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Autonomy as a Necessary E-Ville

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"First Law of Law: You can't invent the wheel without bending the rules."
Leonid S. Sukhorukov; 'All About Everything.'

"If the government becomes a law-breaker, it breeds contempt for the law.
It invites every man to become a law unto himself. It invites anarchy."
U.S. Supreme Court Justice Louis Brandeis; 'Olmstead v. United States, 277 U.S. 438.'

"Our democracy is self-destructing, because it abused the right of freedom and equality,
because it taught the citizens to see audacity as a right, illegality as a freedom, the people's
audacity of speech as equality, and anarchy as bliss."
Isocrates.

Abstract

Keywords: systemic integrity, information systems security, bureaucracy, autonomy, autocracy, anarchy.

1 Introduction

This is the final in a series of three papers addressing the phenomenon of 'computerized bureaucracy,' and its wider impact on modern organizations. The first two were written with joint author Professor Ian Angell. In the first paper, we introduced and raised the issue of computerized bureaucracy by identifying a distinct form of bureaucracy that comes with the use of computerized systems (Angell and Samonas, 2009). In the second paper, we presented a sound theoretical framework for the analysis and discussion of the central role that power, trust and discretion play in IS security; in the same paper, we also discussed the benefits that stem from active, as opposed to passive, discretion in organizations (Samonas and Angell, 2009). In the discussion of our second paper, we highlighted the importance of Feldman's research findings, according to which, the introduction of discretion lies on the selection of the 'right' people, the level and quality of their training and the involvement of the to top management discretion can prove to be beneficial for the organizational integrity of a firm, (Samonas and Angell, 2009).

A closer look at active discretion led us to the widely misused concept of 'autonomy', and so, this present paper will conclude the trilogy by highlighting the conceptual relationship between bureaucracy, discretion and autonomy. Since autonomy is often confused with notions of autocracy or anarchy, and in many cases the term is used as a pejorative, an elaborate working definition of autonomy is presented here, based on the philosophical work of Cornelius Castoriadis. The consideration of autonomy within an 'organizational integrity' context (Angell and Samonas, 2009; Angell and Smithson, 1991), raises a range of interesting issues, and opens up new research paths that are worthy of exploration by security professionals and academics alike.

Reflecting on certain pragmatic aspects of rule bending triggers the discussion on autonomy; rule bending is certainly not a recent phenomenon and it is one that can have serious ramifications for the systemic integrity and security of an organization. Rule bending is attributed to a number of different reasons and it is usually the result of a conscious choice that individuals make. Rule bending in the workplace is definitely not compatible with the traditional theoretical perspectives on bureaucracy. In this respect, we are interested in how can rule bending possibly fit with the modern theories and practice of bureaucracy.

For this reason, we examine one of the most fundamental theoretical premises of bureaucracy, the property of non-inclusiveness, according to which, individuals as persons are separated from the roles they serve in a bureaucracy (Kallinikos, 2006). We lay emphasis on the shortcomings of non-inclusiveness and particularly, in the way it is evolving in the 'post-bureaucratic' era. Having the inherent incompatibility of rule bending and non-inclusiveness as a point of reference, we argue that rule bending can be integrated into modern organizational structures and arrangements, but not as a form of staff resistance or negation to the established organizational processes and procedures; rather, as a creative contribution that can make a positive impact on the organization.

Of course, neither hierarchies and controls can possibly be eliminated from modern organizations (Hopfl, 2006), nor the pragmatic dimensions of rule bending can be ignored. So, taking into account the need for cultivating active discretion in organizations (Samonas and Angell, 2009), we go on to explore the potential merits of managing with autonomy as a way of mitigating the risks generated in bureaucracy and by extension, in computerized bureaucracy. However, we are not considering autonomy as a panacea and therefore we also see autonomy as a risk; that is, as both an opportunity and a hazard. The point is not to offer universal solutions and categories, but to approach the implications of computerized bureaucracy in a balanced and pragmatic way.

So, the ultimate purpose of this paper is to understand better the mechanics of autonomy and investigate whether the 'autonomous manager' can indeed mitigate the risks of computerized bureaucracy; and most importantly, under what conditions and circumstances. In order to do so, we provide an etymological and historical account of autonomy and then compare and contrast autonomy with related terms, like freedom, autocracy and anarchy. With the latter term as a point of reference, we attempt to situate rule bending under the conceptual umbrella of autonomy, mainly by relating rule bending with law breaking and defiance.

