Surveillance systems and control practices in digitized contexts

“All control systems try to make control as tight as possible, but at the same time, if they succeeded completely there would be nothing left to control.” (Burroughs, 1985, p. 117)

1. Introduction

Digitization has become inevitable in modern society (Chiapello & Gilbert, 2013). Social media, cloud computing and other digital technologies are now part of most individuals’ everyday life. This massive digitization also impacted the surveillance systems within organisations, providing them with greater treatment capacity, multiple application fields, and ubiquity (Haggerty & Ericson, 2000). However, recent and multiple financial scandals raise some reserves regarding the control practices in highly digitized contexts.

The London Wales provide an interesting example of that. JP Morgan Chase bank has suffered losses of $ 6.2 billion in early 2012, resulting of the activities of a French trader from a London unit, now called the London Whale. An internal audit report (JP Morgan Chase & Co. Management Task Force, January 16 2013) revealed that despite a massive digitized surveillance system, the business unit that this trader belongs to was not considered as being "at risk". Furthermore, the internal control practices regarding risk management relied on a simple Excel sheet (containing several errors) and carried out by a single person with neither training nor experience in the field of risk management. Intriguingly, after this episode, JP Morgan Chase was advised by the US Fed to "continue to improve its risk management program". Digital technologies play a great role in the evolution of organisational surveillance systems (Brivot & Gendron, 2011; Haggerty & Ericson, 2000; Martinez, 2011), as digitization increased the speed and amount of collected data, can automatically generate tailored reports that detail exceptions specified by operational managers, managers can set parameters, without accountants intervention in information collection and interpretation. (Chapman & Chua, 2003), What JP Morgan Chase case highlights is how organisational control practices could be disconnected from the surveillance system in the highly digitized context of market finance activities.

Research has paid a large attention to surveillance systems (Brivot & Gendron, 2011; Haggerty & Ericson, 2000; Lyon, 1994; Martinez, 2011), particularly regarding audit and risk management (Bhimani, 2009; Knechel, 2007; Mikes, 2011; Millo & MacKenzie, 2009; Power, 2004, 2009, forthcoming; Robson, Humphrey, Khalifa, & Jones, 2007; Soin & Collier, 2013). In particular, some studies suggest that digitized contemporary societies are characterised by a shift in the nature of surveillance and control. For instance, Brivot and Gendron (2011) suggest that digitized

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1 This nickname comes from excessive positions (about $ 100 billions) Bruno Iksil has taken in the credit derivatives.

2 Some of the errors were due to “cut and paste” from other excel files. The risk evaluation models were obsolete and irrelevant, and sometimes misused. An example of these errors consists in the fact that a formula was using a sum of two numbers instead of a mean. Another example lies in the fact that a typo was dividing per two the risk evaluation of an asset.
contemporary societies are characterised by rhizomatic surveillance systems, i.e. where hierarchical surveillance is replaced by a lateral one. Martinez (2011) goes further by suggesting a shift from a “disciplinary” society (Foucault, 1993) to a “control” one (Deleuze, 1990b), and discuss the implications of that on management controls. As Martinez (2011, p. 209) points out, “Deleuze’s society of control turns our attention to study digital technologies and the [related] changes in the context of rampant and mobile monitoring and multiple visibilities that intersect management control systems and employees, connecting them to larger networks of information controls with the capacity to record, transmit, and store, information continuously and instantly”. Despite an interest in the deleuzian concept of “control society”, management control research so far, has paid little attention to the empirical study of the related implications for organisational control practices.

Informed by a case study on the 2008 scandal of Société Générale bank (SocGen) in France, this paper seek to remedy this oversight, through an empirical analysis of managerial control practices, and their complex relation with digitized systems of surveillance. Eschewing a conflation with surveillance systems (Brivot & Gendron, 2011), attention is instead devoted to the practice of managerial control in digitized context; that is, to their relationship and difference with surveillance systems. In doing so, we acknowledge the social and technological evolution of accounting contexts, by drawing from literature on management control systems and surveillance systems, as well as literature on disciplinary and post-disciplinary societies. The analysis of the SocGen case highlights the problematic articulation between, on the one hand, the complexity and magnitude of data made available by surveillance systems, and, on the other, the managerial control practices exerted by the hierarchy and her incapacity to handle those data, leading to limited rules enforcement. Our analysis also underlines the tensions that may exist between surveillance systems and managerial control. While control is supposed to be automatic within rhizomatic surveillance systems (Graham & Wood, 2003), we found an inconsistency as the prevalent form of control practices in this case was a direct supervision and social – peer to peer – control.

In this case, the surveillance system embodies rules that encourage risk limitation, whereas the performance measurement systems and the peers perception at the trading floor, value high performance and risk taking. The analysis also shows how risk limitations rules are breach by an individual in order to improve his status among peers and regarding hierarchy.

This paper makes three contributions to the literature on managerial control. We first argue that a continuous surveillance certainly creates a “field of visibility” (Roberts, 2005) which allows for individual redefinitions of autonomy and discretion at work, sometimes in line with organisations objectives (Levay & Waks, 2009), but also sometimes it allows unexpected behaviours to flourish despite an appearance of increased surveillance and control, as illustrated by our case study. Second, our paper contributes to management accounting research by examining how controls and surveillance are enacted in highly digitalized (Baxter & Chua, 2003), and more specifically by analysing the complexities, ambiguities and paradoxes which characterize contemporary forms of control and surveillance (Brivot & Gendron, 2011). Our paper also contributes to the management control literature, by suggesting that the shift from “disciplinary” society to “control” society is far from being simple and linear as the the two modalities of power (discipline and control) are not mutually exclusive but coexist through the hybridisation of controls as demonstrated in the SocGen case. Doing so, we also offer a reflection on the controllability of organisational actors’ behaviours through formal and increasingly digitalized

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3 It is important to distinguish a social control as exercised by the peers, from what Deleuze describe as social technologies, i.e. digital technologies.
technologies of management control. Following previous research (Brivot & Gendron, 2011), our results suggest a counterpoint to views on linear improvement of controllability through increased digitization by clearly distinguishing constant surveillance (e.g. Macintosh, 1994; Miller & O'Leary, 1987; Rahaman, Neu, & Everett, 2010), from managerial control.

The paper is structured as followed. We first review the theoretical background. After, detailing the case study, we develop our analysis. We finally conclude with implications and future research.

2. Theoretical background

In this section, we aim to review the literature on surveillance, in order to show that some authors suggest a shift in the nature of the surveillance from a panoptic one to a rhizomatic one.

