from a cognitive (focussing on the empirical reality of the behaviour) and from an interpretative (focussing on the meaning of the behaviour) perspective. As (cognitive) mental activity, this representational behaviour is studied by cognitive science. As representational activity, however, the cognitive mental behaviour is the object of semiotics. Thus cognitive science and semiotics meet in an effort to understand man, the animal symbolicum, and human culture.' (Jorna and Van Heusden 1998).

This thesis follows this trend, and draws on a second theoretical body that looks specifically at issues of cognition in meaning: classification theory.

## 3.2 Secondary theoretical lens: classification

The study of classification and categories has attracted extensive attention among the cognitive sciences:

> 'It is a widely held view in cognitive and social psychology that the ways in which people understand the world, act upon it and react to it depend upon how they categorise it. This implies that the study of categorisation is capable of revealing some of the most fundamental organising principles of human thought and action.' (Edwards 1991)

The existence of categories supports numerous functions in social and individual life. At the social level, categories enable communication (Dutton and Jackson 1987; Potter and Wetherell 1987; Edwards 1991; Parsons 2002). At the level of the individual, categories facilitate reasoning (Smith

and Medin 1981; Kurtz and Gentner 2001; Markman and Gentner 2001; Gilbert 2006), assist in decision making (Gladwell 2006; Laurent, Ward et al. 2006), assist in prediction (Rosch 1978; Smith 1988; Chen and Bargh 1997; Parsons 2002), and allow for *cognitive economy*. Cognitive economy is the mechanism by which individuals retrieve information about an object or a causal relation from memory rather than having to derive it by reasoning processes every time that they encounter the object or the situation (Guidagni and Little 1983; Siegler and Shipley 1995; Gentner and Wolff 1997; Gentner and Wolff 2000). Cognitive economy plays such a fundamental role in life that Malcolm Gladwell (2005) even went in so far as to claim that:

> *The only way that human beings could ever have survived as a species for as long as we have is that we've developed... (an) apparatus that is capable of making very quick judgments based on very little information'* (pages 11-12).

The concept of 'category' is a fundamental one in cognitive science, and its definition has evolved over time. At a point, the concept was so ambiguous that it led Bertrand Russell (1946) to remark:

> *'What exactly is meant by the word 'category', whether in Aristotle or in Kant and Hegel, I must confess that I have never been able to understand.'*

Appendix 5 provides a brief overview of the evolution of the concept of category for the interested reader. The current understanding of categories has stabilised around the conceptualisation of categories as entities that are fuzzy at the boundaries and inconsistent in the status of their constituent members (Markman and Gentner 2001), and that vary for different agents.

One of two outcomes will occur, when a person observes a novel episode: he or she may *assimilate* it into an existing schemata or, alternatively, the person will *accommodate* the new stimulus in a new category, which, in turn, may be the result of creating new schemata or of simply modifying an existing one (Piaget and Inhelder 1969; Potter and Balthazard 2004). Cognitive scientists, who study classification, have long examined how and why people classify one particular event in a specific category. The way in which such researchers conceptualise these issues is outlined next.

## 3.2.1 The assimilation / accommodation process: How classification occurs

Category members may be bound together by common intrinsic attributes or, alternatively, by features which only hold in relation to other objects (Barr and Caplan 1987; Medin, Lynch et al. 2000; Kurtz and Gentner 2001; Gentner and Kurtz 2006; Laurent, Ward et al. 2006). Categories defined by intrinsic attributes are called 'entity categories', whereas those categories defined in relation to others are described as 'relational categories' (Gentner and Kurtz 2005). The matching process varies with the type of category:

> 'Entity categories are characterised by rich sets of intrinsic features and feature correlations. Relational categories are characterised by sparse, rule like relational structures. (...) Relational categories are more mutable and less well-remembered... and more slowly acquired than entity categories.' (Gentner and Kurtz 2005)

Goldstone and colleagues (Goldstone, Medin et al. 1991; Goldstone 1996; Goldstone, Steyvers et al. 2003) proposed that categories may appear in a continuum, ranging from entity to relational categories, rather than an either/or situation. Furthermore, Goldstone and others noted that agents relied differently on relations and attributes as a function of scene properties. This position reinforces the view that context plays a role in how people classify observations.

Researchers addressing what determines that a stimulus is assimilated or accommodated in a category have investigated whether there are some properties of an attribute that make it more central to the definition of the category than others. One of the conclusions reached is that surface properties seem to be much more relevant in reasoning than deep similarities (Mantaras, McSherry et al. 2005), and that a given feature is more central to a category than another one when it is more interconnected with others (Sloman, Love et al. 1998).

Equally important for the matching process is the position of the feature within a relational structure (Gentner, Holyoak et al. 2001; Markman and Gentner 2001; Kokinov and French 2003), in particular whether the feature is deemed to be a cause or an effect (Ahn and Kim 2000; Rehder 2003; Proctor and Ahn 2005):

*'People weight causes more heavily than effects in categorisation... and commonly infer many features from an unseen cause when reasoning (...) Clinicians' beliefs about inter-symptom relations will affect their inferences about other unknown features patients may have.'* (Proctor and Ahn 2005)

Gentner and Kurtz (2005) further proposed that observations are particularly relevant for the formation of entity categories, leading to *'fast, fluent categorisation'*. In contrast, relational categories seemed to be learned well when an explicit rule is given.

In conclusion, there are several factors that affect whether a stimulus is assimilated into an existing category, or not. The factors are related with both the type of category and the property of the features that define the category, and are summarised in table 3.6.

**Table 3.6 – Factors affecting the matching process**

| | Factors |
|---|---|
| **Feature's properties** | - Surface properties are better remembered than deep ones<br>- Interconnected properties are well remembered<br>- Properties seen as cause are better remembered than ones deemed as effect |
| **Type of category** | - Entity categories have more interconnected properties and, hence, are better remembered than relational ones<br>- Observations are well remembered in the case of entity categories<br>- Rules are well remembered in the case of relational categories<br>- Scene properties affect whether agents rely more on entity or, instead, relational categories |

In cases where the agent is unable to assimilate an observation into an existing category, and has enough motivation and time, he or she may attempt to integrate the available information in a more piece meal fashion (Hamilton, Sherman et al. 1990). The rejection of a previously established schema, however, requires considerable effort from the individual:

*'The acceptance of an idea is a part of the automatic comprehension of that idea, and the rejection of the idea occurs subsequent to and more effortfully than its acceptance.'* (Gilbert 1991)

Dunbar, who conducted observation and experimental work in the field of molecular biology, reported that scientists, when faced with a new or unexpected result – which happens in more than 50% of the experiments - will go to great lengths to explain the unforeseen outcome as a result of experimenter error before they abandon their existing schemas and develop a new explanation for the observations (Dunbar 2001).

Gilbert (2006) witnessed the occurrence of similar cognitive rigidity in business decisions, and illustrated its impact on decision making in organisations by referring to the computer industry:

> *'IBM's mainframe business continued to expand for nearly 20 years while DEC built its minicomputer business. IBM's capabilities in mainframes continued to fit that market, even though they were poorly aligned with the minicomputer market that would eventually invade the mainframe business.'* (Gilbert 2003)

The main conclusion is, then, that people are more likely to assimilate observations into an existing category than accommodate them into a new category.

## 3.2.2 The role of filters: why stimuli have varying likelihood of being noticed

Boisot and Canals (2004) suggested that two kinds of filters impact on perception and conceptualisation:

> *'Perceptual filters first orient the sense to certain types of stimuli that operate within a given physical range. Only stimuli passing through this initial filter get registered as data. Conceptual filters then extract information-bearing data from what has been so registered. Both types of filters get "tuned" by the agents' cognitive and affective expectations (Clark 1997; Damasio 1999), shaped as these are by prior knowledge, to act selectively on both stimuli and data.'*

The filters lead agents to recall information that is sufficiently novel to merit attention, yet not so unusual as to wholly violate existing perceptions of reality (Cohen 2001; Lehman, Chiu et al. 2004). Evidence of filtering has been found in numerous areas of cognitive activity. For instance, studies of eye witness memory found that crime victims were more likely to recall stimuli when these were consistent with highly typical events (Shaw, Bjork et al. 1995; Macleod 2002; Migueles and Garcia-Bajos 2006):

> *'Retrieval-induced forgetting was produced in low-typicality actions, while typical actions of [mugging] were not affected by inhibition (...) The high-typicality actions[16] were representative of [mugging]. They supplied relevant information on how the facts unfolded and were causally and temporally interrelated (...) The low typicality actions[17] of the event... were more circumstantial'* (Migueles and Garcia-Bajos 2006)

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[16] Examples: 'The mugger approached the woman unnoticed' or 'The woman shouted for help'

[17] Examples: 'The mugger covered the victim's mouth' or 'The mugger escaped down narrow streets'

Furthermore, observations of professional basketball players led Laurent and colleagues to conclude that:

*'It seems that [players] organise their search quiet independently of the stimulus, having their visual search cognitively driven.'* (Laurent, Ward et al. 2006)

In other words, filters not only influence absorption of the available stimuli, but they also seem to drive what people look for in the environment.

Additionally, research suggests that the filters may have a self-fulfilling effect in the sense that how people interpret the stimuli is influenced by their a *priori* expectations (Wisniewski and Medin 1994; Chen and Bargh 1997; Dunn and Spellman 2003; Quinn, Hugenberg et al. 2004). Yamauchi and Markman (2000) went even further and demonstrated, in laboratory tests, that the label of the category had a stronger effect in which features were perceived by the participants than any other particular feature. Moreover, when participants were told the category name as well as some information to contradict the label, participants would still infer category-typical features consistent with the category name.

*'How the person views the problem and creates the appropriate prove can be influenced by increasing the salience of categories of traces. Simply providing labels for categories or giving a single example of a category tends to cue attention and creates the appropriate probe to search the category of traces.'* (Potter and Balthazard 2004)

Not only are people more likely to notice stimuli that are category consistent, but they are also more likely to recall such information quickly and accurately than category inconsistent one (VonHippel, Jonides et al. 1993; DiMaggio 1997). In particular, when information about a stimulus is ambiguous, people tend to distort the information available toward conformity with unambiguous attributes of category members (Carmichael, Hogan et al. 1932; Loftus 1979; Koehler 1993; Dunbar 1995; Kuhn 1997).

Researchers have suggested a number of factors that my increase the significance of the filtering effect. In particular, filters seem to be more acute when there is a time gap between the occurrence of the stimuli and its recollection, as illustrated by the following quote:

*'Consistency in reported features over a 2-month period increased as the delay between the initial test and [the event] increased. Central features (e.g., Where were you?) were*

*reported with greater consistency than were peripheral features (What were you wearing?) but also contained a larger proportion of reconstructive errors.'* (Schmidt 2004)

Furthermore, the significance of the filtering effect is higher for highly emotional events:

> *'The results demonstrated reconstructive processes in the memory for a highly consequential and emotional event and emotional impairment of memory processing of incidental details... [There is] schematic selection, wherein information relevant to the gist of an emotional event is selected and schematically irrelevant features are lost'* (Barnier, Hung et al. 2004)

Finally, the filtering effect also increases with expertise in the field (Schyns and Rodet 1997; Schyns, Goldstone et al. 1998):

> *'Our position argues for a continuity between representations of different-skilled individuals: from novice level, where similarity judgment is based upon comparison between entities... towards elite levels of expertise... the gradual building and use of representations'.* (Laurent, Ward et al. 2006)

Further studies focused on how individuals classify in the presence of incomplete stimuli. Researchers suggested that when information about a stimulus is incomplete, people tend to use general information about typical category membership to fill in for information not presented (Freeman, Romney et al. 1987; DiMaggio 1997; Gilbert 2006). Dutton and Jackson (1987) reported how upon hearing a passage describing a person pounding a nail, people inferred the presence of a hammer, whereas Parsons (2002) noted how people will usually infer the existence of a fire, upon noticing smoke. In this sense, categories impose a self-reinforcing bias by causing people to generate missing information to fulfil an anticipated categorisation:

> *'The initial interpretation shapes future interpretation... The phenomenon of self-perpetuating frames appears to be robust at multiple levels of analysis, imposing constraints on the ability to embrace competing frames simultaneously.'* (Gilbert 2006)

In summary, the cognitive representation built over time of an object, once it has been categorised, is an inaccurate, simplified picture that matches the category's mental schema more closely than did the original exemplar (Alba and Hasher 1983; Dutton and Jackson 1987). It is inaccurate in the sense that it does not represent all members of the category, and simplified because it tends to refer to category-consistent information, only. This is because a) category consistent stimuli is generally more noticed and better recalled than inconsistent ones, b) information is distorted to fit in existing categories and c) constructing errors of memory occur.

### 3.2.3 Relevance for the study of profiling

Classification theory offers significant contributions to the understanding of meaning making, at the level of the individual person. This section considers how classification theory may contribute to the study of the emergence of particular profiles of money laundering behaviour.

The study of classification assists the researcher in understanding how people perceive, act upon and react to the environment that surrounds them (Edwards 1991). Profiling is, in essence, a classification process characterised by '*attributing to the entire category certain characteristics that are probabilistically indicated by membership in the category, but that may still not be possessed by a particular member of the category*' ((Schauer 2003), page 4). Drawing on classification theory to study profiling may assist comprehension of how profilers understand the behaviour being modelled, and respond to it. In this sense, profiling is studied as not just a mental construct but also an observable action. The link between perception and action, in turn, mirrors organisational semiotics' conceptualisation of meaning as behaviour.

The discussion of factors affecting how classification occurs, in section 3.2.1, alerts the researcher to issues that may affect profiling. In particular the features used to describe the money laundering behaviour may impact on how well the profile is recalled by its users and, as a result, the outcome of the matching process. In addition, whether the profile is of an entity or relational nature, may also impact on the matching process. Furthermore, contextual factors influence the nature of profile in use. This last point is, again, shared with organisational semiotics, whose researchers, as discussed in section 3.1, study meaning in the social and organisational context (Liu 2003).

The works mentioned in section 3.2.1 also addressed the rigidity of categories. In particular, the works highlighted the great extent to which classifying agents will go to fit an observation into an existing category, before they review the definition of the category or even create an entirely new one. In addition, it was noted in section 3.2.2 that filters affect which stimuli are noticed and how accurate they are recalled, may lead to information distortion and to memory errors. As a result, over time, categories become ever more inaccurate, simplified pictures that match the mental

schema more closely than the original exemplar. The relevance of these insights for the study of profiling is that the researcher needs to be aware of, and focus his or her attention on, the various mental constructs rather than on the phenomenon being observed. Whether the observed behaviour is profiled as suspicious or not may have more to do with the pre-existing mental models used by the profilers, than the particular attributes observed. The finding also has implications as far as corrective measures are concerned, in particular regarding the organisation's ability to review and develop new profiles.

In summary, the study of classification processes adds a valuable angle to the study of profiling, and aids in the fulfilment of this thesis' objectives. The primary objective of this research is, as described in section 1.5, to examine the effects of technology, analyst and context in financial crime profiling. Classification theory, with its focus on mental processes, is particularly well suited to support the researcher in untangling how profilers perceive, classify and react to particular observations. The theory is, however, limited in the insight that it can offer on particular aspects of profiling, which are discussed next.

### 3.2.4 Critique of classification theory

Research into classification processes has focused on how persons perceive objects or events in the environment. Various classical and current works in the field of classification theory have hinted at the role of context in classification, as reviewed in appendix 6 and summarised next. For instance, social psychologists have long documented how observed social behaviour influences subsequent individual behaviour (e.g., (Festinger 1954; Milgram, Bickman et al. 1969)). More recently, field studies noted that certain schemas fail to transfer across seemingly related situations, while others transfer when they should not, as illustrated by those students that may excel at mathematics' exercises in class, and yet struggle at applying the same mathematical concepts in non-classroom concepts (Bassok, Chase et al. 1998; Elsbach, Barr et al. 2005). The early assumption that a given schema would be applied in the same manner across time and cognitive context, as long as the subject matter remains similar, has been clearly challenged and replaced by the understanding that classification is, indeed, affected by context.

One branch of research has explored how physical contextual attributes interact with schemas and form temporary cognitive systems. Karl Weick, in his study of the 1949 Mann Gulch disaster in which 13 firemen died, noted that firefighting tools, while being a contextual artefact, are also a defining attribute of the firefighter's self schema (Weick 1993; Weick 1995). The outcome of the interaction between schema and artefact affect perception, as well (Elsbach, Barr et al. 2005).

Pickel (2005) noted that, while the physical context is important, the functional adequacy of a schema is socially determined:

> 'Individual minds not only think, but at the same time also act, and they do so in particular social contexts' (Pickel 2005)

The study of the interaction between mental schemas and context suggests that a focus on either the categories or the context provides an incomplete picture of categorisation processes in organisations (Lant 2002). Rather, research should focus on 'situated cognition', that is, how categories emerge as a result of the interaction between individual schemas and context, at a particular point in time (Lave and Wenger 1991; Cook and Brown 1999; Lant 2002). Contextual attributes both evoke and shape particular schemas, and schemas make particular contextual attributes salient (Mitchell, Smith et al. 2000; Cramton 2001; Carlile 2002; Sole and Edmondson 2002; Elsbach 2004):

> 'At times... a dominant schema [drives] understanding and action... At other times, this mediation results in, essentially, a mélange of existing schemas that like blended spices create a single experience containing complex flavours.' (Elsbach, Barr et al. 2005)

While the importance of studying the context is clear, strictly this topic falls outside of the core interest of classification theory: a focus on the individual. As a result, in classification studies, the context tends to be an extraneous factor to be controlled, rather than one to be actively included in the analysis (Ashforth and Humphrey 1997). The cognitive science's focus on individual mechanisms of classification, while insightful, provides a narrow view of classification. Holistic understanding of classification in organisation requires a framework that addresses both the context and the individual.

## 3.3 Research framework

The theoretical understandings reviewed in this chapter highlighted that meaning, while imbued in everyday organisational practice, is a complex activity developed by individuals within the context of the organisational groups that they belong to. This activity is increasingly performed with the aid of technical artefacts. The practice of classifying stimuli and assigning them meaning is composed of several layers with different features and represented differently. The impact of each layer on the process of meaning and in the final outcome is felt in different ways and, therefore, must be studied by drawing on appropriate relevant analytical tools.

This section examines how organisational semiotics and classification may complement each other, as well as where conflicts might emerge. The section concludes with the presentation of the research approach followed in this thesis.

### 3.3.1 Comparing and contrasting the two theories

Section 3.1 articulated the elements that determined what meaning an agent ultimately gives to a data object, according to the organisational semiotics perspective. They are the sign, as the vehicle for meaning, and semiosis as the process of meaning making. The meaning of the sign is embedded in the subsequent behaviour. Furthermore, semiosis is influenced by the affordances and the norms. The relationship between the various semiotic concepts is illustrated in figure 3.2.

**Figure 3.2 – Meaning in organisational semiotics**
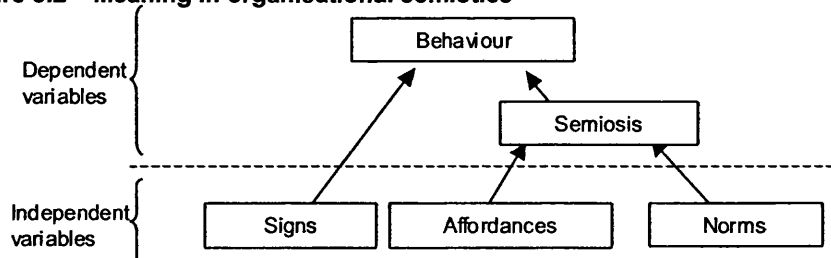


It is important to emphasise that the relationships outlined in figure 3.2 are descriptive, rather than deterministic. Organisational semiotics does not attempt to predict the behaviour that will result from a given sign, in the presence of particular affordances and norms. Instead, organisational semiotics

provides a framework for the researcher to elicit ambiguity in meaning, and identify eventual conflicts in the organisation about the signs.

Section 3.2 outlined the classification theory perspective on meaning. Meaning is, once more, materialised in actions. The elements that determine what meaning an agent ultimately gives to a data object are the existence of a particular data object and the mental classification process. Moreover, the mental process is shaped by assimilation / accommodation dynamics and filters. The filters affect both which features of the data object the agent will notice, as well as how the agent will interpret the stimuli. The relationship between the various cognitive concepts is illustrated in figure 3.3.

**Figure 3.3 – Meaning in classification**
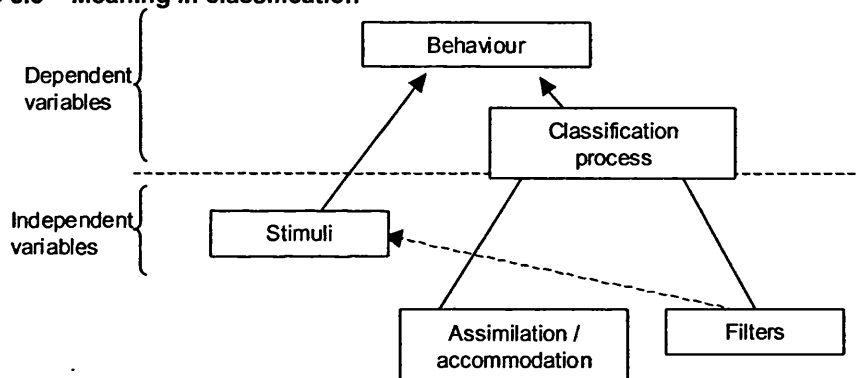


The relationships depicted in figure 3.3 are, again, descriptive rather than deterministic. The figure describes factors that may affect interpretation of a given stimulus and, therefore, the resulting behaviour, rather than foretell which interpretation will emerge form the classification process.

Organisational semiotics and classification theory both study meaning making processes, albeit focusing on different aspects of the process. Organisational semiotics, as discussed in section 3.1, is an insightful tool to study external aspects of meaning but which does not equip the researcher to study phenomena that occur at the mental level. Classification, on the other hand, as highlighted in section 3.2, is unparalleled to study individual mental processes, but is not traditionally alert or prepared to study context. In this sense, and as previously advocated by Ashforth and Humphrey

(1997), Jorna and Van Heusden (1998) and Andersen (2004), the two theoretical angles reviewed in this chapter complement each other, paving the way for an enhanced understanding of meaning.

The two theoretical fields have various points in common. Namely, both fields conceptualise meaning as subjective, ambiguous and relational, and which is influenced by context and is materialised in the agents' actions. In addition, the two perspectives agree that perceiving agents use signs / categories to structure the social environment and deal with ambiguity. Furthermore, the semiotic distinction between *representamen* and *object* mirrors that made in classification theory between *object* and *schema*. The semiotic representamen and the cognitive object refer to that which needs to be classified or made sense of. In turn, the semiotic term *object* and the cognitive term *schema* refer to the concept of reference that is activated by the meaning making, or classification, process. Henceforth, for the purpose of this thesis, the semiotic term representamen and the cognitive term object are regarded as synonyms and interchangeable, as are the semiotic term object and the cognitive term schema. Furthermore, in order to avoid confusion between the cognitive term object and the semiotic term object, the thesis will adopt the terminology outlined in table 3.7.

**Table 3.7 – Terminology used in the research framework**

| Concept | Semiotic term | Cognitive term | Term adopted |
|---|---|---|---|
| That which needs to be classified | Representamen | Object | Data object |
| Concept of reference that is activated | Object | Schema | Profile |

The two theories differ, however, regarding the focus and the method of the analysis. Classification theory focuses on mental processes of matching data object and profiles, whereas semiotics looks at the external factors affecting this matching process. Moreover, classification theory, which is predominantly a psychological theory, relies heavily on laboratory experiments where the contextual factors can be controlled and variances actively monitored. Organisational semiotics, on the contrary, is largely inspired by the work of the logician Charles Peirce, as described in appendix 2, and tends to use observations and content analysis as research methods.

The author of this thesis does not regard such differences of focus and method as inconsistent. Rather, the differences between semiotics and classification theory reflect the different positions from which each field looks at the same fundamental issue: that of making sense of particular facts or observations. Each perspective is like a prism (Ashforth and Humphrey 1997) or lens (D'Cruz 2004), providing a different, but not incompatible, reflection of the same research problem. The author believes that, by integrating these two perspectives, it is possible to achieve a richer and more robust understanding of the process of constructing and sharing meaning in an organisational setting. An overview of this integration is provided in the next section.

## 3.3.2 The research framework

Organisational semiotics, in its inception, never adopted a mentalistic notion of meaning, focusing instead on the externalisation of the interpretations, and studying the factors that affect semiosis. In the past 10 years, however, more and more semioticians following on Stamper's tradition have noted that sign interpretation is, essentially, a mental process. Such semioticians, as described in section 3.1.5, note that the existing tools do not enable the semiotic researcher to fully understand how employees of an organisation create and share meaning, and have, consequently, called for the development of a cognitive informed, organisational semiotics framework. The research framework here proposed, and that guides the present thesis's collection and analysis of data, addresses such calls. The framework is firmly based on organisational semiotics, but adds on a dimension that focuses attention on individual mental processes.

The author advocates that the understanding depicted in figure 3.3 enhances that depicted in figure 3.2, and addresses the calls by Ashforth and Humphrey (1997), Jorna and Van Heusden (1998) and Andersen (2004), among others, by providing the individual agent's angle to the semiotic process. The holistic understanding that emerges from joining the two frameworks is illustrated in figure 3.4 and can be described this way: the behaviour that results from the attribution of meaning to a particular sign is the result of both the meaning vehicles available and the meaning processes. Different agents may react differently to a particular sign because they focus on distinct attributes of the sign, as a result of cognitive filtering processes, or as a result of differences in what the agents are afforded to do, the norms that guide the agents' behaviour or the agents' mental activity.

Furthermore, such mental activity is characterised by assimilation / accommodation mechanisms, as well as filtering processes.

**Figure 3.4 – Research Framework**
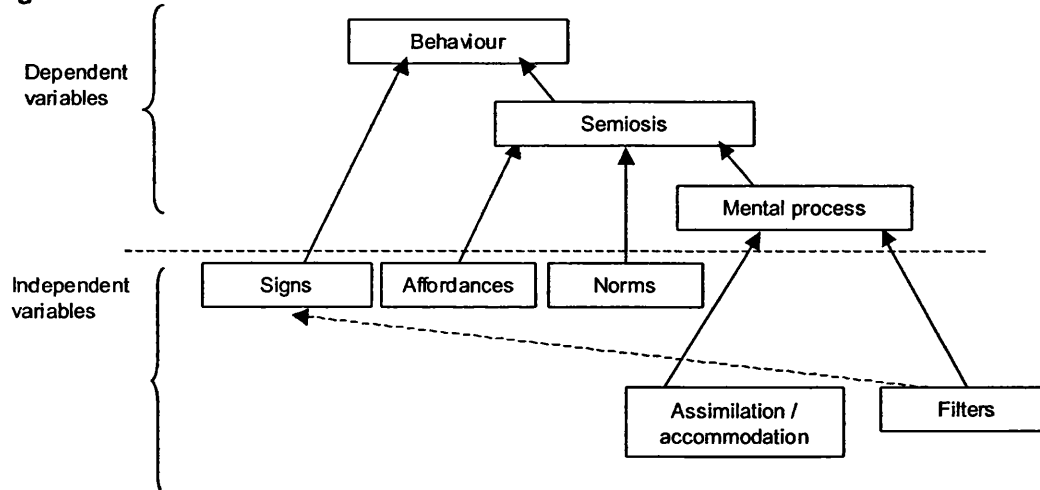


In summary, meaning is created subjectively and socially, leading to subtle differences between groups of knowing agents. Semiotics provides the tools to identify and model the signs, the affordances and the norms relevant to the interpreter and, therefore, fills in the contextual gap identified by researchers working on situated cognition. Similarly, classification theory enriches the understanding of the mental process of the interpreters, and the meaning making mechanism.

The framework hence proposed does not attempt to predict the behaviours resulting from any combination of signs and semiosis. Instead, it aims to offer a lens for viewing the world (Orlikowski and Robey 1991; Walsham 1995; Gregor 2006), namely to study the complex and subjective nature of meaning, and which includes a technical, a social and an individual dimension. The author believes that the framework here described and depicted in figure 3.4 is not only applicable to profiling, but also offers the integrated approach advocated by Hildebrandt and Backhouse (2005).

The author suggests that, in the context of profiling, the signs consist of the knowledge objects available to or in the organisation - examples include identity data such as the customer's date of birth, name and address, as well as activity data such as the customer's spending patterns or product acquisition – and their corresponding meanings for specific interpretants. The affordances

are the possible actions that the organisation's employees and technical systems can perform, such as manipulation of data or access to information. The norms are the range of socially accepted actions. Acceptance may be informal, formal or technical, and will condition perceptual, evaluative, cognitive or behavioural actions. The assimilation / accommodation dynamics refers to the matching between observed behaviour and the existing reference profiles, at an individual level. Lastly, the filters are the cognitive constraints that determine the perception and interpretation of the signs.

There are various types of signs in the organisation, as mentioned in section 3.1, some more conducive to ambiguity in meaning than others. Moreover, the affordances may be real or perceived, and their realisation is contingent on the affordances' elements. Norms are specific to each organisation and where the different groups to which an agent belongs have divergent norms, conflicts may arise. Additionally, as mentioned in section 3.2, categories are rooted in experience and not uniform across agents. Therefore, research into classification processes ought to focus on the person engaging in cognitive activity, rather than on the attributes of the objects being classified. Assimilation occurs more frequently than accommodation, and is influenced by the type of category and the property of the features that define the category. Finally, the cognitive representation of an object is an inaccurate picture that does not represent all members of the category. It is also a simplified picture because it tends to refer to category-consistent information, only. This is because failures to recall certain stimuli, distorted recall of ambiguous stimuli and gap filling in the case of absent stimuli.

The framework outlined in this chapter guides the collection and analysis of the field data. The next chapter presents the research methodology that guided the data collection effort.

# 4. Research Methodology

The current chapter outlines the methodological approach used in the thesis. The first section presents the arguments for the use of a qualitative case study as the guiding research strategy. The second section outlines the data collection methods and tools. The chapter concludes with a summary and reflection on the coherence of the approach presented and the goals of the thesis.

## 4.1. Research Strategy

The Information Systems field has been described as a *'rich tapestry of different methodological approaches'* (Becker and Niehaves 2007), which results from the field's multidisciplinary nature. At the level of the research paradigm, it is common to distinguish between positive and interpretive research (Walsham 1995; Weber 2004). The differences between positivism and interpretivism, traditionally mentioned, are ontological, epistemological and methodological (Orlikowski and Baroudi 1991; Chen and Hirschheim 2004).

Ontologically, positivist researchers conceive of reality as something that exists objectively and independently of human experience, while interpretivists emphasise that reality is constructed through human and social interaction (Burrel and Morgan 1979). Epistemologically, positivists tend to obtain knowledge using hypothetic-deductive, testable theories whereas interpretivists aim to acquire knowledge through the understanding of human and social interaction (Walsham 1995). Methodologically, positivists tend to collect evidence adopting a value-free position and employing objective measurement tools, in particular quantitative tools like surveys, whilst interpretivists defend that the researcher needs to engage in the social setting investigated and adopt the participants' perspective (Orlikowski and Baroudi 1991; Chen and Hirschheim 2004). Against the clear-cut differentiation between positivism and interpretivism just described, authors such as Alvesson and Skoldber (2000) and Weber (2004) propose that many of the metatheoretical differences between the two fields are inadequate. Weber (2004) goes even further and affirms that *'the rhethoric of positivism versus interpretivism... promotes unhelpful schisms among scholars'*.

Regarding the mentioned ontological differences, Weber argues for the distinction between the reality that exists and the researchers' perception of it. Such argument mirrors Kant's (1999) distinction between things in themselves that exist independently of human consciousness, and the appearing of things to an observer. Such distinction means that knowledge acquirable by an observer is, inherently, restricted to the human consciousness (Becker and Niehaves 2007). For some kinds of phenomena[18], the perceptions will converge whereas for others[19] such agreement is not so straightforward.