In the discussion that concludes the paper, we first refer to the paradigm of bureaucracy and its theoretical implications regarding non-inclusiveness and rule bending. We then illustrate the significance of autonomy for organizational integrity by presenting a few key arguments for, as well as against autonomy. With respect to security as organizational integrity, we argue that active discretion and autonomy can be developed primarily through a carefully planned and ongoing education programme that does not aim at simply informing staff about issues of

organizational integrity. The ultimate purpose of introducing autonomy, is to enable staff to deal with unexpected, 'singular,' unique and irregular situations (Angell and Samonas, 2009; Samonas and Angell, 2009).

The paper is structured as follows. First, we look into the phenomenon of rule bending, by presenting an interesting sample of the relevant literature that has only recently started to develop considerably. Second, we attempt to show that bureaucracy operates as a closed system. In the third section of the paper, the notion of autonomy as openness is being introduced, as directly opposed to the closure that bureaucracy stands for. Finally, we go on to discuss the role that autonomy can play in modern organizations with regard to information systems security.

2 Bending the Rules

2.1 *Failing safely*

The popular novel entitled 'Fail-Safe,' which was inspired by Cold War tensions, describes the fictional events that took place during the course of a single day, and that led to an accidental nuclear war between the USA and the Soviet Union (Burdick and Wheeler, 1962).

US Air Force radar operators detect an unknown aircraft coming from Europe and heading to the USA. A group of American supersonic bombers are scrambled to approach and eliminate the potential threat, which is attributed to the Soviet Union. While they are on their way, the unknown aircraft is eventually identified, and is no longer considered a threat. As a standard fail-safe protection, the bombers have standing orders not to proceed past a certain point without having received a special attack code from the Pentagon. However, due to a technical failure, the attack code is transmitted over the radio. The commander of the bomber group tries to verify the fail-safe attack order, but radio jamming from the Soviets makes this impossible.

Taking the fail-safe attack order and the radio jamming into consideration, the commander concludes that a nuclear war has broken out, and decides to head to Moscow and attack the city with their nuclear bombs. The novel develops in a largely exaggerated fashion, and culminates with the destruction of both Moscow and New York.

Regardless that these events are fictional, its ironic title is itself worthy of note. The concept of 'fail-safe,' which is used in engineering and quality controls, encompasses both the possible ways in which things can go wrong, and the processes or functions that will ensure things will not get worse. According to Encyclopaedia Britannica (Unknown, 2009), a fail-safe operation minimizes the chance that a computer failure or some other accident would set off a major catastrophe. A fail-safe device or operation is different from a fail-secure one; a failure in the fail-safe device disables its security features, whereas a failure in a fail-secure device enables the security features of the latter. It is therefore ironic, that the assumed failure caused by the alleged Soviet attack could trigger a completely inappropriate 'safeguarding' process, which led the commander to follow the last authenticated orders at all costs, and eventually bombard Moscow.

Fortunately, in reality, things did not turn out to be so dramatic for humanity, although a nuclear war and even a Third World War could have easily broken out (Phillips, 2000). During the Cold War, the USA and the Soviet Union were following the doctrine of 'mutually assured destruction', which was based on 'deterrence through the balance of terror' (Gaddis, 1987; Little, 1998). This clearly implied that any attack would be immediately followed by counterattack; and so, thousands of nuclear missiles were being targeted on enemy cities, at all times (Little, 1998). In more than 20 recorded cases, an accidental nuclear war would be inevitable on the basis of retaliation, if army officials on both sides had not identified and treated false alarms as such.

Despite the use of sophisticated and advanced technology, mere coincidences and/or technology failures have set off numerous false alarms over the years. Here is an indicative list of incidents, each of which could have become the cause of a large-scale nuclear war (Phillips, 2000; Sagan, 1993; Webb, 2001):

− A flock of geese and the rising moon were mistaken for incoming missiles. Only on last minute checks was the firing of several missiles avoided. (1960)
− A flight of swans was mistaken for an unidentified aircraft. (1956)
− A satellite in orbit was misidentified as two possible missiles over Georgia. (1962)
− A small routine air force escort for the president of Syria, who was returning from a visit to Moscow, was mistaken for '100 Soviet MIG-15's flying over Syria'. (1956)
− The coincidental failure of all the communication systems between the North American

Aerospace Defense Command (NORAD) and the Strategic Air Command Headquarters, due to an overheated motor at a relay station in Colorado. This incident was considered sabotage, until the two commands established radio communication and confirmed that there was no enemy attack whatsoever. (1961)

– The loading of a 'War Games' simulation tape into NORAD computers, by mistake. Eventually, it was confirmed that there were no incoming missiles on the radar. (1979)

– A single faulty chip that was failing randomly. The basic design of the system was faulty, allowing this single failure to cause a deceptive display at several command posts. (1980)

Interestingly enough, in all these cases, a nuclear war was averted not only due to the various fail-safe mechanisms that have been put in place in the warning and launch systems; but most importantly, thanks to the responsible and sensible actions of those who were in the chain of command when the fail-safe features had failed (Phillips, 2000; Sagan, 1993).