A large body of accounting research (Carmona & Gutiérrez, 2005; Covaleski, Dirsmith, Heian, & Sajay, 1998; Hopper & Macintosh, 1993; Hoskin & Macve, 1986; e.g. Macintosh, 1994; Macintosh, 2002; Miller & O'Leary, 1987; Rahaman et al., 2010; Walsh & Stewart, 1993). draws upon Foucault’s (1993) disciplinary work to study management control systems. According to Foucault, the apparatus of ‘disciplinary societies’ is the panopticon imagined by Bentham in his work on prison design (Foucault, 1993). The panopticon is a spatial arrangement where the observer is at the centre and where the observed never know whether or not they are actively watched by the observer. The aim of such arrangement was to produce potential constant and uninterrupted surveillance that would provoke prisoners self-monitoring, by making them observable even when no one is watching them. A key feature of the panopticon apparatus is that it operates through hierarchical observation – i.e. the visibility line originates from the hierarchical centre – and normalizing judgement (Townley, 1993).

Accounting studies drawing on notion of panopticism (Foucault, 1993) to study management control with a historical stance, i.e. (Carmona, Ezzamel, & Gutiérrez, 2002; Hopper & Macintosh, 1993; Hoskin & Macve, 1986, 1988; Walker, 2010; Walsh & Stewart, 1993). These historical studies have in common that they focus on periods long before digitization era. The relevance of the panopticon metaphor has thus been questioned for contemporary societies characterised by digitization (Brivot & Gendron, 2011; Haggerty & Ericson, 2000; Huber & Scheytt, 2013; Martinez, 2011). In particular, the panopticon metaphor appears to downplay the subtlety and complexity of contemporary management control and organisational surveillance systems characterised by digitization (Brivot & Gendron, 2011; Martinez, 2011). In their study of the implementation of a knowledge management system, Brivot and Gendron (2011) describe a rhizomatic surveillance4, i.e. surveillance processes that are messier and more multi-directional than the top-down processes generally described in most panoptical surveillance literature. Their analysis highlights the active participation of the watched in the surveillance apparatus, creating then an interaction between surveillance and games of visibility. Although underlining the lack of central watcher, as in the Panopticon, these authors suggest the persistence of specific features of the panopticon including the possibility of managerial control.

Martinez (2011) emphasises the limits of the panopticon for disciplinary analysis of management control in contemporary organisations. He argues that enclosure and panoptic surveillance,

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4 Although Brivot and Gendron (2011) do not refer explicitly to Deleuze, they termed use the term rhizomatic, referring then to a key concept of Deleuze work.
identified by previous accounting research, are characteristic of a specific period and no longer the primary means by which control is exercised nowadays. Drawing on Deleuze work (Deleuze, 1990b, 1995), the author argues that the emergence of post-industrial capitalism marks that control no longer relies on confinement to enclosures such as the factory for the digitization stretches the scope of disciplinary technologies. Rather, control is exercised through simultaneous and overlapping networks of digitalized information that extend beyond the organization’s boundaries. Individuals are therefore subjects to continuous surveillance in their everyday life, not anymore exercised by a central hierarchy with a panopticon gaze. Martinez (2011) suggests that management accounting and control systems are best understood in the context of the numerous other information systems with which they intersect in the normalization of the individual.

Digital technologies play a great role in the evolution of surveillance systems (Brivot & Gendron, 2011; Haggerty & Ericson, 2000; Martinez, 2011), enabling a global and mobile surveillance, with multiple visibility angles, intersecting with management control systems and communication networks which have the capacity to record, transfer and stock information continuously and instantaneously. In particular, it is suggested that enclosure, a key feature for panopticon surveillance, is improbable in a digital context, thereby making the panopticon metaphor unable to account for modern surveillance systems. This digitization allows partial automation of management controls, in a context where information is produced at an increasing speed. Digital systems allow the application of automated processes, i.e. algorithmic surveillance (Graham & Wood, 2003, p. 231). As outlined by Chapman and Chua (2003), digitization can automatically generate tailored reports that detail exceptions specified by operational managers, managers can set parameters, without accountants intervention in information collection and interpretation. Digital systems become then supervised agents that continually help to determine ongoing social outcomes in space and time (Lianos, 2000).

An important feature of digital surveillance systems is underlined by Lianos (2000, p. 265) in his analysis of automated environements. He states that the most important transformation in the area of social control ever is that these systems may transform the reproduction of values, by undermining the social processes of value reproduction and reinforcement, not only through their increased reliability but through their focusing on one discrete aspect of the world. They are built to place their user in a binary environment, where the space which was before open to doubt is now merely experienced and judged as loss of time. Only those parameters that these systems are built to evaluate are relevant, therefore the social universe is inevitably and progressively subjected to new configurations according to new managerial priorities (Lianos, 2000, p. 265). Thence, digitized surveillance systems turn their users from coherent actors into mere fragmentary ‘activators’, resulting then in value erosion. Values pertain to self-identity because they are projected into social interaction through a coherent line of attitudes (and coherence exists only in the interpretation of these attitudes by others) (Lianos, 2000, p. 265). The last element that Lianos (2000, p. 267) points out is the power relationships in such digitized environments:

“Machines do not exert power, they are not perceived as beings but as tools, even when they impose constraints; but nonetheless they favour specific relationships of power. Automated regulatory procedures are not simply procedures of control. They are general management instruments for adapting the social world to the aims of the institution that uses them. Their purpose is to eliminate all those aspects of social interaction which prevent the institution from achieving its set targets. This is why automated environments operate on the basis of suspected potential dangers caused by their users.”
This author adds that, from this point of view, there is no distinction between what is normative and what is practicable, as all that works complying to the previously set rules is norm, and all that does not is deviance.

<table>
<thead>
<tr>
<th>Disciplinary Regime</th>
<th>Control Regime</th>
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<tr>
<td>Panoptical surveillance (Foucault, 1993)</td>
<td>Rhizomatic surveillance (Deleuze, 1990b)</td>
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<tr>
<td>Metaphor</td>
<td>Metaphor of the Panoptic</td>
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<td>Apparatus</td>
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<td>Bureaucratic and electromechanical surveillance system</td>
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<td>Organisational forms</td>
<td>Disciplinary factory as prison (Mathiesen, 1997)</td>
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<tr>
<td>Environment</td>
<td>Closed environment. Containment of people within particular spaces.</td>
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<tr>
<td>Practices</td>
<td>Managerial control practices</td>
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<tr>
<td>Monitoring timing</td>
<td>Intermittent. Time consuming human-managed. Real time surveillance is impossible. Tracking cannot be continuous.</td>
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<td>Role of the supervisor</td>
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<td>Role of the monitored</td>
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<td>Relation Technology / Human</td>
<td>Technologies demanding human intervention</td>
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<td>References</td>
<td>(Hopper &amp; Macintosh, 1993; Macintosh, 1994, 2002)</td>
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Table 1: Comparative table between disciplinary and control societies

However, some reserves have been raised regarding digitized technologies. Firstly, the linear relation between technological integration, information and managerial controls has been put into question (Chapman, 2005; Dechow & Mouritsen, 2005; Quattrone & Hopper, 2005). In particular, studying ERP technology with management controls, Quattrone and Hopper (2005) underline that a spatio-temporal gap between controller and controlled allowed space for discretion. Further, as suggested by Graham and Wood (2003, pp. 228-229) “Even apparently automated systems, far from being inhuman domains, involve continuous social practices and decisions that do much to shape digital surveillance in practice”. These authors underlined that digital surveillance systems do have real limits: “While the technologies are rapidly increasing their capabilities, they are often still not reliable as their proponents claim (...) Multiple ‘spillovers’ can easily saturate and overwhelm simple attempts at establishing and maintaining
‘hard’ disciplinary boundaries. Virtually all boundaries remain to some extent porous ad perfect control strategies are never possible (Graham & Wood, 2003, p. 244).