As far as the epistemological differences are concerned, Weber (2004), who presents himself as a positivist researcher, defends that there is 'no foolproof way of knowing the reality' because the artefacts built and used to understand the world are all socially constructed:

> '[The researchers'] culture, experience, history, and so on impact the research work they undertake and thus the results of their work' (Weber 2004)

The main difference between positivists and interpretivists, as far as ontology and epistemology is concerned, is felt regarding the types of questions studied, the genre used to report the research and the extent to which the researchers try to make their personal biases and assumptions explicit when they describe their research (Weber 2004).

Concerning the methodological differences, Weber (2004) agrees that positivists and interpretivists, by and large, tend to use different research methods. For instance, while the former tend to look for statistical regularities among large amounts of empirical data, collected through laboratory experiments, surveys and other tools, the later tend to prefer case studies, phenomenology and other small-scale methods. Yet, as Weber notes, the methodological distinction is not entirely precise: case studies can be conducted within a positivist tradition, and inferential statistics may be used to detect regularities in interpretive studies that collect large amount of data. Weber suggests that the choice of method is influenced by pragmatic factors such as training, peer pressure or the type of insight sought by the researcher, rather than fundamental ideological differences. Becker

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[18] Weber gives the following example: What happens if we step off the ledge on the third floor of a building.

[19] Weber provides this illustration: What happens when several individuals interact with each other.

and Niehaves (2007) presented a similar view, arguing that the traditional link between particular Information Systems' research paradigms and specific research approaches is based more on historic discourse than on philosophical logic.

In summary, the positivism vs. interpretivism debate is very much alive in the Information Systems community and potentially evolving from a focus on irreconcilable philosophical differences, to a focus on pragmatic approaches for conducting and reporting the research effort. Nonetheless, it is useful to situate a research project in one of the two research traditions mentioned because that will influence *'explicitly and implicitly the criteria that colleagues will use to evaluate (the) research'* (Weber 2004).

## 4.1.1 Research paradigm: within the Interpretive tradition

This study is concerned with how employees of an organisation build and use profiles, rather than with the composition of the profiles in themselves or whether or not such profiles accurately reflect the behaviour that they propose to model. It aims to find out *'what is happening; to seek new insights; to ask questions and to assess phenomena in a new light'* ((Robson 2002), page 59).

The objective and the perspective of the present study make it particularly appropriate to follow an interpretive strategy of inquiry. Interpretive research *'focuses on the complexity of human sense making as the situation emerges; it attempts to understand phenomena through the meanings that people assign to them'* (Klein and Myers 1999). The use of interpretive research methods in Information Systems is *'aimed at producing an understanding of the context of the information system, and the process whereby the information system influences and is influenced by the context'* ((Walsham 1993), pages 4-5), as well as understanding the social actions and meanings of the participating actors in a social setting (Hirschheim and Smithson 1988). Interpretive research is an accepted research paradigm in information systems, having evolved from a very small proportion of publications in the early 1990s (Orlikowski and Baroudi 1991), to around 17% of papers published in six well-known US and European-based journals in the period between 1993 and 2000 (Mingers 2003), and whole special issues recently (Walsham 2006).

The philosophical foundation of interpretive approaches to research may be linked to hermeneutics and phenomenology (Schwandt 1997), and the process is characterised by interpretation, as opposed to apprehension, of the phenomenon being study. Interpretive researchers do not believe in an objective single reality, rather they attempt to explain the phenomena by accounting for the multiple meanings and beliefs of the social sphere (Keen 1991; Orlikowski and Baroudi 1991). The researcher adopts the perspective of someone who is 'inside' the group being researched, and who is observing and interpreting what is happening (Trauth and Jessup 2000). A question that may emerge is whether it is possible for the researcher to claim following an interpretive approach, while being guided by a specific theoretical framework such as the one proposed in chapter three. The thesis's author believes that this is, indeed, the case and points to the example of Orlikowski (2000), who used Giddens' Structuration theory in her interpretive study of the use of technology in organisations.

Research is developed against a background of previous understanding, which influences the way the phenomenon is perceived (Butler 1998; Becker and Niehaves 2007). While the research itself enhances the understanding of the entire phenomenon, it occurs within the background of previous understanding that the researcher may have about that same phenomenon:

> '*Because empirical observations are inevitably mediated by theoretical preconceptions, our knowledge of organisations is fundamentally shaped by the subjective views through which we perceive data.*' (Astley 1985)

The researcher cannot be expected to assume a neutral position in relation to the investigation (Orlikowski and Baroudi 1991), instead it is appropriate to distinguish between strong and weak constructionist views (Astley 1985; Orlikowski and Baroudi 1991). In the former, the researcher is seen as inextricably linked to the account of the research and is presumed to enact the social reality that he or she investigates. In the later, the researcher interprets the data collected, including his or her observations, using a high degree of reflexivity in an attempt to develop an unbiased account of the phenomenon researched. Furthermore, Klein and Myers (1999) defend that using a set of principles does not necessarily compromise the emergent nature of interpretivist research. What is needed is that the researcher does not adhere unquestioningly to such principles and, instead, uses

them as a means for judgment. Klein and Myers further affirm that using principles in interpretive research makes all angles that have been considered by the researcher explicit, and provides an evaluative mechanism for others to judge the research work.

The present thesis adopts a weak constructivist approach in which the previous understanding brought to the research is that profiling is a subjective process influenced by contextual factors and individual processes, as discussed in chapter two. The research exercise aims to enhance the understanding of how these factors interact and examine the impact of such subjectivity in the emerging profile. The research framework described in chapter three does not make any predictions regarding the goals of the research – such knowledge will emerge from the analysis of the findings from the empirical exercise. Additionally, the semiotic perspective that informs the research is based on the assumption that the most suitable approach to studying problems in social settings is a subjectivist one:

> 'Whereas objectivism assumes a single reality and explains differences of ideas as aberrations, subjectivism treats different ideas of individuals as starting points for a shared reality... [It] emphasises the abilities of individuals, their freedom to choose courses of action and the moral responsibility of their choice, as well as the uncertainty, novelty and strife they bring about. Importance is also assigned to the affective and cognitive behaviour of people as well as to their cognition. (...) The social world is studied by pursuing an understanding of the way in which the member of the society creates, modifies and interprets the world to which it belongs.' ((Liu 2000), pages 24-25)

In order to increase reflexivity, the author was guided by the principles suggested by Klein and Myers (1999). Namely, the author pursued understanding by moving between the analysis of the inter-dependent parts and of the whole, paying particular attention to the social and historical background of the research setting, developing an awareness of how the author's interaction with the subject of study may affect the results, relating the particular details discovered to wider propositions, engaging in dialogical reasoning and seeking out possible multiple interpretations. The next sections outline how these principles were put into practice in data collection and analysis.

## 4.1.2 Strategy of inquiry: Case Study

Regarding the specific direction for procedure, the author believes that the inquiry strategy that best fits the research question and objectives is the case study methodology. The case study

methodology provides an holistic and rich perspective of the phenomenon under study (Creswell 2003), and has been extensively used in Information Systems' research examining the role of context in shaping technology, as mentioned in section 1.4.

Robson (2002) describes case studies, as '*a strategy for doing research which involves empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence*' (page 178). Yin (2003) further notes that, in a case study, the boundaries between the phenomenon being studied and the context within which it is being studied are not clearly evident.

> '*A case study is an exploration of a "bounded system" or a case (or multiple cases) over time through detailed, in-depth data collection involving multiple sources of information rich in context. This bounded system is bounded by time and place, and it is the case being studied – a program, an event, an activity, or individuals (...) The context of the case involves situating the case within its setting, which may be a physical setting or the social, historical, and/or economic setting for the case.*' ((Creswell 1998), page 61)

Case studies have been shown to be the most appropriate methodology to follow when there is a focus on organisational rather than technical issues (Benbasat, Goldstein et al. 1987), and the researcher is looking for a tool that enables the capture of reality in great detail and involving a great number of variables (Galliers 1992). The case study methodology may draw on multiple sources of data to bring out the details from the viewpoint of the participants (Yin 1994), and allows for various interconnected levels of analysis (Pettigrew 1990).

The researcher acknowledges, however, that the case study methodology has its flaws. One of the criticisms levelled at case studies as a method of inquiry is that it is difficult to generalise from findings (Spencer and Dale 1979; Galliers 1992). Saunders and colleagues (2007) note, however, that the difficulty in generalising is not necessarily a handicap of case studies as, traditionally, the researcher does not aim to produce a theory that is generalisable – rather, the researcher using case studies is usually trying to explain what is happening in the particular research setting. Furthermore, Walsham (1993) notes that the validity of the findings from a case study rests on '*the plausibility and cogency of the logical reasoning applied in describing and presenting the results from the cases and in drawing conclusions from them*' (page 15), and that, in this sense, case studies are capable of producing four types of generalisations: the development of concepts, the

generation of theory, the drawing of specific implications and the contribution of rich insight. To this, Yin (1994) adds that case studies may not be generalisable to populations, but that it is possible to generalise to theoretical propositions. Furthermore, Saunders and colleagues (2007) note that the robustness of the findings can always be tested for robustness in follow up studies, developed in different research settings. Additionally, as Bryman (1988) notes, *'within a case study, a wide range of different people and activities are invariably examined so that the contrast with survey samples is not as acute as it appears at first glance'* (page 90). Finally, Lee and Baskerville (2003) note that:

> *'A theory may never be generalised to a setting where it has not yet been empirically tested and confirmed. Along the same lines, neither an increase in the sample size in a statistical study nor an increase in the number of sites in a multisite case study would be an indicator of greater generalisability of a theory to new settings (...) Whether research is conducted quantitatively or qualitatively, there is only one scientifically acceptable way to establish a theory's generalisability to a new setting: it is for the theory to survive an empirical test in that setting.'*

The second criticism commonly made of case studies is that such methodology does not offer control of variables and is liable to subjectivity in the interpretation of the results (Galliers 1992; Cornford and Smithson 1996). Yet, such bias may be present in all forms of research strategies (Yin 1994; Walsham 2006), a view long exposed by Geertz (1993 (1973)) who said of interpretive research in general that *'what we call our data are really our own constructions of other people's constructions of what they and their compatriots are up to'* (page 9). The way to assess and verify the quality of the data collected, is to use and triangulate multiple sources of data (Van Maanen 1979; Eisenhardt 1989; Mingers 2001; Saunders, Lewis et al. 2007).

### 4.1.3 Style of involvement: towards neutral observation

Walsham (2006) describes the level of involvement of the researcher in the fieldwork as a spectrum, changing over time. At one end of the spectrum is the 'neutral observer' whom Walsham describes as:

> '[A researcher who] *the people in the field situation do not perceive ... as being aligned with a particular individual or group within the organisation, or being concerned with making money..., or having strong prior views of specific people, systems or processes'* (page 321).

At the other end of the spectrum is the full action researcher, '*trying consciously and explicitly to change things in the way that they feel best*' (ibid). Table 4.1 summarises the main advantages and disadvantages of increasing the level of involvement between researcher and research unit.

**Table 4.1 – Advantages and disadvantages of high involvement levels**

| Advantages | Disadvantages |
|---|---|
| o Good for in-depth access to people, issues and data;<br>o Enables observation or participation in action, rather than merely accessing opinions;<br>o Field participants may be more willing to cooperate because they see the researcher as trying to make a valid contribution to the field site;<br>o May increase the relevance to practice of the research work done. | o Very time consuming;<br>o Field subjects may be less open and honest with the researcher in cases where he or she is perceived to have a vested interest;<br>o Danger that the closely involved field researcher becomes socialised to the views of the people in the field and loses the benefit of a fresh outlook on the situation;<br>o Researchers may lose critical distance on the value of their own contribution and perhaps represent it in too positive a light. |

*Source*: adapted from Walsham (2006)

Continued involvement with the field situation may push the researcher towards a more involved stance (Walsham and Sahay 1999; Walsham 2006), in particular in the sense that the organisation involved may expect some form of advice and feedback, in return for the time and effort that the organisation's employees dedicated to the study.

.The author sought to present herself has a neutral researcher and all communications with the organisation and interviewees stressed that the purpose of the exercise was to collect data for the author's doctoral research. However, various members of the organisation, namely those working in the head office, became very interested in the study, and asked for the author to share the study's findings with them, at a later stage. The author and the representative of the organisation agreed that the form of feedback should take the form of a presentation to members of the organisation, including both those who had participated in the empirical study, and others not initially involved. The presentation took place in May 2006, and lasted for approximately one hour.

## 4.1.4 Data presentation and analysis

Semiotics is a valuable interpretive research methodology to represent the shaping of an organisation's operations within the particular social context that it is embedded in (Corea 2005).

Organisational semiotics, in particular, offers tools to present the divergent and, sometimes, conflicting views that may emerge in an organisation (Stamper, Althaus et al. 1988; Stamper 1993). One such tool is Semantic Analysis (SAM) which enables the analyst to specify the elements that compose the information system, and the relations between them. The semantic model represents the patterns of behaviour of an organisation, or the possible actions that members of the organisation can perform (Stamper, Liu et al. 2000), with a focus on the responsible agents and their repertoire of behaviour (Liu 2000). The patterns of behaviour – the affordances - are ontologically dependent on the agent performing them (DeMoor 2002). These dependencies are represented graphically by lines, with the antecedents on the left and the dependents on the right (figure 4.1). Three key components need to be present in the resulting ontology chart (Tan and Liu 2003): the *agent* responsible for the action, represented by an oval; the *affordances* relevant for the agent, represented by a rectangle and the *ontological dependencies* linking the agents and the affordances, represented by a line or an arch.

**Figure 4.1 – Example of ontology chart**
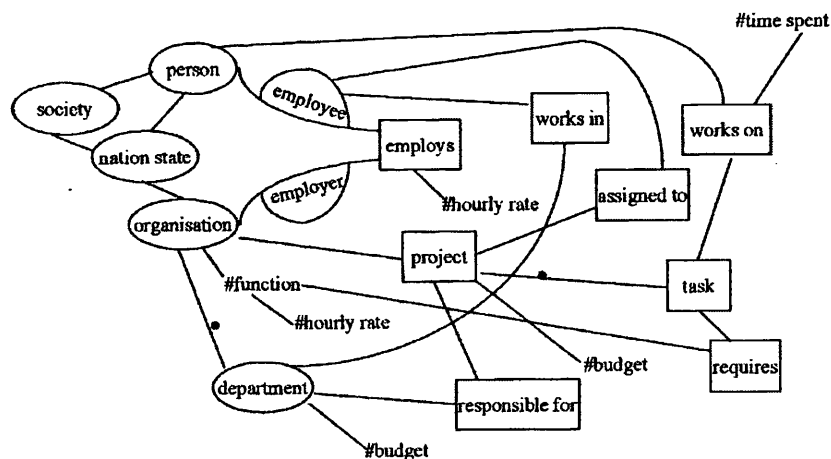


*Source*: Stamper, Liu et al. (2000)

The ontology chart maps the vocabulary and the temporal relationships between the perceptions that those words represent (Stamper 1996).

Another tool available, in organisational semiotics, is Norm Analysis (NAM) which assists the capture of the various norms that condition the realisation of the affordances and state under which circumstance the ontological elements start or cease to exist (DeMoor 2002; Liu, Sun et al. 2003). It is a systemic approach to eliciting the norms that direct, coordinate and control the agent's actions (Liu 2000), as well as the triggers that may activate such norms (Stamper, Liu et al. 2000; Tan and Liu 2003).

In addition to studying contextual factors, in AML profiling, the researcher is also examining the role of cognition by studying individual's mental schemas. Capturing psychological categories poses great methodological challenges to the researcher:

> '[Categories] are something inside our heads. The methodological problem is of course that
> we have no access to other people's minds except by observing what they do and listening
> to what they say.' ((Andersen 2004), page 40)

The author analysed what the employees said and did in search of discernable patterns (Maitlis and Lawrence 2003; Balogun and Johnson 2004; Maitlis 2005) of category composition. Furthermore, the researcher organised the emerging themes (Yin 2003; Saunders, Lewis et al. 2007) in two categories: identity and transaction features. Following on from this stage, the author developed 'snapshots' (Jorna and Heusden 2000; Heusden and Jorna 2001) for each interviewee. The snapshots enabled the researcher to understand the relevant conceptual schemas (Khatri, Vessey et al. 2006) and create descriptions of the content of the category of 'Money Laundering Behaviour' for the various respondents.

Next, the researcher examined the narrative accounts resulting from the structured interviews through 'talk and texts in interaction' (Potter 1996; D'Cruz 2004), in order to identify instances of stimuli filtering, as discussed in section 3.2.

## 4.1.5 Unit of analysis: AML at BFI

The case study chosen for this thesis is the AML initiative at a UK based financial institution, to be referred to as BFI. The researcher aimed to study the consequences of various stakeholders' perceptions and actions on the activity of profiling and detecting potential money laundering activity

at BFI. Organisations are abstract entities and, as such, pose challenges to the researcher aiming to study them. The semiotic authors, Heusden and Jorna (2001), characterise the challenge of studying organisations in the following way:

> 'Although in general we have little or no difficulties in speaking and thinking about organisations, describing the empirical reality of organisations is far from easy. Where should we look for organisations? How should we study them? Organisations are markedly elusive. They cannot be treated as empirical entities. What you perceive, when 'looking' at organisations, are artefacts (buildings, machines) and behaviour (linguistic and other). But neither artefacts, nor behaviour are 'organisation-like' in themselves.'

In a separate line of work, Charrel (2004) has noted that an organisation is composed of multiple actors each having his or her own 'viewpoint'. Viewpoints consist of Peirce's three components of the sign in addition to 'the Actor, who uses or produces the sign (...) and... the context, the conditions in which the sign is used of produced' (page 107). Charrel compares a particular employee's viewpoint on a particular subject to a situated sign and describes the task of an information system researcher as one of eliciting the 'universe of viewpoints' and integrating them. Further, Charrel argues that reasoning about the different viewpoints 'facilitates the discovery and management of all significant differences which are the sources of sense... (and) traces both the communications and the meaning process that constitute the final collection of requirements' (pages 109-110)

The researcher is, then, faced with the question of whether to study all members of the organisation or focus on a sub-set. Additionally, the researcher ought to decide whether the analysis should include artefacts as well as people. Heusden and Jorna (2001) address this issue and suggest that:

> 'What is needed, therefore, is something that relates artefacts and behaviour to create a more or less coherent whole. Such a relation is a representation, shared, at least in part, by a number of interacting actors. It is the representation that gives both artefacts and behaviour their meaning. (...) The empirical material (of semiotics) consists of represented artefacts and behaviour. The artefacts are not, in themselves, representations. But they become so when used in the semiotic behaviour. Representations are empirical entities, insofar as they are aspects of (human) behaviour. Our empirical research is thus research into mental processes.'

Responsibility for AML at BFI rests with the Money Laundering Reporting Officer (MLRO) and his team, hereafter referred to as the MLRO unit. The activity of monitoring how customers use BFI's products and services, looking for signs of money laundering, is a dynamic process that also involves branch personnel and an automated monitoring system. Therefore, the author felt that the

unit of analysis that most completely relates artefacts and behaviour, in relation to AML initiatives at BFI, should be extended to include not only the MLRO unit but also the branches and the automated system. This study is, thus, a single, embedded case study (Yin 2003) which examines a number of logical sub-units within the organisation.

The researcher opted to use a pseudonym for the field organisation and disguise the identities of the interviewees. Liebenau and Smithson (1993; 1994) argued for the disclosure of the organisation's identity, in order to increase contextual information and validation. However, given that the subject discussed in this thesis is of an extremely sensitive nature, with links to law enforcement and crime detection, it was felt that the disadvantages to the organisation and the AML initiative far outweighed the benefits for the research community of disclosing such information.

## 4.2. Data collection

Case studies may use quantitative or qualitative methods, or even a combination of both (e.g., (Kaplan and Duchon 1988)). The two methods differ not only regarding the collection tools used, but also regarding the type of analysis that they enable, as summarised in table 4.2.

**Table 4.2 - Distinction between quantitative and qualitative data**

| Quantitative data | Qualitative data |
| --- | --- |
| Based on meanings derived from numbers | Based on meanings expressed through words |
| Collection results in numerical and standardised data | Collection results in non-standardised data requiring classification into categories |
| Analysis conducted through the use of diagrams and statistics | Analysis conducted through the use of conceptualisation |

*Source*: Saunders, Lewis et al. (2007)

Saunders and colleagues (2007) further argued that:

> 'A contrast can... be drawn between the "thin" abstraction or description that results from quantitative data collection and the "thick" or "thorough" abstraction or description associated with qualitative data' (page 472).

This study draws on qualitative data collection tools, which are particularly suited for research requiring a complex and holistic picture with detailed descriptions of the informants' views (Creswell 1998), and to explore multiple realities (Lincoln and Guba 1985). Data collection took place

between November 2004 and September 2005. The study used a combination of primary and secondary data sources, as described next. The combination of various data sources provided the author with confidence that the data collected constitutes a comprehensive view of the phenomenon under study (Eisenhardt 1989).

## 4.2.1 Secondary data collection tools

The study drew on documentary secondary data, in particular, analysis of the documents identified in table 4.3. Secondary data serve to provide comparative and contextual data (Saunders, Lewis et al. 2007). Namely, the documents analysed in the context of this study enabled the researcher to gain insight into the ways definitions of money laundering are delineated at the institution, as well as into how the practice of detecting and reporting suspicious money laundering behaviour is operationalised.

**Table 4.3 – Documents collected and analysed**

| Type | Description |
|---|---|
| Paper | o AML guidance document for all members of staff<br>o Reporting instructions distributed to all members of staff<br>o AML guidance document specifically for customer facing staff<br>o Investigation process 'crib sheets' distributed to AML analysts<br>o Customer information booklets prepared by BFI<br>o Customer information booklet prepared by regulator and law enforcement agency<br>o AML analysts' evaluation forms |
| Electronic | o AML training software<br>o AML awareness section on BFI's Intranet<br>o Referrals dashboard<br>o Generic file descriptions detailing the data that BFI extracts from the legacy systems and how it is put in to the automated monitoring system<br>o Presentations by the provider of the automated monitoring system |

Some authors note that the initial purpose for data prepared may affect how it is presented and that such potential bias is a limitation of using secondary data in research (Stewart and Kamins 1993; Saunders, Lewis et al. 2007) – however, for the purpose of the current study, such bias was not a disadvantage given that its goal was exactly to elicit predispositions and ideas surrounding the preparation of the documentary data in use in the organisation.

It is however important to acknowledge that documentary sources, on their own, were insufficient sources of data for the study. This is because what is written in these documents may not

necessarily reflect what is done in practice. D'Cruz (2004), who researched Child Protection practice in Australia, noted that:

> 'No amount of organisational regulation can entirely suppress the interpretation by practitioners of what is prescribed in policies and procedures, and how these may be implemented' (page 2)

The researcher combined the analysis of the documents mentioned above with collection of primary data, as described next.

## 4.2.2 Primary data collection tools

The analysis of documents was triangulated with interviews and observations of various BFI employees. Interviews are 'the main road to multiple realities' ((Stake 1995), page 64) and enable the researcher to discover things that are not directly observable, such as feelings, thoughts and intentions (Patton 1990). When deciding whom to interview, the researcher was guided by both relevance and practical considerations. As described in section 4.1.5, the relevant unit of analysis for the thesis is the MLRO unit, as well as branches and the automated system.

The MLRO unit is of manageable size, as described in chapter five and, consequently, it was possible for the researcher to interview all team members, including all those linked with the operation of the automated system. It was not possible, however, to interview staff that worked in all branches of BFI for both practical and access reasons. Accordingly, the researcher selected a small sample of all branches, following a non-probabilistic sampling method: purposive sampling. The purposive sampling technique is appropriate for research exercises that aim to explore key themes, in depth, using a small sample (Neuman 2000; Saunders, Lewis et al. 2007). The selection of specific units for the exercise is dependent on the research's objectives (Patton 2000). The researcher aimed for maximum variation within a homogeneous sample (Patton 2000). The homogeneity derived from choosing the subgroup of London based agencies and selecting two branches that had similar sizes and job functions, and that had been exposed to similar training programmes. Within these, the researcher asked BFI's assistance in identifying two branches that were exposed to markedly different types of clients. This meant that the researcher could explore varying conceptualisations of money laundering within a particular branch, as well as across the two

branches studied. The data hence collected, while unlikely to be representative of the whole population of BFI branch personnel, should assist the researcher in documenting uniqueness and emerging themes (Patton 2000). Given these parameters, BFI facilitated access to one branch located in the city of London and another one located in East London. BFI also facilitated access to its largest branch, for the purpose of conducting a pilot study.

The author used both structured and semi-structured interviews (table 4.4), which were all voice recorded and transcribed. The semi-structured interviews consisted of a list of themes and questions to be covered, which was adapted for the specific job role context of the interviewee. Semi structured interviews provided the researcher the opportunity to ask interviewees to explain or build on their responses, the opportunity to collect a rich and detailed set of data, and are particularly relevant in interpretive studies (Saunders, Lewis et al. 2007).

> 'The main reason for the potential superiority of [semi-structured interviews] for obtaining information is that the flexible and responsive interaction which is possible between interviewer and respondent(s) allows meanings to be probed, topics to be covered from a variety of angles and questions made clear to respondents'. (Sykes 1991)

Table 4.4 – Summary of interviews conducted

| Participants | Semi-structured | Structured |
|---|---|---|
| Managers (MLRO unit) | 5 | - |
| Analysts | 5[20] | 4 |
| Systems administrator | 3 | 1 |
| Trainer | 2 | - |
| Branch staff[21] | 9 | 9 |

However, semi-structured interviews present a potential problem of reliability, in the sense that alternative researchers might elicit different information from the interviewees (Marshak, Keenoy et al. 2000; Easterby-Smith, Thorpe et al. 2002), or because the interviewee is unwilling to or unable to provide the information required (Saunders, Lewis et al. 2007). In order to increase reliability, the semi-structured interviews were complemented by observations and by structured interviews, where the researcher looked very carefully for discrepancies between actual behaviours and those described in the interviews.

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[20] One analyst left the organisation shortly after the semi-structured interview

[21] Excluding the branch where the pilot study took place

Another limitation of semi-structured interviews is that it is difficult to make generalisations about the entire population (Yin 2003). In the present study, the entire population of the MLRO unit as well as the 2 branches studied were included in the interviews. Therefore, while it is not possible to generalise from this study to all BFI branch staff, or to all banking organisations, it is still possible to generalise for the units investigated.

The structured interviews consisted of an interviewer-administered questionnaire, based on a predetermined set of questions, identical for all the interviewees. Questionnaires are perfectly valid inputs for interpretive studies, and can be very useful complements to purely qualitative data collective tools (Kaplan, Farzanfar et al. 2003; Mingers 2003; Walsham 2006). The choice of interviewer-administered, rather than self-administered, questionnaires posed the disadvantage that the respondents might have felt inclined to choose an answer that they thought would be desirable (Dillman 2000). However, the researcher felt that interviewer-administered questionnaires were a particularly suitable method due to the increased response rate of this method and the ability to route different subgroups of respondents (Saunders, Lewis et al. 2007), as well as the eventual necessity to clarify complicated questions (Oppenheim 2000). The questions for the questionnaire emerged from the research framework described in the previous chapter, in particular regarding cause and effect relationships (Ghauri and Gronhaug 2005) between the respondents' stated opinions and attributes and their exhibited behaviour (Dillman 2000). The decision to study the link between opinions and behaviours is also in line Ciborra's (2001) call for information systems researchers to examine moods and human emotions.

The questionnaire had four parts. The first part consisted of identity and transaction data for a fictitious customer. The data, while fictitious, was inspired in real cases and was developed with the help of BFI's AML trainer. The second part consisted of questions in a Likert-style scale (Corbetta 2003), in which the respondents were asked how strongly they agreed or disagreed with several statements regarding the fictitious customer. The third part used a semantic differential rating scale, where respondents were asked to rate their attitudes towards AML, on a series of 10 bipolar rating scales. Each bipolar scale described a pair of opposite adjectives, designed to anchor the respondents' attitudes (Haried 1972; Haried 1973; Houghton and Hronsky 1993; Saunders, Lewis

et al. 2007) towards the activity of detecting and reporting potential money laundering behaviour. The adjectives focused on three factors (Stamper 1973): evaluation, potency and activity of the task. Evaluation referred to the purpose of the task, potency to the impact of the task and activity to the dynamic character of the task. The adjectives used for each of the three factors are summarised in table 4.5. Due care was taken to vary the position of the positive and negative adjectives, in order to reduce the tendency of respondents to only read the adjective on the left side of the page (Kervin 1999). The final section consisted of category and open questions designed to obtain a demographic profile of the respondents.

**Table 4.5 – Semantic differential factors**

| Evaluation | Potency | Activity |
|---|---|---|
| Bad / good<br>Harmful / beneficial<br>Unrewarding / rewarding<br>Unpleasant / pleasant<br>Useless / useful<br>Not worthwhile / worthwhile | Ineffective / effective<br>Powerless / powerful | Flexible / rigid<br>Mobile / Static |

As endorsed by Bell (2005) and others, a pilot version of the questionnaire was tested in one branch not included in the final sample. As a result of the pilot, the questionnaire was significantly shortened in order to avoid antagonising the interviewees (Walsham 2006) and to increase response rates (DeVaus 2002; Edwards, Roberts et al. 2002). Additionally, some of the questions were rephrased to improve clarity (Fink 2003; Saunders, Lewis et al. 2007).

The author conducted the structured interviews with the branches' personnel face to face. The structured interviews with the MLRO unit personnel took place via the telephone. The author considered this method to be more practical than conducting an additional round of face to face interviews because it allowed the researcher to talk with the respondent at a time that best suited him or her, as opposed to scheduling several interviews on the same day which might required the respondents to interrupt their work, or the author making several trips to the organisation's office. Additionally, the researcher had already established personal, face to face contact with the interviewees in various previous occasions and she was confident that a reasonable level of trust had been established between interviewer and interviewee (Saunders, Lewis et al. 2007).

Foddy (1994) stated that, in order for interview findings to be valid, four requirements must be accomplished: 1) the researcher is clear about the data required and designs a question, 2) the respondent decodes the question in the way the researcher intended, 3) the respondent answers the question and, 4) the researcher decodes the answer in the way the respondent intended. The researcher addressed the first requirement by carefully developing questions from the research framework as well as adapting questions used in other interview guides and questionnaires (Bourque and Clark 1994). In order to address the second and fourth requirements, the researcher asked the respondents to provide a narrative account of their decision making process, therefore allowing respondents to answer the questions in their own way (Fink 2003), allowing the researcher to confirm or complement the interpretation of questions as well as providing an insight into how respondents understand and organise their reflections of what occurred (Jones and Candlin 2003). The interviews had 100% response rate, and no question remained unanswered, therefore addressing Foddy's third requirement.

The data collection exercise also included the systematic observation, recording, description, analysis and interpretation of BFI employees' behaviour. Observation is particularly suitable when the research looks at what people do (Stewart and Kamins 1993), as opposed to what they might say they do. Additionally, observation allows the researcher to best become acquainted with the respondents' context (Saunders, Lewis et al. 2007).

> 'In the social sciences we cannot hope to adequately explain the behaviour of social actors unless we at least try to... learn (their) symbolic world' ((Delbridge and Kirkpatrick 1994), page 37)

Gill and Johnson (2002) developed a fourfold categorisation of the role that the participant observer can adopt, illustrated in figure 4.2. This study used an 'observer as participant' approach, where the respondents were aware that they were being observed and of the purpose of the study. Such approach was not only more ethical than the complete participant or complete observer roles, but also allowed the researcher more freedom to take notes, than would be possible in a participant as observer or complete participant roles.