2.2 *Rule bending*

In the USS Vincennes tragedy, which was discussed in our first paper that introduced the concept of computerized bureaucracy, the decision to shoot down the commercial airliner was attributed to the 'glass-cockpit syndrome,' a term coined to illustrate how omnipresent computer screens distract and cause confusion (Angell and Samonas, 2009). This syndrome has two effects: end users rely entirely on the system without exercising any kind of judgment of the situation; the ensuing information overload results in users ignoring many pieces of, sometimes very important, information (Angell and Samonas, 2009). In the 'Fail-safe' scenario, the commander of the bomber group followed the last order he received regarding the nuclear bombing of Moscow, with him having no doubts about either what had really happened, or his following the order at all costs. On the night of 26th September 1983, Stanislav Petrov, a Soviet army software engineer, took a different and much more challenging path, having serious doubts about the credibility of the satellite signals of a Soviet early-warning computer system. His fascinating story was made known to the public 15 years after his actions had made him the 'man who saved the world' (Little, 1998).

Petrov was a young lieutenant colonel in charge of 200 men at a surveillance centre near Moscow. While being on duty, the screen in front of him 'turned bright red' and the alarm went off, five times in total; as he recalls, the alarm was so loud that it could 'raise a dead

man from his grave' (Little, 1998). The computer system indicated that the Soviet Union was under nuclear attack from the USA and therefore, the standard procedure for such a case, had to be followed. The orders were to inform the chain of command immediately, so that they could in turn inform the General Secretary, who would finally decide on behalf of the Soviet Union (Little, 1998). If Petrov had strictly followed the orders that he was given, a nuclear counterattack would have been launched within minutes. Instead, he decided to pick up the phone and let his superiors know that the alarms were false and that there was no attack under way.

His decision to bend the rules and disobey the orders he had been given was mainly intuitive. He thought than an American attack would be massive and it would not consist of just 5 missiles (Hoffman, 1999); he also took into account the fact that ground radars had not picked up any enemy missiles and that the early-warning system had flaws, as it had been rushed into service (Hoffman, 1999). In a blink of an eye, Petrov had to convince himself first about the rightfulness of his decision, before explaining to his superiors what had happened and why there was no reason for retaliation.

He was initially praised for his actions. However, after the completion of the formal investigation regarding the computer fault, he was blamed and treated as a scapegoat, rather than being rewarded for his courage and quick thinking during such enormously stressful circumstances (Hoffman, 1999; Little, 1998). He was even accused for not producing lengthy reports and for not taking detailed notes of the events, as and when they happened (Hoffman, 1999); of course, that was a far from easy task when 'electronic maps and consoles were flashing as he held a phone in one hand and juggled an intercom in the other, trying to take in all the information at once' (Hoffman, 1999). A few years later, Petrov retired early from the army and suffered a nervous breakdown (Little, 1998).

Petrov's story is, by and large, indicative of the way the military operates as an institution. In the military, orders are made to be followed, usually without any further thoughts or any kind of reflection on the implications that these orders may have. However, very much unlike Petrov's case, rules and laws can be bent within an authoritarian environment and sometimes for highly controversial causes. Stylianos Pattakos, for example, a Greek brigadier general and one of the leaders of the Greek military junta of 1967, still believes firmly that his illegal actions to displace the government then, were actually helping the country escape a major

political turbulence and a wider socio-economic crisis. Almost a year after the coup d'état, he stated that:

> *"Το Σύνταγμα και οι νόμοι εκοιμήθησαν, αλλά η πατρίς εσώθη –*
> *The Constitution and the laws were put aside, but the country was saved."*

Pattakos, a military man, intentionally diverged from the State's rules and procedures, claiming that 'saving' the country was his first priority. He would certainly not agree with Plato's view that 'good people do not need laws to tell them to act responsibly, while bad people will find a way around the laws' - a moral and somewhat oversimplified statement that does not address the diversity and the complexity of contemporary organizations (Plato, 2000). So, rule bending can indeed occur within authoritarian environments such as the military and in certain occasions, like for example a military junta, it can even lead to an autocratic mode of governance that is tailored to the interests of the power holders. It would, therefore, be particularly interesting to see how rule bending actually works in other environments, less authoritarian than the army.