Others scholars also questioned the nature and the amplitude of the shift from a panopticon to a rhizomatic surveillance, putting into question the dichotomic and radical nature of such a shift. For instance, Eckersley et al. (Forthcoming) argue that the foucauldian panopticism approach is still relevant for contemporary organisations. Analysing recent reforms to the auditing and assessment of local public services in England, these authors question the shift from panoptical to what they call synoptical surveillance⁵. In their case study, the UK Government required the publication of financial and performance datasets online, to allow citizens surveillance, replacing then a centralised monitoring regime. Eckersley et al. (Forthcoming) underline the difficulties citizens will encounter to perform such a surveillance, i.e. the complexity and raw nature of the available data and the required expertise (which professional auditors possess) to analyse and understand these data. They suggest that most citizens would then be either unable or unwilling to undertake this task. Instead, the external suppliers would become the new watchers. As a consequence, these authors argue that while the central watcher may change, the panopticon metaphor is still relevant to account for surveillance in digitized context. These studies offer a variety of perspectives on the relevance of the panopticon metaphor in modern digitized organisations.

The shift from physical to electronic means announces several profound changes in the nature and extent of surveillance (Lyon, 1994), provoking a fundamental shift in modern societies technologies. Nevertheless, such changes and the related possibilities tend to be mainly perceived in quantitative (Graham & Wood, 2003, p. 229; Lyon, 1994, p. 56) terms, leaving qualitative concerns unexplored (i.e. the invisibility of the observer). The different digitized control possibilities may escape the panopticon metaphor (Brivot & Gendron, 2011; Haggerty & Ericson, 2000; Martinez, 2011), such as seduction, self-monitoring, anticipatory preventions and so forth (Brivot & Gendron, 2011). However, they don’t amount to the redundancy of previous modes of discipline and control (Eckersley et al., Forthcoming). The Deleuzian shift would then be better understood as an ambivalent displacement from the central watcher positions (Eckersley et al., Forthcoming), rather than her entire disappearance.

The notion of control society raises issues about the disciplinary approach without completely disposing of it. Instead, these issues raise an urgent need to understand the ways in which old disciplinary mechanisms are reconfigured within the modern digitized societies. The digitized characteristic of new modes of surveillance is extending the dimensions of control far beyond the confines of the factory. This, however, should not be confused with the formation of a post-disciplinary society in which the panopticon metaphor is completely irrelevant, since panoptical and disciplinary mechanisms are still being deployed throughout a myriad of contemporary regimes (Hardt & Negri, 2000).

Therefore, in this paper, we argue that the passage from a disciplinary society to a control society (Deleuze, 1990a, 1990b; Hardt & Negri, 2000) is far from being simple, and that the two are not mutually exclusive but interwoven. Understanding the interconnection between these two types of societies and its impacts on managerial control therefore needs a conceptual clarification. Actors and organisational practices are of great importance for the understanding of technological accounting issues (Chapman, 2005; Dechow & Mouritsen, 2005; Quattrone & Hopper, 2005).

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⁵ This term refers to situations where the wider public watches and monitors the behaviour of the powerful few (Mathiesen, 1997). In this respect, this can be considers as a specific form of post-panoptic surveillance.
Nonetheless, accounting studies tend to conflate the surveillance systems and the managerial control practices (Brivot & Gendron, 2011; Eckersley et al., Forthcoming; Martinez, 2011).

In their study of a knowledge management device as a surveillance system, Brivot and Gendron (2011, p. 153) indicate that this system allows the “…possibility of managerial intervention (i.e., the office managing partner’s theoretical ability to use the KMS to control people’s work) has social effects and provokes behavioral changes, exactly like the possibility of being seen by a central but hidden watcher fosters self-control into prisoners”. In doing so, they operate an implicit distinction between the surveillance system and the managerial control practices. We rely on this distinction and put it forward by making it more explicit. We therefore use the concept of survellances systems to refer to the spatial arrangement and the technologies linked with continuous and instantaneous collection, storing, and transmission of information. On the other hand, managerial control practices would refer to the organisational practice of managers when exerting direct supervision over individual activities, i.e. when checking that current activities and performance. Managerial control may involve the use of digital systems of various sorts, yet managerial control is goal oriented and performed by a hierarchy to ensure rules enforcement whereas surveillance is goalless and continuous. Distinguishing the concept of the digital systems, as an apparatus of post-disciplinary societies, from the notion of managerial control practice, we propose the following table to sum up the different elements provided by studies on surveillance and control.

In this paper, we aim at examining the complexity and subtlety of everyday organisational surveillance and control, by conceptually distinguishing the surveillance apparatus from the managerial control practices performed by managers. More specifically, we seek to examine the complex relation between the surveillance apparatus and the managerial control practices in a digitized context. For this purpose, we analyse the Jerome Kerveil and SocGen case to give insights about how a massive digital surveillance system could allow such fraud, and to understand the underlying mechanisms of the surveillance failure that this case exemplifies.
3. Empirical analysis

Our analysis draws on Jerome Kerviel and SocGen scandal. On January the 25th, the Daniel Bouton, the CEO of SocGen publicly announced a fraud that provoked a loss of about 5 billion euros. This fraud was attributed to Jérôme Kerviel (hereafter referred to as JK), a trader working on Delta One, a Parisian trading desk of SocGen. We analysed different secondary data about this fraud, including the trials and police interrogatories minutes, the SocGen internal inspection reports, the PWC external audit report (PWC, 2008), and several press releases (notably JK interviews). This multiple source of data aimed at building a cross perspective on the events preceding the fraud public disclosure on January, the 25th 2008. What we aimed to do is not to build a reliable understanding of what happened in JK mind or what were his motives. Rather, we try to the emphasis that there are multiples perspectives on the surveillance and control failures, in order to give some insights on the surveillance apparatus of SocGen and the managerial control practices surrounding JK and wider trading activities.

3.1. The Fraud

We describe here JK activities in SocGen and the fraud mechanisms. In order to get an understanding of the surveillance and control mechanisms, we detailed the past events relating to the 2008 fraud. JK was initially hired in a middle office position in GEDS (Global Equity and Derivatives Solutions) in August 2000, at Parisian SGCI (Société Générale Corporate and Investment Banking) site. He became an assistant trader in January 2005 at the desk Delta One (DO) listed products, a front office activity of GEDS trading activities. At this period, he was under the responsibility of the DO desk manager, Alain Declerck. JK was essentially dealing with two main products: warrants & turbo-warrants and futures &forwards. The fraud consisted in unauthorized trades totalising €49.9 billion, more than the bank total market capitalization. In 2008, the internal control of SocGen discovered that JK was taking massive positions on the futures, an organised market including a clearing house responsible for settling trading accounts, clearing trades, collecting and maintaining margin monies, regulating delivery and reporting trading data. As the bank could know his positions on the futures, JK used different techniques to dissimulate them.