**Figure 4.2 – Typology of participant observation research roles**

| Researcher's role in activity | | | |
|---|---|---|---|
| | *Participates* | Participant as observer | Complete participant |
| | *Observes* | Observer as participant | Complete observer |
| | | *Revealed* | *Concealed* |
| | | *Researchers identity* | |

*Source*: adapted from Gill and Johnson (2002)

In order to overcome what Delbridge and Kirkpatrick (1994) described as the greatest threat to the reliability of participant observation, observer bias, the researcher used the 'informant verification' technique (Saunders, Lewis et al. 2007), in which the researcher presented her account to the participants for them to verify the validity of the conclusions. The researcher also used recording devices, with the knowledge and consent of the respondents.

## 4.3. Conclusion

The major departure point for this study was to study subjectivity in profiling, from an integrated perspective. Scholars from varied fields of research, from data mining to specific applications, acknowledge that the process may be influenced by contextual and cognitive factors. However, despite various calls for research examining the role of such factors in the profiling process, as well as the impact on the emerging profile, a multi-disciplinary approach to the study of profiling has been largely absent from the relevant literatures.

The primary theoretical lens informing the present thesis is organisational semiotics. This lens was chosen because of its appropriateness to study issues of meaning in organisations. Organisational semiotics rejects the notion of absolute meaning, in favour of a conceptualisation of meaning as subjective, relational and dependent on the context. A second theoretical lens was drawn upon in order to address the limitations of primary lenses, and add richness to the analysis: classification theory. Classification theory originates from cognitive psychology and focuses on understanding individual mental processes of meaning. Albeit originating in different fields, and traditionally using different methods, the two lenses are, for the purpose of this study, considered not only complementary but also compatible, because both theories conceive of meaning as subjective,

relational and dependent on the context. Additionally, both fields follow a descriptive, rather than a predictive approach, to the phenomenon analysed.

Chapter four presented the methodological approach for the thesis, and substantiated the choice by linking it with the theoretical underpinnings informing the study. The author opted for an interpretive case study, in which the research's position tended towards that of neutral observer, even though towards the end of the project there was increased participation in the form of a feedback session. The chapter further outlined the qualitative data collection tools chosen for the thesis, and explained how information was triangulated, through the use of multiple sources. The next chapter outlines the findings from the fieldwork.

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# 5. Fieldwork

The case study described in this chapter refers to the development of information systems in a UK based financial institution, for the purpose of detecting suspicious money laundering activity. At the time of the study, the role and the process of AML initiatives within the organisation were undergoing significant changes, in line with major transformation occurring elsewhere in the industry. BFI's ultimate objective is to find the most cost effective method to infer criminal activity from exhibited banking behaviour.

The following sections present the data collected in the field study. The first section provides an overview of the process of detecting money laundering in the case study organisation, highlighting the changes occurred over time. The subsequent four sections present the data collected according to the methodology outlined in chapter 4. The final section summarises the main empirical findings about the classification processes emerging in the organisation.

## 5.1 Detection of money laundering at BFI

This section sets the case study under analysis, and describes the information systems in place. BFI[22] is a publicly traded company, and one of UK's major financial services groups. It was created in the 19th century and expanded both by organic growth and through mergers and acquisitions.

BFI has a UK-wide network of branches and automatic teller machines (ATMs), Internet and telephone banking services, as well as a limited provision of services through a third party commercial organisation. BFI's largest business unit, contributing to over three quarters of the group's profit, is retail banking. The retail business includes the provision of current accounts, savings, personal loans and mortgage services. In addition, like other financial institutions, BFI developed a number of partnerships with suppliers of services such as insurance, long term investment products or credit cards.

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[22] All names and identifiers have been disguised to protect the privacy, security and commercial interests of the organisation analysed

## 5.1.1 Evolution of AML at BFI

The unit in charge of developing and implementing an AML programme at BFI is headed by the MLRO, and shall be referred to, in the context of this thesis, as the MLRO unit. The MLRO unit went through three distinct periods in its history that, in turn, reflect wider changes in the organisational and external environments.

Initially, AML initiatives at BFI were responsibility of the compliance department. Consequently, the role of the AML at BFI was, essentially, one of guaranteeing that the organisation was complying with the FSA requirements as far as internal policies were concerned. As recently as December 1999, there was simply one person looking at money laundering referrals in the company, and the entire MLRO unit consisted of three persons, only. The whole period up to mid 2002 was characterised by low investment in the unit, reflecting the low priority given to AML nationwide. The FSA had just taken responsibility for AML, and as one member of the MLRO unit described:

> 'It wasn't a priority for anybody... we put a tick in the box as far as compliance was concerned but did very little else.' (Interview, MLRO)

In 2002, the FSA held audits at several financial institutions. Appendix 7 provides a brief overview of the risk framework guiding the FSA audits. The FSA felt that a number of institutions had not made enough effort to prevent and detect money laundering and, subsequently, applied very hefty fines, as detailed in appendix 8. FSA audited BFI in 2002. The assessment focused, among other things, on the measures in place at BFI to avoid it being used to process the proceeds of crime. FSA did not fine BFI but, in the light of the heavy fines imposed on other institutions and the subsequent negative media attention that such institutions received, BFI took FSA's recommendations very seriously. The MLRO confirms that:

> 'Our biggest thrust (...) is that we don't want to be fined. Period.' (Interview, MLRO)

> 'The thing that has pushed all this has been the FSA saying "you are not doing enough" (...)
> FSA thought that we should deploy more resources to it... and we started to build the team
> to where it is now.' (Interview, MLRO)

BFI recruited staff to analyse referrals, to develop and deliver training activities, and to administer IT related projects. In 2003, the unit acquired an automated transaction monitoring system (ATMS), based on a neural network solution. Budget constraints dictated the choice between alternative
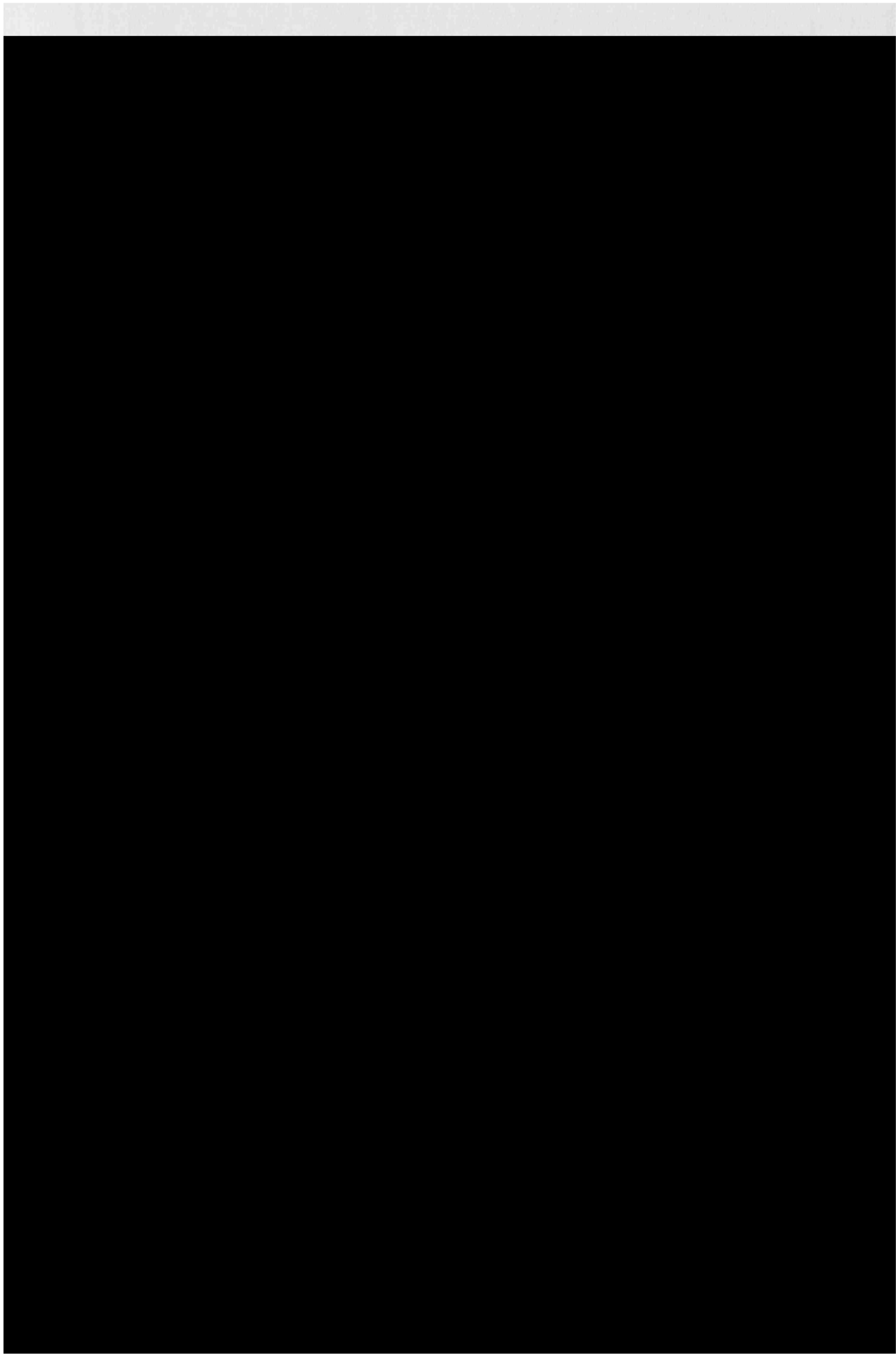
success stories started to emerge[26] and the links with other prestigious institutions became stronger and stronger, the unit gained increased internal legitimacy. The MLRO unit started to cooperate regularly with other units in the organisation, such as the fraud and marketing departments, in order to develop monitoring algorithms and exchange intelligence, in general.

> 'Before, we did not get many alerts from Fraud, but that has been changing.' (Interview, MLRO)

> 'Our marketing department (has) a very broad customer database. It has got details of all our customers and... the transaction activity that they perform (...) (They) combine certain data that is available – e.g., socio-demographic information, socio-economic information about where the customer lives and what type of people live in that area, whether they can expect a high predominance of directors or small businesses, council houses... [It gives us an] idea of the financial position of our customer. The marketing database will provide us with an awful lot of information.' (Interview, Systems Manager)

The structures of power have shifted at BFI and, with them, the structures of authority and responsibility. At the time of the empirical exercise, if the marketing team wished to launch a new product, it had first to get clearance from the MLRO unit, certifying that the product and the accompanying literature did not infringe the group's guidance and policy on AML, for instance.

> 'Operational areas may seek technical support from the team. For instance, if the marketing department decides to launch a new product, they have to clear it with ourselves. (Check) if what they are advertising actually meets the requirements that we have regarding customer identification, etc... Also the marketing literature must be cleared with [the unit] to see if it meets the requirements.' (Interview, Inspections manager)

The change in power is not complete, however, as illustrated by the following quote from an interview with the MLRO:

> 'If we want to do a data extract ... we have to go and beat up people in the system or call on favours. There is no real established channels, there is no awareness in the business (and there is no real imperative, anyway) to give us help with that'.

## 5.1.2 The MLRO unit

At the time of the field study, the MLRO unit consisted of 14 people, including the MLRO (figure 5.2). The MLRO is legally responsible for the group's compliance with the relevant law and regulations, and oversees both the retail and the wholesale banking businesses. He participates in several executive committees and steering groups, thereby contributing directly to the decisions of

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[26] The unit had recently received confirmation from the FIU that it had greatly assisted in the detection of a human trafficking ring.

the executive team. In addition, the MLRO is expected to create an AML culture in the organisation and contribute to the management of the group's financial risks. Money laundering is seen by some in the industry as inextricably linked to fraud, particularly in the case of terrorist financing, and, therefore, likely to originate direct losses to the financial institutions, in addition to the general negative impact in society in general.

**Figure 5.2 - Composition of the MLRO unit**
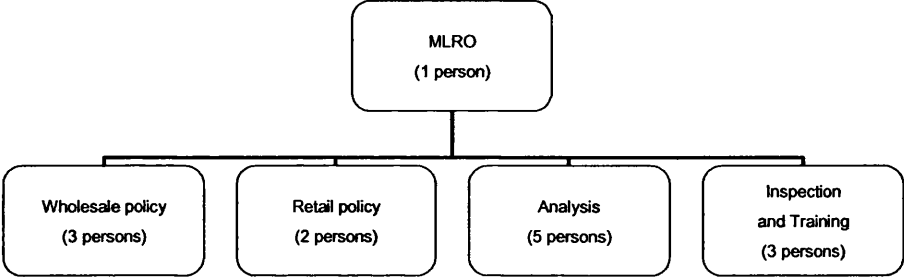


The Wholesale and Retail Policy teams perform a legal advisory role. In particular, they examine the relevant regulation and industry guidance, in order to develop company wide policies and guidelines. The Analysis team investigates all alerts received and, when applicable, prepares and submits referrals to the FIU, as discussed in section 5.1.5. The Inspection and Training team enforces implementation of internal policies regarding the opening of accounts, as well as the maintenance of both client and transaction records. The Inspection and Training manager also works, together with the Policy manager, towards the simplification of identification procedures in order to minimise disruption to the clients. One example of simplification is the move from paper-based identification to electronic one. The Trainer's role is, naturally, to develop and deliver training sessions across the group. Moreover, the Trainer identifies relevant topics to cover in the training sessions, and decides which branches or business units receive face to face training and which ones receive training via the Intranet, instead. The MLRO unit deems face to face training as more effective than electronic one, but given the fact that there is only one trainer available for the whole group, the former type of training is reserved for those units considered to have a particularly high risk of exposure to money laundering activity, or which face complex forms of money laundering, as is the case of international banking transactions.

### 5.1.3 Detecting money laundering

In order to detect potential money laundering, BFI instructs members of staff across the whole organisation to monitor customer transactions, and to report anything unusual to the MLRO unit. The analysts' team reviews all alerts received and, when one analyst deems that the observed pattern of transaction is, indeed, illegitimate, he or she reports it to the country's FIU. The process is outlined in figured 5.3.

**Figure 5.3 - The monitoring process**



```
┌─────────────────────────────┐
│     Banking behaviour        │
│  (e.g., deposit in cash)     │
└─────────────────────────────┘
              │ Scrutiny
              ▼
┌─────────────────────────────┐
│    'Unusual' behaviour       │
└─────────────────────────────┘
              │ Report
              ▼
┌─────────────────────────────┐
│           Alert              │
└─────────────────────────────┘
              │ Analysis
              ▼
┌─────────────────────────────┐
│   'Suspicious' behaviour     │
└─────────────────────────────┘
              │ Referral
              ▼
┌─────────────────────────────┐
│            SAR               │
└─────────────────────────────┘
```
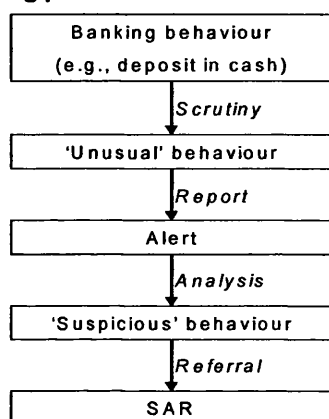
BFI aims to refer transactions and customers that will be valuable to the FIU:

> 'We try to train colleagues not to report defensively. If you can't decide (whether a particular alert is suspicious or not), you should go back and do more work' (Interview, MLRO)

Such quest for highly relevant referrals, however, needs to be achieved in a timely and cost-effective manner. Specifically, BFI aims to review each alert and decide whether to file or report the alert within 10 working days[27] of its reception by the MLRO unit, and within a fixed budget. The goal to be cost effective, in turn, means that BFI needs to be able to handle information in an effective way. In other words, BFI needs to be able to identify what the FIU considers valuable referrals, and needs to communicate this understanding upstream in the process chain, up to the point where observed transaction behaviour is first divided into what is considered normal and reasonable

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[27] This is an average. The target is likely to increase when a large number of members of staff are on annual leave, or as a result of major external events such requirements for information on a large number of accounts from law enforcement units. Similarly, the target is likely to decrease, otherwise. The annual average, however, is expected to be below the ten days limit.

behaviour and what is deemed unusual activity. The next section examines the origin of the profiles in place at the organisation, highlighting issues of information quality.

## 5.1.4 Profile development at BFI

The MLRO team scans the environment, in order to collect information and examples of which banking behaviour corresponds to money laundering or terrorist financing.

> *'There is nothing around. It is just case studies. When I started the job, I wanted information. I wanted people to tell me what to tell the staff. I wanted to know what the trends were, what were the scams. And you don't have that information. You have to build it from your own files, experiences, or going from seminars and conferences. You have to try and develop it yourself.'* (Interview, trainer)

One source of factual information is the law enforcement agencies, for instance via confirmation that a SAR submitted by BFI resulted in a prosecution:

> *'We had a couple of cases where we had good hits - for instance, a human trafficker that we helped to get arrested coming out of the branch. It was a huge success and it is good feedback to the team. Because we don't get a huge feedback...'* (Interview, Analysts' manager)

BFI obtains input from Law Enforcement Agencies' court production orders, as well:

> *'We are asked to provide a lot of witness statements. We often get production orders and we noticed that they were invariably on accounts that we haven't spotted before. Our action there is reactive.'* (Interview, MLRO)

The trainer explained how factual information is used in training sessions:

> *'I told them of the stolen vehicles that went to [country x] and other countries that [drive on] the left. I told them about the scam and the referral we had. When we investigated, it was a [specific type of commercial organisation], and the only thing that was happening was money coming into the account from [country x], and then going out. But there was nothing else: no salary payments, no bills...'* (Interview, Trainer)

Whilst the information obtained via the law enforcement agencies is the one that most clearly establishes the relationship between banking and criminal behaviour, it still suffers from severe limitations. Firstly, it does not occur systematically. And, secondly, it tends to deal with unique, unrepeatable events upon which a judgement must still be made regarding the application of that knowledge to other situations.

Most information available at BFI is of a speculative nature, instead. For instance, one member of the MLRO unit read in the news[28] that, in order to fund its terrorist activities, the IRA ran a business empire that included the smuggling of fuel, in particular agricultural diesel, from the Irish Republic where duty is considerably lower to Northern Ireland. Consequently, the MLRO unit decided to introduce a rule in its ATMS that singled out businesses with a SIC[29] code that relates to fuel, and that were located in the border towns. The accounts flagged were subsequently investigated by the analysts who, in the absence of intelligence regarding which filling stations were under the control of the IRA and, therefore, which were the specific patterns of transactions of a 'legitimate' filling station as opposed to an IRA controlled one, could only but guess which stations were engaged in suspicious activity.

In summary, the definitions used by BFI, regarding which observed banking behaviour is suspicious or not, are a conversion of factual and speculative information, originating in a variety of sources. The intelligence team converts that information into general definitions of what is suspicious behaviour. Such definitions, in turn, are converted into rules used across the organisation. The intelligence team is composed of four members that also hold other roles in the MLRO unit, as illustrated in figure 5.4.

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[28] Transcript available in appendix 9.

[29] The Standard Industrial Classification codes are used to classify business establishments and other statistical units by the type of economic activities they are engaged in. Information on the origins, legal basis and many other aspects of the UK's SIC system is available in

http://www.statistics.gov.uk/methods_quality/sic/default.asp
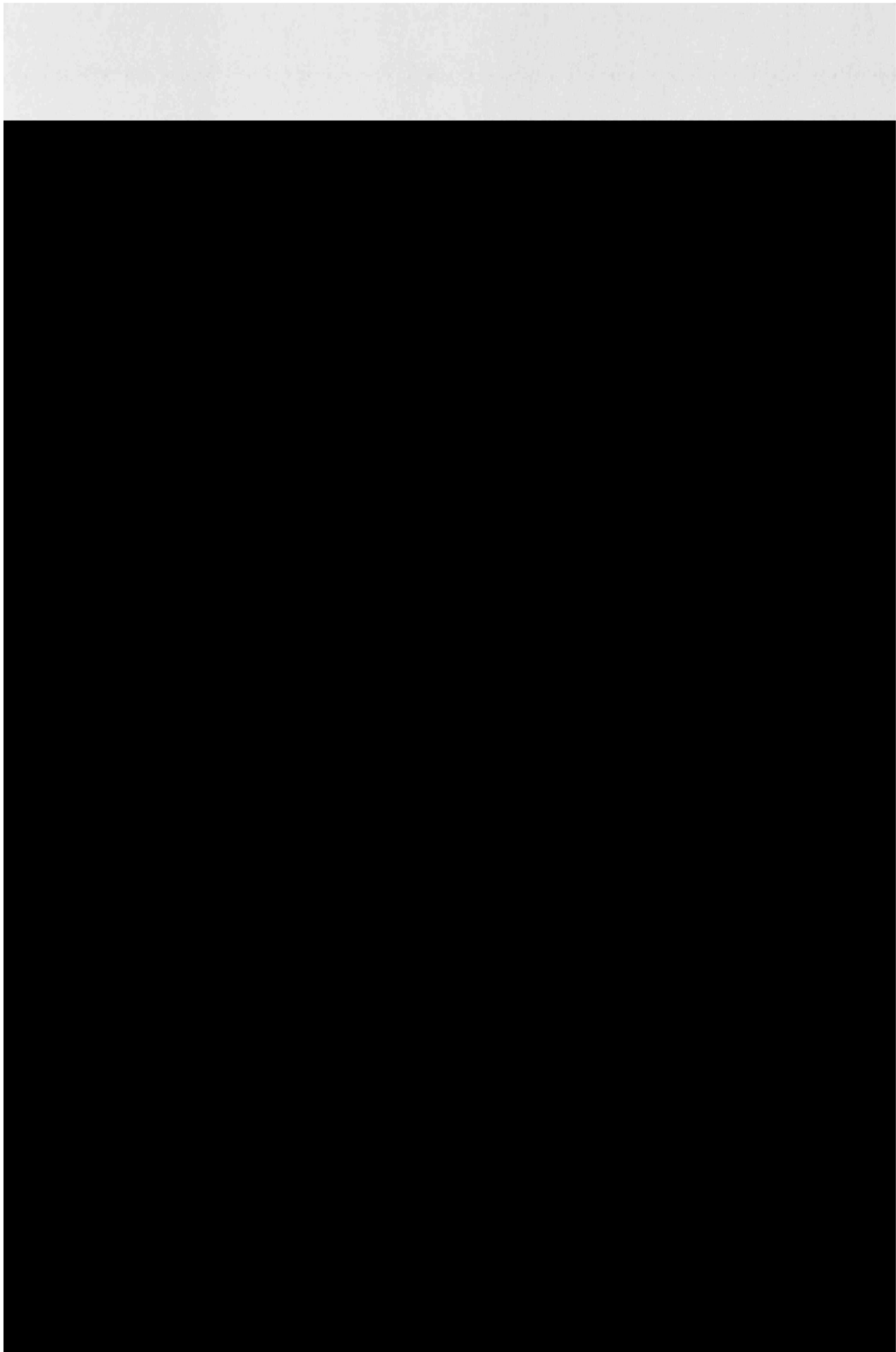
money laundering is a secretive occupation, whose perpetrators usually take great care in disguising and, as a result, most available knowledge about financial crime is of a speculative nature. The team is acutely aware of the nature of the process:

> 'We are not always going to get it right. We try. And I think that where we have learned the most is the cases where we get it wrong. We pull those cases and go through that... it is subjective, you know...' (Interview, Analysts' manager)

Additionally, the money being laundered may be the proceeds of any form of criminal activity, providing a myriad of possible alternative *modus operandi*. Finally, it has not been demonstrated that there are patterns of banking behaviour that refer exclusively to legitimate underlying activity.

In the lack of such uncontested models of behaviour, the monitoring process is one characterised by subjectivity, in the sense that what is considered unusual to one observer may seem perfectly reasonable to another:

> '[Staff] don't see everything the same (...) We all have suspicions about different things.' (Interview, Trainer)

A view that is supported by the analysts' manager:

> 'There are differences in [the analysts] approaches. Part of my role is picking the best out of their approaches and manufacturing a team that is as consistent as possible in their approach'.

In order to lessen bias in the monitoring process, the organisation has introduced an information system consisting of an aggregate of rules, processes and artefacts implemented with the purpose of formulating descriptions of what constitutes suspicious activity, and disseminating this understanding across the organisation.

The MLRO unit conducts numerous and extensive brainstorming sessions. There are regular, scheduled sessions within the unit, less frequent sessions with other units of BFI and ad-hoc sessions with entities external to the organisation in order to gather the latest available information regarding the identity and the methods of money launderers. The MLRO team then crystallises such models of who money launderers are and what they do into rules, to be disseminated across the organisation.

Dissemination of the rules is achieved through training activities delivered by the unit to all members of the organisation, which can have the form of structured, face to face sessions, computerised training packages or electronic updates. Furthermore, the rules are transformed into profiling algorithms that search through BFI's databases of transaction records. Transaction data is fed into the ATMS from the organisation's various legacy systems overnight, and SQL rules search through this data.

Alerts throughout the organisation show great variation. For instance, there are big differences between the number and type of alerts raised by customer-facing employees as opposed to the ATMS (figure 5.5). Additionally, there are huge differences across branches. For instance, the MLRO unit found that those branches located in areas deemed to be under the control of a well-known terrorist group, report far less suspicious activity than other, similar, branches:

> 'It is difficult to actually say with certainty, but the implication is that our staff [in specific geographical area] is far too scared. Our automated system has told us that there is quite a lot going on that would be interesting and that we think that staff should have spotted and told us about. So, obviously there is still some fear factor, there is still no go zones.' (Interview, MLRO)

**Figure 5.5 – Proportion of alerts by source[31], in 2005**
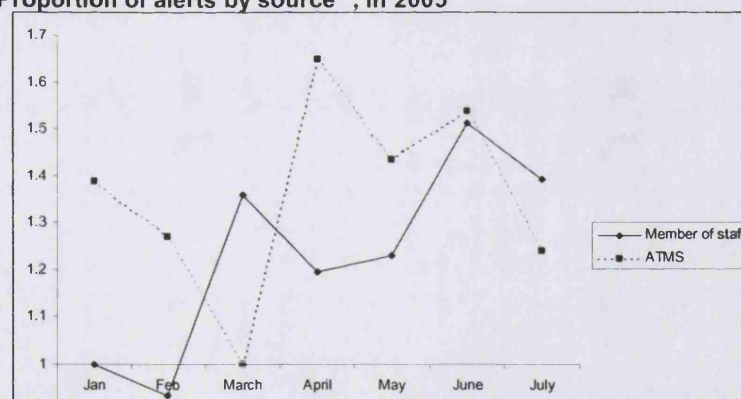
*'There is this particular person who works out in [call centre] and she rings me every other day, bless her. She reports everybody. You can't discourage her because one of the reports that she does during the week could be right... but I do need to go and see her, to reassure her'.*

Finally, the MLRO unit has noted a marked surge in alerts as a result of training activity:

*'I monitor referrals after my training. We usually see a pick after the training, and then it fades off. That is why we have to do the refresher training. You remind them in the training, and they go back to what they did two weeks (before) and that didn't pay much attention then, and might refer it. That is why we get the peak.'* (Interview, trainer)

In summary, detection of money laundering at BFI consists of a constellation of actions, as well as related sub-actions, which, together, form the focal unit of analysis of this thesis, as discussed in the next section. The discrepancies between numbers reported, and type of activities flagged, highlight the importance of critically investigating the monitoring process at BFI.

### 5.1.5 The monitoring process

The monitoring process consists of matching observed banking behaviour with the prototypes developed by the MLRO team of what is legitimate behaviour for a given customer and/ or financial product. Various agents participate in the monitoring process, with the output of the analysis of one agent becoming the input for another agent. Behaviours that do not match the prototype at the scrutiny stage are categorised as 'unusual', while behaviours that do not match the prototype at the analysis stage are categorised as 'suspicious' (figure 5.6).

**Figure 5.6 – Stages of the monitoring process**

| Step | Agent | Activity | Input | Category | Output |
|------|-------|----------|-------|----------|--------|
| #1 | • BANK staff (e.g., branch)<br>• ATMS<br>• External sources (e.g., victim of fraud) | Scrutiny | Observed banking behaviour | Unusual behaviour | Referral to MLRO team: Alert |
| #2 | • Analysts | Analysis | • Alert<br>• Client history<br>• Specific intelligence re: client or transaction | Suspicious behaviour | Referral to FIU: SAR |

The MLRO unit uses the two different labels to reflect that, in the first instance, there has been no qualified analysis of the behavioural pattern. It is also thought that by using a word with a weaker

negative connotation – unusual  - employees will feel less worried about mistakenly referring a

customer.

> '*We make a distinction purely because otherwise there is an expectancy that everything that we get in this department is suspicious and therefore should be disclosed.*' (Systems' manager)

Records of observed banking behaviour are first scrutinised by two types of agents: customer facing

staff such as those working in BFI's branches, contact centres or product units (e.g., international

transfers), and the automated transaction monitoring system. When the observed pattern of

behaviour is deemed unusual, it is reported to the MLRO unit. The analysts in the MLRO unit

investigate the alert, alongside other input such as previous transaction history or intelligence on a

given type of business. If the analyst agrees that the observed pattern of behaviour is not legitimate,

the behaviour is referred to the FIU, generating a 'SAR'. The FIU, an entity external to BFI, analyses

the SAR, in a process that is entirely beyond the control of BFI and which, for that reason, is not

...ts for analysis, in

...sts, as illustrated

...ussed in the present study. Hence, there are three key interdependent agen...

this thesis: the customer facing employees, the ATMS and the MLRO's unit anal...

in figure 5.7.

**Figure 5.7 – Components of the monitoring process**

## 5.1.6 Valuation framing

The key agents' beliefs regarding the task of monitoring AML behaviour was assessed using the questionnaire described in section 4.2.2. More than one indicator was used to measure each of the three factors identified in table 4.5: evaluation, potency and activity. The indicators' scores[32] were averaged to produce the final score for each factor. As illustrated in table 5.1, the indicators' scores were fairly consistent for each interviewee, as measured by the standard deviation.

**Table 5.1 – Summary of the results**

| Description | Code | Evaluation | | Potency | | Activity | |
|---|---|---|---|---|---|---|---|
| | | Aver | Std | Aver | Std | Aver | Std |
| Branch Low - Interviewee 1 | BL1 | 3.5 | 2.8 | 3.5 | 2.1 | 3.5 | 0.7 |
| Branch Low - Interviewee 2 | BL2 | 5.3 | 1.4 | 3.0 | 0.0 | 4.0 | 1.4 |
| Branch Low - Interviewee 3 | BL3 | 6.3 | 0.8 | 6.5 | 0.7 | 2.0 | 0.0 |
| Branch Low - Interviewee 4 | BL4 | 6.3 | 0.8 | 6.0 | 0.0 | 3.0 | 0.0 |
| Branch Low - Interviewee 5 | BL5 | 5.2 | 1.0 | 6.0 | 0.0 | 2.5 | 0.7 |
| Branch High - Interviewee 1 | BH1 | 6.3 | 1.2 | 5.5 | 0.7 | 2.0 | 0.0 |
| Branch High - Interviewee 2 | BH2 | 6.0 | 0.9 | 4.5 | 0.7 | 3.5 | 0.7 |
| Branch High - Interviewee 3 | BH3 | 4.7 | 1.6 | 6.0 | 0.0 | 4.5 | 0.7 |
| Branch High - Interviewee 4 | BH4 | 6.0 | 0.6 | 6.5 | 0.7 | 1.5 | 0.7 |
| Analyst 1 | A1 | 6.5 | 1.2 | 7.0 | 0.0 | 3.0 | 1.4 |
| Analyst 2 | A2 | 6.8 | 0.4 | 6.5 | 0.7 | 3.0 | 1.4 |
| Analyst 3 | A3 | 6.5 | 0.5 | 5.0 | 0.0 | 1.5 | 0.7 |
| Analyst 4 | A4 | 7.0 | 0.0 | 5.5 | 0.7 | 3.0 | 0.0 |
| System manager | SM | 5.7 | 1.9 | 5.0 | 0.0 | 2.5 | 2.1 |

The respondents held a generally positive attitude towards detecting and reporting money laundering (Figure 5.8). The analysts were not only more positive than other members of staff, but they were also more consistently so. Of particular importance is the fact that all analysts considered that money laundering detection was extremely beneficial and rewarding, while only five out of nine branch employees considered it so. Members of the branch located in the economically deprived area, referred to as Branch Low, were less positive about the task than their colleagues in the economically privileged location, referred to as Branch High. When probed for causes that made AML monitoring unrewarding, branch employees mentioned that AML brought increased workload and originated the occasional clash with their sales target.