For over 60 years, studies of public sector bureaucracy were mostly preoccupied with rule-following (as opposed to rule bending), and the characteristics of the 'rule bound' personality (DeHart-Davis, 2007). However, a recent stream of research, focused mainly on public sector bureaucracies, is now dealing with the 'unbureaucratic' personality, namely with the traits of a person who is willing to bend organizational rules and procedures. The goal of this kind of research is to sketch the profile of the creative, entrepreneurial, and flexible public servant now being mentioned in the latest government literature; (DeHart-Davis, 2007). According to relevant research findings, staff at all hierarchical levels bend rules, although this appears to be more the exception than the rule; moreover, public servants bend rules in the name of 'customer service,' and exercise significant discretion to achieve government-required results (DeHart-Davis, 2007).

According to DeHart-Davis (2007), nonconformity, risk taking, red tape and centralized workplaces seem to increase the unbureaucratic personality, whereas rule-following is greater, when public service commitment is high or in formalized workplaces. Rule-benders knowingly and intentionally depart from the prescribed organizational procedures, with the notable exception of the pathological case of the 'bureautic,' who genuinely detests control,

and perceives all organizational tasks, processes etc., as red tape (Thompson, 1977). In general, it could be argued that the occurrence of rule-bending is influenced by individual dispositions, one's work objectives, as well as by the position of staff within the organizational structure (Blau, 1963). The case of street-level bureaucrats, who bend rules because they ultimately see them as a barrier to their job performance, is indicative of Blau's view on rule-bending, and it was extensively discussed in our first paper on computerized bureaucracy (Angell and Samonas, 2009; DeHart-Davis, 2007). The next section presents a more careful examination of rule bending in bureaucracies, highlighting the contrast between discretion and the bureaucratic property of 'non-inclusiveness'.

3 Bureaucracy as a closed system

3.1 *Non-inclusiveness in bureaucracy*

Bureaucracy is a governance system that operates upon premises made routine during problem solving and decision-making in 'typical' or 'regular' situations (Angell and Samonas, 2009; Inbar, 1979). Taking the Weberian notion, bureaucracy is closely related to that of formal organizations, which are centred around a specific regime of rules and regulations defined by various legal, administrative and political processes (Clegg et al., 2006; Kallinikos, 2006). In this respect, bureaucracy is based on institutionalized power relations that are shaped by complex cultural and social developments, and should, therefore, be seen as an institution, rather than just an organizational arrangement (Du Gay, 2005; Kallinikos, 2006).

Most of the criticism of bureaucracy is related to the suppression of individual autonomy, as well as the limited ability of bureaucracy to be flexible and adapt to the changing conditions of the environment (Inbar, 1979; Kallinikos, 2004; 2006). A fairly recent stream of literature argues that the use of the term 'bureaucracy' as a pejorative (Angell and Samonas, 2009; Fineman et al., 2005) is oversimplified, and largely exaggerated (Du Gay, 2005; Kallinikos, 2004; 2006). Bureaucracy has been passionately and fiercely attacked over the years, mostly by radical structuralists and humanists alike; that is, by scholars whose ontology lays particular emphasis on conflict and radical change (Burrell and Morgan, 1985; Kallinikos, 2004; 2006). This is clearly illustrated in the diverse list of critics of bureaucracy, that range from classical liberals, like Friedrich von Hayek, to libertarian socialists, like Cornelius

Castoriadis (Kallinikos, 2004). However, the defenders of bureaucracy argue for the unique qualities it demonstrates as an institution, and its unparalleled contribution to modernity.

Historically, bureaucracy has introduced groundbreaking social innovations as an institution, mainly through the consolidation and enforcement of freedoms and egalitarian rights (Foucault and Rabinow, 1986; Kallinikos, 2004; 2006). The early stages of modern bureaucracy can be traced back to the Napoleonic times, when a new modality of power was formed and established through the imposition of discipline on the administrative apparatus, which was essentially inspired by the values of the French Revolution (Foucault and Rabinow, 1986). So, along with the standardization of rules and procedures, bureaucracy has developed a set of core properties over time, which are based on principles like equality, impersonality, hierarchical accountability, meritocracy and non-inclusiveness (Du Gay, 2005; Kallinikos, 2004; 2006). The latter is a particularly interesting feature of bureaucracy, and stands out from the rest, mostly because of its inherent conceptual complexity.

3.2 *The paradox of non-inclusiveness*

Non-inclusiveness denotes that organizations are not comprised of individuals, but rather of a complex set of interdependent abstract operational requirements; namely roles that individuals are expected to meet (Du Gay, 2005; Kallinikos, 2004; 2006). However, this definition entails two major implications. First, it means that organizations are, in effect, constituted by roles through the institutional introduction and reproduction of the very distinctions that roles bring (Kallinikos, 2004; 2006). Second, the individuals who join the organization are entirely separated from the roles they are called to fulfill and serve; the very fact that, ideally, there is no favouritism or discrimination in the recruitment process, since it is just a matter of matching the requirements of the role to the qualifications of the candidates, accounts for much of the historical significance of bureaucracy as an iconic symbol of modernity (Du Gay, 2005; Kallinikos, 2004; 2006).

