

Technology and Anti-Money Laundering

A Systems Theory and Risk-Based Approach



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Preface

The ideas behind this book were developed gradually over a number of years. Many individuals have influenced this effort, particularly by sharing their own experiences on anti-money laundering (AML). However, what has undoubtedly taken a much longer time to establish was the connection between anti-money laundering as a pragmatic problem domain and systems theory as a theory that could be used to develop AML research. Even though this book constitutes an academic endeavour in its core, there are indeed important implications for practitioners. Research results from a financial institution that was studied over a period of three years are included in this book. I trust that the analysis of AML operations of the financial institution will be of considerable interest to the reader. This analysis is presented as an in-depth case study and a whole chapter is dedicated to this purpose. The influences of information systems on AML, as well as the internal suspicious transaction-reporting regime of the financial institution, yield some interesting results and point to a fascinating complexity around AML.

I would like to thank a number of people without whom my AML experience would not have been the same. From the London School of Economics, I would like to thank James Backhouse and Bernard Dyer, two close collaborators with whom I've worked on two AML projects funded by the European Commission (projects Spotlight and GATE), as well as Jeannine McMahon for managing these projects on behalf of LSE Enterprise. For their collaboration throughout these projects, I would like to thank a good friend and ex-student from the LSE, Giorgos Panousopoulos, as well as Massimo Nardo from the Central Bank of Italy who has always assisted our LSE-based research activities with his experience on the modelling of money laundering. For originally introducing me to systems theory, I would like to thank Ian Angell, my former PhD supervisor and co-author on a number of academic publications (including a book titled *Science's First Mistake*); he has always given me invaluable advice on a number of research initiatives and was always willing to review my work. I would also like to thank Jannis Kallinikos for pointing me to the works of Niklas Luhmann and second-order cybernetics, as well as Carsten Sørensen for a number of useful discussions on data mining applications and general discussions on technology matters.

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Dionysios S. Demetis

Abbreviations

AML:	Anti-Money Laundering
CFSP:	Common Foreign and Security Policy
CMS:	Case Management System
EU:	European Union
EUS:	Electronic Updates System
FATF:	Financial Action Task Force
FIU:	Financial Intelligence Unit
FTEM:	Fast Transmission of Electronic Messages
IMF:	International Monetary Fund
IS:	Information Systems
KYC:	Know Your Customer
LEA:	Law Enforcement Agency
ML:	Money Laundering
MLAT:	Money Laundering Analysis Team
MLRO:	Money Laundering Reporting Officer
NCCT:	Non Cooperative Countries and Territories
OFAC:	Office of Foreign Assets Control
STR:	Suspicious Transaction Report
SWIFT:	Society for Worldwide Interbank Financial Telecommunication
TF:	Terrorist Financing
TPR:	True Positive Rate
UN:	United Nations
UNDCP:	United Nations Drug Control Programme

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1. Introduction

Money laundering (ML) has long been recognized as an important contemporary phenomenon and a challenging problem area. Institutions have been organizing their responses to targeting ML for some time, however these efforts have intensified over the past two decades. Following the arbitrary connection made between the financing of terrorism and money laundering, a renewed interest in the topic has emerged within the broader agenda of dealing with security issues.

Despite the continuous efforts against ML, encouraging results have not really been witnessed; prosecutions are scarce and convictions even scarcer. Although the network of stakeholders involved in anti-money laundering (AML) has expanded due to a wide range of regulatory initiatives, such an expansion has come with a number of practical difficulties for these stakeholders (that is professions like lawyers, accountants and so on) and the regulators that are supposed to check compliance against AML legislation. For most practical purposes, it would be difficult not to accept that financial institutions remain at the forefront of the fight. Consequently, the study of how financial institutions deal with this important problem domain remains crucial. However, financial institutions do not exist in a void. They are part of a complex socio-political and economic environment that, although advancing in particularly structured ways, faces unstructured consequences.