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[32] As described in section 4.2.2, the questionnaire used a series of 10 bipolar rating scales, each of them describing a pair of opposite adjectives.

**Figure 5.8 – Evaluation of money laundering detection**
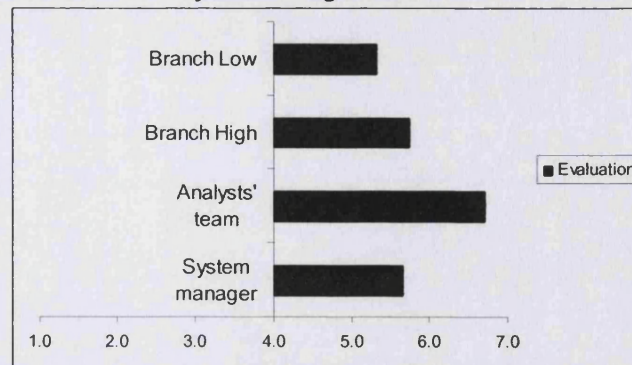


'Potency' measures the respondents' belief in the power of AML. Overall, there are not big differences between the beliefs of the different groups (figure 5.9). The analysts exhibited the strongest belief in the system, whereas the employees located in Branch Low were more sceptical than those located in Branch High. The System manager was as sceptical about the power of the system as the Branch Low employees.

**Figure 5.9 – Potency of money laundering detection**
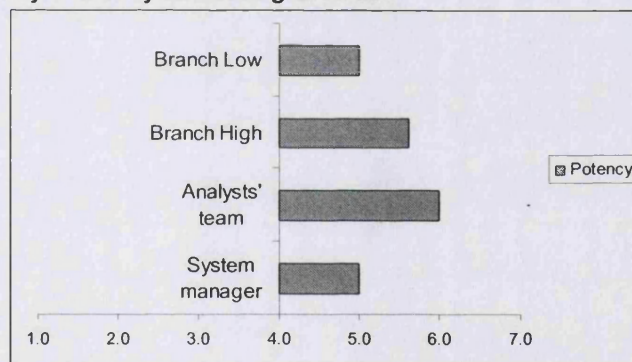


The factor 'activity' focused on whether detecting money laundering was a flexible and malleable task or, on the contrary, quite a rigid one. Responses to the left of the scale, i.e., below grade 4, indicate an opinion that money laundering detection is quite flexible. Activity is the indicator where responses were most consistent across groups of respondents (figure 5.10), with the system manager believing the most that ML detection is a flexible activity, closely followed by the analysts. There were not major differences between the two branches.

**Figure 5.10 – Activity of money laundering detection**
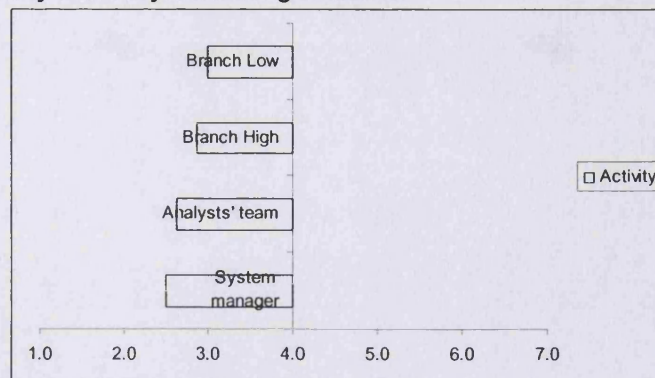


In summary, the BFI employees interviewed exhibited positive attitudes towards the task of detecting money laundering, were generally confident on its impact and saw the task as ever changing. As a group, the analysts were not only the ones with the most positive attitude but also the ones with most consistent replies. Section 5.2 looks at the portfolio of AML related actions available to each of the three types of agents.

## 5.2    Possible monitoring behaviours

This section builds on the discussion of the elements that constitute the monitoring process, and their prevalent attitudes, to focus on the actions possible for each element of organisation. BFI employees face a general duty to monitor and report suspicious transaction behaviour (figure 5.11)

behaviours that are specific to each role. The current section examines which                    yet there are

possible for the three key types of agents identified in section 5.1.5, and outlines the         behaviours are

behaviours affordances on the monitoring process.                                                 impact of such

Figure 5.11 – E

BFI employees' general actions
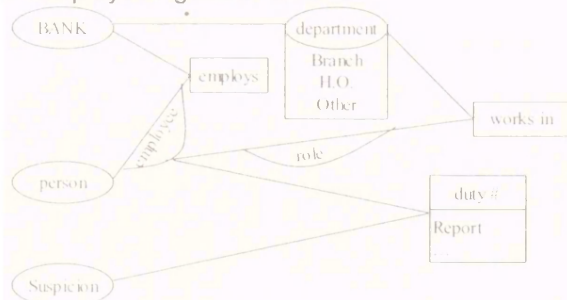
## 5.2.1 Branch employees

Branch employees interact directly with the customers (figure 5.12). The direct interaction enables these employees to form very clear mental representations of what the usual behaviour for an individual customer is:

> 'He would be the type of customer that would probably use a card, direct debits, etc...'
> (Interview, Branch supervisor)

In addition, branch employees have general expectations regarding the behaviour of specific types of customers, for instance depending on the professional occupation, or types of products such as personal vs. business accounts. Furthermore, direct interaction with the customers means that branch staff observe and, therefore, potentially monitor not only the specific transaction but also the customers themselves and special circumstances surrounding the transaction, for instance, whether the customer was accompanied or not.

> 'We had some (referrals) coming through (from the branches) that said: "the customer was a bit scruffy, he was smelly".' (Interview, Trainer)

**Figure 5.12 – Branch employees' actions**
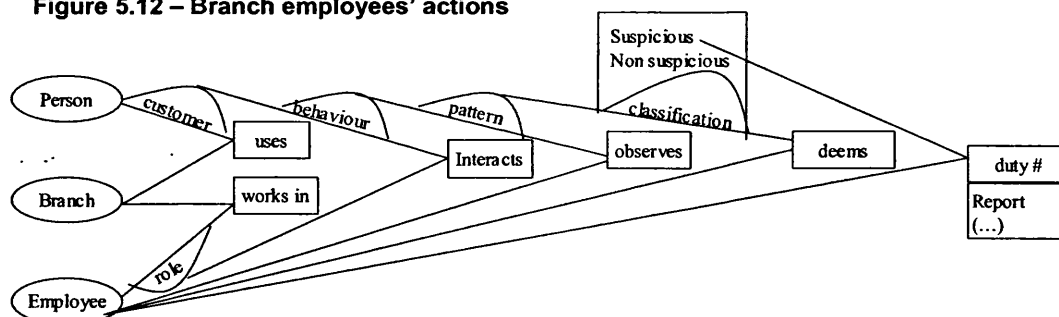


## 5.2.2 ATMS

The MLRO intelligence team considers intelligence from a pool of external and internal sources, ranging from law enforcement agencies to other financial institutions or anecdotal reports in the press, in order to develop the profiles, as described in section 5.1.4. Afterwards, the systems manager describes the intelligence accumulated at decreasing levels of abstraction, and translates it to the query language, SQL, until specific unambiguous criteria are reached, as illustrated in figure 5.13. The process aims to connect otherwise disparate pieces of personal, product and transaction data into a single formula.

**Figure 5.13 - Process of objectification of the money laundering definition**



```
Identify Money Laundering
          ↓
'Suspicious' behaviour
          ↓
'Unusual' behaviour
          ↓
For product range: personal account
          ↓
Obtain current accounts
          ↓
Obtain accounts with turnover above £20,000 in the last 30 days
          ↓
Edit transactions in the last 20 days
          ↓
Obtain transactions between £1,500 and £5,000
          ↓
Edit customers living in postcode SE3
          ↓
Obtain customers aged 20 to 40 years old
          ↓
Flag account 1234567 of customer J. Smith
```

The systems manager draws on the physical characteristics of the data to design the ATMS for handling the available customer, product and transaction data. The system processes data and has no direct interaction with the customers. Consequently, the profiles can simply draw on transaction records stored in the database, as illustrated in figure 5.14. Another defining characteristic of the system is that it can only run a limited number of rules at a time. As a result, when the team wants to monitor a new group of customers, a particular SIC code or any other new profile, it needs to switch off one of the rules currently being run.

Additionally, the ATMS is quite limited in the input that it can consider for the monitoring process. For instance, given that not all legacy systems feed into ATMS, the system can only monitor a subset of all transactions. One example is the mortgage database that contains customer information collected for the purpose of risk underwriting, such as the professional occupation of the clients and their expected annual income or the portfolio of financial products held. However, for technical reasons, the mortgage database is not linked with the profiling system. A second limitation is that the rules do not read text fields, such as notes from interviews between the customer and one of BFI's financial advisors, meaning that monitoring focuses on numerical data, only.

> 'We don't carry details such as scratch pads, history names, notes that customer advisors might use, telephone conversations, ... although some of the conversations could be

*useful, it is free text and we can't run queries on them, so there is no use in having them into the system'.* (Interview, Systems manager)

Furthermore, the ATMS holds data for a limited period of time only. In summary, for the monitoring activity, ATMS has access to a set of data that is only a subset of all the data available in the organisation and that consists of numerical data drawn from three legacy systems within a limited time window. As the systems manager put it:

> *'We might have the data in our legacy systems, but [if it] is not one of the ones that we are feeding into our monitoring system... we can't write any rules on that'.*

**Figure 5.14 – ATMS's actions**
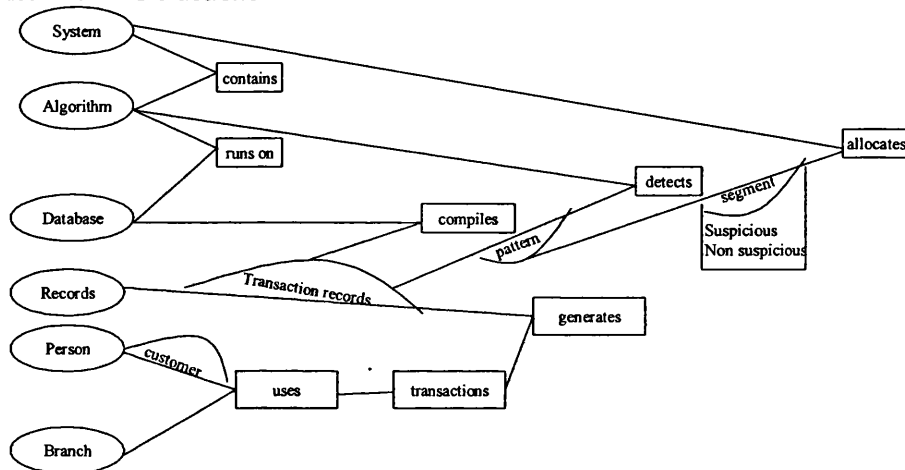
## 5.2.3 Analysts

Analysts do not interact directly with the customers, contrary to branch employees. Staff in the analysis team scrutinise patterns among various datasets, but excluding any intangible attributes such as the customer appearance as well as attributes that were not recorded on the database, as is the case of conversations between the branch employee and the customer. As such, the mental representations of the usual behaviour for an individual customer, a type of customer or a type of product may, in principle, differ from the representations held by branch employees because they are based on different data sets.

On the other hand, the analysts have access to databases that branch employees don't (figure 5.15), such as the entire portfolio of products that the customer has, and whether or not there have been previous alerts raised on this customer:

> 'It is about trying to build as big a picture of the customer as you possibly can, by trying to obtain as much information as possible from our records (including credit agency reports) and the Internet. Who their mortgage is with, where the direct debits are going to...'
> (Interview, Analyst 1)

> 'I am just looking through the account to see if there is anything else at all... Another large payment out, cash deposit, cheque deposit... (...) Just double check who it is going to. I am going to phone the department that deals with these payments and see if they have something on it. [Phone conversation] She told me that the payment has gone to [specific beneficiary]. I will do a quick check on the Internet (Google) (...) We usually have some history notes there. So that one tells me that there has been a file put together. That one has been previously referred. I will look at the reasons for those previous referrals.'
> (Interview, Analyst 2)

**Figure 5.15 – Analysts' actions**
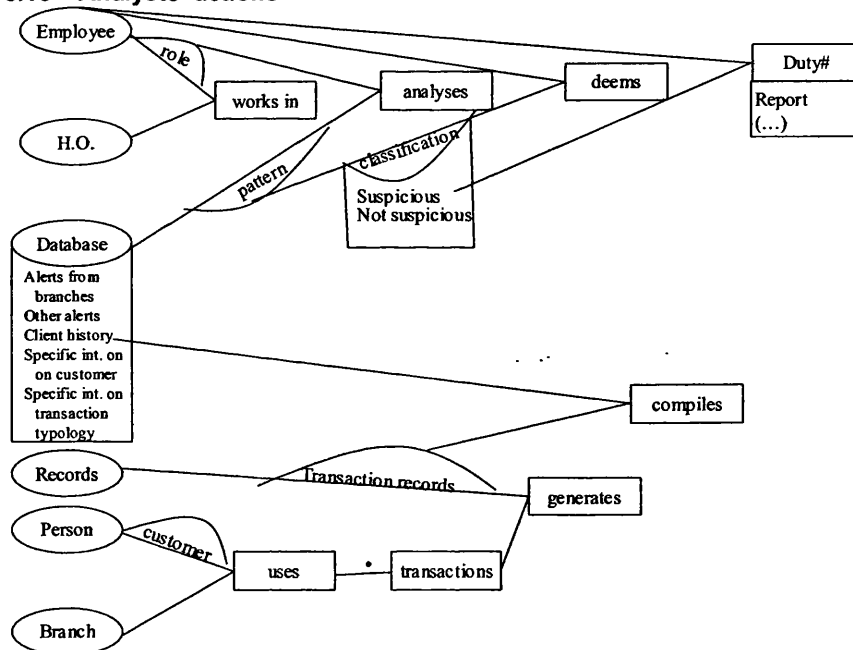


## 5.2.4 Comparison of possible behaviours

Different agents have varying access to information, as a result of their roles at BFI and, consequently, are able to monitor different elements, as summarised in table 5.2 and depicted in figure 5.16.

**Table 5.2 – Inputs for monitoring activity**

| Agent | Interaction with customer | Type of data available | Behaviour observed |
|---|---|---|---|
| Branch | Direct | - Soft and hard (numerical and text) data<br>- Limited scope | Customer's behaviour plus limited set and range of transactions |
| ATMS | Mediated | - Hard (numerical) data<br>- Time constrained<br>- Limited to databases feeding into the system | Wide range of transactions |
| Analysts | Mediated | - Mostly hard (numerical and text) data<br>- Possible indirect access to soft data via notes on customer files | Wide range of transactions, as well as customer behaviour via notes on alert reports |

Branch employees tend to have a single view of the customer limited to the direct interactions with that customer, and access to a limited range of databases, whereas the ATMS can draw on various other sources, and the analysts can draw on even more sources of information. However, branch employees are also the ones most likely to capture soft data, analysts can also do that but to lesser extent and ATMS can not capture soft data at all. Lastly, ATMS is the agent most capable of monitoring complex trends in the data, followed by the analysts and the branch staff. The three agents participate in the same general monitoring behaviour and yet have very different abilities to do so, as a result of their roles in the organisation.

**Figure 5.16 – Nature of monitoring behaviour afforded**
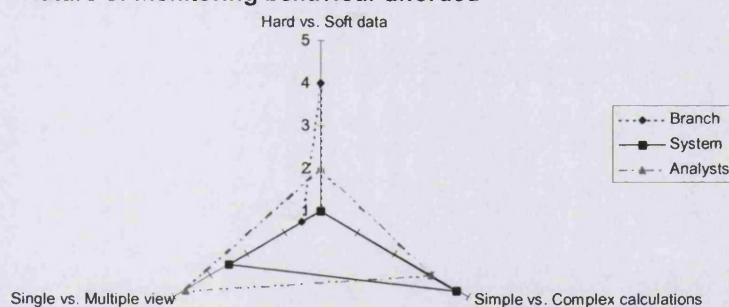
## 5.3 Permitted monitoring behaviours

This section outlines the technical, formal and informal forces that condition the perception, evaluation, cognition and behaviour of BFI's branch staff, ATMS and analysts, as far as the monitoring activity is concerned.

### 5.3.1 Technical behaviours

Technical norms, as discussed in chapter 3, are exactly specified norms possible of being automated and executed by a computer. Technical norms reflect the very character of the technical artefact – a computer based tool that performs routine analysis of easy to automate parameters.

Perceptual norms affect the process of developing SQL queries of money laundering behaviour, illustrated previously in figure 5.13. In particular, such norms dictate how the behaviour is reflected in the transaction patterns that the ATMS monitors. The task of the Systems manager is to translate a complex fuzzy concept – human behaviour – to the structured query code of the automated system. Or, as he put it:

> 'They tell me in plain English what they want to see and I try and write it in the SQL system so that we can actually monitor it.'

The systems manager needs to assess which data fields to monitor and how to assemble them into one formula. The development of formulas is informed by data mining techniques such as standard statistics:

> 'We are trying to find out, first of all, a very basic profile... What are the differences between incidences of a customer of a certain age being disclosed as opposed to the incidence of a customer being that age in our entire data base? For instance, a finding may be that a customer aged between 25 and 40 years old is twice as likely to be disclosed as they are likely to occur in the entire customer base' (Interview, Systems manager)

Another technique used is market basket analysis[33], such as the conclusion drawn from observation that terrorist financers tend to belong to a certain ethnic group who, in turn, are likely to live in a particular geographical area and be linked with a specific type of SIC code business.

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[33] This technique takes its name from the idea of customers throwing all their grocery purchases into a shopping cart. It is based upon the premise that if someone performs a specific action (e.g.,

The evaluative norms guiding ATMS's monitoring refer to the value of specific SQL rules in use, as well as the source of intelligence behind such rules. The MLRO unit considered SQL rules that produced large amounts of output alerts unsatisfactory because such rules were deemed too vague to be of any practical value and because they undermined the efforts to stay within specific performance targets[34]. Additionally, when a given rule stopped producing alerts, the systems manager discarded or temporarily suspended it, as the MLRO unit believed that such rule was no longer efficient. Lastly, a rule was considered to be particularly good when it flagged accounts that had also been noticed by a member of staff, but for different reasons, the rationale being that the rule is picking up characteristics of unusual banking behaviour that are not detectable by members of staff.

> '*Our staff got very excited with this case, when I mentioned it, (because) a member of staff had already referred it. That was really great in some respects...It proved something that is very important: that the ATMS really is duplicating the work that your staff were doing. The fact that it duplicated the case but for different reasons was great because it means that, in theory, that rule picks up stuff that staff may miss.*' (Interview, Systems manager)

Evaluative norms also played a role regarding the source of input for the rules. The knowledge that another institution, widely regarded as a leader in AML monitoring, was targeting certain geographical areas and SIC codes quickly prompted BFI to develop similar rules. By opposition, the fact that another organisation is monitoring a given age group did not prompt BFI to apply that rule, which was justified by the fact that the given organisation faces 'other type of money launderers', as defended by the systems manager.

Cognitive norms provide the rationale to truncate the rules. Keeping updated data on all customers is costly for the organisation and intrusive for the customer and, as a result, the team selects which data fields are particularly relevant for the exercise, and decide to update and use those fields only.

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buys beer), then he or she is likely to perform another action or actions (e.g., buy crisps). In essence, it consist of examining a list of actions in order to identify which are most frequently performed together and in which sequence.

[34] Linked with the conversion of ATMS alerts into referrals to the FIU, upon examination by the analysts' team.

*'If you went into our branch to open a simple savings account and deposit £500, and we cross-interrogated you about how much money you expect to pass through this account, from where are the funds coming from, what do you do for a living... They are going to say "Hey, do you want my money as a savings account or not?"* (Interview, MLRO)

Static customer data such as professional occupation or marital status is usually considered of limited value and, hence, not used in the exercise. The norms also determine which data objects the team considers particularly insightful. For example, one of the date fields considered is 'account opening date'. Yet, the team feels that such date is not the most relevant to reflect the relationship between BFI and the customer and, consequently, the field actually holds the date that the customer first opened an account with BFI:

> *'One of the date fields that we use is called the account opening date (AOD) - the AOD as is named on the system actually holds the relationship start date. So, in other words, it is the date that the customer first opened an account with us, not the date that he opened the specific account that we are looking at. Because we think, actually, that the relationship period with the customer is more interesting than the date they opened that individual account'.* (Interview, Systems manager)

Additionally, cognitive norms dictate which thresholds to consider, or which accounts to monitor, and why:

> *'We wrote a rule that says "from our personal account customers, tell us which accounts are receiving in excess of £100,000 in a 30 day period". Initially, that prompted many cases, and over time, we brought that figure down to cases between £20,000 and £40,000 over 30 days. It is for large cash amounts coming in to all personal customer accounts. If [the account is being used] for business, they are probably trying to avoid charges. But that could be an element of tax evasion, which is an element of [financial crime]. We are not sure where the money is coming from, because [the account] is not flagged up as business.'* (Interview, Analysts' manager)

> *'This rule targets cash deposits that have a total of cash deposits between [value x] and [value y] over a [specific] period. [£X] and [£Y] cash and it is round figures, specifically. (...) If you or I were going into a bank to deposit some money, perhaps we sold something in the second hand market, and we sold it for £163.99, the chances are we would bank £160 and leave the £3.99 in our pocket. So we assumed that fraudsters would be doing the same thing. So we are currently targeting ending in zero, but we are now starting to think "actually, normal behaviour dictates that we only put the nought in – is it possible that, therefore, the money launderer might leave it at the exact £ and pence?" Should we be targeting the unusual end instances, rather than what the average person would do? So we are considering changing that rule – because the whole reason why we came up with that rule became the exact reason why we shouldn't use it.'* (Interview, Systems manager)

The ATMS's behavioural norms are straightforward: the algorithms run overnight and, daily, the system produces a report with all the transactions that the SQL rule flagged. This list is handed in to the team of analysts who will, then, further investigate each of the alerts.

## 5.3.2 Formal behaviours

The formal norms originate in BFI's policy documents and other official communications. The Human Resources department distributes AML policy booklets to all members of staff who join the company, and the MLRO unit oversees the distribution of document updates to all members of staff.

The policy booklet contains very specific perceptual norms:

> 'What is money laundering?
> This is a process used by criminals to conceal the true origin and ownership of the proceeds of crime. It covers all forms of criminality and it allows criminals to maintain control over the proceeds of their crimes and, ultimately, provides a legitimate cover for their source if income'. (Internal document)

The document provides less straight forward, but nonetheless clear, evaluative guidance on what should make staff suspicious, when monitoring the behaviour of BFI's customers. A full transcript is available in appendix 10:

> 'What should make me suspicious: There are no defined "indicators" and your suspicions will likely depend on the context of a transaction. Nevertheless, you should be suspicious where any request for services, a transaction or a series of transactions is unusual either for the customer or for the Group.'

In addition, the MLRO unit delineated a list of documents that customer-facing staff can accept as a proof of customers' identify and/or their addresses. Such list is derived from FSA regulations and industry guidance.

Finally, the MLRO unit published evaluative guidelines, transcribed in appendix 11, regarding a group of customers whose activity ought to be closely monitored: Politically Exposed Persons (PEP's).

The formal documents also structure employees' reasoning via the cognitive norms outlined. The policy guidance document, for instance, instructs staff to question the customer's motives:

> 'If there appears to be no reasonable explanation for a customer's behaviour, you must make a report.' (Internal document)

Furthermore, the documents highlight that 'The aim of any money launderer is to make criminal money hard to trace (...) Likewise, terrorists want to preserve the secrecy of their networks.'

(Internal document). Therefore, staff are encouraged to look for behaviour that could suggest that the customer is trying to disguise the source or the destination of the funds:

> '*In its simplest form, cash will be deposited into personal or business accounts, (sometimes in numerous small amounts to avoid detection)... (The funds) can then be moved around easily.*' (Internal document)

BFI also tells its employees that money launderers may attempt to encourage staff to look for layering attempts:

> '*Money is moved through many transactions with the sole purpose of obscuring the audit trail (...) Transactions of this kind might be identified by a lack of a normal personal or business motive*'. (Internal document)

In addition, the policy documents note that money launderers may use false identification documents to further hamper any audit attempts. Therefore, BFI instructs staff to look for forged or counterfeit documents. Regarding PEP's, BFI notes that such persons cause concern because '*by virtue of their public office, they might be more exposed to the risks of corruption*' (Internal document).

There are also some formal behavioural norms that apply to all employees. BFI has summarised the requirements of legal documents such as the Proceeds of Crime Act, which came into force in 2002, and the regulator's Money Laundering Sourcebook published in the same year and subsequently updated, in an internal document distributed to all members of staff in which it states:

> '*As an employee you have a number of personal legal obligations: you must not knowingly assist a money launderer (...) you must report suspicions of money laundering (...) under no circumstances must the customer know that a report has been made (...) If you were convicted (...) the maximum penalties are an **unlimited fine and/or 5 to 14 years imprisonment**'* (Internal document, original emphasis)

In another section of the internal document, it is printed in bold, capital, coloured font:

> '*Do not tell the customer that a report has been made or treat the customer differently*'

Because BFI is very sensitive to the risk of internal fraud, a further recommendation is made in bold characters:

> '*You should keep the information to yourself (you do not need to ask your managers permission to make a report). You should also continue to deal with the customer as normal unless otherwise instructed.*'

### 5.3.3 Informal behaviours

This section looks at the existing mechanisms of approval or condemnation of specific behaviours. The section outlines how the group as a whole makes sure that its individual members do not deviate too far from the approved behaviour.

Perceptual, evaluative and cognitive informal norms are conveyed in a variety of ways, at BFI, such as peers' discussion or training initiatives. In such sessions, staff will often review and discuss successful stories, such as publicly known cases of money laundering for which BFI had submitted a SAR – one example is the car smuggling case described in section 5.1.4. In the meeting where the car smuggling case was reviewed, the attendees were given copies of the SAR, as well as of the supporting related documentation such as account statements and cheques. The person that analysed and referred the case to the FIU described what made her look into the alert, which sources of data were consulted and, ultimately, why she decided to report it.

Other times, the discussion may focus on cases for which the law enforcement agency requested information through a court production order, for instance, and that had not been previously reported to the FIU by BFI.

> 'We received different types of (court production orders). It is very time consuming: you have to see why, all of the information they are asking for – but at the same time it is very interesting because what you are actually looking at is pattern, trends and activities of potential money laundering. We learn from them.' (Interview, Analysts' manager)

> 'There is an area (...) with two particular postcodes in which there are lots of factories and tertiary sort of shopping places. One piece of intelligence that we had was that the only two people who were ever convicted for being members of AlQaeda, in the UK, were actually from that area. We know that area and a lot of these factories (...) we can find customers who live in that area.' (Interview, MLRO)

The analyst team and the system manager will also share snippets of information about known cases or modes of money laundering, for instance regarding a news article that some one read on the newspaper or saw on TV:

> 'One of our rules came up because of a news article on the BBC: the reporter stood in front of, I think it was either a petrol station or a shop, and at the time one of our staff was watching the TV and saw it and said "I wonder if we have an account with that petrol station". We put it in, and we had. And it went from there.' (Interview, Systems manager)

Another source of meaning and procedures enforcement is the performance assessment. At the time of the study, AML monitoring was not a component of the assessment of branch employees.

*'We have targets, for instance selling so many credit cards in a month, or loans... We all have the same targets based on how many hours we work. And it is our job to meet that target.'* (Interview, Branch employee)

In the case of the analysts, however, assessment meetings take place monthly and items for the assessment include not only how many cases the analyst reviewed and how many SARs he or she submitted, but also the reasons stated for making a referral.

*'I look at figures from the database to see how (the analysts) are performing individually, who is taking their fair share of calls – in this case, her average is 30% of calls that came in during the month. (...) (I) make sure that their decision is accurate, and that they put information into perspective. (This analyst) struggles with the end bit of the report, to say why she is disclosing or not. (...) (She) also needs to broaden her horizons. So, we have been doing some development with her, given her various books on dirty dealing... just to open her mind on what the criminals do.'* (Interview, Analysts manager)

Peer discussion of known cases, sharing snippets of publicly available information and performance assessment influence group behaviour as summarised in table 5.3:

**Table 5.3 – Impact on perception, evaluation and cognition**

| Norm | Example |
|------|---------|
| Perceptual | Awareness of specific forms of money laundering – e g., processing of funds from a car trafficking ring, fuel smuggling, fraud, etc... |
| Evaluative | Focuses attention on modus operandi – e.g., specific SIC codes, and presence or absence of particular transactions such as salary payments or bills for raw materials |
| Cognitive | Provides the rationale that allows staff to make sense of the observed behaviour – e.g., cars in country X use the left side of the road |

Peer discussion, sharing of information and performance assessment also influence reporting behaviour, in the sense that they signal what should have been reported but, upon further analysis, was deemed legitimate. Sometimes, the MLRO team may send confusing signals. For instance, on the one hand, the trainer actively encourages all members of staff to report anything that they consider unusual:

*'I tell them why should you make a report, their obligations, the penalties that apply to them... knowing that you can go to jail. I am not trying to frighten them, but alert them. (...) I tell them to report. It is just a telephone call for them, and it saves them from being associated with that customer. We will do the (investigation) work in the background'.*

A view supported by her manager who states that:

*'I would rather have someone reporting to us even if it is of low quality, than not reporting'.*

However, as mentioned in section 5.1.4, with the example of the call centre employee who called very often, when the proportion of alerts from a given source and deemed as false positives by the analysts is excessively high, the trainer will act.

A similar conflict applies to the ATMS:

> *'We have limited resources in terms of people – we can write a fantastic rule, but if it kicks out hundreds of thousands alerts, we will be completely flooded, so we have to volume manage how many alerts we can deal with.'* (Interview, MLRO)

There is a dilemma between the intention to obtain a wide base of alerts and the reality of limited analysis resources.

### 5.3.4 Summary of permitted behaviours identified at BFI

The technical norms expressed money laundering behaviour as one set of SQL formulas, resulting from statistical and market basket analysis, the formal norms provide a clear, general definition of money laundering and the informal norms focused on specific instances of the crime.

As far as evaluative norms are concerned, the technical guidelines defined the value of specific rules as a function of output volume and overlap with alerts raised by customer facing employees, as well as guidelines regarding sources of intelligence. The formal norms identified possible signs of alarm regarding specific transactions, behaviours, identification documents and even professional occupations. The informal norms guided the employees' attention towards specific modus operandi.

Technical norms affect cognition in the sense that the limited feasibility to update certain data fields, determines its use in monitoring. Such norms also affect the content of particular data fields and the specific value of the quantitative thresholds. Formal norms instruct employees to question the motives underlying the observed behaviour, in particular attempts to disguise source or destination of money, as well as attempts to obscure the audit trail. Informal norms also address the motivation

or business rationale for the observed behaviour, but focusing on the specific instances of money laundering.