The internal inspection report (GREEN MISSION, 2008) describes the three techniques JK used for this purpose. Firstly, the internal inspection identified a group of transactions that consisted in making accounting entries on fictional operations to dissimulate the market risk and latent results of the unauthorised directional positions.

JK recorded one or several false transactions in the systems in order for them to be taken into account in the calculation of risks and valuations. JK set the parameters of these transactions in such a manner as to use them to cover the fraudulent positions actually taken elsewhere. We have identified 947 transactions of this type. (Green Mission Report pp. 1-2)

Secondly, the internal inspection identified net results accounting entries relying on couples of fictional transactions in reverse sense with equal quantities of the same underlying hedged, for different OTC prices. This aimed that making an accounting entry of a frozen result realised by an unwinding of positions, rather than the two related entries:
For example: on March 1, 2007, purchase of 2,266,500 SOLARWORLD shares at EUR 63 and sale of 2,266,500 of the same shares at EUR 53, which leads to fictitious negative earnings of EUR -22.7 million without creating a position. We have identified 115 transactions of this type. (Green Mission Report pp. 1-2)

Finally, intra-month provisions were used to temporarily cancel the result (latent or frozen).

JK made use of the possibility, normally limited to trading assistants only (but without traders being barred via the computer systems) for the purpose of correcting modeling bias, to record positive or negative provisions which modify the valuation calculated by the Front Office system. JK posted such entries in order to conceal the amount of earnings generated by his fraudulent positions during a given month (provisions are checked at month end only). We have identified at least nine transactions of this type. (Green Mission Report pp. 1-2)

It appears during both internal inspection and the police investigation that JK fraudulent activities started earlier. In 2005, the Delta One Desk manager, Alain Declerck, discovered that JK was taking important positions (15 million of euros) in intraday. During a formal meeting, Alain Declerck explained to JK how serious it was to take such positions and the associated risk, underlining that he was off limits. While Alain Declerck informed his hierarchy, there was no formal report on this event (GREEN MISSION, 2008). This position was profit making, so his hierarchy (Bonin and Declerck) decided to warn him and to take this profit out of his P&L and bonus calculation.

"One or two months later, Alain DECLERCK and Nicolas BONIN had discovered that Jérôme KERVIEL had made this position during many days and it was hidden by fictitious transactions, which KERVIEL had confirmed here (trial excerpt p. 46). He then received verbal reprimands without being threatened with disciplinary action. In fact, the result of 500,000 euros was not included in the calculation of his bonus because it did not result from normal area of activity (Deliberate trial, p. 50).

As it is highlighted above, it took many months to his hierarchy to discover the underlying mechanisms he was using to dissimulate these activities. An intriguing element is that it took several months to JK to start again his fraudulent activities. In June 2007, he started again to take massive positions and to dissimulate them, until January 2008, when the fraud was publicly disclosed.

2007: progressive constitution from late January onwards of a short position on index futures reaching EUR 28 billion on June 30, 2007, unwound in August, then building up a new short position in September reaching EUR 30 billion on October 31, 2007, unwound in November; at the same time, directional positions taken on equities (4) reached up to EUR 370 million, depending on the month; total profits of EUR 1.5 billion realized;

2008: constitution between January 2 and January 18 of a EUR 49 billion long position on index futures, discovered on January 20 then unwound between January 21 and January 23, leading to losses of EUR 6.4 billion (which, taking into account the EUR 1.5 billion profit at December 31, 2007, gives a global loss of EUR 4.9 billion) (Green Mission report, p.2)
These elements show that the fraudulent activities spanned over a period from 2005 to 2008. We now described how despite a powerful and rhizomatic digital system of surveillance and the emitted alarming signals, the managerial control failed to identify and prevent the fraudulent activities before January 2008.

3.2. The surveillance apparatus

This fraud gives an illustration of how a rhizomatic surveillance apparatus managerial control practices were performed. In order to give insights about the form of managerial control practice performed in SGCIB, we trace down the fraudulent activities of JK and how these activities were subject to a rhizomatic form of surveillance. We then highlight the managerial control practices performed in this context, and the way these practices interconnect with the surveillance apparatus.

The surveillance apparatus in trading activities is highly digitized and multiple. Internal as well as external parties (including regulatory bodies) are involved in the surveillance apparatus. We describe here the different elements emerged from the surveillance apparatus after the fraud. As mentioned in the Green Mission Report (GREEN MISSION, 2008) and in the trial minutes, two external bodies transmitted warning signals to SocGen, regarding activities that were subsequently discovered as related to the fraud. First, in November 2007, EUREX sent two letters ("letter of inquiry") on the JK activities. Firstly, the direct supervisor (Eric Cordelle) of JK did not find any surprising elements in trade. Even if the issues raised by EUREX, did not related to the trading volumes, one of their questions mentioned specific purchase transactions amounting to about 1.2 GEUR. Secondly, the direction of ethics (SEGL/DEO⁶) merely communicated the trader’s explanations to his immediate supervisor. These explanations included inaccurate statements contradicting EUREX, and not provide accurate answers to all the questions raised. It is important to note that the direction of ethics has proposed in the second letter (10/12/2007), a conference call which was not followed by any answer from EUREX. Secondly, an external body the FIMAT started an internal study in November 2007 on JK operations regulatory compliance, given the strong GDP growth of an account used by JK at FIMAT. This study recommended to include in the analysis wider elements and to get in touch with SGCIB to study jointly increased execution volumes assigned by them. This was considered premature by the SGCIB management. This study was not finished by the time of fraud disclosure by SG (Green Mission report, p.8).

These external signals were complemented by internal signals contained in the SocGen accounting systems, which could also have raised the attention of the hierarchy on JK activities (GREEN MISSION, 2008, p. 6). The first signal came from JK income level, amounting to 43 million EUR, including 25 million in proprietary trading, 59% of the DLP 7 Desk result and 27% of the DO in 2007 (GREEN MISSION, 2008). Despite the high level and very strong growth in earnings declared by JK in 2007, no detailed examination of its activities was conducted or required by his hierarchy. The second signal consisted in unusual levels of cash flow that should also have been taken seriously by the hierarchy (more than 1,3 GEUR from the 28/12/2007 to the 01/01/2008 on the main operational centre of JK). The lack of detailed analyses carried out by the DLP managers prevent from identifying these abnormal levels. Similarly, DO Desk manager has been informed in 07/2007 of an abnormally high level of two positions cash consuming of 500 MEUR (still on JK main operational centre), without any reaction. The third signal comes from

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⁶ Translated from the French “Secrétariat Général du Groupe SG / Direction de la Déontologie”.
⁷ Delta One Listed product
the accounting system. The DO desk manager his superior have been informed by the middle office twice (in 04/2007 and in 05/2007), without reaction from them, of anomalies on the JK perimeter, identified during bridge processes⁸, on which the explanations provided by JK were not consistent. The fourth signal emanated from the brokerage commissions. The DLP manager and his two superiors did not perform any detailed analysis of the high amounts of brokerage commissions at the end of the year (mainly paid to FIMAT) induced by the fraudulent activities. These commissions amounted 6.2 million over the main operational centre of JK, i.e. 28% of the annual income associated. The last signal consisted in the risk limits exceeding, as the DLP manager has not investigated the cause of a limit exceeding of 10 million EUR in the table market risk (125 million) which came from overnight directional positions taken by JK.