Non-inclusiveness is, nonetheless, central in bureaucracy and this is even illustrated in the use of this property as the sole criterion for the identification of an organizational form as a bureaucracy (Kallinikos, 2006). According to Kallinikos (2006), bureaucracy is a highly adaptive system that can reach a considerable degree of internal coherence and consistency, due to its property of non-inclusiveness. He argues that the systematic and consistent

separation of the functional requirements of bureaucracy from its surrounding social and human complexity can actually make this feasible (Kallinikos, 2006). In this view, the major contribution of non-inclusiveness is that it has introduced features like selectivity, mobility and reversibility in the relationship between the individual and the organization. These features enable bureaucracy to redesign its components and processes, and therefore to adapt to the changing environment by producing the much needed variety (Ashby, 1958). On this basis, Kallinikos (2006) argues that contemporary organizations will only be able to address contingencies when they reassemble the standardised components of bureaucracy (procedures, tasks, jobs, etc.), in a way that produces novel outcomes, and provided that individuals are tied to organizations in selective, mobile and reversible forms. In other words, organizations need to draw their operational strategies and business plans by referring back to the classic Weberian definition of bureaucracy.

However, it appears that non-inclusiveness is inherently problematic, both in theory and practice. In theoretical terms, non-inclusiveness is an elusive and self-referential concept, mostly because its use as a property of bureaucracy entails two different kinds of distinction. First, it primarily refers to the distinction between the roles and the individuals who are performing those roles; and second, since each role is an operational arrangement, non-inclusiveness also indirectly refers to the distinction between the operations that are assigned to a certain role, and the operations assigned to all other different roles. It should be noted though, that it is possible to have an operation assigned simultaneously to two or more roles. However, we are solely interested in the process of distinction and separation of operations; that is, in the categorization of operations, which is a necessary and sufficient condition for the creation of any role. So, non-inclusiveness ultimately refers to one direct and one indirect distinction (see Figure 1).
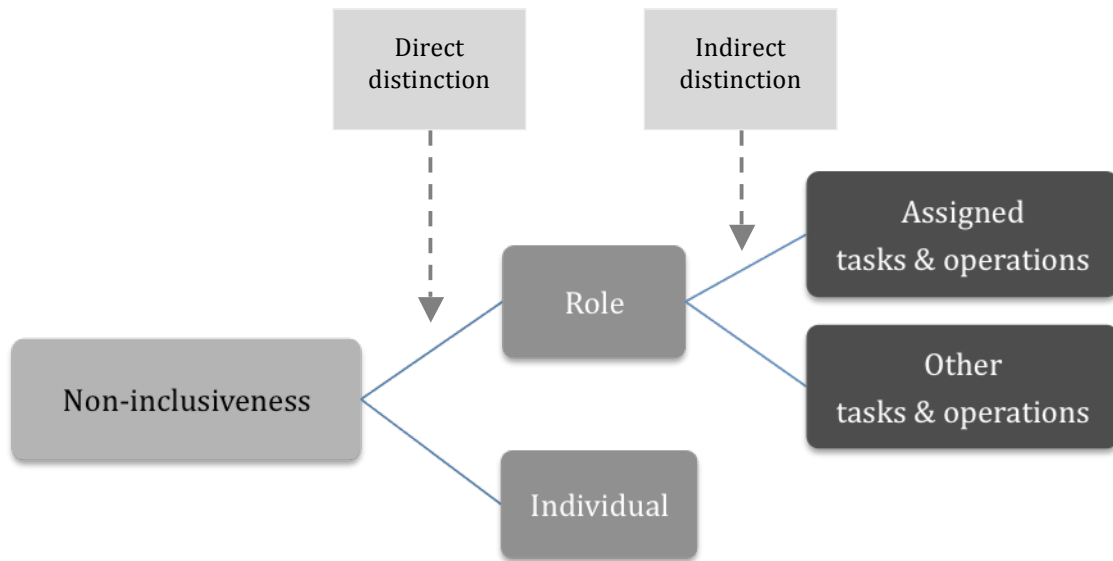
Figure 1: *Non-inclusiveness and the introduction of distinctions.*

The problem with both distinctions is that they unavoidably give rise to the Fallacy of the Residual Category (Demetis and Angell, 2007; Luhmann, 1995; 2002). In other words, each of these distinctions produces paradoxical residual categories, and in essence they introduce risk, by ignoring and/or underestimating the truncated couplings that are being created and formed in the very process of distinction (Demetis and Angell, 2007; Luhmann, 1993; 1995; Samonas and Angell, 2009). Another related problem stems from the fact that, just like most theories, the theory on bureaucracy presupposes an observer who is making a first-order observation. In this observation, the observer, who is also the theoretician of bureaucracy, categorises the world in a supposedly 'objective' way, and in the case of non-inclusiveness he distinguishes the role from the individual (Gabriel et al., 1999; Luhmann, 1993; 1995). Practically, this means that the observer does not take into account the possibility of him being the *n*-th observer; in other words, the possibility that other, *n*-1 observations and thus distinctions have already been made *a priori*, before his.