A considerable part of this lack of structure is due to the widespread penetration of technology into traditional organizations. Technology has transformed the way we operate within an organization, but more importantly, it has created a new platform for orchestrating information-utilization and its management. Of course, technology as broadly understood has little to do with both the wider study of information systems, and the very concept of *systems* as developed and analysed in this book. Still, our dependence on technology has increased considerably, and it is evident that a technology that fails to function no longer comes to a complete halt; technology does however trigger unanticipated effects of a possibly catastrophic scale. Such effects not only undermine the operations of those stakeholders adopting technology; they also influence other stakeholders and their respective functional operations. We will come to

see how these effects permeate problem domains like AML, but also, and even worse, how they go unnoticed or become masked as an operational success. Hence, in a large number of fields (AML is no exception), society has come to rely on the functioning of technology, and has developed its own structures more and more on the basis of this precondition of reliance. This technological precondition is not just limited to AML. Financial institutions have always been technologically astute and have adapted their own organizational structures to include technological developments.

The current conditions in the broader AML domain appear to have acquired a highly unstructured complexity. This complexity is partly due to the regulatory initiatives that have spawned a myriad of reactions, and partly to the various technologies that have assisted in automating organizational processes. Such complexity is also amplified by an unrestrained opportunism shown by the software industry, which for a number of years has exploited the fact that technology was deemed by regulators as a necessary tool in the development of the fight against ML. Considerable but unplanned automation of operations for identifying suspicious transactions has resulted in a series of adverse effects for Financial Intelligence Units (FIUs), the stakeholders responsible for receiving the suspicious reports. Last but not least, the introduction of the risk-based approach with the 3rd AML Directive by the European Union (EU) has created a multitude of additional ambiguities. Even though the EU has rightly taken the step of introducing a more flexible approach, a series of difficulties and uncertainties have been introduced in how such a risk-based approach should be implemented. Financial and other institutions, as well as FIUs are having a rather difficult time making sense of this newly-born complexity that comes with the very elusive nature of risk. To put it simply, no one knows how to go about introducing, supervising and managing a risk-based approach for AML as the underlying infrastructure for doing so is simply non-existent. This is heavily supported by the popular delusion that we understand what risk is and how it can be managed. Such a strong assertion is not carried out here with the purpose of overemphasizing the problems. This section merely remains a brief introduction to the arguments that will be put forward as this book develops. The reality however also remains that feedback between FIUs and financial institutions is at a primordial state, interoperability issues are barely considered and stakeholder fragmentation as well as the sharing of intelligence is left unattended.

Within this dynamic between regulatory initiatives and technological adoption, the domain of AML is facing constant reconstruction. Much like a biological organism that encodes its own survival and evolution

within a double helix of a genetic code, the anti-money laundering *system* becomes structurally coupled with the *system of technology* with which it co-evolves. This interplay implies that the systems theoretical nature of AML and technology needs to be established and examined. Beyond the realm of technology, as it is commonly perceived, this book seeks to offer an insight into the broader effects that various information systems have within a financial institution in relation to AML. This implies that the commonly perceived technological platforms that currently affect ML, those of profiling technologies that attempt to simulate money laundering behaviour, remain but a single instance of a much larger infrastructure of various computerized information systems that have similar (if not more powerful and propagating) effects on AML.

This book sets out to examine the following issues regarding AML:

1. What theoretical description can be developed in order to describe the domain of anti-money laundering through the lens of systems theory?
2. What is the role that various information systems come to occupy within financial institutions? How do the complex interactions between various information systems employed affect AML?
3. What is the nature of the risk-based approach, and what are the problems behind any attempt to model the concept of risk?

In seeking to outline the path for answering these questions, a general literature review is provided that deconstructs the problem of money laundering, while reviewing the issue of defining ML itself, estimating the ML market, reviewing some key legislative initiatives, and outlining global AML characteristics. This general review is done in Chapter 2.

Chapter 3 presents the key theoretical principles of systems theory. These constitute the foundational basis for developing the theory further and for relating systems principles to AML.