Interestingly, as explained by Claire Dumas the bank representative, on the third day of the trial (June, the 7th): "Jérôme Kerviel lit indicators, on leave, on stocks gaps, operations animations. Taken together, they would have pointed to a problem. But at this time, only the assistant trader could consolidate all these elements. Today, new techniques allow consolidating all these data into the system." (La tribune, 07/06/2012). Subsequently, a program called "fighting back" started after the fraud disclosure in January 2008. It aimed at strengthen controls and secure access to information systems, in order to prevent that new fictive operations could be hidden in the digitized maze. A dedicated department was created, safe, to ensure the security of financial transactions. This “control tower” is intended to rapidly report alerts on atypical situations (unauthorized investments, excessive risk, etc.), which may put the bank at risk (Le monde, 04/06/2012). The term of control tower is used by many newspapers (La Tribune, 26/10/2012, Le Monde 04.06.2012, Huffington post 24/10/2012).

3.3. The managerial control practices

As previously described, SocGen had developed a complex digitized surveillance systems, computing all sorts of data and providing the management with a potentially powerful control tool. However, we now analysed the managerial control practices that were performed in the DDO.

3.3.1. Direct managerial control

It seems that despite all these external and internal signals, the hierarchy did neither identified the fraud, nor prevent it. Furthermore, the Green Mission report underlines that detailed analysis of available information could have allowed detecting the fraud (GREEN MISSION, 2008, p. 48). An intriguing element provided by this report is a table relating the fraudulent activities of JK with events in the DO desk. Notably, the report outlines that the “departure of the previous manager of JK [Alain Declerck] coincided with the beginning of his massive fraudulent positions taking” (p. 44). Indeed, this report highlights that from 12/01/2007 to 01/04/2007, while he start to build massive positions on futures, fraudulent and dissimulated, JK is no subject to direct supervision (p.5). The former desk manager, Alain Declerck resigned on the 11/01/2007, and effectively left on the 26/01/2007. During two months, the N+2 of JK did not replace the desk.

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⁸The variance between the front office and accounting are treated in a process call “bridge” (in French passerelle), that consists in monthly explain the variance either by differences between analytical structures of the front office and of the accounting (perimeter variance), or by differences in method (method variance), or wider punctual raisons (residual variance).
manager, and the monthly results of the desk were validated by the most experienced trader, without any effective control of the desk activities. JK validated himself the result of his main operational centre in March 2007. During this period, the position monitoring tool was not used. From 04/2007, the daily supervision of JK by his direct manager was failing while the hierarchical chain did not react appropriately to several warning signals.

The report highlights that planned control processes were conducted coherently with procedures but did not allow identifying the fraud before 18 January 2008. The report however highlights that the front office responsibility in the failed supervision of JK, especially since 2007 and despite several warnings.

Concerning Front Office (GEDS/DAI/TRD), supervision of JK proves to have been weak, above all since 2007, despite several alerts generating grounds for vigilance or for investigation (Green Mission report, p. 6).

Our investigations have allowed us to acknowledge that the specified controls were indeed implemented without however triggering an alert that was sufficiently loud or persistent to allow the fraud to be identified before January 18, 2008. Following an analysis of the controls carried out by ACFI, OPER or RISQ during 2007 and 2008 (discrepancies, pending, excess amounts, etc.) and the anomalies detected, it appears that cases of failure by operators in relation to procedures in force for the performance of control methods liable to reveal fraud are rare (see Focus no. 14 - one case in OPER on the control of discrepancies between Front and Back Office, two others within GEDS/GSD on the monitoring of counterparty risk). ACFI controls on regulatory capital requirements in relation to counterparty risk finally allowed the fraud to be brought to light. (Green Mission report, p. 8)

It is suggested that the failure of direct supervision regarding the risk and activities daily monitoring, could be linked with the appointment of a new desk manager (Eric Cordelle). Cordelle did not realise any detailed analysis of neither the income nor the positions realised by the traders of which he was in charge, detailed analysis being a fundamental managerial control activity.

While there is no ad hoc standard applicable to trading desk managers, three prescriptive documents govern such a responsibility (see Focus no. 11). In practice, the two principal tasks of a trading desk manager in relation to control measures consist of (i) checking that the desk’s net position does not exceed the allocated risk limit (in this case, EUR 125 million), which JK’s manager carried out satisfactorily: however, this did not enable him to detect the fraud as the positions were concealed behind fictitious trades; (ii) consulting on a regular basis the tool explaining profits or losses made (BACARDI) and the database where all trades made during the day are registered (ELIOT) in order to monitor the activity of his traders, which was not done by the DLP manager (this would have allowed him to detect the fraud). Under these conditions, the desk manager was neither in a position to control the activity of his traders nor a fortiori to detect the massive concealed positions taken by JK in 2007 and 2008 or even the enormous increase in volume of his intraday directional activity (higher values and new activities such as pair trading (11)). The DLP manager confirmed that he trusted his traders to provide answers to his questions or to those of the support functions.

In 2005, the desk manager Alain Declerck managed to identify in 07/2005 unhedged overnight positions about 10 million over the ALLIANZ share, which had resulted in an informal reprimand
from him. He however did not discover the fictive positions JK was using, but his daily control of the traders of the desk allowed him to identify abnormal activities. Alain Declerck was described by his colleagues as a person exerting robust direct supervision. He was analysing and controlling the desk members’ activities on a daily basis, screening in detailed their positions. His direct supervision seems that he prevent JK from feeling in complete impunity.

Interestingly, Alain Declerck was tolerating while monitoring them, JK directional intraday positions (spiel) taking intraday not relating to his mandate.

JK’s hierarchical superior tolerated the fact that JK regularly took intraday (“spiel”) directional positions on index futures and on certain equities (for amounts not of the same proportion as those of the fraudulent positions undertaken from 2007 onwards), which was unjustified given JK’s assignment and his level of seniority as trader; (…) certainly, during this period, unauthorized activities which remained limited in value (10), led to regular feedback from JK to his manager and were sometimes the subject of refocusing; (Green Mission report, p. 4).