Furthermore, non-inclusiveness is inherently paradoxical for another reason; the underlying assumption is that the individual involved in the direct distinction, is not and can never be a completely impartial observer. Contrary to the assertions of bureaucratic theory, the individual does not operate within the one-dimensional description ascribed to the role (Gabriel et al., 1999). The individual can and does interpret the role and most importantly, he can and does make his own categories to understand the world, possibly on a basis different to that of the observer/theoretician (Gabriel et al., 1999). Particularly in modern bureaucracies, it

is only pragmatic to consider that the definitions and interpretations of the world that different individuals shape and use in a workplace are divergent and largely incompatible. Non-inclusiveness cannot easily, if at all, explain the range of problematic situations that stem from typical political behaviours within organizations, like whistle blowing (Farrell and Petersen, 1982), or organizational pathologies like role 'stress' (Fineman et al., 2005; Handy, 1993). All these situations are instances of inclusiveness that can be found in any contemporary form of bureaucracy.

3.3 *Non-inclusiveness in 'post-bureaucracy'*

Kallinikos (2006) notes that the boundaries of the separation of work, family and community that sustained the property of non-inclusiveness in organizations are nowadays blurred; but, of course, the problem is that these boundaries started to blur more than 30 years ago. The problematic nature of non-inclusiveness was initially and partly discussed in seminal studies of the 1970s and 1980s that dealt with the diffusion of information technology and its implications for the nature and in particular the future of work, organizations and management (Toffler, 1970; Zuboff, 1984).

The 'line between home and work' is considered fictional (Fineman et al., 2005; Gabriel et al., 1999), and thus it can only be of limited use in abstract theoretical models that refer to simplified accounts of bureaucracy. In practice, the separation between the role and the individual is perhaps not the one described in non-inclusiveness, at least not in the first instance; rather, it is an emotional distinction that the individual himself makes. Recent studies indicate that individuals treat their roles and jobs with resentment and ultimately, cynicism (Fleming and Spicer, 2007; Gabriel et al., 1999; Gouldner, 1957); individuals do not believe in the roles they are assuming, and actively 'dis-identify' with the organizations they work in, as well as with the products or services that they produce (Fleming and Spicer, 2007).

On the other hand, it is certainly ironic that organizations consistently try to keep the individuals attached to their roles and the organization by building 'psychic prisons' around them (Gabriel, 2005; Gabriel et al., 1999; Morgan, 1997). The cynicism with which individuals treat their jobs could be seen as an advanced form of resistance, an act of disobedience and defiance to the post-modern bureaucratic controls that essentially use

language, emotion, space and exposure (Gabriel, 2005). Psychological contracts, electronic surveillance and conspicuous consumption are only some of the developments, which mark the shift from the physical domination of institutional control and discipline, to the pursuit of the cognitive domination of individuals (Foucault, 1979; Gabriel, 2005; Gabriel et al., 1999; Kallinikos, 2006). It is the shift from the 'iron cage' of the bureaucratic ideal, to the 'glass cages and glass palaces' of late modernity, the so-called 'soft' bureaucracies (Courpasson, 2000; Courpasson and Clegg, 2006; Courpasson and Dany, 2003; Gabriel, 2005).

Indeed, modern bureaucracies are the result of 'a new empirical configuration, an empirical hybridity' that has developed over the years, moving bureaucracy away from the Weberian ideal and its classical definition (Courpasson, 2000; Courpasson and Clegg, 2006). However, at the end of the day, bureaucracy is a theoretical construct, a device that is being used in order to explain and reflect on specific behaviours, decisions and sets of epistemological and ontological presuppositions, which are employed in organizations. It is the special lens we use to capture a snapshot of all the organizational paradigms that are primarily based on standardization, lack of autonomy and individual freedom. In this respect, bureaucracy cannot possibly be a bringer of change, nor can it adapt to the changing environment. Bureaucracy, as an organizational arrangement, can and does change, but not in itself; only the individuals who comprise bureaucracy essentially can change it. Therefore, bureaucracy is not changing because of its property of non-inclusiveness and the selectivity, mobility and reversibility that the property itself entails; but rather, because the people working in bureaucratic organizations are substantially changing their modus operandi over time, for all sorts of reasons. The evolution of computerized bureaucracy is one fine example of this operational transformation (Angell and Samonas, 2009).