Chapter 4 describes the empirical findings of a longitudinal case study carried out in a major financial institution in the EU-area. The various computerized information systems influences are discussed in order to ponder the second research question outlined above.

Chapter 5 analyses a number of systems theory instances that lead to a description of AML as a *system*. There is an attempt to synthesize, in systemic terms, both the domain of AML and the domain of technology, all the while examining their interplay.

The book concludes with Chapter 6 where a treatise on the risk-based approach is presented, followed by a data-mining application and a number of conclusive arguments.

2. Introduction to anti-money laundering

INTRODUCTION

In this chapter, the literature on anti-money laundering is reviewed in four distinct areas of interest. First, the problem of defining money laundering is deconstructed. Besides it being a semantic issue, the problem of definition is one of crucial importance. Using John Searle's *social construction of reality*, an effort is made to articulate a description of what money laundering is, through the very nature of money per se. The focus lies partly on the functionalities that money serves. New developments both in technology and socioeconomic structures that take advantage of such technology become responsible for shaping our preconceptions on the function of money and hence the way we define ML is affected by these dynamics.

Following this deconstruction on the nature of money and money laundering, the plethora of problems that come into existence when we try to estimate the scale of the money laundering market are discussed. Even though the attempts to estimate the ML market are deemed to be highly problematic, there appear to be reasons to suggest that the market has indeed increased.

Following the treatise on the size of the money laundering market, the major international initiatives against ML are presented in clear chronological order so that the description of their evolution is outlined. A brief description of the most important initiatives is presented and an attempt is made to categorize the major contributions stemming from these initiatives.

Finally, some features of the global AML arena are discussed. These aim at providing the reader with a broader perspective of the problems involved, as well as solidifying some of the arguments put forward. The reader is reminded that while this remains an introductory chapter, there are a number of issues raised that are connected with both the theory put forward and the examples provided later on.

THE NATURE OF LAUNDERED MONEY

In order to formulate a definition of what money laundering is, we must take into consideration the fact that ML is first and foremost a process that is dynamic and is therefore subject to considerable change. But, even though there exist a large number of typologies that create many variations through their combinatory possibilities, the dynamic nature of ML cannot be solely attributed to this aspect. The nature of money also changes. Hence, we must first consider the *nature* of the money being laundered. An examination of this characteristic is deemed of particular importance to highlight the difficulties in the domain of AML.

The way money is used and perceived today has nothing to do with the early years of banking, which preceded the discovery of coinage. The first use of money as a medium of exchange was based on commodities such as ivory, leather and gold. Banking these commodities meant storing them in warehouses and keeping track of exchanges between the parties involved. The diversity in the physical properties of the medium of exchange in ancient times meant that the value being exchanged was inherent in the medium itself. It would therefore be pointless to define money by connecting it to the physical properties of the medium of exchange (Davies, 2002). A better understanding comes from acknowledging the functions that money serves as a medium of exchange, as a means of payment and store of value.

These functions that are ascribed to money are the dominant characteristics of its constitution. If we strip money from its functionality, or cease to believe that something functions as money, then money has no meaning and therefore no functionality. Money is an institutional fact (as is marriage), sourcing from the collective intentionality that assigns – to money – the agentive functions that define its purpose (Searle, 1995). In his book titled *The Construction of Social Reality*, John Searle gives a compelling account of how institutional facts are created and he thoroughly uses the example of money. Searle argues that, in the process of creating institutional facts, a *collective intentionality* plays a fundamental role for it cannot be reduced to an individual's intentionality. Searle mentions that collective intentionality assigns a new status to some phenomenon, where that status has an accompanying function that cannot be performed solely in virtue of the intrinsic physical features of the phenomenon in question. This assignment creates a new fact, an institutional fact, and one that is created by human agreement. As Searle describes it: 'The central span on the bridge from physics to society is collective intentionality and the decisive movement on that bridge in the creation of social reality is the collective intentional imposition of function on entities that cannot perform those functions without that imposition' (ibid).