What these elements highlights is that the manager’ competences may be at stake. Indeed Cordelle has been described as an outsider, i.e. not technically savvy in terms of trading, as explained by the following excerpt of the trial:

Eric Cordelle: In April 2007, I was offered the responsibility of the Delta One desk. I have been trained as an engineer, I’ve never been a trader. I was offered this job because I worked 12 years at Société Générale, the team did not have managers for several months. I had knowledge in structuring and of customers and sellers.

Judge: Who offered you the job?
EC: Pierre-Yves Morlat my N +3. 2007 was a year of training, during which I learn what was trading about.

Judge: In 2007, did you feel in charge of the desk in 2007?
EC: No, not in 2007, it was my training phase.

Judge: What was your job as a manager?
EC: This team has experienced tremendous growth, volumes have increased significantly but the staff have not increased, either the desk or in support functions. Daily monitoring tools did not exist. In terms of control, I trusted the figures I received from the control teams.

Judge: How do you manage exceeded limits?
EC: The limit violations are of two types: voluntary, but that I’ve never seen, or passive. Limit the risk to zero is not possible. And we just do not have the resources. So there was always overruns.

Judge: What were you doing when you receive the email limit?
EC: The first thing to do is check that the excess is not related to an error. Then we see how we can remedy this by covering.

Judge: The overrun on intraday positions, what can you tell us?
EC: There was no intraday limit to my knowledge. What I saw Jerome is taking tomography Arbitration turbos competition. He played on the timing of implementation of the cover, but always with the aim of covering a product.

Judge: Is that you did not know he was taking positions on products unrelated to its activity on the turbos?
EC: I saw him (Jerome) testing in a limited extent some arbitrage positions on shares, in order to see if that it could lead to a wider development.

Judge: But he could take intraday positions 500 million?
EC: That he was careful not to show me.
Judge: But it was possible? You knew he was taking positions on different days?
EC: Absolutely not. And this is the problem.
Judge: You've never looked on his book?
EC: No, unfortunately.
Judge: How did the validation of the results proceed?
EC: We received the results daily. When there was a stronger result, we required an explanation. In these cases, I would ask questions to traders.
Judge: We asked Jerome Kerviel to € 10 million income in 2007, he made 55 million. It does not concern you?
EC: It's a strong growth.
Judge: And it does not concern you? You have not asked him questions?
EC: He provided explanations each time. My understanding was that the client activity was strongly growing.
Judge: You did not look further.
EC: I was satisfied with the explanations provided by Jerome.
Judge: Well, 55 million is very much. And 2 billion loss, you have not seen this?
EC: No, I had just arrived. When I arrived, they told me to draw on Jerome to learn the job. It was a normal person who did his job. (La tribune 18 June 2012).

These excerpts are important to understand that Cordelle did not have the relevant competences to look into the detailed activity of the desk’s traders. Despite a very complex digitized surveillance system which provided access to all the data regarding the desk’s trader’s activities, Cordelle was not able either to analyse these huge amount of data, or to understand them as well as to know where to look. The fact that Declerck was able to identify the right indicators shows that, the direct management supervision appeared to be crucial in the desk activities. Indeed, this is emphasised in the PWC report on the case: “although, it does not preclude an independent control, the primary level of an effective control system remains the management supervision. It was this supervision that was found to be lacking with regard to the delta one team, in term of both trading activities and management of individuals.”(PWC, 2008, p. 8).

3.3.2. Trading activities’ inconsistent objectives and deviance regarding the surveillance system

During the police investigation and the trial, it clearly appeared that rules regarding risk limits were not formalised in a written document. JK declared that his mandate was to perform the market-making of “Delta One listed product”, without volatility, but that he “never signed any document defining the limits. He however acknowledges that the massive positions he took could be defined as out of his mandate limits” (Trial deliberations, p.18). The lack of formal rules was confirmed by other traders of the desk.

A trader who treated the same products as Jerome KERVIEL (turbo warrants Société Générale and competition) provided the following explanation:- If the traders were allowed to have directional positions, nothing was stating that there was an intraday limit not to be exceeded. (D514 / 2); (...) 

He confirmed the existence of an aggregate limit of $ 125 million on the day, adding: - "We received an email every morning but personally I was not paying attention. Everyone knew that Jerome played and won. We knew the spiel was an important part of
his income. He could reach 400,000 euros on a half-day (while he exuded 700,000 euros in the month). Eric said he had seen Jerome take a position a few hundred future who had reported 300 to 400,000 euros "(D514 / 3). (Trial deliberations p. 23)

Nevertheless, it appears that the informal rules were fixed for the end of the day.

The junior trader at Delta One desk, trained by Jérôme Kerviel said he saw Jerome KERVIEL spieler the future. "Each transaction is limited to the nominal, or 30 future (one million) I saw that he spent several purchase lines on the DAX index. I knew that Jerome had to cut its operations at the end of the day because there was a limit of 125 million. (...) He told me he had treated 1,000 futures on the DAX (approximately EUR 200 million) and for me this figure was the maximum limit that can be treated (D558 / 2).

The trader at Delta One desk in charge of market making on Exchange Traded Fund - ETF, considered that the terms of traders were never clearly explained. He knew that Kerviel "spielait" intraday and able management, with a maximum of around 30 to 50 million euros but he had no idea if he kept the positions overnight.

According to this witness, Eric CORDELLE was aware of this activity because he saw it been performed in front of him. He explained that there should be an informal limit, a maximum between 5 and 10 million euros for the ETF market making, and that he will set a "stop loss" and "max" gain (D557) "(Deliberations p. 23)

JK also argued that while he knew about the intraday limits, his mandate remained vague as there were not clear rules.

Au cours des débats du procès, JK a concédé qu’il n’entrait pas dans sa mission de prendre des positions spéculatives pouvant durer plusieurs jours “mais, a-t-il ajouté, je l’ai fait car je faisais de l’argent, au vu et au su de tout le monde” (notes d’audience page 45) ; qu’il a estimé que le mandat était flou, qu’il n’y avait pas de mandat signé dans le dossier mais admis qu’il était “allé trop loin dans son mandat” (notes d’audience page 51).

The SG representative during the trial (Claire Dumas) confirmed the lack of written rules and highlights that traders had to rely on common sense:

"Mr. Metzner [JK lawyer] asks to Claire Dumas, who spoke of "reasonable overruns": "how could the limits be exceeded and for how long ?

- There is obviously no document at SocGen that says how many % the limit can be exceeded, but we have shown that the risk of his "desk" did not exceed 200 million, for a limit of 125 million. But it is mainly a question of transparency. Mr. Lepetiet (former head of the stock market watchdog) spoke of "common sense", it seems important to keep this in mind regarding the amount of Kerviel overruns.

- et vous plaidez l’imbécilité ?, intervient Me Veil (SocGen)"(extrait de la première semaine de procès - La tribune).