Lastly, regarding behaviour, the technical norms determine that the ATMS monitors transactions and reports alerts on a daily basis. Formal norms declare an obligation to report suspicion, without alerting the customer, and stress the negative consequences of failing to do so for both the organisation and the employee. Informal norms are somehow conflicting, as far as the first stage of monitoring is concerned. A summary of the norms identified at BFI is provided in table 5.4.

**Table 5.4 – Summary of behaviours identified at BFI**

| Norms | Technical | Formal | Informal |
|---|---|---|---|
| Perceptual | - SQL formula; <br> - Rules derived from statistical and market basket analysis. | - Clear definition of money laundering in general sense. | - Definition of specific instances of money laundering. |
| Evaluative | - Value of rules and intelligence sources. | - Signs of alarm. | - Specific modus operandi. |
| Cognitive | - Which data fields are used, their content and threshold. | - Motivation for observed banking behaviour. | - Motivation for observed banking behaviour. |
| Behavioural | - Daily transaction monitoring; <br> - Automatic reporting. | - Obligation to report suspicion, without alerting customer. | - Possible conflict, regarding production of alerts. |

## 5.4 Individual perceptions

The empirical findings presented in the previous sections focused on the contextual forces shaping the creation of meaning at BFI. The current section, in turn, addresses the mental representations (section 5.4.1) and activities (section 5.4.2) of the individual members of the unit of analysis.

### 5.4.1 Content of categories

The individual definition of what constitutes non-legitimate patterns of behaviour is very consistent across the branches visited, and focuses on cash based transactions:

> 'What makes me suspicious is people bringing in large amounts of cash, and drawing it out the next day... and unusual transactions on their account...asking for lots of money to be withdrawn.' (Interview, Cashier)

One consequence of the generalised view that the criminal activity of money laundering is characterised by the movement of large amounts of cash is that branch employees, in general, believed that colleagues in cashiering roles were more exposed to money laundering attempts than any other role:

> 'When I was doing cashiering, you would see people withdrawing lots of money and things like that. You have to be suspicious.' (Interview, Customer advisor)

Similarly, another customer advisor, when asked whether she faced attempts to launder money in her job, said:

> 'Not so much in my role. But when I was on the counter, yes. I saw people bringing in large amounts of cash, and drawing it out the next day.'

Those members of staff with senior roles, such as supervisor or branch manager, tended to include qualifiers in their definitions. The qualifiers used by the interviewees included the time mediating between transactions, and whether or not the amounts were in round figures:

> 'Somebody continuously bringing cash in and taking cheques out, that would be suspicious. If it is the odd amount, £254.13, you know it is a credit card payment or a mortgage payment. But if somebody is bringing in £1,000 in cash... paying it in and then taking cheques straight back out, that is suspicious to me. Somebody paying in a large sum of money... (or) drawing out a large sum of money would be suspicious, because nobody in these days handles cash.' (Interview, supervisor)

Respondents also mentioned subjective criteria such as the client's attitude, manners and types of questions asked. Additionally, the members of staff in one branch located in one area of London that is economically deprived and which houses a high proportion of members of a particular ethnic origin felt that they were more likely to face attempts to launder money than the members of staff of another branch located in an affluent area of London.

All but one member of staff in the branches mentioned the inability to fulfil the identification requirements as potentially suspicious. The member of staff that did not define money laundering in terms of one's ability to prove his or her identity worked as a cashier in the branch located in the deprived area. When probed, it emerged that this cashier had had difficulties opening a bank account when he first arrived in the country, because he was staying with a relative and, therefore, could not produce the mentioned utility bills. A branch manager also mentioned that older and less educated persons had difficulties producing the required identification documents, and yet they

might not be money launderers. She further supported the argument by mentioning the case of someone she knew personally. In summary, perceptions seem to be spiced up by personal experiences.

Finally, one branch interviewee also mentioned that clients with certain professional occupations, such as solicitor, were unlikely to engage in criminal behaviour, even though common evidence does not support this understanding.

The ATMS's definition was a more complex version than that used by the cashiers and advisors - cash transactions are still monitored, but only if they fall within given thresholds and intervals of time:

> 'If somebody deposited £1,000 on day 1, and then £100 each on day 2, 3 and 4, but also on days 2, 3 and 4 took out £270, that would alert because it is 75% of what happened on days 2, 3 and 4. But, of course, that withdrawal may also be in respect of the £1,000 that went in and, suddenly, it is not 75%, it is considerably less, and it may not be so unusual.'
> (Interview, Systems manager)

Additionally, specific locations are closely monitored, via postal codes, for instance:

> 'Another thing we did since the Bank of Ireland robbery is, we targeted all Northern Ireland postcodes because we wanted to see what sort of money was moving around Northern Ireland... Initially, we got some good fruit from that rule. We got quite a few disclosures.'
> (Interview, Systems manager)   . .·               ·

Furthermore, BFI monitors businesses that it believes to be particularly at risk of being used for laundering money, either in general or as a result of specific events:

> 'We currently target Money Service Businesses (MSB)... We have [several] customers operating MSB that never said to us that it would be part of their business when they opened the account. Does it become greater than their primary business? Is there a wider interest in the agents to do that?' (Interview, Systems manager)

> 'We started looking for [specific good] running across the border between Southern and Northern Ireland (as a result of news in the media). Let's monitor the border town postcodes for businesses that involve the sale and purchase of [specific good].' (Interview, Systems manager)

Lastly, ATMS definitions may focus on specific attributes:

> 'Last week, or the week before, ... there was a production order where the customer lived on a caravan site. It was a permanent resident, but on a caravan site (...) [I] ended up writing a rule that says "tell me all accounts that transact tonight that have the work caravan either on the 1st, 2nd or 3rd lines of their address".' (Interview, Systems manager)

The definitions will often be reflected in composite rules:

> 'This (rule) is basically saying: return me information on accounts that have been opened between [so] and [so] years (ago), and (are) transacting (an) amount higher than £1,500 in cash, the customer was born between year [so] and [so] and the address for the account is [specific postcode].' (Interview, Systems manager)

In summary, the ATMS's definitions are not only more varied than the branch ones, but they are also more specific and may embody a larger number of parameters. It is also interesting to register that the systems manager assesses the existing rules and, eventually, fine tunes existing rules or develops new rules, regularly:

> 'We have a fortnightly brainstorming meeting where we chat amongst ourselves. We say: Are there any ideas, anybody has got to bring to the table that we might want to look at in the automated system? We brainstorm. Or we look at our existing rules and see how they are performing and whether or not we want to change them slightly.' (Interview, Systems manager)

The analysts use very elaborate, composite formulas. These members of staff judge the observed pattern of behaviour against qualifiers such as the type of customer, for instance his or her professional occupation.

> 'This is a self-employed person, £25,000 income in 2004, when he started the relationship with us, a painter / decorator. He is a self-employed painter, so I would expect the odd cash deposit into his account, cheque deposits because he has been paid for services. Perhaps, transactions going to DIY stores or suppliers, etc... and income and credits in line with the £25,000.' (Interview, Analyst)

> 'It is not a black list but there are certain occupations that you certainly think that deserve a closer look such as [examples provided].' (Interview, Analyst)

The analysts also look at the utilisation of the account:

> 'He told us that he is a painter, but... this account is clearly being used by someone who owns a shop, so he either told us the truth and then changed is occupation to own a shop, or he opened the account for somebody else who perhaps couldn't get banking facilities and they are using the account.' (Interview, Analyst)

The length of relationship with the bank is an equally important criterion. The probability of a particular unusual banking behaviour being reported is higher for a new client than for an existing one. Past transaction behaviour provides the analysts a pattern of what is customary behaviour for a given client which, coupled with insight from specific interactions with personnel at BFI, such as notes from an interview held for the purpose of deciding on conceding a mortgage, or other ad-hoc

investigation tools such as a visit to the business premises to which the account corresponds, reassures the analysts that they are not in presence of suspicious behaviour.

> 'He is putting a lot of cash in and the account was opened only recently. There isn't a lot of activity that we can look at to provide a pattern or history for this customer.' (Interview, Analyst)

Similar to the branch staff, there are elements that reassure the analysts that a transaction is legitimate.

> 'Everybody knows [international organisation]. I am not going to look into that because I know that [international organisation] is a registered company. (...) There is also a [large transaction] to open another account (...) It went to a building society, probably an investment or something that he has got there. I am not going to worry about that because that is traceable, as well.' (Interview, Analyst)

Finally, there is also an element of 'intuition' with some referrals being justified because 'something was not right', without the analysts being able to pinpoint a specific reason. Such decisions reflect implicit assumptions about what is a rational way of using one's money.

> 'It is trying to build a picture based on everything that the customer has told us, and then comparing it to what you think that account should look like.' (Interview, Analyst)

**Figure 5.17 – Representations' snapshot**
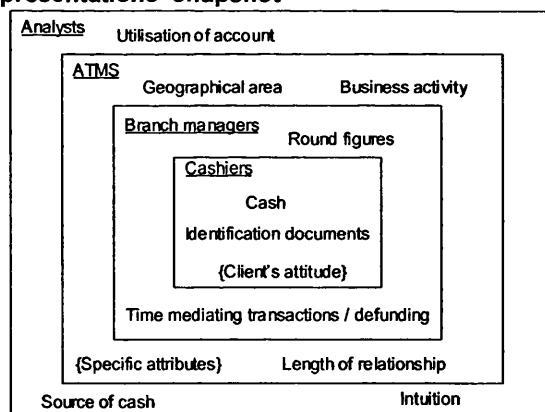


In summary, cash seems to be the defining element of suspicion for all those interviewed. The branch employees' definition of money laundering is the narrowest and the analysts' definition is the widest, from the three groups of agents considered. Additionally, those branch employees with management or supervisory responsibilities had more sophisticated definitions than their colleagues. The ATMS definition is the one that reveals most flexibility: it can change fortnightly not only regarding the specific parameters, but also regarding the focus of the definition altogether. The

relationship between the individual representations is depicted in figure 5.17. In this figure, the criteria in brackets seems to be exclusive to the group of employees identified in the left hand corner of each box.

## 5.4.2 Filters

The interviewees were presented the case study and asked, among other things, to rate on a 7 point scale ranging from strongly disagree to strongly agree whether they considered that the described behaviour was suspicious. On average, the interviewees at the branches were less inclined to consider that the observed behaviour was of an illegitimate nature, while also exhibiting more variation in the responses than the analysts interviewed (figure 5.18). Values to the right of axis mean that the interviewee agreed[35] that there was some element of 'unusualness' or 'suspicion'; whereas values to the left of the axis mean the opposite. Values at the axis, as in the case of the interviewee coded 'Analyst 1', mean that the respondent was unsure or unable to reach a decision.

**Figure 5.18 - Interviewees propensity to classify the behaviour described**
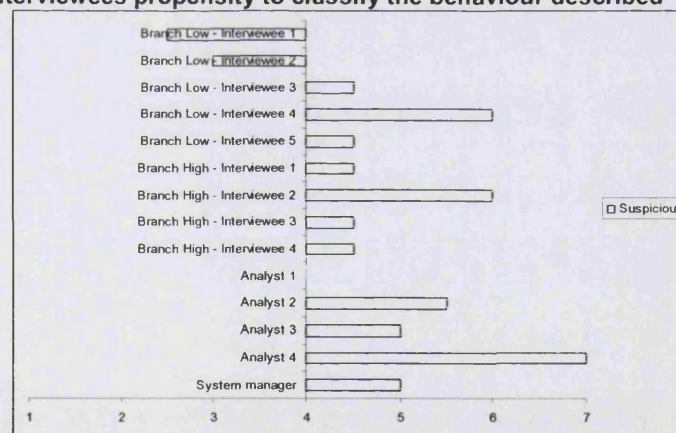


Some of the attributes noticed by the interviewees and considered when analysing the cases are similar across the board. All interviewees mentioned the fact that the subject in the case study was transacting frequently in cash, and most considered that the specific type of account was not the

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[35] From 'slightly' to 'strongly' Values to the right of axis mean that the interviewee agreed (from slightly to strongly) that there was some element of unusualness / suspicion; whereas values to the left of he axis mean the opposite. Values at the axis (e.g. interviewee CP1) mean that the respondent was unsure or unable to reach a decision.

most suitable for the frequency of deposits and withdrawals exhibited. However, the reasons advanced for suspicions differed. The branch interviewees questioned the origin of the money. They were convinced that a self-employed electrician would not earn the stated amount of money:

> *'It is dodgy. Where does he get all this money from?'* (Interview, Branch Cashier)

> *'So, nothing coming out of account, only paying in cash, and out by ATM.... It is specially the cash factor (that makes me suspicious). In this day and age, most people use a card. He would be the type of customer that would probably use a card, have direct debits, etc... It is the cash factor and at this age he should use card.'* (Interview, Branch supervisor)

The analysts, however, were not too concerned with the source of the cash. Rather, they thought that there was some element of tax evasion.

It is also interesting to note that the hypothetical case study mentioned that there were regular cash and cheque deposits. Yet, the interviewees tended to mention the first form of deposit, and not the second, which is a widely accepted trigger of suspicion, because cash leaves no 'traces', it conveys no information regarding its origin.

> *'He only ever deposits in cash.'*

> *'His situation is a two-way thing – he is living and has account in the area... but he is using cash, only. A lot of money per week.'*

All interviewees expressed concern over the two international transfers that occurred since the customer opened the account – just over one year ago – which went to another account under the subject's name. The analysts mentioned the payments at the local DYI store, as fitting the professional occupation described when the account opened. Such information was not specifically recalled by the branch interviewees.

The branch interviewees tended to mention that the subject's wife was unemployed, whereas the information given in the case was that it was not known what the subject's partner did for a living.

Some interviewees at the branches and one of the four analysts expressed concerns over the 'type of business done' by the ethnic group to which the subject in the case study belonged. However, it is important to note that no mention was made in the case study to the subject's nationality or ethnicity. The subject in the case study was described as being a UK national with the surname

'Baptist', a name that has appeared in the English Census since, at least, 1891. Yet, it was promptly assumed that the subject was an immigrant, possibly of Caribbean origin.

Hence, the interviewees react to quite similar triggers – namely, cash payments into the account and ATM withdrawals - most likely as a direct result of the extensive training activities carried out throughout the organisation. But that the reasoning increases in sophistication in the case of the analysts, particularly in what concerns the predicate criminal activity. There is also the prototype that foreign is equivalent to danger, as in the case of the international transfers and the surname.

The interviews also investigated the likelihood that employees would report the observed behaviour. Given the group's formal behavioural norms, interviewees should not discuss the case with their colleagues. Additionally, those employees who had considered the behaviour as unusual or suspicious should feel obliged to report the case, whereas those that had considered that the behaviour was legitimate, should not make a referral. The behaviour of the analysts was consistent with the formal norms: all those who considered that the banking behaviour was suspicious, declared that they would report it to the FIU and they tended to say that they would not discuss the subject with a third party (figure 5.19).

**Figure 5.19 – Propensity to report vs. classification of behaviour**
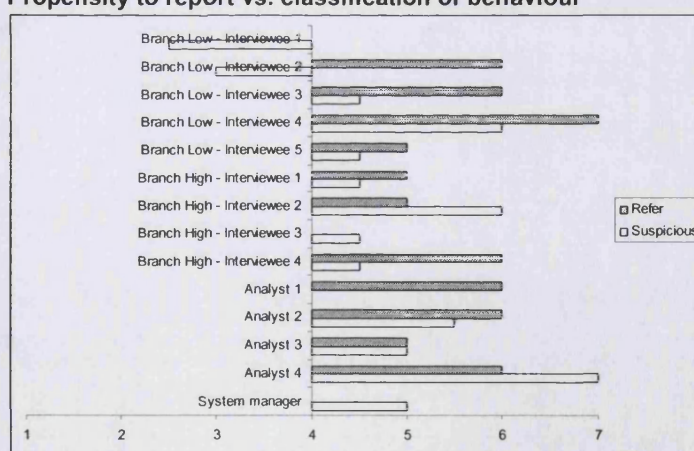


However, the results are not so unambiguous for the branches. One third of the interviewees gave replies inconsistent with the policy guidelines on reporting. The discrepancy is even stronger with regards to discussion of the case with a third party: with the exception of one branch manager, all

interviewees would discuss the case with a third party, with five out of nine interviewees stating that they were very or extremely likely to do so.

Furthermore, no significant correlation was found between the likelihood of discussing the case and the perceived feasibility of either detecting or reporting suspicious behaviour (figure 5.20). The lack of correlation suggests that discussion occurs because it is not perceived as going against any rule, rather than as way of assuring oneself that the right decision has been made.

**Figure 5.20 – Confidence on detection skills vs. likelihood to discuss suspicion**
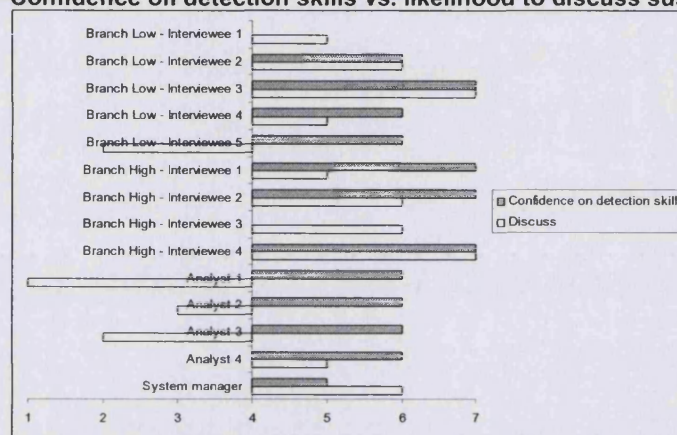


Finally, the interviews also investigated whether the interviewee believed that his/her colleagues had similar views on the case. This question aimed to assess the perceived social norms, from the point of view of the interviewee, and the results are presented in figure 5.21. The analysts tended to believe that their colleagues would reach a similar decision when analysing the case. The branch staff, however, exhibited much less coherent views: only 3 of the 9 interviewees were convinced that their colleagues held similar views of what money laundering is.

In summary, the test case was more likely to have been noticed by the analysts than by the branch personnel. The case study would not have been picked up by the ATMS because even though there is a rule that flags similar patterns of transactions, the values specified in the case study do not fall within the thresholds currently in place. The specific banking behaviour might have been picked up by another rule, if it matched any of the post codes currently being monitored. Yet, unusual behaviour is less qualified than suspicious behaviour and, therefore, staff in the branches

should be more inclined to report the behaviour than staff in the analysis team. The social norm is less strong in the case of the branches, which might explain the variety in categorisations in this unit.

**Figure 5.21 – Perceived social norms**
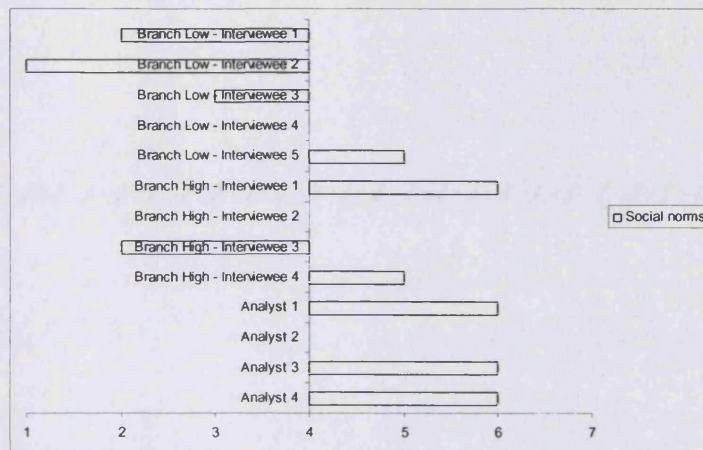


## 5.5   Key findings

The interviews, analysis of documents and observations enabled the identification of four key findings from the study, regarding the definition of suspicious behaviour, used for AML profiling at BFI. They are that there is not a specific, uniform definition of money laundering that is used across the organisation, that the definitions that do exist are relational in nature, rather than absolute, that the profiles are seldom based on factual information and, lastly, that the forces shaping the development and use of profiles provide, at times, conflicting guidance regarding what to monitor or what to do. The findings are described next.

### 5.5.1  No specific or uniform definition

There is no uniform, specific definition of money laundering in the industry or at BFI. While cash, perhaps unsurprisingly, constitutes the defining element of suspicion for all those interviewed, there aren't much more points in common among the definitions adopted by the groups of agents studied, including the ATMS. The definitions identified at BFI range from the narrow and focused on particular instances of money laundering, to the general definitions of the crime.

The branch employees' definition of money laundering is the narrowest and the analysts' definition is the widest, from the three groups of agents considered. Additionally, those branch employees with management or supervisory responsibilities had more sophisticated definitions than their colleagues. The ATMS definition is the one that reveals most flexibility, changing fortnightly not only regarding the specific parameters, but also regarding the focus of the definition altogether. The definitions in the BFI documents analysed are equally broad.

## 5.5.2 Relational definitions

The definition of suspicious behaviour is done in reference to what is assumed to be normal behaviour for a particular type of customer or banking product. As a result, a particular transaction, for instance a large transfer out of a client's account, may be deemed suspicious or not, depending on factors such as the client's job, the length of relationship with the bank, the destination of the transfer or past transactions in that same account or another one held by the said customer.

In addition, the definitions include conjectures about the possible motives underlying the observed behaviour. The conjectures may relate to the economic rationale of the transaction, in which case they are based on assumptions about the legitimate use of money. Alternatively, the conjectures may focus on the extent to which the customer is trying to hide the source or destination of the funds, attempting to layer the money or endeavouring to use false identification documents, in which case the inferences focus on the illegitimate use of capital.

Furthermore, employees with dissimilar roles, professional experiences and personal circumstances are sensitive to different factors. The organisation's response to decrease such variability is to provide training and make increasing use of the ATMS.

## 5.5.3 Largely based on speculative information

Financial institutions are urged to monitor their customers' banking behaviour and to report suspicious activity to the country's FIU. Yet, no concrete directions are given to the institutions

regarding what constitutes suspicion. Such ambiguity is partly due to the very nature of the phenomenon – a secretive, illegal activity – and also due to the fact that there is no systematic procedure to feed back into the monitoring institutions which suspicions were eventually confirmed or not. As a result, BFI's MLRO team refers mostly to speculative information regarding the identity and actions of money launderers, collected in a non-systematic manner.

The input for the general definitions of what suspicious behaviour is, developed by BFI's intelligence team, originates in a variety of sources ranging from ad-hoc media reports to participation in informal networks. Furthermore, the definitions in use are not necessarily consistent with evidence about the identity or the actions of money launderers.

### 5.5.4 Instructions are, at times, in conflict with each other

All interviewees were, in one form or another, exposed to conflicting instructions. Analysts, for instance, are assessed on the quality of their reporting, which specifically includes investigating a matter at length and not engage in defensive reporting. Yet, the same analysts are also judged on the percentage of alerts that they analyse, and are expected to contribute towards the team's goal of processing alerts within a particular period of time.

At times, the conflicting instructions are linked with the source of the directives. For instance, while the policy documents instructed employees to report suspicion without discussing the case with colleagues or superiors, social practice at the branches signalled that it was acceptable behaviour to do the opposite.

### 5.5.5 Concluding remarks

Chapter 5 described the information system in place at BFI to monitor financial transactions. The field data indicated some interesting aspects of the profiling of money laundering, as well as information about the elements shaping the construction and the content of the emerging profile, as outlined in sections 5.5.1 to 5.5.4.

The circumstances described in chapter 5 are ones where there is very limited empirical evidence to support the development of a profile, as specified in the main research question, presented in chapter 1. The thesis aims to investigate how, under such circumstances, categories emerge and how they are impacted in by the factors surrounding the profile development. In the present chapter, it was established that the emerging categories are far from unambiguous or absolute, and that they are, indeed, influenced by various, sometimes conflicting, forces. In other words, the findings discussed in this chapter opened the way for further analysis regarding the role of subjectivity of profiling, in particular the part that profiler and context play in the emerging categories. Such analysis is the focus of chapter 6.

# 6. Analysis

The findings presented in chapter 5 confirm Desouza and Hensgen's (2005) claim that meaning is rarely absolute. Indeed, even within one specific organisation, BFI, the meaning attributed to the set of identity and transaction data presented for a fictitious customer, and described in section 4.2.2, varied from 'extremely likely to be suspicious' to 'unlikely / very unlikely to be suspicious'. The differences in meaning detected in chapter 5 are extremely consequential for BFI because the ability to detect money laundering activity is not only a regulatory requirement, but also a matter of resource efficiency.

This chapter analyses BFI's emerging structures and procedures for AML detection. Additionally, it highlights how meanings emerge and are shared within the organisation.

## 6.1 How classifications emerge

The process of interpreting and acting on observed behaviour may be studied at various levels of analysis, focusing alternatively on the stimuli available for interpretation, the explicit or implicit rules that interpreting agents may draw upon or the actions of those same interpreting agents. Each level of analysis reflects a different way of interpreting and acting on the stimuli available (Stamper 1973; 1996; Stamper 2001), as discussed next.

### 6.1.1 Stimuli available

The empirical data described in chapter 5 revealed that there are different types of stimuli available to each of the three groups of agents considered. For instance, branch employees refer to both objective data such as numerical and textual inputs for a relatively limited portfolio of products, and subjective data such as the customer's appearance or behaviour. The ATMS, in turn, considers objective data about the customer and his or her transactions patterns across a relatively large number of product lines, only. The analysts, conversely, refer mostly to objective data, with the possibility of accessing subjective data indirectly, via notes on the customer's files. The field data presented in chapter 5 also addressed conditions under which particular stimuli may or may not

come to the attention of the profiling agents. Specific examples are the fact that a given customer's behaviour may only come to the attention of the customer-facing employee if it is above a certain level of oddity for it to be noteworthy, as in the case mentioned in chapter 5, of the large cash transfers from a multinational organisation to a particular customer's account. In the case of the ATMS, the restrictions arise from the limited period of time for which data is held in the relevant databases, as well as the specific data fields that the system draws upon or the legacy systems that feed into the ATMS. In the case of the analysts, there is the oddity factor, as discussed for the customer-faced employees, to which another, important factor is added: a customer or transaction will only come to the attention of the analyst if one of the agents in stage 1 of the monitoring process[36] raises an alert. These phenomena are summarised in table 6.1.

Table 6.1 – Properties of the stimuli used in AML profiling at BFI

| Level | Stimuli available for the classification process | Conditions for stimuli to be taken into consideration |
|-------|--------------------------------------------------|-------------------------------------------------------|
| Branch | Objective (numerical and textual) and subjective (e.g., appearance) data about the customer's identity, transaction behaviour and other behaviour (e.g., whether the client is accompanied or not). | Data must be considered odd enough to be noticed by staff. |
| ATMS | Objective (mostly numerical) data about the customer identity and his/her transaction patterns. | Limited time frame and data fields. Data must be in legacy systems linked with ATMS. |
| Analysts | Mostly objective data (numerical and textual) about the customer's identity and product portfolio, as well as his/her transaction behaviour. Possible indirect access to subjective data via notes made by other employees on the customer files. | Data must be considered odd enough to be noticed by staff and agent in stage 1 must raise alert. |

The insight derived from these findings is that it is not enough for the right stimuli to be in place, it is also necessary that the AML agents have the ability to process and extract meaning from the data (Neuman 2006) and that the message is received, in the first place. This last factor is the core of information theory, which addresses, among other things, technical conditions for the reduction of uncertainty in the transfer and reception of messages or, as Shannon and Weaver (1949) described it, borrowing on physics terminology, the system's entropy. The specific level at which particular behaviours may pass unnoticed or, on the contrary, deemed unusual is not the focus of this research. Nonetheless, the study highlights one key point regarding the emergence of classifications in organisations: that the agent must be exposed and sensitised to the appropriate

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[36] The reader is referred to figure 5.6

stimuli. This observation is particularly relevant in AML profiling where the output of classification by agents in stage 1 becomes the trigger for the classification activity of agents in stage 2. While the framework proposed in chapter 3 did take into consideration the role of the agent in perceiving the stimuli, it is not prepared to deal with a sequential meaning making process. This limitation is further discussed in section 6.3.2.

## 6.1.2 Contextual references in the classification process

The findings presented in chapter 5 also revealed the various AML agents' attempts to structure the available data into a description of suspicious behaviour. All members of staff, including the systems manager, expressed such definition in English language. The definitions ranged from the general and abstract such as those expressed by the formal policy guidance documents described in section 5.3.2, to the specific characterisations that tended to be provided through ad-hoc and rather informal means. In the case of the ATMS, the descriptions had to be further specified in the query language, a task that was performed by the systems manager. Moreover, as noticed in section 5.5.2, the descriptions are relational and defined in reference to the supposed motive or rationale for the transaction – BFI employees are asked to question whether the observed patterns would make sense for a legitimate customer who was not trying to hide the illicit origin or destination of the money. Furthermore, in the case of the ATMS, the definition is specified within particular thresholds such as transaction intervals, or given the presence of qualifying attributes such as specific postcodes. The rules used by the BFI's AML agents to describe suspicious behaviour are summarised in table 6.2.

**Table 6.2 – Rules informing the classification process**

| Level | Rules for assembling a description | Relational parameters |
|---|---|---|
| All employees | General definitions provided by formal means. Some specific definitions provided in mostly informal exchanges. | Look for the motive justifying the observed transaction, given customer and product profile. |
| ATMS | General and specific definitions translated to SQL formulas. | Presence of specific thresholds and qualifiers |

Cash, quite predictably, emerged as the common, defining element of suspicion, alongside the existence of an international dimension to the transaction. It was also noted that the branch's definition was rather general, whereas those in use in the ATMS and by the analysts tended to

focus on specific aspects, acknowledging the array of money laundering behaviours possible. Moreover, among the branch staff, those employees with management or supervisory responsibilities had more sophisticated definitions than their colleagues. The increased breadth and depth of the profiles used by the branch managers versus the other branch personnel, or by the analysts as opposed to all the other members of staff, fits with observations by cognitive researchers that categories are rooted in people's experience (Medin, Lynch et al. 1997; Medin, Lynch et al. 2000). The analysts have been exposed to the widest variety of cases and information about money laundering, from among all the interviewees considered and, therefore, have the most sophisticated definition.

It is also important to note that the ATMS definition is not exempt of subjectivity. The SQL formula is but a reduction to the structured query code of human behaviour, which in itself is a complex, fuzzy phenomenon. The thresholds, choice of specific data fields or the decision to focus on particular products, as illustrated in figure 5.13, require the systems manager to opt between various possible alternatives. The choices also focus the scope of the ATMS alerts and, later, the attention of the analysts in stage 2 of the monitoring process, on a small number of specific paths. The systems manager makes pragmatic choices based on his own understanding of the phenomenon, stereotypes (Chen and Bargh 1997) and conceptions of causality (Rosch 1973; Fiske and Taylor 1991; Markman and Gentner 2001; Elsbach, Barr et al. 2005). In other words, there are one or more persons behind the technical component of the profiling process who, in turn, are embedded in a social structure. It is this embeddedness that led Bowker and Star (1994) to declare that software hides away 'arguments, decisions, uncertainties and the processual nature of decision making'.

The insight derived from these findings is that there are numerous factors, some rather explicit and formalised, others of a rather informal nature that shape how agents structure the available data into a particular definition, or formula (Desouza and Hensgen 2002), used in relation to a given topic or for a particular scenario. The nature and role of such shaping factors is the focus of section 6.2.