Let us now turn to autonomy, by trying to explore its meaning, but most of al, its potential for modern organizations.

4 Autonomy as openness

4.1 *What is autonomy?*

In modern English, autonomy is defined as the freedom for a country, a region or an organization to govern itself independently; or, the ability of an individual to act and make decisions without being controlled by anyone else (Hornby et al., 2000). Etymologically, the word 'autonomy' comes from the Greek term *autonomia* (αυτονομία < αυτο + νόμος = self + law), which is equivalent to the English term 'self-rule' and was first applied to the Ancient Greek city-state. Each city was autonomous, in that its citizens were making their own laws (Castoriadis and Curtis, 1992).

Autonomy is usually seen as a moral, political, and social ideal and as such, it is a rather ambiguous concept. Its use has been quite problematic (Dworkin, 1988), due to:

– The inherent difficulty of defining the term in a consistent and coherent way, as well as the inappropriate use of the term by different scholars.

– The weak assumptions used in theories of autonomy; most theories on autonomy assume that an autonomous person will or must be virtuous, non-neurotic, rational etc.

– The little attention it had received over many years in Philosophy.

In various theories and frameworks, autonomy has been treated as the equivalent of freedom, sovereignty, freedom of the will, dignity, integrity, individuality, independence and responsibility; furthermore, it has been associated with an individual's thoughts, actions, beliefs, the reasons for acting, rules, the will of other persons, self-assertion, critical reflection, freedom from obligation, absence of external causation and knowledge of one's own interests (Dworkin, 1988). Actually, the only thing these conceptualizations have in common is that autonomy involves people being able to shape their own lives in important ways, and that it is a desirable quality (Dworkin, 1988).

Let us now see some notable similarities and differences between the various connotations of autonomy, and more specifically its relationship to autocracy and philosophical anarchism.

4.2 *Autocracy, autonomy, anarchy*

Among all the concepts that are being used as synonymous to autonomy, freedom, power, privacy, autocracy and anarchy stand out for a number of reasons. All these terms do share common conceptual grounds, but despite their similarities, they are definitely not the same, and they all do have distinct meanings.

Freedom, power and privacy are not the same as autonomy; however, they are absolutely necessary for individuals to develop their own aims, interests and values (Dworkin, 1988). Autonomy is a much richer notion than freedom, since the latter is simply conceived either as mere absence of interference to one's actions, decisions etc, or as offering different alternatives (Dworkin, 1988). In this respect, autonomy is bound up with the idea that the individual is a subject, rather than a passive spectator of someone else's desires and feelings (Dworkin, 1988). On the other hand, the link of autonomy with autocracy and anarchy is both linguistic and historical, and it could be argued that it is as strong as that with freedom, power and privacy.

Autocracy is a system of government, in which one person has complete power (Hornby et al., 2000). As one can readily notice, autocracy and autonomy both derive from the same root word *auto-*, which means 'self.' The second part of 'autocracy' is the word *kratos* (κράτος), which originally means 'strength,' but in English it is the equivalent of 'state.' The word *autokrator* (αυτοκράτωρ < αυτο + κράτος = self + state) is a derivative of the Greek word *autokratia* (αυτοκρατία), which literally means 'self-ruler;' however, its English equivalent is the word 'emperor.' Conceptually, autocracy is also linked to tyranny and dictatorship. Interestingly enough, in Greek mythology *Kratos* or *Cratos* personifies power and strength. He is the brother of *Nike* (Νίκη = victory), *Via* (Βία = violence), and Zelus (Ζήλος = zeal), who all were the enforcers of Zeus, and the protectors of his throne.

Anarchy, on the other hand, derives from the Greek word *anarchia* (αναρχία < privative affix α + αρχή = lack of authority) and in English, it is defined as lawlessness and lack of government, order or control in a country or organization, etc. (Hornby et al., 2000). Anarchy is widely used as a pejorative to denote disorder, confusion and chaos; however, the conception that anarchy is a synonym of chaos is not only over-simplistic, but also inherently paradoxical, especially if one takes into consideration that order is a fundamental premise of

Chaos Theory! It seems that anarchy does have a more subtle meaning, which is closely related to the concept of autonomy.