- So why not make a code of ethics that calls for "good sense" asked Mr. Metzner. If the true limits are not defined, how can a trader know where are his limits?
- And you plead stupidity, takes me Veil (SocGen Lawyer)" (La tribune 07 06 2012).
However it seems that GEDS common sense was not coherent with compliance:

"Kerviel: On the fact that the result of 1.4 billion could go unnoticed:" it makes me laugh. It is not the land of Care Bears. The aim of the year is reached, we had our instruction from our N +2, Mr. Rouyère, to hide under the carpet all that excess, and from December."

These elements have been confirmed by other traders of desk. At year end, their superior (N+2),Mr. Rouyère, reminded them to make provision for losses, in order to not lose value (income). Indeed, once the bonus fixed at the end of December, the provisions were cancelled in January allowing transferring the remaining value over the next year (these elements were recorded during phone conversations of the trading room). The assistant trader of Jk also pointed out that the operational practices somehow differed from the rule:

"There's mandate, and there is practice. If you want to take a little risk during the day, buying some future not covered, you can do it, even if it is not within our mandate". (La tribune 07 06 2012).

An interesting point outlined by these quotes is the gap existing between the formal and informal rules, the later dealing with “common sense” in trading activities, often characterised by their lack of common sense. This remind us the ideas developed by Liñanos (2000) on value and social interaction within such digitised systems, i.e. the fact that these systems embodied predefined unambiguous values, and therefore cannot deal with ambiguous and ill-defined rules, what one could refers to as common sense.

Besides, an interesting element is that while risk limitations rules are not formally defined, they are not consistent with the social values of the trading desk. Many elements support the idea that the financial performance was a central target for the trading desk team. This is notably supported by the compensation system for traders, which was structured by SocGen to lead to the maximum individual performance. The desk traders were paid a low fixed salary, plus a variable part based on their results. Also, traders had a higher socially status than controllers (who were globally less paid at SocGen, compared to other banks), as they were perceived as profit makers. Abolafia (2008) found that, traders believed that with such compensation system, the organization gave them strong incentive to maximize their individual performance through “aggressive” behavior. He also states that: “Investment banking firms have given their traders unquestionable incentive to maximize personal income and firm profits as quickly as possible. This is heightened by the fact that there is no career ladder for a trader. There are few incentives for loyalty.” (Abolafia, 2008, p. 109). In line with the idea that the social status of a trader was basically based on his results (Abolafia, 2008), Koubir (the broker of Kerviel) explained that his huge results were demonstrating the “Kerviel Power” (Trial excerpt, La tribune, 14 June 2012). The assistant trader of JK explained that Kerviel impressed him and he was considered as a “star” trader as he won until one million a day (excerpt from the trial 15062010 la tribune). The compensation system and the centrality of performance in Kerviel case is underlined by the following quotes:

Claire Dumas (bank representative at the trial): “J. Kerviel has a bonus paid at the end of the year, indexed, at least partially, on the results of its activity. (...)”

Judge: “But why do all that? Why go fictitious transactions?

J. Kerviel: To keep my position and make money for the bank”. (Excerpts of the trial, La tribune June 6, 2012)
When I arrived to Societe Generale, my gross fixed salary was around 35,000 euros (...) For 2004, I received in 2005, 15,000 euros of annual gross variable remuneration. For the year 2006, I perceived in 2007 60,000 euros gross. (...). For the year 2007, I was not so far indicated the amount of my variable pay, I precise that my annual meeting in late 2007 went well, they were happy with my work, they did not agreed with the amount of my variable remuneration. I suggested 600,000 euros, they offered me 300,000 euros. To date, I have seen nothing in 2007. As for my fixed remuneration, it has increased steadily from 48,000 euros gross now. (...)

Before anything else, I have in mind to make money in my bank. This is my first motivation. (...)

Policeman: When you take these positions hedged with fictitious transactions, have you ever evaluated the possible risk of dismissal if discovered?

JK: I asked myself from time to time, but all the time I won. I thought Societe Generale never lay off someone who generates as much cash. (Excerpt from JK interrogation - LE MONDE | 30.01.2008)

This is also reinforced by the emphasis put by the whole SocGen on growth and profit (see GREEN MISSION, 2008; PWC, 2008): The net profit of SGCIB has been multiplied by 3.4 between 1999 and 2006, from 681 million to 2.34 billion euros. At the end of 2006, the return on equity reached 46.2%, which was SG CIB one of the most profitable banks in the world. This rapid growth was achieved without adapting control functions and the computer system. Green report also highlights an operational context made difficult by a strong and rapid growth of the business, including a doubling of volumes in twelve months, front office staff (trading room) went from 4-23 in two years, increasing the number of products, while the middle office [i.e. controllers] were chronically unstaffed in 2007. The PWC report (PWC, 2008) suggests that Control functions have been sacrificed for performance. It adds that: "The general environment [of Delta One] has not favoured the emergence of a strong support function", which created an imbalance between traders and controllers.

In Delta one, the peer to peer social control was mainly exerted via the publicly disclosed performance of each trader (i.e. his result). It is important that this criterion of performance maximisation is mechanically conflicting with the risk limitation, which was by the way not disclosed. JK explains in his book (Kerviel, 2010), that he had no respect for Cordelle, as basically “I think that he is deeply allergic to risk”, suggesting that he was not a real trader. Traders see themselves as risk-seeking, they also see the risk as highly calculated and rational (Abolafia, 2008). In the case of DDO, as many other trading desks, the result of each trader was central and publicly disclosed (Abolafia, 2008); therefore a lateral control is exerted on the money made by each trader. While it appeared to some desk members (c.f. JK assistant trader) that JK was deviating from the risk limitations rule, he complied with the performance objectives which happened to be extremely valued by his peers. Another trader of DeltaOne was showing some admiration for JK during his police interrogation: “He managed to win 400.000 € on half a day, when I was 700.000 € in a month”. Kerviel explained in his book that for his managers, traders were perceived as “winners”, that at the end of the day the sentence heard was “how much did you make?” and “Meter reading!” put in the words of Abolafia (2008, p. 104) “money is everything”.

The risk seeking and money orientation, together with the short-term incentives, are part of what Abolafia (2008, p. 104) terms the structural conditions of traders activities and to what we would
refer to as trading room social values. The surveillance system was designed to limit the risk, which was clearly in contradiction with the social value of the desk. From this stance, the deviance regarding the system appears to be coherent with the social value of the traders. JK explained: *The techniques I used later are not sophisticated at all, in my opinion, any checks performed correctly is able to detect these operations. There are currently no Machiavellianism on my part (La tribune 27 06 2012).*

4. Discussion

In this section, we discuss three main elements highlighted in the case analysis: (1) the misalignment between control practices and control apparatus; (2) the new forms of deviance associated with new forms of technologies; and (3) the multiple contradictory objectives embodied by the surveillance system and the social values of the trading room.