### 6.1.3 Actions by the interpreting agents

Various elements of the data described in chapter 5 refer to how profiling agents operationalise meanings and classifications. As suggested by the research framework described in chapter 3, the individual operationalisations of meaning are sought in the agents' actions. The discussion in this section distinguishes between the specific classifications used by each agent or group of agents on the one hand, and the effect of the classification on the other hand. When the analyses focuses on the actions of specific agents in a particular circumstance, differences in meaning among the various agents become apparent. The variances in meaning are illustrated, for instance, in the case of the alert described at the end of section 5.4.1, in which the analyst examines the two international transfers to a customer who lives abroad, and that were quickly followed by a withdrawal to the account of a building society, the agents in stage 1 and in stage 2 reached different conclusions. Stage 1 agents considered that the international origin of the money and subsequent transfer to another account were suspicious. However, the analyst in stage 2, who had access to information not accessible in stage 1, was convinced that the transactions were legitimate. The analyst looked at specific instances to form her decision – in particular, the fact that the transfer had originated in a well-known multinational corporation, and that the beneficiary of the defunding was a building society. Even though both customer-facing staff and analysts participating in the study tended to mention the international dimension as an element of suspicion, when faced with a particular alert, the analyst took into consideration various other factors before making her decision. In other words, the interviewees tended to mention similar classification triggers[37], but the result of the profiling exercise varied between the three groups of agents, considered. This suggests that different agents attributed different weights to particular features of the category, possibly as a result of exposure to different category forming stimuli – for instance, training.

Regarding the effect of the categorisation exercise, it was noted that BFI explicitly expects all its members of staff to report suspicious behaviour, without alerting the customer or discussing with colleagues. Once suspicion is reported, it generates consequences for the agent in the next stage of the profiling process and, eventually, to the customer being reported. The discussion with

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[37] Namely the cash deposits and the international transfers

colleagues may, possibly, result in the client being forewarned of the investigation over his or her banking behaviour. The analysis of the agents' behaviour, in the case of the hypothetical client, highlighted that, when unsure about the nature of the observed behaviour, customer facing-staff were reluctant to report to agents in the next level of the monitoring process and were likely to discuss the matter with their peers, whereas the opposite tended to happen with the analysts. The decision not to report suspicious behaviour, and the decision to discuss suspicion are against the explicit requirements and leaves the agents in question vulnerable to sanctioning (Hechter and Opp 2001).

This reluctance to report is, in fact, a paradox because the definitions used by the employees in the first level of the monitoring process contain fewer qualifiers than the analysts', as discussed in section 6.1.2. In other words, there is a difference between the theoretical profile that might emerge from the explicit and implicit guidelines available throughout the organisation, and the actual profile that the agents reveal in their actions. Different groups of employees, in the same organisation, exposed to the same stimuli and subject to the same guidance may operationalise the concept 'suspicious money laundering behaviour' in such ways. Distinguishing between the theoretical and the actual profile is important because it places the emphasis on the agent as a critical contributor in profiling. This topic is further explored in section 6.3.1.

It is not possible to talk about decision to report or to discuss with peers, in the case of the ATMS. The formulas are specified so that, when certain conditions are present, the system will automatically flag the transaction, for the attention of the analysts. As such, the decision comes at the stage of the development of the formula by the systems manager, not when the query is run.

## 6.2   Factors impacting on the emerging profile

The present thesis adopts the view, expressed in chapter 1, that information systems are composed of three interrelated levels (Liebenau and Backhouse 1990; Liu 2000; Stamper, Liu et al. 2000; Lewis and Madon 2004): the technical level of hardware, software, data protocols and elements of the design of the technology,  the formal level of rules, procedures, policies and other forms of

bureaucracy, and the informal level of culture, systems of belief and politics. This section analyses how factors at each of the three levels of the profiling information system impact on the emerging profile.

## 6.2.1 Technical level

The input available for the development of AML profiles is of a speculative nature, as noted in chapter 5. It is only indirectly that particular transaction data, for instance a large deposit quickly followed by a large withdrawal, can be linked to illegitimate behaviour. Particular transactions are deemed to represent suspicion through a presumed cause and effect link, rather than direct similarity. It is, in semiotic terminology, an 'index' and, as such, of moderate abstractedness and likely to be somehow affected by social conventions amongst the users of the sign (Fiske 1990; Liu 2000).

Additionally, most reference profiles available are of an affective, rather than a descriptive, nature. They are based on assumptions about which transaction patterns represent illegitimate behaviour and, as such, are subject to ambiguity (Stamper 1973).

It is also important to reflect on the analysis presented in section 5.2, regarding the monitoring behaviour that each agent in the organisation is able to pursue, as a result of his or her relative position in the organisation, and of the technical resources at his or her disposal. Having access to a variety of data sources, over and above quantitative data, seems to contribute positively to an agent's ability to detect money laundering because it provides a richer view of the customer. Understanding the role of text and observations in successfully profiling money laundering is particularly important in the light of the emphasis placed by the financial regulator and most commercial institutions on data mining solutions for AML profiling, as mentioned in chapter 2.

The analysts are the group of agents that have the widest view of the customer and who draw on a variety of types of data. However, as noted in section 6.1.1, the agents' ability to detect money laundering is hindered by the fact that they can only investigate the alerts received from agents in

stage 1. In contrast, the ATMS draws solely on quantitative data suggesting that, in the present state of technology design, can contribute in a limited way, only, to the detection and prevention of money laundering.


## 6.2.2 Formal level

The rules, procedures and policies available at BFI refer to both the definition of money laundering and how to detect it within the organisation, as well as the behaviours that employees are obliged to pursue whenever they are suspicious about the mature of an observed transaction behaviour.


One observation that emerges from the finding presented in chapter 5 is that the formal guidance is rather broad in terms of coverage: it is applicable to all members of the organisation. All employees are made aware that they are expected to be alert to attempts to launder money through the organisation, and to report any suspicion to the MLRO team. In addition, all employees are notified of the various means to raise an alert.


The second observation concerns the content of such guidance. The policy documents and other publications provided a generalist definition of money laundering, mentioned possible signs of alarm regarding specific transactions, behaviours, identification documents and even professional occupations, and instructed employees to question the motives underlying the observed behaviour, in particular attempts to disguise source or destination of money, as well as attempts to obscure the audit trail. Moreover, the documents declared an obligation to report suspicion, without alerting the customer, and stressed the negative consequences of failing to do so for both the organisation and the employee. The guidance is summarised in table 6.3.


**Table 6.3 –Summary of formal AML guidance at BFI**

| Focus | Content |
|---|---|
| Profile | - Clear definition of money laundering, in general sense <br> - Signs of alarm <br> - Motivation for observed behaviour |
| Obligations | - Obligation to report suspicion, without alerting customer |

The fact that branch staff discussed suspicion with each other, despite the formal guidance strictly dictating the contrary, could be because such employees are unaware that the organisation and the regulator do not sanction such action, or because staff do not understand the possible implications of that behaviour. The first gap might be addressed by clear, strong condemnation of discussion of suspicion among staff. The second gap might be addressed by raising awareness among employees that criminals, particularly sophisticated ones, often use insiders to collect information and influence decisions.

It is possible to argue that the formal norms described in section 5.3.2 are, already, quite clear about the need not to discuss suspicion with colleagues and not to alert customers. In which case, the reason for the observed behaviour is that there are other forces within the information system that contradict the formal rules. Branch staff are influenced by the norms from the various groups that they belong to (Liu, Sun et al. 2001; Liebenau and Harindranath 2002). If the norms differ in direction, there is a conflict (Greenberger, Miceli et al. 1987).

In this case, it seems that the formal level provides the background against which agents develop and use profiles. However, this level does not determine the actual interpretation and actions of the profiling agents. The informal level may weight more in staff behaviour than the formal one. The informal level of the information system is discussed next.

## 6.2.3 Informal level

The informal level of the information system analyses the culture, systems of belief and politics that surround the two other levels of the information system, analysed before. It was noted, in chapter 5, that the agents have different attitudes towards AML, particularly as far as activity is concerned, as illustrated in figure 6.1. Interestingly, branch personnel, who view the process as rigid, are also the ones who take into consideration the narrowest range of data objects.

**Figure 6.1 – Summary of attitudes towards AML**
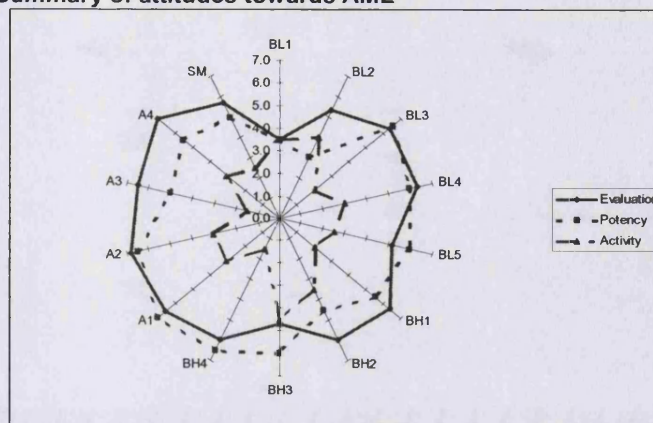


Additionally, the agents do not take into account all of the data objects available, as evidenced in the discussion of the hypothetical situation outlined in section 4.2.2. Indeed, all interviewees had access to the same information in the hypothetical situation presented. Yet, their perceptual and conceptual filters made them notice and react to different data objects (Boisot and Canals 2004), as well as fill in for information that was not specifically mentioned in the case (Freeman, Romney et al. 1987; DiMaggio 1997; Gilbert 2006). The discussion of the hypothetical case permitted the observation of instances of selective memory, gap filling and information distortion, as highlighted in

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rmal guidance. The stimuli available are perceived and

table 6.4. Even though the examples m

existence of a bigger issue: that what the i

offered to them in terms of stimuli and fo

Chapter 5 also highlighted that the analysts, as a group, were the ones that least filtered the available information. Yet, this is also the group of employees with most expertise in AML, as previously discussed. According to some cognitive authors [e.g., (Schyns and Rodet 1997; Schyns, Goldstone et al. 1998; Laurent, Ward et al. 2006)] the higher the level of expertise, the stronger the filtering effect, a claim that is not supported by the empirical findings. Instead, branch employees were the ones that noticed the least number of data objects from those mentioned in the hypothetical case, in absolute terms. The key to this apparent paradox lies in the fact that it is not correct to discuss filtering in absolute terms. Branch staff and analysts refer to markedly different profiles of what money laundering is. The definitions increase in sophistication and feature interconnectedness as it moves from branch, to ATMS and to analysts (figure 5.17). If both groups shared a common definition of money laundering, than it might be possible to investigate the relationship between expertise and filtering. Given the existing definitions, however, it is not possible to either agree or disagree with the proposition.

Another important finding emerging from the analysis of the data described in chapter 5 is the identification of a gap between what the employees could potentially detect and what they focus on. In other words, the distinction between reality and perception – where reality refers to the physical ability to profile particular behaviour, whereas perception denotes what the user thinks and believes about that ability to profile (Norman 1999; Hartson 2003). In particular, there is a gap between the fact that all members of staff in a branch are potentially exposed to money laundering[38], and yet they tended to believe that only those in cashier roles were likely to encounter attempts to launder the proceeds of crime (figure 6.2). Investment advisors, for instance, who sell funds, mortgages and other investment products may be particularly exposed to attempts to hide and integrate illegitimate funds. Perceptions at BFI are deeply influenced by cultural conventions and stereotypes.

It is also interesting to note that the perception by branch personnel that cashiers are the ones that experience money laundering attempts, and hence, are better positioned to detect and report it, is mirrored in this group's focus on cash as a key defining element of suspicion, as noted, for

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[38] The reader is referred to figure 5.12.

instance, in section 5.5.1. Such finding echoes cognitive scientists' claims that *a priori* expectations are largely self-fulfilling (Dunn and Spellman 2003; Quinn, Hugenberg et al. 2004).

**Figure 6.2 – Perceived affordances of branch staff**
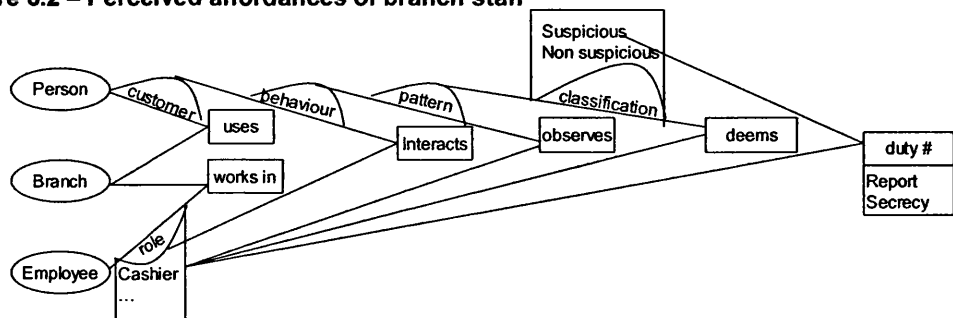


Lastly, it is insightful to reflect on how cultural factors influence interpretation of and compliance with formal guidance. The informal guidance detected at BFI focused on specific instances of the crime and guided the employees' attention towards specific modus operandi, in opposition to the formal one that adopted a generalist definition. The informal guidance echoed the formal one in its emphasis on identifying the business rationale for the observed behaviour, the difference being, again, a focus on the specific instances of money laundering. The informal guidance regarding obligations emerging from the identification of money laundering, however, is, at times, in conflict with the policy documents – both regarding whether to report suspicion and regarding whether to discuss with colleagues. The informal forces are outlined in table 6.5.

**Table 6.5 –Summary of informal AML guidance at BFI**

| Focus | Content |
|---|---|
| Profile | - Definition of specific instances of money laundering<br>- Specific modus operandi<br>- Motivation for observed banking behaviour |
| Obligations | - Possible conflict regarding production of alerts and discussion with colleagues. |

Given that the observed staff behaviour is aligned more closely with the informal guidance than with the formal one, particularly in the case of branch personnel, any possible intervention from the MLRO unit to correct the behaviour must involve the branch informal norms and could, for example, start with educating the branch managers for the perils of internal fraud.

A question that emerges is whether interventions in some levels are easier than in others. Findings from classification theory posit that there is a relationship between the nature of classifications and the malleability of categories. Namely, in section 3.2 it was noted that relational categories – like money laundering definitions – are more mutable, less well remembered, and more slowly acquired than entity categories (Gentner and Kurtz 2005). In addition, relational categories seem to be learned well when an explicit rule is given (Gentner and Kurtz 2005) which is not the case of money laundering definitions, that tend to be speculative rather than explicit[39], particularly so for the branch employees. At the ATMS level, it is important to note that legacy systems are extremely expensive and complex to replace. On average, a financial services firm needs five years to renew branch and other applications (Annesley 2005). Therefore, the rigidity of the perceptual norms, as far as legacy systems feeding into the ATMS database is concerned, is likely to persist, in practice.

## 6.3   Limitations of the research framework

The research framework presented in chapter 3 guided the collection and analysis of the empirical data, providing the integrated approach to the study of profiling advocated in chapters 1 and 2. There were, however, certain aspects in which the framework was not entirely suitable to aid in the interpretation of the findings. Such limitations and remedial actions pursued are discussed next.

### 6.3.1  The role of the individual

The framework adopted of subjective and relational view of meaning, in which the perceiving agent plays a critical role. Furthermore, meaning is achieved by a combination of data object, the profile and the interpretant, as outlined in section 3.3.2. The combination of the three components leads to a particular outcome (Hervey 1982), which is created and consumed within a social and organisational context (Liu 2003). In the case of BFI, there are, at least, two distinct interpretants: one interpretant where ML detection is the principal occupation of the interpreter and the criterion against which the interpreter's performance is measured, and a second interpretant where ML detection is a secondary activity and is not a specific component of performance evaluation. The

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[39] Due to its secretive nature, as discussed in section 5.1.4

first interpretant includes the analysts and the systems manager, whereas the second one refers to the branch personnel. The two interpretants have different attitudes towards AML, particularly as far as activity is concerned, as discussed earlier. However, it was also noted that the analysis at the level of the interpretant is not enough to understand the differences in emerging profiles – even within one unit of analysis, there were several participants that were guided by different conventions as to how particular data objects and profiles were linked together, as summarised in table 6.6.

**Table 6.6 – Relationship between interpretant, interpreter and profile**

| Interpretant | Interpreter | Profile |
|---|---|---|
| AML as core activity | Analysts | Widest |
| | ATMS | Wide |
| AML as secondary activity | Branch supervisor | Narrow |
| | Other branch staff | Narrowest |

In addition, it was noted that it is important to distinguish between stimuli to which the agents are exposed to or even instructed to notice, and stimuli that the agents actually react to. This distinction is not directly addressed in organisational semiotics.

The implication is that the researcher needs to go beyond identifying the various interpretants conditioning the meaning making process, and take into consideration the particular circumstances of the interpreters. This insight also has practical implications in the sense that it suggests that profiling systems designers need to audit whether profilers filter the data objects to which they are exposed and, in particular, whether profilers ignore, distort or even make up key data objects.

## 6.3.2 Sequential encounters

The analysis of how classifications emerged, at BFI, raises a very important insight of significance to both theory and practice. It is the realisation that, even though at any one moment there is only one perceiver engaged in profiling, this is actually a complex process where the output of one agent's classification becomes an input into another agent's process. Specifically, the output of profiling by agents in stage 1 of the monitoring process becomes the trigger of profiling for agents in stage 2. The trigger effect is what Ashforth an Humphrey (1997) described as sequential

encounters, and is addressed by neither of the two theoretical bodies informing this study's theoretical framework.

In sequential encounters, the employee that first meets the situation serves as a gatekeeper, influencing how the employees who subsequently encounter the same pattern perceive the situation (Ashforth and Humphrey 1997; Andersen 2005). In the particular case of AML monitoring, the stage 1 agent may not cause the agent in stage 2 to definitely report the case to the FIU, However, the customer facing employee and the ATMS certainly prevent the analysis and, eventually, detection of those cases not flagged for the attention of the agent in stage 2 of the monitoring process. The fact that profiling is a sequential process has two important consequences: it influences the stimuli available for stage 2 agents, and it conditions the overall performance of BFI's AML detection efforts. These consequences impact on both the theoretical framework and in profiling practice.

The implication for theory is that meaning is a dynamic process and there is interdependency between the various agents' meanings, as illustrated in figure 6.3. The signs available for the agent in stage 2 are varied and include the output of stage 1 agent's classification. It is possible to extend this framework to consider further steps in the classification process. Similarly, it is possible to consider situations in which the signs available for stage 2 are totally dependent on stage 1's classification, in which case the box 'signs' would be shown completely below the dotted line. In the case of AML monitoring at BFI, the box 'signs' overlaps the line because the agent in stage 2 considers various other signs, in addition to the one provided by the stage 1's alerts.

The actual meaning of a particular stimulus, for an organisation is that operationalised by the actions at the end of the dynamic process. It is neither the meaning of agents in stage 1, nor the meaning of agents in stage 2. Rather it is a combination of both. Agents in stage 1 act as gatekeepers and influence the pool of stimuli available for agents in stage 2 and, therefore, condition, but do not determine, the final classification.

**Figure 6.3 – Revised research framework**
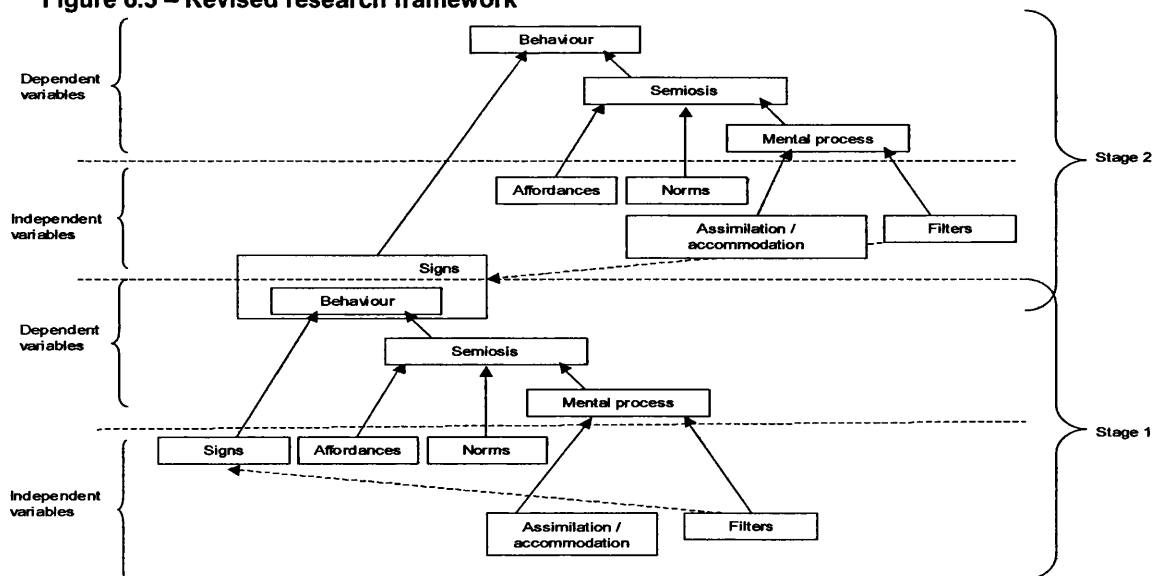


It is interesting to note, as well, that the sign 'meaning stage 1' is of a different nature to the other signs. Whereas signs, in general, are an input to the meaning process, the particular sign 'meaning stage 1' is a required input for semiosis to occur. Additionally, the sign 'meaning stage 1' is pushed towards the stage 2 agent, whereas the other signs are pulled by the stage 2 agent. In conclusion, the empirical exercise developed in the context of this thesis identified a classification of signs, in addition to the ones mentioned in section 3.1, based on their contribution to the meaning process.

To a certain extent, agents in stage 2 and those eventually further down the classification process constitute the weakest link(s) in the profiling process because they can only analyse what others in the organisation alert them to (figure 6.4). The data mining literature reviewed in chapter 2 emphasised that a common problem in data mining is that the inputs that the domain expert considers important may not be represented in the input data (Apte, Liu et al. 2002; Danna and GandyJr. 2002). The most typical solution in such cases is to use proxies or, alternatively, to narrow the analysis to those attributes that are particularly informative (Lenzen 2004). In AML monitoring, however, because of the 'required input' nature of the alerts, there are no proxies for alerts and it is not possible to narrow the analysis.

**Figure 6.4 – Input for scrutiny and analysis**
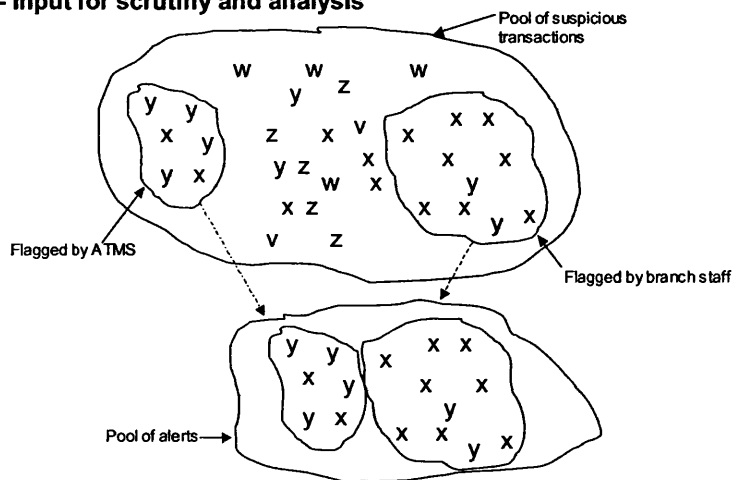


The sequential process has practical consequences for the monitoring process, as well. Problems in the monitoring process occur when the input is wrongly allocated to a given category. In particular, when the agents in stage one wrongly consider that the observed banking behaviour is unusual or legitimate, and when the analysts consider that the input in stage 2 is suspicious or legitimate. If the input is wrongly allocate to the 'unusual' or 'suspicious' categories, there is a 'false positive' error. If, on the contrary, the input is wrongly considered legitimate, there is a 'false negative' error (table 6.7).

**Table 6.7 – Categorisation of the classification outputs**

|  | Input deemed illegitimate | Input deemed legitimate |
|---|---|---|
| Input refers to money laundering behaviour | True positive | False negative |
| Input refers to legitimate behaviour | False positive | True negative |

Given that monitoring of banking behaviour follows a sequential encounter process, the output in one stage becomes the input for the following stage. As a result, the successful detection of money laundering depends on the correspondence between the various prototypes of behaviour. The description of suspicious money laundering behaviour in stage 1 should match that of stage 2 and even that of stage 3. If the descriptions do not match, the agent in stage 2 will either be burdened with irrelevant alerts or, at the other extreme, not alerted to likely instances of money laundering (figure 6.5)

## Figure 6.5 - Classification output of the three stages

Observed pattern of banking behaviour

| | Unusual (alert to MLRO unit) | Legitimate (no alert to MLRO unit) |
|---|---|---|
| Agent in stage 1 deems: | Unusual (alert to MLRO unit) | Legitimate (no alert to MLRO unit) |
| Classification: | Positive | Negative |

| Agent in stage 2 deems: | Suspicious (SAR to FIU) | Legitimate (no SAR to FIU) | Suspicious (no SAR to FIU) | Legitimate (no SAR to FIU) |
|---|---|---|---|---|
| Classification: | True positive | False positive | False negative | True negative |

| Agent in stage 3 deems: | Criminal | Legitimate | Criminal | Legitimate | Criminal | Legitimate | Criminal | Legitimate |
|---|---|---|---|---|---|---|---|---|
| Classification: | True true positive | False true positive | False false positive | True false positive | True false negative | False false negative | False true negative | True true negative |

The situations where the classification is 'true true positive' or 'true true negative' are ideal because they mean that the financial transactions of a person engaged in criminal activity have been detected or, alternatively, that the financial transactions of a legitimate customer have not been reported. In also shows that the prototypes of the agents in the three stages are 'aligned', that is, they would detected / not detect the same individual, even though the agents in each of the three stages are looking at different pieces of data.

The 'false true positive' classification means that a legitimate behaviour has been reported to the FIU, because the prototypes of the agents in stages 1 and 2 do not match the stage 3 prototype, however, no serious legal implications derive for BFI, though it may be argued that there is a waste of resources at BFI.

In the 'true false positive' classification, the prototypes of the agents in stage 1 do not match those of the agents in stages 2 and 3, but the prototypes of stages 2 and 3 are aligned. It means that the 'legitimate customer' has correctly not been reported to the FIU, even though it was flagged internally. Operationally, there is a waste of internal resources.

The 'false false negative' case means that legitimate behaviour has not been reported to the FIU, even though the prototypes of the agents in stage 2 are not aligned with those of the agents in stages 1 and 3. The behaviour was correctly considered legitimate in stage 1, and no legal or operational negative implications derive for BFI.

The situations where the classification is 'false false positive', 'true false negative' and 'false true negative' are the problematic ones. Criminal behaviour has not been detected by BFI and there is the possibility of legal negative repercussions for the organisation. In the 'false false positive' situation, the behaviour was correctly flagged by the agents in stage 1, but deemed legitimate in stage 2, resulting in waste of operational resources. The 'true false negative' classification means that the behaviour would have been correctly reported to the FIU, should it have been referred to the agents in stage 2. However, because the transactions were deemed legitimate in stage 1, the case never even reached the MLRO unit. In the 'false true negative' case, the pattern of behaviour would be wrongly deemed legitimate by the agents in both stages 1 and 2.

In summary, there is a range of circumstances that lead to observed banking behaviour being incorrectly reported or not reported, in some cases with significant legal or operational consequences. The legal implications are that if the BFI is seen as having been negligent or deliberately assisting the money launderer, it may be fined, the MLRO may be imprisoned and employees directly involved may also be fined or imprisoned (JMLSG 2006). The operational implications derive from waste of resources at the stage of scrutinising and/or analysing the transaction patterns. In this manner, it is essential for the organisation to minimise the likelihood of categorisation errors.

The next question of interest to BFI is whether or not the organisation is at a risk of mismatches between its employees' classification of observed behaviour. The answer is, clearly yes. As noted, there are several differences between the stimuli considered by different groups of agents, as well as the reference profiles and how they behave once they are suspicious. That is not to say, of course, that the organisation is at a higher risk than other financial institutions. This study focused on in-depth understanding rather than industry comparisons and, therefore, its insights must be understood in that context. Additionally, it is important to note that the fieldwork considered a subset of customer facing staff only. It is possible that staff in contact centres, for instance, are guided by different informal norms, or be exposed to different data objects. In any case, the customer facing

units monitored in this organisation are most likely well equipped to detect highly typical money laundering predicate crimes such as drug trafficking.

In addition, BFI needs to do enlarge the pool of scrutiny for profiling stage 2. The MLRO team partly achieves the extension of the pool of analysis by focusing ATMS monitoring on behaviour patterns different from those traditionally monitored by branch staff. However, ATMS's monitoring capacity is also limited because the system can run solely a limited number of formulas at any one time. That accentuates BFI's risk of being able to monitor high volume low value crime, only, such as drug trafficking or the use of personal accounts for business purposes.

## 6.4 Summary of analysis and link with research question

The analysis presented in this chapter offered a number of interesting insights into the profiling process. It highlighted that profiling is a dynamic process, involving various perceivers who act in sequential order. The chapter offers not only a graphical representation of the phenomenon but also an understanding of certain actions as triggers of subsequent profiling activity. In addition, it questioned the applicability of the solution typically suggested by the data mining community of using proxies or narrowing down analysis, to a situation like AML profiling where such trigger-actions are present.

The analysis also raised questions regarding the suitability of quantitative data, the key input for automated monitoring systems, to model human behaviour. The analysis further emphasised the distinction between real and perceived ability to profile. It offers a theoretical contribution by suggesting that perceived ability is a better predictor of meaning than the actual ability.

In addition, the chapter makes a practical contribution to profiling. It consists of explaining that it is particularly difficult to correct misconceptions in terms of what is money laundering behaviour because such behaviour is a relational category. Relational categories are not learnt well in the absence of explicit rules and information.

Lastly, the analysis at the level of the interpreter offered a methodological contribution, as well. In particular, it applied a cognitive data modelling tool – the cognitive snapshots (Jorna and Heusden 2000; Heusden and Jorna 2001) – to the understanding of meaning in organisations. The result is a focus on existing meanings rather than on possible or likely meanings. Conducting the analysis at the level of the profiling agent also enables the diagnosis of filtering instances.

Profiling is, ultimately, a subjective process where individual perceptions and expectations, as well as characteristics of the technical, formal and informal contexts, shape the definition of money laundering. The distinction between data object, profile, interpretant and interpreter pursued in the present thesis, permitted the isolation of specific sources of variance in meaning. Moreover, looking at meanings as behaviours enabled a dynamic view of meaning, as a phenomenon that evolves within the organisational context, rather than an absolute entity that exists, independently, in the environment. Lastly, the analysis of the role of technical, formal and informal levels highlighted not only the sources of sanctioned behaviour, but also points of conflict various sources of guidance, as well as the relative force of those same sources.

Numerous researchers have been investigating the question 'How can we detect financial crime?'. The answer to that challenge has centred on more and more powerful technical solutions and complex algorithms. This study provides an entirely different perspective on the topic, suggesting that cultural and individual preconceptions condition the perception and conceptualisation of the data and models available. Such preconceptions limit not only what agents see in the environment, but also what they read in it. Furthermore, the study underlined the role of salient category features in the resulting shape of the profile. To be precise, profiling can have a self-fulfilling effect by flagging those transaction patterns that profilers were looking for in the first place, through the data fields that they considered or the formulas that they developed in the first place. In summary, the study makes it possible to refute firmly the data mining community's claim that technology lets '*the data speak for itself*' (Williams 2006). Rather, the study suggests, data mining translates to the query language preconceptions existing in the mind of the profilers. Moreover, due to the industry's long cycle of replacement of legacy systems, the prevalent mental representations and organisational discourse become frozen in the technical platform.

The central argument of this thesis is a conception of profiles as a situated construct. The argument, which builds through sections 6.1 and 6.2, answers the research question 'how do categories come to be construed and used in profiling, when only limited empirical support is available to support the emerging profile?', which was subdivided in two secondary questions, namely 'how do classifications emerge?' and 'what are the implications for the emerging profile?'.