Applied to money, this brings us to the realization that money could not function as such without this collective intentional imposition. Institutions that express the aforementioned collective intentionality are those that typically impose such functions on money. These institutions have a status that is not easily contested, disputed or refuted. For instance, central banks can be seen both as the primary institutions that engage in such impositions by issuing money, and at the same time as entities with a commonly shared status. Such impositions however do not only occur within the legally defined scope of function-based utilization of money. They are also carried out in money laundering schemes like Hawala,¹ whereby a token functions as money, because the agentive functions that are ascribed to the token are recognized as such. Hence, the token that encompasses these collectively imposed functions (even if that happens in an underground market), is as good as money.

Typically three common forms are recognized when it comes to examining the nature of money (Davies, 2002):

1. Commodity money: gold or other materials.
2. Contract money: pieces of paper that promise to pay the bearer in gold or other materials.
3. Fiat money: money that is not attached to gold or other materials. They are just certificates that have resulted from a collective intentionality that has essentially allowed them to be 'functioning as money'.

It could therefore be said that the transitions that have been made from commodity to contract, and from contract to fiat money, were such that the ascribed function was gradually detached from the perceived inherent value of the medium of exchange. Interestingly enough, it took 'a stroke of genius to forget about the gold and just have the certificates' (Searle, 1995). Thus, today we are using fiat money, or money that functions as such because some institutions (like central banks) have been granted a status for expressing a collective intentionality, and can therefore impose to a particular currency, an agentive function that is widely accepted. Such an acceptance stems from the trust that is the basis of any monetary order. Fiat money seems to be the most pure expression of this, as it is *intrinsically* useless (Selgin, 1994). Hence, the entire system is based on trust and contains a paradox of any self-referential system (something which will become evident as we proceed in our discussion). For instance, in England a £50 bank note states that the Bank of England promises to pay the bearer £50 on demand. 'When a customer goes into an English bank and demands £50, what is she given? Another note with the same promise; just a piece of paper. What an amazing alchemy, only in this

case it is paper and not lead that is being transmuted into gold!’ (Angell, 2008)

The next level of detachment, which is yet to occur in its full scale, is one that will detach the functionality from any physical properties of the medium (paper-issued money) and the only reference will be the functionality itself, devoid of a governmental institutional backing mechanism. Electronic money, which will have no reference to dollars, euros, pounds or yen, might well be next on the horizon, and some research has examined the possibility of privately-provided e-money that could replace government issuers (England, 2000). Even though some steps can already be witnessed in this direction, a number of barriers are evident. The pre-established base of government issuers will be hard to compete against; different e-money issuers will not be easily identifiable; the place of government in regulating these new monies is unclear. This transition will be hard because the control-oriented and will-to-power-driven governments will not easily let go. Electronic money has long ago been spotted as an enabler of a mobility that will diminish their control-abilities (Greenberg and Goodman, 1996). Furthermore, electronic money at that level of functional-detachment may considerably exacerbate ML.

With electronic money under consideration, and in connection to the ascribed functionalities of money, it could be said that money is an institutional fact that may or may not take on a physical form (that is cash, e-cash), and has a variety of collectively ascribed agentive functions that allow it to serve as a medium of exchange, a unit of account or a store of value. In addition to those functions, money is also characterized by the properties of fungibility and anonymity. Subsequently, any definition on money laundering must also encompass the nature of the money being laundered, with reference to the functionality that it serves.

Money laundering then becomes the process of trying to disguise illicit-profits in order to enjoy the use of all ascribed legitimate, standardized and commonly shared agentive functions of money while the criminal origins of the entity incorporating these functions (money) become masked.

The problem is that what functions as money nowadays is becoming radically different from what we are used to think of as money. By focusing on the agentive functions that money performs, the above definition distances ML from the physical (paper-money) or electronic (bits of information) properties of money. In short, whatever it may be that governments impose an agency of functioning as money upon, this can be laundered or made to succumb to fraudulent activities. Furthermore, an entity that may function as money but may not have government backing may also succumb to fraudulent activities as well and assist in the laundering of government-backed money.