4.1. Misalignment between control practices and control apparatus

The present study shows that the technological evolution and shift to digitalization is currently leading to an accumulation of control practices rather than a clear change in those practices. The case shows that such situations are likely to lead to interferences between apparatus and practices that follow different logics. While apparatus and practices seemed quite aligned in the ‘ideal typical’ forms presented in Table 1, in the present situation of shift the situation seems much more confusing.

This is exemplified by the role of the automatized surveillance in this case. Despite the high level of sophistication of the digital technologies used at SocGen were meant for hierarchical control. Yet, as the study shows the automatized surveillance ensures by digital technologies provide a huge amount of data, difficult to be humanely handled. The technology would have allowed ensuring a constant monitoring of the operations on the floor, but managers as human beings would have been unable to handle the huge amount of data provided by real time monitoring. As a consequence, control is only performed once day when the markets close, and just on some specific indicators. The control made at the end of the day, is not consistent with a constant nature of monitoring but with an intermittent one. This provided ample opportunities for traders to break rules and take positions they are forbidden to hold as long as they are back to normal at the end of the day. Further, this intermittent monitoring was combined, at the SocGen, with a hierarchical control embodied in direct supervision, demanding then human intervention (Lianos, 2003).

Put differently, it is not because the surveillance apparatus is becoming increasingly digitalized that the managerial control practices change as well. What occurs is that human based control practices are still being used in digitalized concepts. This leads to possible interferences due to misalignments as the digitalized systems do not accurately address the need of human controllers. This calls for more research on the articulation between established apparatus and related control practices and the emerging of new apparatus that would demand new practices. It also questions whether this will lead to a radical change in society and the sort of control that will be done, as suggested by Deleuze, or to an accumulation of diverse sorts of control that will combined practices and apparatus that are potentially not aligned. If this radical change happens it will certainly not be so immediately and the evolution of technology, while control remains human based opens an area where interferences between apparatus and practices are likely to develop.
The study also suggests that in situations of misalignment between digital apparatus and human control, direct supervision is crucial. Because the highly sophisticated digitalized control system made it extremely difficult for controllers to do a fine grained analysis of Kerviel’s operations, the direct supervision on the floor proved the more efficient. Such supervision relies on the data provided by the system but also on the intimate knowledge that the supervisor may have, or not of the operational activities to be controlled. This is important to understand the difference in supervision by Alain Declerck and supervision by Cordelle. Declerck was a former trader who supervised Kerviel when he was an assistant trader. Declerck knew about the tricks of the trade and was able to spot operations done by Kerviel beyond what was possible. On the contrary, Eric Cordelle was trained in structuring and had a good knowledge of the products but lacked experience in trading and could only rely on the surveillance system. Where Declerck was able to identify critical indicators for JK activity, Cordelle would have to struggle with a huge amount of information and its very technical content, as pointed out by the IT manager of SocGen: "The volume of information is that big that we cannot find something in three clicks, unless you know exactly what you are looking for".

4.2. New technologies, new deviances

The case study also points to deviance when control becomes digitalized. This suggests that new forms of control might not necessarily lead to more control or ‘better’ control- whatever that might mean - but more likely to new forms of deviances and fraud. The case points to the new forms of deviance made available by new control system. In particular it points to the problematic nature of the amount of data made available by digitalized systems of control. Such amounts are extremely difficult to analyze for a human controller as underlined previously in the literature (Eckersley et al., Forthcoming). Kerviel managed to bury his unauthorized transactions in the huge amount of data available to control, making them difficult to spot for any controller without an intimate knowledge of the job. The case of Kerviel suggests that cheating in a digital control implies relevant competences, i.e. to understand the system and play with its weaknesses, here understand that the amount of data to be treated is huge and that this would need deep technical competences (Eckersley et al., Forthcoming). This allowed him understand the surveillance system and bypass it. This suggests that while the continuously monitoring device, enabled by digital technologies, certainly creates a "visibility lines" (Roberts, 2005) suitable for control, but also allows the existence of dark sides in favour of resistance and protest (Bayou & Reinstein, 2001 Brivot & Gendron, 2011).

4.3. Multiple contradictory objectives

The case study also points to the multiplicity of potentially conflicting and interrelated forms of control in such settings.

While the surveillance system proved to be quite inefficient in identifying JK abnormal activity, the direct supervision of Declerck exerted within Delta One desk proved much more efficient. In the present case, the control and evaluation of JK activity was far from unambiguous, and as such was handled by Declerck as he was competent and shared the same social values. Therefore, this direct manager was able to both evaluated ambiguous sometimes conflicting indicators, regarding the desk objectives, and identify critical indicators among the huge amount of information, he basically knew where to look and how to interpret the data (Eckersley et al., Forthcoming). We are remind here with the ideas suggested by Lianos (2000); (2003), on the difficulty for
automated digitized systems to evaluate ambiguous situations combining different indicators without a clear binary interpretations. Further, our analysis complements what he suggested on the fact that digitized surveillance systems are not meant for value reproduction. Indeed, in the context of a trading room, risk limitation cannot be just globally set, and this is perfectly illustrated by the data regarding the fact that there were a rule, not really formalized, and that there were practices.

What the study suggests is that surveillance systems can be disconnected from managerial control as the social values of the desk and the expected behaviors from the compliance differs. Interestingly, SocGen members questioned during the trial insisted that they were shocked because Kerviel had abused their trust, and not on the fact that he had violated the formal rules or manipulated the systems.

5. Conclusion

As suggested by Martinez (2011) the Foucauldian work on management accounting in contemporary organization should be extended by including Gilles Deleuze’s society of control. While acknowledging a shift suggested in the literature between disciplinary society to control one, in this paper we sought to analyse this shift and the extent to which this shift has taken place in contemporary organisation. More specifically, we sought to eschew the conflation between surveillance systems and managerial control practices, and aimed specifically to explore the consequence of this shift on the latter.

Drawing a illustrative example of rhizomatic surveillance systems, i.e. banking and more particularly trading rooms, we observed the features of such rhizomatic surveillance systems such as overlapping networks, continuous and instant communication. However, what we found is that managerial control practices were still characterized by a single, hierarchical management control, far from the predicted emergence of new modalities of exercising power.

We therefore questioned the amplitude of the shift, as one of the main distinctions between disciplinary society and the society of control is that in the latter one is continuously subject to multiple lines of visibility that have various origins and capacities. Indeed, while not anymore restricted to physical enclosures; managerial control appeared to be far from the expected increasingly mobile control drawing on digital information technologies. Managerial control, as a disciplinary technology, seems to remains a hierarchical one, despite the fact that the objects of its gaze and the related technologies have evolved.

Therefore, in this paper, we aimed to overcome the emphasis given to digital technologies and the related determinism, we putting the emphasis on the existing limitations of such technologies. What is at stake is that far from the predictions of a complete automated and ubiquitous managerial control, contemporary organisations still exhibited good old disciplinary features. At stake here is the question of the permanence and the evolution of disciplinary technologies, such as managerial control and the shapes they may take, in the contemporary postmodern organisations (Macintosh et al., 2000, p. 15).
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