The argument can be summarised as follows: The organisation develops formal definitions of the behaviours to be modelled. Due to the lack of empirical support, such definitions are traditionally speculative, and conveyed via affective, rather than denotative, information. Members of staff translate the definitions to query language. Staff, themselves, have preconceptions about the phenomenon and are bounded by cognitive limitations such as a limited capacity to absorb stimuli from the environment or various filtering processes. The members of staff are, in addition, embedded in a social context that guides behaviour implicitly and explicitly, for instance through assessment procedures or peer to peer communication. The translation to the technical platform is further influenced by the specific features of the platform, such as the number of rules that it can run, or how many months of data it can store. Another technical feature that affects the translation is the platform's integration with other databases. In the translation and output validation process, numerous decisions have to be made by the profiler, henceforth saturating the profiling process with subjectivity. It is also important to note that technological solution is only one element of the profiling process.

The complex phenomenon of human behaviour is only incompletely represented in the structured query language and the restricted automated system's capabilities. Therefore, the organisation's employees have a most important role to play in profiling. Staff have numerous service encounters with the customer and are exposed to types of data that conveyed the subtleties of human behaviour better than purely quantitative data. Staff also play an important role at the level of analysis given that they can offer a very sophisticated understanding and interpretation of the observed behaviour, even if staff can not commit such understanding to one specific, neatly defined formula. Finally, when the service process and, therefore, the opportunities for profiling, are

distributed in sequential encounters, the employee who first encounters the customers or the transactions determines which signs other staff further down the profiling process will receive. First encounters have a determining role in the breadth of the profiling exercise.

The result of the process is a profile that is imbued of subjectivity, and that tends to focus in highly typical behaviour.

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# 7. Discussion and conclusion

Chapter seven reviews, in section 7.1, the theoretical, methodological and practical research contributions made by this study. Section 7.2 acknowledges the limitations of the study, and section 7.3 concludes the thesis by pointing future research directions that validate and expand on the findings presented in the previous chapter.

## 7.1   Review of contributions

The discussion of findings from the study permitted the identification of some contributions for practice, theory and method, which are reviewed in this section. Some of the contributions are quite substantial, while others are merely validations of other researchers' findings in the particular context of this thesis, mirroring the situation described by Kallinikos (1999), with reference to the contributions from his study of the computarisation of a dairy plant:

> 'Let it be clear, that like most studies, the present one does not develop apart from other investigations. It draws on their insights, critically approaches some of them, ponders and reframes others to explore clusters of ideas (...). (There) are some emerging themes that it offers as novel insights'. (Kallinikos 1999)

### 7.1.1  Contributions to practice

The discussion of AML profiling in chapter 6 highlighted that there are points in common between this activity and profiling in general in the banking industry. The barriers to segmentation identified by Meadows and Dibb (1998) and summarised in table 2.2 are remarkably similar to the obstacles to the monitoring of financial crime identified at BFI. In particular, the implementation of AML monitoring affects potentially all employees of a financial institution, who have expectations and needs that are different, and sometimes in conflict, with profiling criminal behaviour. Similarly, the ethos of monetary privacy (Donaghy 2002) predominant in the banking industry is not supportive of the practice of actively having to disclose to third parties details about customers' identity and banking activity. Moreover, the customer and transaction data needed to profile financial crime is quite different from that usually available in the organisation for product or marketing purposes. The regulator mandated the acquisition of some of that data, particularly pertaining to customer identity (BBA 2005), but additional data such as the purpose of the transaction or the motive for depositing

or withdrawing cash is obtainable on an ad-hoc basis only, in what is traditionally seen as a very intrusive process. The empirical study also echoed some of the difficulties of detecting money laundering identified by the OTA (1995) report, Kunreuther (2002) and others mentioned in section 2.1.4, such as the scarcity of validated profiles of money laundering, the difficulty of distinguishing between transaction patterns associated with licit and illicit conduct or the fact that implementation of such initiatives is rarely driven by a business rationale.

In addition, the empirical study identified new issues concerning the practice of profiling. The learning derived from those novel findings constitutes practical contributions to the industry. The dissertation makes practical contributions to three groups - professionals engaged in the development of software solutions for transaction monitoring, agents developing educational initiatives and those in charge of defining strategic directions for financial crime monitoring – summarised in table 7.1.

Professionals and researchers working in the field of profiling techniques have long faced difficulties in monitoring transactions in the absence of all the desired or needed inputs for analysis. The solution long advocated in the data mining literature is to develop proxies or narrow the scope of analysis. In the case of AML, however, there simply is no substitute or alternative for the existence of an alert. Therefore, the focus of data mining developers has to be on developing formulas that complement rather than overlap each other, in order to maximise the possibility of generating alerts. The second contribution as far as data mining professionals are concerned is the finding that agents may not always notice all the data objects to which they are exposed to. The implication of this finding is that it is not enough for developers to make the input available, it is also necessary for profiling systems designers need to audit whether profilers filter the data objects to which they are exposed to and, in particular, whether profilers ignore, distort or even make up key data objects.

The second group of practical contributions concerns the agents developing educational initiatives, in profiling. Conceptions of money laundering behaviour bear resemblance, as described, to relational categories which are not learnt well in the absence of explicit rules and information. The fact that the cycle of replacing legacy systems in the industry is very long, further compounds the

difficulty of correcting misconceptions. Therefore, it is crucial for trainers and those involved in developing AML awareness programmes, in general, to intervene as early and as convincingly as possible. A second related contribution derives from the finding that profiling is strongly related with expectations and that these, in turn, are highly associated with the nature of the roles. Unless training programmes are able to change attitudes at the front line, in particular in customer facing roles, the financial institutions' ability to detect financial crime will be limited.

The most significant practical contributions from the thesis, however, are probably those concerning the definition of strategic directions for financial crime profiling. The thesis pointed that, as a result of the sequential nature of the monitoring process, false negative errors in stage 1 are more serious for the organisation than false positive ones. It is, therefore, key to identify the source of the errors, and address them. In the particular case of BFI, it was a case of weak formal behavioural norms because, as the reader may remember, even though staff expressed doubts about the legitimacy of the transactions and therefore, according to the formal rules, should have raised an alert, they did not do so. Fortunately for BFI, behavioural norms are relatively easy to change (Stamper, Liu et al. 2000), but other organisations may face different sources of misclassification. Last, but not the least, there is no denying that profiling is a subjective process. It is subjective at the level of the systems designers as a result of filtering effects and other cognitive conditioning factors, which are more general than the domain knowledge or personal bias previously identified by the literature mentioned in section 2.3.4. Additionally, profiling is subjective because it benefits greatly the inclusion of observational and textual data, which is gathered by members of staff, rather than machines. Hence, rather than trying to replace staff by automated monitoring solutions, organisations ought to use both complementarily, and playing to each group's advantages.

**Table 7.1 – Summary of contributions to practice**

| Group | Description |
|---|---|
| Profile developers | - Focus has to be on developing formulas that complement each other, because it is not possible to use proxies or reduce analysis for critical inputs such as the existence of alerts.<br>- Need for audits on which data objects are filtered by the profilers, rather than just making more and more data objects available. |
| Training professionals | - Importance of intervening as early as possible to correct misconceptions, when categories are of a relational nature.<br>- Relevance of programmes addressing attitudes and expectations, particularly for customer facing roles. |
| Strategic | - Significance of identifying cognitive source of false negative errors in stage one of monitoring processes based on sequential encounters, and correct them.<br>- Benefits of embracing the subjectivity of the profiling process. |

## 7.1.2 Contributions to theory

The theoretical orientation of this thesis is based on organisational semiotics, a theory chosen because it treats the information systems capabilities and the organisation's requirements as an integral unit (Ackerman 2000; Eatock, Paul et al. 2002; Liu, Sun et al. 2002), and '(it) can link the mechanical to the social, combining as far as possible the strengths of both' (Stamper 2004). However, organisational semiotics offers limited understanding of dynamic meaning making processes, particularly those involving sign awareness, sequential interactions and the cognitive restrictions (Desouza and Hensgen 2005) that organisations' employees face. Therefore, a composite theoretical framework was developed, in section 3.3, which complemented organisational semiotics with concepts from the theory of classification. The data presented in chapter five and subsequent analysis in chapter six, brought out interesting contributions for the bodies of knowledge that form the theoretical framework, as described next and condensed in table 7.2.

The concepts of signs, semiotic ladder, norms and affordances were, to an extent, useful to model and analyse the findings from the case study. However, the study also confirmed the weaknesses mentioned in the organisational semiotics' review developed in section 3.1. Andersen (2004) proposed that the direct effect actually produced by the sign upon the interpreter (Noth 1995) occurs because interpreters have guidelines regarding the occurrence and the meaning of the sign. At BFI, not all interviewees reacted to the same signs, and a relationship was, indeed, found

between perception of particular signs and the specific preconceptions of the interpreters of such signs. Regarding semiosis, Helmhout and colleagues (2004), Charrel (2004) and many others emphasised that organisations are environments in which actors work together. The study showed, indeed, that even though at any one moment there may be only one perceiver engaged in meaning making over a particular sign, semiosis is, actually, a complex process involving two or more actors in sequence, and where the output of semiosis of the agents in stage 1 of the monitoring process becomes the trigger of semiosis for agents in stage 2, and so and so forth[40]. Furthermore, Helmhout et al (2004) argue that organisational semiotics is unable to answer questions concerning how agents learn, select and use norms, and that organisational semiotics tends not to study whether the emergent configurations of norms correspond to known organisational configurations. The thesis noticed varying levels of awareness of, and reference to, particular norms, among the three groups of agents considered, and that there were indeed differences between formal organisational norms and informal group norms. The thesis makes a minor contribution to theory in the sense that it validates the limitations identified by various semioticians, in the specific case of financial crime profiling. However, the study also makes contributions beyond simply reinforcing previous findings.

One significant contribution to the understanding of sign awareness is made possible by adding a cognitive perspective on classification to the basic semiotic framework. It consisted of demonstrating that there is a relationship between meaning and, not only specific interpretants, but also particular interpreters. Interpreters in the same interpretant group may still attribute different meaning to the same data object as a result of their specific experience (Medin et al., 1997, Medin et al., 2000) and exposure to reference profiles. In addition, the study raised one question concerning the direct relationship between expertise and level of filtering – contrary to predictions derived from cognitive research, it was not the case that the group of employees with most expertise in the field were the ones that exhibited the strongest filtering effect. The study, therefore, raises the question of whether filtering effects should be thought of in relation to the level of sophistication of the initial category, rather than conceptualised in absolute terms.

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[40] While the study did not address the profiling process beyond the case study organisation, it illustrated the existence of further parties (e.g., figure 5.7)

An additional significant contribution from this study to theory occurs at the level of semiosis. Drawing on the concept of sequential encounters (Ashforth and Humphrey 1997; Andersen 2005), the thesis proposed a conceptualisation of semiosis as a sequential process, where the interpreters who first encounter the sign acts as gate keepers of the overall semiotic process. Therefore, the meaning reached by semiosis in stage 1, becomes a sign in stage 2. Furthermore, the study suggested a classification of signs, in addition to the ones mentioned in section 3.1, based on the contribution of the signs to the meaning process and that distinguishes between signs that are merely an input to the process, from those that are a trigger element of semiosis. The conceptualisation is illustrated graphically in figure 7.1.

**Figure 7.1 – Sequential semiosis**
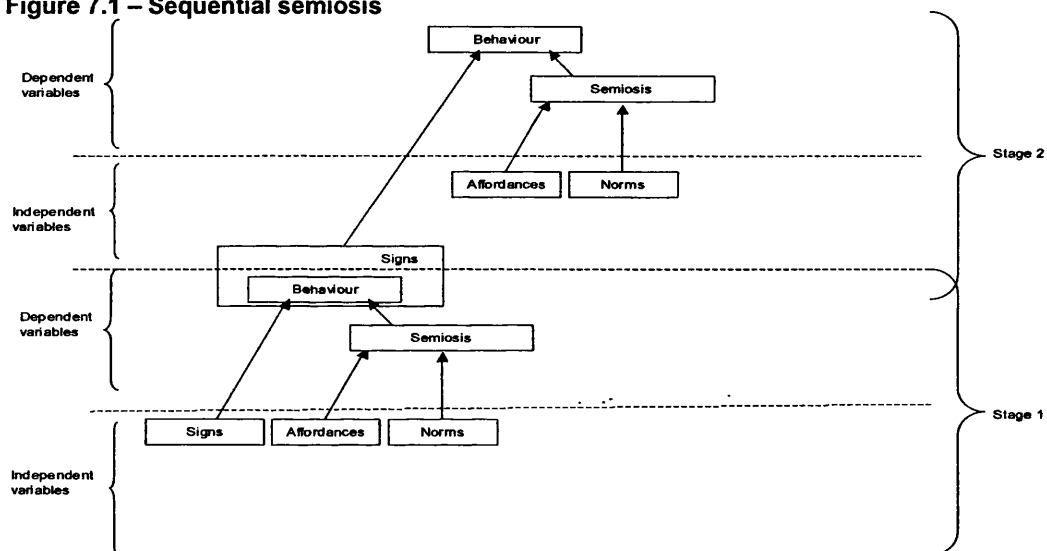


An additional theoretical contribution at the level of semiosis, referred to the distinction between real and perceived affordances, a concept well developed in direct perception psychology, but rarely addressed in the organisational semiotics' literature considered. Specifically, drawing on cognitive scientists' claims that a priori expectations are largely self-fulfilling (Dunn and Spellman, 2003, Quinn et al., 2004), the thesis suggests that perceived affordances are better predictors of meaning than the real affordances.

The final, and perhaps, most relevant contribution from this thesis to theory and, in particular, to the research question of *'how do categories come to be construed and used in profiling, when only*

*limited empirical support is available to support the emerging profile?'* is that those participating in the profiling process are bounded by cognitive limitations that affect the agents' ability to assimilate observations, and filter what is perceived and how it is conceptualised[41]. It is this insight into the individual interpreter that allows the researcher to begin to understand why different groups of employees, in one particular organisation, exposed to the same data objects and guided by the same formal norms understand the same concept, suspicious money laundering behaviour, in such varied ways.

**Table 7.2 – Summary of contributions to theory**

| Category | Description |
|---|---|
| Major | - Identification of a relationship between meaning and specific interpreters, even within a particular interpretant. <br> - Conceptualisation of semiosis as a sequential process, and identification of gatekeepers of meaning and of trigger signs. <br> - Reinforcement of the need to distinguish between real and perceived organisational affordances, and the proposition that perceived affordances are better predictors of meaning than the real affordances. <br> - Focus on matching and filtering as specific contributors to meaning in organisations. |
| Minor | - Extension of applicability of organisational semiotics to the topic of profiling, and validation of the value of the concepts signs, semiotic ladder, affordances and norms to the understanding of the emergence of meaning in the particular application of money laundering detection. <br> - Validation of the limitations previously identified by various semioticians regarding sign awareness, static approach to semiosis, as well as apprehension of, and choice between, alternative norms. |

## 7.1.3 Contributions to methodology

The study drew on a portfolio of qualitative data collection tools, combining primary and secondary data sources that would provide a comprehensive view of the phenomenon under study (Eisenhardt 1989). In addition, the author used tools and methods such as the ontology chart, traditionally applied in research projects informed by organisational semiotics to analyse the divergent and, at times, conflicting views that emerged in the organisation. In addition, the author developed category 'snapshots' (Jorna and Heusden 2000; Heusden and Jorna 2001) for each interviewee in order to understand the relevant schemas (Khatri, Vessey et al. 2006). Lastly, the researcher examined the narrative accounts through 'talk and texts in interaction' (Potter 1996; D'Cruz 2004) to identify instances of stimuli filtering. The combination of a variety of methods from different paradigms has

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[41] The reader is referred to section 3.2.2, as well as figure 3.3.

been advocated by respected information systems scholars (e.g., (Ciborra 2000)) as it leads to rich research results (Mingers 2001). That was certainly the case in the present thesis, as without drawing on research methods and tools from the cognitive sciences, it would not have been possible to identify and map individual employees' schemas. The result is a focus on existing meanings rather than on possible or likely meanings. The combination of the methodologies provided a major methodological contribution of this thesis.

A second insight at the level of methodology concerns the identification of multiple interpretants within the unit of analysis, as well as the identification of multiple interpreters within one interpretant. The effect is an emphasis on the need to cascade the analysis to the lowest level of meaning making, the interpreter, in the situation under analysis. The cascading effect is illustrated in figure 7.2.

**Figure 7.2 – Cascading effect of the analysis**
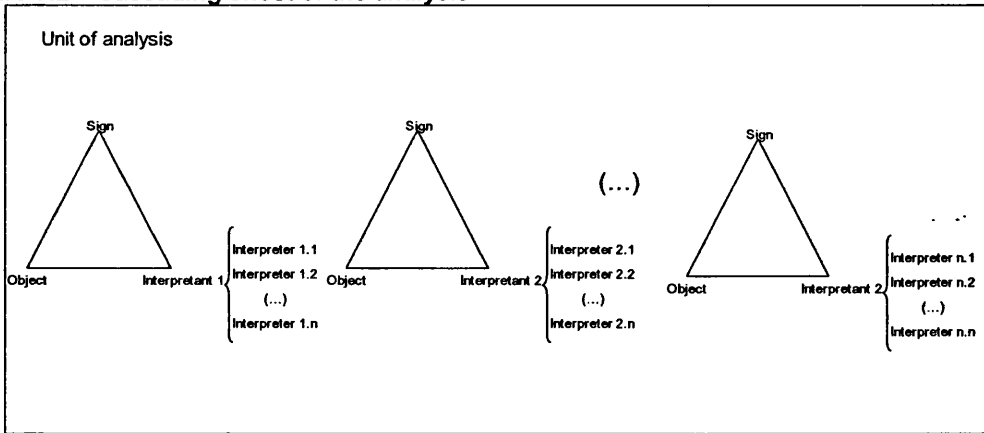


The two methodological contributions from this thesis are encapsulated in table 7.3.

**Table 7.3 – Summary of contributions to methodology**

| Description |
| --- |
| - Use of cognition-informed methods to study organisational meaning, and in particular the addition of the cognitive snapshot tool to the portfolio of modelling tools from organisation semiotics. |
| - Importance of cascading the analysis of meaning to the level of the different interpreters. |

## 7.2 Limitations of the study

The previous section listed the various contributions that the thesis makes to research and practice. Yet, the study also has some limitations that are important to acknowledge.

The empirical case considered in this study concerned AML detection in a particular financial institution. Additionally, the study included only one type of customer facing staff, namely branch personnel. Therefore, it is possible to question the generalisability of the findings to other types of financial institutions, other organisational functions or other forms of financial crime.

Many of the organisational issues identified in this particular financial industry had also been identified in other studies of the industry, namely Meadows and Dibb's (1998) findings on obstacles to profiling in the banking industry, or Donaghy's (2002) mention of bank's privacy culture as an obstacle to active monitoring of customers. Similarly, some of the technology related issues mentioned in the study, such as the inexistence of proven models of behaviour, mirror the findings from OTA's (1995) study of wireless transfers. Finally, the study raised issues related to the ATMS that, to an extent, reflect topics mentioned in the data mining literature reviewed in chapter 2. The many studies leading to conclusions similar to those presented in this thesis lend support to the claim that the findings may, indeed, be generalisable to other instances of profiling in the financial industry.

However, two important features of the phenomenon studied are that 1) the categories are relational and that 2) there are no established models of behaviour. Therefore, it is imperative to state that the major findings of the present study refer to profiling under conditions of ambiguity, only, and should be generalised to profiling in general.

A second important limitation is that the study considered only branch staff. Had it been extended to include staff that interacted with customers via technological media, only, such as those in the contact centres, the findings might have been very different. Perhaps staff in such functions have very different views of the customer, and very different perceptions about money laundering,

therefore leading to a wider pool of alerts in stage 1 of the monitoring process. The information received from members of the MLRO team was that the perception of staff in positions of technology mediated interactions with the customer had rather limited views on what is money laundering, strongly focused on the element 'cash'. However, the study has not specifically analysed this particular stakeholder group and, therefore, the findings can not be extended to this particular type of customer facing staff.

Additionally, the study raised the question of whether filtering effects should be thought of in relation to the level of sophistication of the initial category, rather than conceptualised in absolute terms. Yet, strictly speaking, the thesis did not investigate the matter. Furthermore, the fact that the thesis' empirical findings did not support the claims, by some cognitive authors, that experts reveal the strongest filtering effects, can not be taken as a rebuttal of the claim, because the thesis did not set out to prove or disprove the relationship. If both groups shared a common definition of money laundering, then it might be possible to investigate the relationship between expertise and filtering. Given the existing definitions, however, it is not possible to either agree or disagree with the proposition.

Lastly, the analysis of the findings concluded that, in BFI's branches, the informal behavioural norms did not reinforce the formal ones. In this particular case of conflict between two norms, the informal group norms weighed more on behaviour than the formal norms organisational norms. A note of caution must be raised, however, that this particular finding should not be seen as proof that in any situation of conflict between formal and informal norms, the later will rule over the former.

## 7.3   Future research directions

The final section of this thesis reflects on how the work developed and here presented can guide future research. The first natural extension of the study would be to include other banking organisations, larger and smaller. Even though these institutions are in the same business sector and are guided by the same formal rules, they are likely to have different cultural environments and probably even different technical solutions that they may have adopted for different reasons. Such

extension would enable the researchers to develop an enhanced understanding of the role of technical and informal factors, as opposed to formal ones, in profiling.

A second research avenue would be to extend the study to other types of organisation in the financial services industry. While existing studies on profiling in the banking industry and on wireless transfers modelling lend support to the claim that the findings may indeed be generalisable to other instances of profiling in the industry, it would still be extremely valuable to develop a similar study of AML profiling in other types of financial organisations, such as investment banking or insurance providers. Investment bankers tend to have closer, more personalised links with their customers, than retail bankers. Similarly, insurance providers collect significantly more identity and lifestyle data on their customers then retail bankers. In other words, different types of organisations in the financial industry are likely to have different views of customer and they may also have different attitudes towards detection of money laundering. A cross-sector study, examining profiling practices in other companies in the same industry, could investigate issues related to attitudes, the relevant norms and the resulting impact on monitoring behaviour, and whether there are similar filtering issues.

Thirdly, it would be interesting to investigate the role of third parties, such as the FIU, who have very different objectives and characteristics, in profile development. An extended study could explore inter-organisational profiling, including the agents in stage 3 of transaction monitoring. Such an extended study would involve financial services institutions, as well as FIUs and law enforcement agencies. The objective of the enlarged study is to investigate how the different cultural contexts, cognitive frameworks and technical systems affect the design and effectiveness of inter-organisational crime detection initiatives. The insights derived from such study could contribute critically to a country's ability to detect and prevent money laundering.

A fourth research direction would be to focus on the role of norms in profiling, and explore how these are acquired and shaped through processes such as training, reward mechanisms, performance reviews and others. While the effects of such mechanisms were alluded to in this thesis, their role and importance were not fully explored. A longitudinal study, accompanying the

organisation over several years, would certainly shed light over the impact over time of such norm-shaping events.

Similarly it would be interesting to investigate the role of training and rewards on schemas and processes. For instance, the thesis mentioned that the interviewees referred to some similar triggers such as cash and the international transactions, but then focused on different data objects depending on their jobs. This finding that different agents attributed different weights to particular features of the category, possibly as a result of exposition to different category forming stimuli – for instance, via training – or as a result of what they are geared to valued, as result of what they are rewarded on. Yet, the matter was not fully investigated by the present thesis, and further studies are required to fully understand eventual interactions.

Finally, it would be most interesting to further explore the notion of relative versus absolute filters. Whether these exist and whether or not such a distinction could explain the filtering situations observed at BFI where, as the reader may remember, the theoretical relationship between expertise and filtering incidence was not withheld.

# Appendix 1 – Transnational, national and local AML rules

At the transnational level, the FATF developed a framework of AML guidelines, consisting of 40 recommendations first published in 1990 and revised in 1996 and 2003, plus 8 special recommendations published in 2001 (FATF 2004; JMLSG 2006). Other international initiatives include the '*Basel Declaration*' signed by the members of the Committee of Banking Supervision, the United Nations' *Convention against Transnational Organised Crime*, and the creation of the *Egmont* group of FIUs. The European Union also developed instruments to fight money laundering. The European Commission's AML directive provides the common ground for all member states, and it was set out adopting a minimalist approach (Mohamed 1995) in order not to collide with the exclusive competence of member states such as criminal law, and to accommodate various sensitive issues such as secrecy laws (Mohamed 2002). As a result of the minimalist approach, the transposition of the directive into national law has resulted in uneven applications among member states. Some states have strengthened the directive' requirements[42], while others have failed to implement it in full[43].

At the national level, the first AML related legislation introduced in the UK was the Criminal Justice Act of 1988. While it referred to drug trafficking and terrorism financing only, it specifically criminalised assistance in laundering money and failure to report suspicion. The first EC AML directive was transposed into UK law through the Criminal Justice Act of 1993, as well as the Criminal Law Act of 1995[44] and the Proceeds of Crime Order of 1996[45]. It extended the definition of money laundering to cover the proceeds of all serious crime. Additionally, it introduced the requirement for all regulated firms to maintain specific systems and controls to combat money laundering, and to obtain evidence of the identity of new customers (FSA 2003). Additionally, the Drug Trafficking Act of 1994 increased the powers of confiscation. The Terrorism Act was approved

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[42] For instance, Belgium opted to set the minimum threshold for suspicious transaction reporting at €10,000, below the EU's suggested €15,000 level.

[43] Austria has been criticised internationally for failing to implement full identification procedures for customers in "non-face to face" banking transactions.

[44] Specifically for Scotland

[45] Specifically for Northern Ireland

in 2000, and amended in 2001, and provides the law on terrorist financing. The Financial Services and Markets Act of 2000 gave statutory powers to the FSA to regulate the financial services industry in the UK, with money laundering appearing as a top item in the FSA's agenda. Particularly since 2002, the FSA assumed formal powers to supervise and enforce compliance with laws and regulations relating to money laundering, and binding all banks and other regulated institutions to have processes to detect and prevent this activity. The legal requirements were further strengthened with the introduction of the Proceeds of Crime Act (PoCA) in 2002 which extended the definition of money laundering and created a new imprisonable offence of failing to disclose suspicious transactions in respect of all crime (JMLSG 2006). The Money Laundering Regulations of 2003 extended the requirements to a number of sectors other than the financial services, but still did not apply to all types of businesses – e.g., high street gambling is excluded from the regulations.

Alongside the legislation, British financial institutions usually consider the guidance notes prepared by the Joint Money Laundering Steering Group (JMLSG) since 1990. The JMLSG consist of the leading UK trade associations in the financial services industry (JMLSG 2006). Lastly, banks themselves issue their own AML policies regarding the launching of new products, training programmes and others.

# Appendix 2 – Brief overview of semiotics

Semioticians may be loosely divided into two orientations, reflecting different perspectives on the issue of what determines the activity of comprehension within the communication process.

One branch – sometimes referred to as semiology – posits that comprehension is made possible by the existence of rule-systems, which exist prior to any specific meaning making process. Henceforth, semiology is mostly concerned with classifying signs and investigating the rules that govern the relationship between the vehicle and the meaning (Eco 1976; Hervey 1982; Brannen 2004). Key authors in semiology are Ferdinand de Saussure and Algirdas Julien Greimas, among others.

The other branch of semiotics – often referred to as pragmatic semiotics – defends that comprehension is an activity highly dependent on the context, and that any investigation of structure embeds assumptions about meanings, language use and function (Basunti 2004). The pragmatic branch of semiotics is based on the work developed by the logician Charles Peirce, further developed by Charles Morris and others, and investigates the sign effects, in particular its role in creating other signs (Hervey 1982; Price and Shanks 2004; Price and Shanks 2005). Pragmatic semiotics is wider in scope than semiology because it is not limited to the study of what signs mean, instead it includes the study of how signs mean, i.e. how meanings are made (Sturrock 1986). Organisational semiotics is a sub-discipline of the pragmatic branch of semiotics.

Semiotics provides a comprehensive notion of communication to include any system of classification be it verbal, textual, visual or other (Martin and Ringham 2000). Performing a semiotic analysis of an organisation allows the researcher to elicit ambiguity in the meaning of the sign, identify eventual conflicts in the organisation about the signs, and recognise the consequences for the parties involved of the choice of signs.

# Appendix 3 – The semiotic ladder

## A3.1 Physical level

The physical level of semiosis focuses on the physical aspects of signs. Namely, this level considers the range of signs available and of interest to the organisation, and their properties (Liu 2000). Signs are defined by their physical characteristics such as mass, energy, spatial dimension or duration (Stamper, Liu et al. 2000). Additionally, the researcher needs to consider the characteristics of the sign carrier, such as energy and material requirements, so that '[*information systems developers*] can design physical devices for storage, transmission and representation of the signs' (Liu 2000).

Desouza and Hensgen (2002; Desouza and Hensgen 2005) note that signs may exist in any form associated with the five senses and intuition, and advocate a focus on quantity rather than quality:

> '*At the [physical][46] level, the task merely requires the gathering of data (...). At this stage the focus in on the quantity rather than the quality of the information. As data filters upwards in the model, it will quickly be thinnned*' (Desouza and Hensgen 2002).

The authors further argue that it is important to consider a broad selection of divergent sources, within the organisation, the organisation's partners or the public environment (Desouza and Hensgen 2002), keeping an open mind:

> '*Literal thinking... impedes considerations that allow the data process to succeed along the levels of the semiotic model.*'

Liu (2000) illustrates the physical level of semiosis explaining that, in a telephone conversation, the telephone lines must be connected by a telecommunications provider, first and foremost.

## A3.2 Empiric level

The empiric level studies the statistical properties of the signs, and aims to establish a repertoire of reliable patterns of signs and use them with error rates that are low enough (Stamper, Liu et al. 2000). Issues of interest to the semiotician include the validity of the data, in terms of legitimacy and

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[46] The authors use the term 'morphological' to refer to what Stamper describes as the physical level of semiosis.

significance (Desouza and Hensgen 2005), as well as processing requirements such as coding, decoding, measurements of entropy, desired level of detail summarisation (Desouza and Hensgen 2003) or channel capacity (Liu 2000; Desouza and Hensgen 2002). Empirics is more concerned with the content of the message than its meaning (Neuman 2006).

In a telephone conversation (Liu 2000), the voice signals need to be converted into electronic or optical signals and transmitted between the two telephones, to enable the empiric level of semiosis.

## *A3.3 Syntactic level*

At the syntactic level, agents look at rules for assembling complex signs from simple ones (Liu 2000), structuring data items into meaningful sets (Desouza and Hensgen 2003), and linking them according to some grammar or code (Desouza and Hensgen 2002), such as a language's grammatical rules or particular mathematical formulas.

At this level, a key determinant of success, as far as meaning is concerned, is how well sign relationships are defined across heterogeneous agents and objects (Desouza and Hensgen 2003). Obeying the grammar is a condition for the existence of meaning, rather than a determinant of the exact meaning that will be attributed to a sign, however. As Liu (2000) notes, of natural language:

> *'Grammars of a natural language teach people how to construct grammatically correct sentences, but do not tell how to express semantic meanings. However, if one wants to express oneself precisely, to follow the grammar is one of the conditions'* (page 29).

In Liu's (2000) telephone conversation example, the two people involved must follow the same grammatical rules, to enable the syntactic level of semiosis.

## *A3.4 Semantic level*

Semantics acknowledges the role of the context, or 'reality' (Desouza and Hensgen 2003), in the formation of meaning. In particular, how people interpret the information available in relation to the topic or setting in which it is used (Desouza and Hensgen 2005). Semantics highlights that meaning is relational, not just denotational (Goguen 2004).

Literal, denotational meanings provide an unequivocal and logical mapping between any given sign and the object it refers to, and is independent of any context whatsoever (Searle 1979). However, as illustrated by Winograd and Flores (1987) and Andersen (1990), in most if not all social contexts, there is no such unequivocal relationship. Instead, background information is often necessary to understand meaning. Brannen (2004), for instance, describes how the word 'bonus' assumes two different meanings in the US and in Japan. In the former, the term bonus is seen as a reward for exceptional performance, but in the later it is a standard and expected portion of an employee's annual compensation.

The formation of meaning may also be influenced by time. The relationship between the sign and the object can have either static or dynamic components (Desouza and Hensgen 2002). In the former, the occurrence has the same outcome regardless of time. In the later, the value of "information" declines with the passing of time between the moment data was collected and the moment the relationship was established.

The observation that a particular sign in a particular setting elicits a particular response – such as Pavlov's salivating dog experiment – led semioticians following Peirce's tradition to refer to the meaning of signs as behaviours (Stamper 1973; Hervey 1982; Liu 2000).

## A3.5 Pragmatic level

The pragmatic level focuses on the role of the interpreter in establishing meaning. Pragmatics concentrates on the specific meanings of utterances and actions in use by actual speakers in concrete contexts (Searle, Kiefer et al. 1980). Furthermore, pragmatics investigates how such utterances and actions may reflect personal knowledge and experience (Dik 1989), as well as personal biases (Desouza and Hensgen 2002), intentions (Stamper, Liu et al. 2000), desires and beliefs (Liu 2000):

> 'A process of verbal communication between two people can be modelled like this. The speaker and hearer each have their own pragmatic information base. The speaker's pragmatic information base allows him to form an utterance with an expectation that the hearer will understand both semantic meaning and his intention. For example, by saying

*"I'm hungry", the speaker expects the hearer will then interpret the sentence, with his pragmatic information, understanding that the speaker is actually saying 'It's time for lunch, let's go to the cafeteria". (...) Knowing pragmatic information of the opposite side can shorten the route of conversation and improve the efficiency. On the other hand, incorrect assumption of the pragmatic information of the opposite side can lead to the conversation going astray'. (page 32)*

The pragmatic information of the speaker may be communicated by or inferred from the theme, topicality and focality of the conversation (Dik 1979; Dik 1989), the time and location of the conversation or the use of specific words such as 'propose' instead of 'order' (Liu 2000). Furthermore, Searle an Vanderveken (1985) defend that the relative position of the speaker and the hearer, such as whether there is a relationship of authority or peerage among the parties involved, also conveys pragmatic information.

## A3.6 Social level

The social level refers to the effect of the use of the signs by individuals (Stamper, Liu et al. 2000; Stamper 2001) and it is, therefore, linked with the study of obligations resulting from the use of signs, whether they are explicit obligations as in the case of legal contracts (Backhouse and Cheng 2000) or they are implicit obligations resulting from social conventions of behaviour (Liu 2000):

*'For example, an "invitation" can lead to either "acknowledge but not accept" or "accept". (...) In case of acceptance, the invitee has actually made a promise to the inviting person that he will fulfil his obligation, i.e., going to the party or dinner at the agreed time. Meanwhile, the inviting person has committed himself to receiving the guest' (page 34)*

## A3.7 Alternative conceptualisations of the semiotic ladder

While the six levels semiotic ladder is widely used by organisational semioticians to study semiosis, alternative configurations exist. In particular, the distinction made between pragmatics and social level is problematic for some semioticians (Goldkuhl and Agerfalk 2000; Agerfalk, Karlsson et al. 2002; Price and Shanks 2005). Goldkuhl and Agerfalk (2002), for instance, argue that the pragmatic and social levels are so intertwined that distinguishing between them is probably not only conceptually inelegant, but also misleading. The authors use two arguments. First, pragmatic intentions are usually directed from one person to another and, as such, are social by nature. Second, the successful performance of communication usually requires from the person knowledge of social acts. Agerfalk et al. (2002) recommend, instead, that the pragmatic and social levels be

merged, but a distinction made between the personal and the social cognitive bases, as depicted in figure A.1.

**Figure A.1 - The actability school approach to the semiotic ladder**
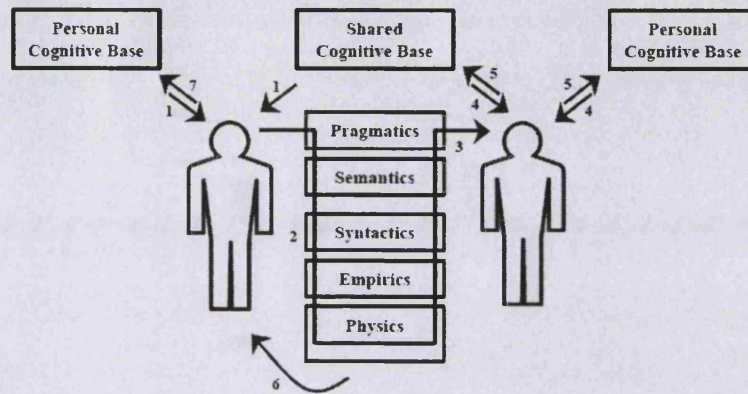


*Source*: Agerfalk, Karlsson et al. (2002)

Other authors consider different numbers of levels, and slightly different terminologies. Desouza and Ramaprasad (2002), who also prefer a five stage model, use the term 'morphological' to identify what Stamper refers to as the 'physical' level, and amalgamate the social and the pragmatic levels into one (figure A.2). Liebenau and Backhouse (1990) as well as Liebenau and Harindranath (2002) consider four levels, namely empiric, syntactic, semantic and pragmatic, which link with the physical and the business worlds.

**Figure A.2 - The evolutionary approach to the semiotic ladder**
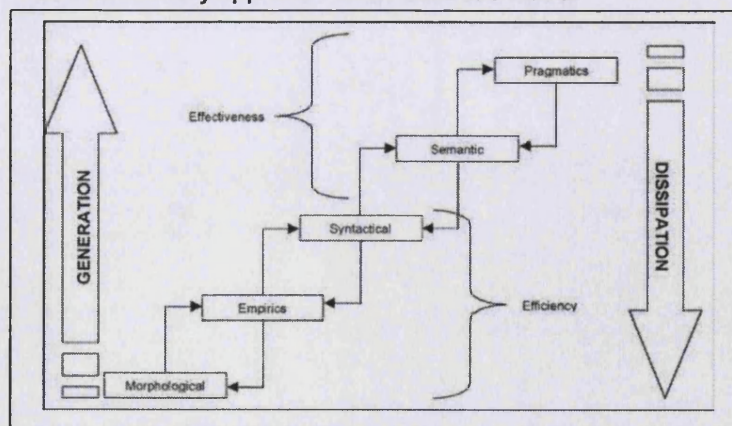


*Source*: Desouza and Ramaprasad (2002)

In summary, some authors do not consider the physical or the social levels as a focus of study in itself, while others disagree with the separation between pragmatics and the social level. This thesis uses the six levels framework because it clearly separates between the intended effects of the signs represented by the pragmatic level, and the actual effects of the signs, studied in the social level. Another reason for using the six levels framework is that it studies the technical and the social worlds as part of the meaning making process, rather than just starting and ending points.

# Appendix 4 – Taxonomies of norms

Various taxonomies of norms exist, reflecting different study focuses. For instance, norms may be classified according to their formality (Liu 2000; Stamper, Liu et al. 2000; DeMoor 2002). Informal norms are habits and unofficial conventions that the members of an organisation follow, regardless of whether such norms have been verbally agreed or not. One example of an informal norm is the generally accepted convention that London investment bankers may wear casual clothing on Fridays but should not to do so on any other day of the week. Formal norms are those that have been officially documented, such as national laws, industry regulations or organisational policies. When formal norms are so exactly specified that they can be automated and executed by a computer, they become technical norms:

> 'Although human individuals are the principal embodiment of social and organisational norms, we are increasingly automating the application of norms so that we should think of the computer as an instrument for executing certain kinds of norms where it is more efficient but no less responsible to do so. Hence, we are also using the same norm-oriented model to explore some of the positive and negative impacts of information technology on the capacity of the organisations to change or learn' (Stamper, Liu et al. 2000).

Norms may, additionally, be classified according to form, in which case it is possible to distinguishing between norms that have been made explicit, and those that are implicit only (Liu 2000). Explicit norms have been communicated and agreed upon, possibly vocally. Implicit norms, or conventions, have never been discussed, but members of a community adhere to such norms, nonetheless.

Social psychology offers an alternative taxonomy, based on attitudes and that distinguishes between perceptual, evaluative, cognitive and behavioural norms (Liebenau and Backhouse 1990; Liu 2000; Stamper, Liu et al. 2000; DeMoor 2002; Filipe 2004). Perceptual norms refer to how persons receive signals from the environment, and the vocabularies that such persons refer to in order to label their perceptions. Evaluative norms embody the beliefs that affect expectations regarding the observed signs. Cognitive norms refer to how people analyse the behaviours observed, and which patterns of cause and effect are imbued in the interpretation process. Lastly, behavioural norms dictate the appropriate actions that someone ought to take in the face of particular events. Stamper and colleagues (2000) emphasise that perceptual norms are difficult to

change and have profound effects on the organisation. The authors further note that evaluative norms vary between cultures, and tend to change slowly, whereas cognitive norms change alongside developments in the technology of products and processes, and with improving knowledge of the relevant social and economic environment. Additionally, Stamper and colleagues underline that behavioural norms change frequently, namely as a response to new laws or formal rules. Different organisations exhibit different combinations of these four kinds of norms.

It is also possible to classify norms according to the tasks that they regulate (Liu 2000; Stamper, Liu et al. 2000). Substantive norms concern the core business functions and operations that contribute directly to organisational objectives, and direct the subjects' performance in some physical task such as the movement of goods. Communication norms specify patterns, structure and procedures of communication within an organisation, and have the role of ensuring that everyone knows what information should be kept and provided, and what actions should be taken and when. Control norms introduce sanctions and rewards, and act as a mechanism to reinforce that everyone does what he or she is supposed to do, as prescribed by the other two types of norms. Additionally, control norms influence the subjects by evaluating their conformity to other norms.

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# Appendix 5 – Brief overview of the evolution of the concept of category

The classical view of categories dates from Aristotles and is based upon the notion of categories as discrete entities characterised by a set of properties that are shared by their members (Edghill 2004), and upon which logical operations can be performed (Edwards 1991).

According to the Aristotelian or classical view, categories are clearly defined, mutually exclusive and collectively exhaustive, exhibiting systematic patterns of within-category similarity and between-category difference (Kurtz and Gentner 2001). Consequently, any object belongs unequivocally to one, and only one, of the proposed categories. The classical approach to the study of categories further assumed that agents categorised objects using the common features or attributes among those same objects:

> '(The classical view) assumes that categories are logical bounded entities, membership in which is defined by an item's possession of a simple set of criterial features, in which all instances possessing the criterial attributes have a full and equal degree of membership.'
> (Rosch and Mervis 1975)

The classical view of categories is, therefore, merely descriptive (Margolis 2003). It does not explain why people have difficulty in defining categories that they employ (McNamara and Sternberg 1983), or why definitions often differ markedly between agents or even for the same agent over time (Rosch 1975). Additionally, people tend to disagree about whether a particular observation is a member of one category or another (McCloskey and Glucksberg 1978; Barsalou 1989) thus questioning the classical view that objects will unequivocally belong to one category or not.

The work developed by Eleanor Rosch (Rosch 1975; Rosch and Mervis 1975; Rosch 1978; Mervis and Rosch 1981) and George Lakoff (Lakoff and Johnson 1980; Lakoff 1987), however, challenged the view of categorisation as the process of grouping things on base of the presence of the same features of the objects and suggested. Instead, the authors treated categories as resemblance structures and categorisation as based on the similarities between the object and the mental representation of that object:

Ross illustrated the role of mental models with numerous experiments:

*'(The) results confirmed that natural categories such as colours, lines, and numbers have reference stimuli in relation to which other stimuli of the category are judged (...) that there are ideal types which act as anchoring points for perception or conception'.* (Rosch 1975)

The mental representations – or schemas - are very persistent templates that structure cognition by identifying the prominent elements of a situation (Billman and Davila 1995; Billman 1996; Pazzani 2000) and by describing the causal relations between them (Rosch 1973; Fiske and Taylor 1991; Markman and Gentner 2001; Elsbach, Barr et al. 2005). The information stored in the schema is a summary of the most typical features of members in a given category, and new exemplars are classified based on their similarity to stored exemplars (Zhang and Markman 1998), and their distance from other existing schemas (Rosch 1978; Kruschke 2005; Sloman and Lagnado 2005). Furthermore, similarity is determined by the matching between observed features and particularly salient or frequent features of the stored mental models (Hampton 1979). Other factors that may impact on the content of categories are encoding factors such as the person paying more or less attention to past episodes where he or she became exposed to particular elements of the situation, or the number of repetition of the events (Hintzman 1988).

Research into classification processes, therefore, requires from the researcher a focus on the mental representations of the person engaging in cognitive activity, rather than on the attributes of the objects being classified. Such an individualist understanding of categorisation implies that the systems of categories are rooted in people's experience and, as such, not uniform in their composition (Medin, Lynch et al. 1997; Medin, Lynch et al. 2000). Indeed, even when two individuals agree on a lexical categorisation, the denotation of identities and behaviours might still differ (Schneider 2003). Loewenstein and Ocasio (2003) provide one example of such variety of composition:

*'The word Vice President means something different in a commercial bank, where the title is ubiquitous and the power of the occupant limited, than in most industrial corporations where the term is understood to imply a relatively higher status and rank.'* (Loewenstein and Ocasio 2003)

# Appendix 6 – Brief overview of the role of context in cognition

The study of the role of the context in classification tends to be divided in two fields. On the one hand, there are those that argue that schemas exist 'in the head' and that the influence of context on schemas is via it triggering the activation of particular schemas depending on how the situation is framed. On the other hand, there are those that defend that context has primacy over schemas and actively influence the content of such schemas. The two views are presented, next.

<u>Context as a trigger of existing schemas</u>

The field of work looking at how context triggers categorisation is loosely defined as framing. One example of framing is that reported by Tenbrunsel and colleagues, in a study of preference for alternative environmental policies. Namely, Tenbrunsel et al. (2000) reported that framing a decision concerning environmental policy in terms of meeting standards or of developing solutions, influenced which environmental policy was selected. And framing an event as a threat triggers different evaluative schemas, and hence actions, than framing the same event as an opportunity (Dutton and Jackson 1987; Dutton 1992; Papadakis, Kaloghirou et al. 1999; Gilbert 2006).

Technology, as an element of context, may lead to framing in the sense that the technical platform chosen to process or present the data may increase the salience of particular pieces of information and that, in turn, cues attention and influences how a person thinks about a given problem (Smelcer and Carmel 1997; Potter and Balthazard 2004).

Another element of the context that leads to framing is the exhibited or perceived behaviour of other persons. In particular, when a person is aware of or observes a particular behaviour in others, he or she is more likely to engage in that same behaviour (Milgram, Bickman et al. 1969; Fiske and Taylor 1991; Kallgren, Reno et al. 2000; Cialdini and Goldstein 2003; Cialdini 2005). The fact that donations to street musicians in a heavily trafficked spot are influenced by the number of passers-by who put money in the musician's (Cialdini 2005) is an often cited example. Additionally, littering

is known to be significantly affected by how clean the setting was in the first place (e.g., (Reiter and Samuel 1980)) and this pattern is accentuated when the person's attention is purposely drawn to the actions of other persons (Cialdini 1996). Cialdini (1993) argued that the observation of the behaviour of others offers an information processing advantage and a decisional shortcut when one is choosing how to behave in a given situation. The reasoning is that if everyone is doing or thinking or believing it, it must be a sensible thing to do or think or believe.

In summary, different elements of the context may increase the salience of different attributes in the stimuli and, ultimately, lead to the observation being allocated to different categories. However, compliance with the social norm seems to occur at an unconscious level leading to what has been described as the *attribution fallacy*, that is the observation that not only are people very much influenced by the social context, but they tend to believe that they are not so influenced (Thomas, Kellogg et al. 2001; Cialdini 2003).

## Context as a creator of schemas

In contrast to the approach that defends that schemas are stable and not determined by context, there are researchers who consider that context is influential for the content of the schemas – that is, that schemas are socially constructed and, hence, a result of the context where they emerge (Sharma 2000).

Individuals participating in a social group – such as an organisation - tend to represent the world in similar ways (Thompson, Levine et al. 1999; Elsbach, Barr et al. 2005; Mantaras, McSherry et al. 2005), as a result of the interactions between the various group members (King 2005). Furthermore, members of different organisations have many different shared experiences, leading to individuals within an organisation thinking more like each other than like the members of another organisation (Donaldson and Lorsch 1983). A strong organisational culture affects the thinking of the organisation's decision makers and, in turn, the goals and the attention of the group members (Peteraf and Shanley 1997). While culture does not rigidly determine the responses of its group members, '*it provides interpretive perspective for making sense of reality*' (Lehman, Chiu et al. 2004).

Douglas (1987), addressing the role of the organisation and organisational culture in shaping the cognition of individuals, defended that organisations restrain an individual's processes of classifying and recognising, to the point that:

> 'An answer is only seen to be the right one if it sustains the institutional thinking that is already in the minds of the individuals as they try to decide' (page 4).

In addition to shared experiences, particular schemas may emerge as the result of the actions of particular members of the organisation. Studies in organisation sense-making have demonstrated that managers occupying strategic level roles at the top of the organisation hierarchy are uniquely placed to influence how issues are interpreted in organisations (Daft and Weick 1984; Maitlis and Lawrence 2003; Lawrence, Mauws et al. 2005). However, the top managers' interpretations may be shaped by sense-giving efforts of middle managers who engage in issue selling or who contribute to strategic conversations through provision of information (Dutton and Ashford 1993; Dutton, Ashford et al. 1997; Maitlis 2005), as well as exploitation of key relationships, management of impressions and protection of formal authority (Maitlis 2004).

The process by which dominant groups determine the composition of categories, in turn, is linked with issues of processes of decision making in organisations. Maitlis (2005) suggested that decision making, in organisations, follows neither a homogeneous nor a random process. Instead, variations in decision making style can be traced back to different types of participation in and control of the process. In a longitudinal study of three organisations and 27 issue domains, Maitlis analysed how the sense making process and the type of outcomes varies with the level and type of interaction between the organisation's leader and its stakeholders. The study examined how leader and stakeholders fuelled the decision making process with a particular form of energy: a highly involved leader resulted in processes that were highly controlled, occurred in an organised and systematic fashion, and that took place through private meetings rather than public, open forums; highly involved stakeholders resulted in highly animated processes, characterised by intense exchanges of information, that remained active over an extended period of time. Furthermore, the study described how the outcomes varied with the type of social processes: high control processes led to

unitary accounts, enacted through consistent, planned actions; high animation processes led to rich accounts, enacted in a series of actions.

On a separate line of work, Steen (2005) investigated the relationship between decision processes and outcomes. Steen noted that the beliefs that characterise an organisation's culture are not homogeneously distributed by all members of one organisation. Instead, employees higher in the organisational hierarchy tend to have more homogeneous beliefs than other employees. Additionally, older and more successful firms tend to exhibit more homogeneity of beliefs than other firms. Steen suggested that when the beliefs of the members of an organisation were aligned with those of their manager, the decision making processes were faster. Alignment of beliefs also increased the predictability of the outcomes of the decision making processes.

Regarding the type of organisation, Dougherty and colleagues (2000) proposed that:

> 'There are qualitatively different systems of sense-making in non-innovative versus innovative organisations – innovative organisations are that way in part because they have a system of sense-making that straightforwardly allows them to construct, bracket, interpret, and rethink the right kinds of (...) knowledge... People on innovative firms understand both knowledge and the linking processes in practice-centred, action terms'. (Dougherty, Borrelli et al. 2000)

Pickel (2005) added that more stable, powerful and socially significant systems tend to have clearer enforcement mechanisms of socially shared schemas. Lastly, a socially constructed category is more likely to be imposed on an individually constructed one when the person engaging in classification is cognitively busy (Knowles, Morris et al. 2001) or needs to make judgements under time pressure (Chiu, Morris et al. 2000).

The literature outlined in this appendix suggests that context affects cognition, be it in the sense that context makes particular stimuli salient and activates specific schemas via framing, or in the sense that the context actually determines the composition of individual mental schemas.

# Appendix 7 – The FSA's ARROW risk framework

Excerpt from the document "ARROW risk assessment framework" available at http://www.louisepryor.com/showTopic.do?topic=30

The FSA has developed the ARROW risk assessment framework with the following objectives:

- Help FSA meet its statutory objectives by focusing on key risks

- Influence resource allocation to make efficient and effective use of limited resources

- Use appropriate regulatory tools to deal with risks or issues

- Undertake proportionally more work on a thematic (or cross-sectional) basis

ARROW stands for Advanced Risk Response Operating frameWork.

Firms are assigned to one of four supervision categories, based on the risk they pose to the FSA's objectives, as perceived by the FSA. The ARROW framework describes how the FSA assesses the risk. Although the requirements are the same for all firms, the level of the FSA's involvement depends on the supervision category. Firms in category A can expect a close and continuous relationship; those in category D can expect little or no individual contact.

An extremely important aspect of the whole regulatory approach of the FSA is that only the risks to the FSA's objectives are considered. These objectives are concerned with market confidence, public awareness, consumer protection and the reduction of financial crime. Risks to shareholder value, for example, do not explicitly concern the FSA.

The FSA assesses the risk that a firm poses to its objectives by considering the impact and probability separately. The unit of assessment may be the individual firm, or a business unit consisting of several firms (in large groups) or within a firm.

The impact assessment depends on the size of the firm, and is expressed as high, medium high, medium low, or low. The size of the firm is measured by premium income, assets/liabilities, funds under management, annual turnover, or other similar measures, depending on the firm's sector.

The probability assessment is performed on a firm by firm basis, by considering each element in a matrix of risks. The thoroughness of the probability assessment depends on the impact rating of the firm. Low impact firms won't be assessed individually; high impact firms will be assessed in great detail, with visits from the FSA; those in the middle will get desk-based assessments.

After performing the probability assessment, the FSA develops a risk mitigation programme (RMP) for the firm. The RMP will use a selection of regulatory tools intended to reduce the risks that have been flagged as requiring action. Usually, this means that the firm has to take some action: produce and implement a plan for introducing a risk management process, for example.

# Appendix 8 – AML related fines applied by the FSA

Table A1 details some of the fines applied by the FSA following AML related audits.

**Table A.1 – Example of fines applied by FSA following AML related audits**

| Institution | Fine | Date |
|---|---|---|
| Royal Bank of Scotland Plc | £ 750,000 | 17 Dec 2002 |
| Northern Bank | £ 1,250,000 | 7 Aug 2003 |
| Abbey National companies | £ 2,320,000 | 10 Dec 2003 |
| Bank of Scotland Plc | £ 1,250,000 | 15 Jan 2004 |
| Raiffeisen Zentralbank Osterreich | £ 150,000 | 6 Apr 2004 |
| Bank of Ireland | £ 375,000 | 2 Sep 2004 |

Source: adapted from FSA (2003) and Kitano (2005)

# Appendix 9 – 'The Times' article

The article transcribed in this appendix was obtained from

http://www.timesonline.co.uk/tol/news/uk/article518611.ece

The Times

February 25, 2005

**IRA plc turns from terror into biggest crime gang in Europe**

The Republicans' crooked business empire rakes in huge amounts

*By David Lister and Sean O'Neill*

AN ANALYSIS of the IRA's involvement in criminal activities shows a huge range of operations, from smuggling to money laundering and from robbery to mortgage applications.

**ALCOHOL**

The IRA is believed to have perfected the recipe for Smirnoff Red Label vodka, among other spirits, and has a well-developed distribution network for its counterfeit products in pubs and clubs which it controls, particularly in Belfast.

Raids on illegal distilleries, mainly in border areas, have uncovered bottling and capping machinery and high- quality copies of brand labels. Many of the products are designed for use in pub optics.

Police found the seven-stage filtration machinery for deionising water not long after Diageo, the drinks company, had introduced the process at its plants. "They use industrial espionage to copy machinery, recipes and labels and are prepared to be very patient to get things absolutely right," said a police source.

The IRA takes the production of counterfeit spirits so seriously that it even has a quality control unit. Diageo and other companies have countered with a security division which works with police and Customs on both sides of the Irish border. Last December Irish Customs seized 1,500 litres of pure

alcohol on the Cooley peninsula, Co Louth, as well as printing presses and labels for a variety of vodka brands.

A Diageo spokesman said: "We are very concerned about this illegal trade. It impacts on our consumers, on government revenues and on us as the brand owners."

**ROBBERY**

The IRA's "elite robbery team" is a dedicated unit allegedly run by Bobby Storey, its director of intelligence who is revered by republicans for his anti-surveillance expertise.

The group's income through robberies varies from year to year. According to Special Branch, Storey played a central role in the theft of £26.5 million from the Northern Bank just before Christmas and organised three other robberies which netted a further £3 million last year.

In each case the IRA used a tactic known as "tiger kidnapping", where the family of an employee is held hostage to ensure his or her co-operation. Since April last year there have been eleven "tiger kidnappings", at least four of which have been blamed on the IRA.

In one such raid at the Makro cash-and-carry store outside Belfast last May, four staff were held at gunpoint, tied up and gagged. Cigarettes, alcohol and electrical items worth more than £1 million were stolen. In October the IRA stole cigarettes worth £2 million from a warehouse in Ardoyne, North Belfast, owned by Gallaher's tobacco company. Over the past two years it has stolen cigarettes worth nearly £4 million from lorries passing through South Armagh. The IRA has also been able to import cigarette cargos through Dublin port.

In the Irish Republic smaller-scale robberies of security vans and post offices have been used to train new recruits.

**CROSS-BORDER SMUGGLING**

Smuggling is a way of life in South Armagh, the heartland of militant republicanism. According to Customs, about half of Northern Ireland's filling stations sell fuel smuggled from the Irish Republic, where duty is considerably lower, at a cost to the Treasury of about £200 million a year.

Fuel smuggling, much of it organised by the notorious South Armagh "brigade", is now arguably the IRA's single largest source of income. "What the IRA love is excise and revenue frauds, and the fuel smuggling is on an industrial scale," said a security source. "Diesel in the Republic is about 66 or 67p per litre, so straight away you can make a profit of about 15p per litre.

"They get even more with agricultural diesel, which they buy at around 15-20p per litre, then use chemical processes to wash the dye and the markers out of it. It is then sold as ordinary car fuel for 70 to 80p per litre."

According to the Organised Crime Task Force, the IRA's fuel-laundering plants — often concealed in barns along the border — produce up to five million litres of illegal fuel each year, making an annual profit of at least £3 million.

About a third of all cigarettes in Northern Ireland are also smuggled, much of this proportion by the IRA, according to Customs. The cigarettes are typically brought in by the container-load from zero or low-tax countries such as Thailand, China and Turkey. A 40ft container can hold ten million cigarettes worth £1.5 million.

The IRA is still heavily involved in smuggling sheep and livestock across the border so that farmers can take advantage of VAT differences in the Republic, which allows them to claim a rebate for lambs.

In recent months the IRA has embarked on a new activity: the illegal dumping of household waste from the Republic, where residents now have to pay "bin taxes". Police have identified at least five illegal dumping sites in Northern Ireland, with waste ranging from 5,000 to 25,000 tonnes with a value of up to £5,000 per 20-tonne lorryload.

**IP CRIME**

"Wherever there is a penny to be made, these boys will be turning their hands to it," said one security official.

Seizures of pirate DVDs, CDs and computer games and software are at record levels but the quantity of goods recovered is believed to be dwarfed by how much escapes detection.

The paramilitaries have long been involved in this trade and the IRA's links with America gave it access to new releases. Today much of the illegal product in the province is burnt on to DVDs locally after master copies are imported or downloaded.

Last weekend counterfeit goods worth £200,000, including DVDs, videos, CDs, fireworks and electrical items, were seized in Jonesborough in the heart of South Armagh.

The IRA's counterfeiting operations extend to fake football strips, designer clothes, power tools and, in a recent discovery, a well-known brand of washing powder.

In the past it has been involved in the smuggling and sale of fake-branded disposable razors, toothpaste and other toiletries sold door to door. In one notorious example, a fake perfume seized at a market in Northern Ireland contained urine as a stabiliser.

**CONSULTANCY**

Special Branch believes that the IRA received up to $6 million (£3.1 million) for helping to train Marxist rebels in Colombia, where three alleged IRA members are wanted after vanishing on bail last December.

The payment was allegedly negotiated by a former IRA "chief of staff" who has worldwide contacts — including in Libya, where republicans are believed to have deposited some of the proceeds from their vast criminal empire.

Other senior republicans have also travelled to cultivate links with the PLO in the Middle East and Eta in Spain. In the past IRA men trained alongside ANC guerrillas in South Africa.

Police say that other payments have almost certainly been received from overseas for the IRA's terrorist expertise in intelligence gathering to bomb-making.

According to Special Branch, the IRA is also heavily involved in providing security services for pubs, clubs and other venues in Belfast. The group does not officially deal in drugs but it is believed to have "licensed" the trade of illegal drugs by the dissident groups and independent dealers in Dublin.

## MONEY LAUNDERING AND FINANCIAL CRIME

The IRA's finance unit is said to have contributed to Belfast's property boom by investing in property.

Detectives investigating a suspected IRA money-laundering network in the Republic believe that it controls a huge business portfolio including pubs, restaurants, night clubs, office blocks, taxi firms, filling stations and nursing homes. Often the IRA invests as a silent partner in legitimate businesses.

The authorities also believe that the terrorist group has been looking at property opportunities overseas, particularly in fast-growing markets outside the European Union such as Bulgaria, Turkey and Libya.

"You just can't quantify it," said one official. "The money is put through so many channels that it's impossible to know. Nobody knows how much property they have, but it's a lot."

Other financial crimes include insurance and compensation frauds, VAT frauds, and the diversion of government and EU grants.

In West Belfast, the IRA even helps ordinary Roman Catholics to forge mortgage applications, offering bogus references and salary statements in return for a share of the loan.

# Appendix 10 – Excerpt from BFI's policy booklet

**What should make me suspicious?**

*There are no defined "indicators" and your suspicions will likely depend on the context of a transaction. Nevertheless, you should be suspicious where any request for services, a transaction or a series of transactions is unusual either for the customer or for the Group. For instance (on a Group wide basis):*

- o *Large case deposits at a branch or post office;*

- o *Large or numerous cheque deposits for personal customers;*

- o *Large or regular international transactions for personal customers;*

- o *High value or regular early settlement instructions for investment transactions;*

- o *High value retail customers where the source of their wealth is unknown;*

- o *Mortgage customers where the source of repayment is unusual or for low loan to value loans the employment details provided by the customer do not ring true;*

- o *Unusual counterparties or settlement instructions in Treasury business;*

- o *Customers who are reluctant or hesitant about providing information about themselves and/or their business which will enable us to complete verification procedures;*

- o *Customers who can only be contacted by mobile phone;*

- o *Business customers who are unwilling to meet at their offices or premises;*

- o *Customers seeking to borrow where there is no apparent reason why they should require the advance;*

- o *Customers appears disinterested in service charges or interest rates.'*

# Appendix 11 – Definition of PEPs, according to BFI's policy booklet

*'A person occupying any of the roles below, as well as the families of such a person and close associates:*

- o *Heads of state, government and cabinet ministers;*

- o *Influential functionaries in nationalised industries and government administration;*

- o *Senior judges (high Court, Crown Court, or above);*

- o *Senior party functionaries;*

- o *Senior and/or influential officials, functionaries and military leaders and people with similar functions in international and supranational organisations;*

- o *Members of ruling royal families;*

- o *Senior and/or influential representatives of religious organisations (if these functions are connected with political, judicial, military or administrative responsibilities.'*

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