The first occurrences of the notion of anarchy can be traced back to the Ancient Greek Literature. For ancient Greeks, Law is far more than a collection of written rules enforced by institutions to ensure the smooth operation of society. They believed that human actions are also bound by equity, which is a system of natural justice that allows a fair judgment in a situation that is not covered by the existing laws (Hornby et al., 2000); equity is essentially driven by shame, a feeling that was allegedly given to people by Hermes (Plato, 1991).

This duality of Law is ideally reflected in 'Seven Against Thebes,' Aeschylus's final tragedy in the Oedipus trilogy, where Antigone defies an edict that prohibits the burial of her brother, at the cost of her own life (Aeschylus, 1991). When the king asks Antigone how she dared defy his edict, she explains that no written law is more important than the longstanding tradition of burying the dead with all the ceremony necessary for the occasion, rituals and honours (Sophocles, 2003):

> *"It wasn't Zeus, not in the least, who made this proclamation – not to me. Nor did that justice, dwelling with the gods beneath the earth, ordain such laws for men. Nor did I think your edict had such force that you, a mere mortal, could override the gods, the great unwritten, unshakable traditions."*

The struggle between written law and equity, and the debate on which of the two is more important, was a source of inspiration for philosophers like the Stoics and the Cynics, who are now considered as early proponents of the political philosophy of anarchism. Zeno of Citium, the founder of the Stoic philosophy is perhaps the greatest exponent of anarchist philosophy in ancient Greece (Kropotkin, 1910); his conception of a free community without government was directly opposed to the state-utopia of Plato, although the latter does admit in his 'Dialogues,' that no law or ordinance is mightier than understanding (Plato, 2005).

A major assumption of moral philosophy is that individuals take responsibility for their actions, and as such, according to Kant, they are metaphysically free (Castoriadis and Curtis, 1997; Dworkin, 1988; Wolff, 1970). Various moral philosophers, from Kant to Nietzsche, and from Royce to Popper, argue for the necessity or desirability of individuals to define or

choose their own moral code. So, moral autonomy is a combination of freedom and responsibility, and it entails submission to laws that one has made for oneself (Dworkin, 1988; Wolff, 1970). In this respect, any individual making moral decisions and expressing them to himself as imperatives, is actually giving laws to himself and is not subject to the will of another and thus, he is autonomous (Dworkin, 1988; Wolff, 1970).

Autonomy is a fundamental premise of philosophical anarchism, which advocates that all authority is essentially illegitimate and that it is imposed on people more as a moral obligation, rather than anything else (Courpasson and Dany, 2003; Wolff, 1970). In anarchist studies, this binding moral obligation enforced through institutions, is largely responsible for forcing individuals to forfeit their autonomy, in different occasions and for different periods of time (Wolff, 1970). However, the moral obligation to authority is not the only reason for individuals to forfeit their autonomy. More specifically, Wolff (1970) identifies a paradox that is still taking place nowadays; although individuals increasingly recognize their right and duty to be their own master, they are, at the same time, becoming the passive objects of technology and bureaucracy, whose complexities they cannot fully understand (Wolff, 1970). Complementary to this, Dworkin (1988) argues that certain personality types, social classes or cultures are less keen to exercise their capacity to be autonomous, while others are more keen to do so. In other words, the very conceptualization and use of autonomy varies widely across different cultural and organizational contexts.

For this reason, the Kantian perspective, as well as Wolff's anarchist view on autonomy, have been heavily criticised as a futile attempt to reconcile objectivity and autonomy (Castoriadis and Curtis, 1997; Dworkin, 1988). Dworkin (1988) first introduced the 'hierarchical' or 'split-level' view of the self in modern philosophy, by suggesting that persons have first-order and second-order desires, and that their second-order desires and volitions play a decisive role in whether the first-order desires will be eventually accepted or rejected (Dworkin, 1988; Haworth, 1991). In this respect, autonomy is a second-order capacity of individuals to reflect critically on their first-order preferences, wishes, values etc., and most importantly, the capacity to accept or attempt to change these in light of higher-order preferences and values (Haworth, 1991). Dworkin calls 'conceptual independence,' the way in which this reflection actually occurs, and he distinguishes it from the substantive independence that is used in moral philosophy (Dworkin, 1988; Haworth, 1991). After showing that every conceptualization of autonomy referring solely to the substantive independence of the

individual, leads to theoretical mistakes about political and moral authority, he suggests that the former type of independence is much more important for autonomy; however, he does admit that both types of independence are absolutely necessary requirements of autonomy, (Dworkin, 1988; Haworth, 1991). So, in Dworkin's theory of autonomy, moral autonomy is just a particular case of the wider definition he deploys (Haworth, 1991).

The significance of Dworkin's work on autonomy is not limited to the introduction of the hierarchical view of the self. His discussion on the practical implications of autonomy in issues like the role of autonomy in healthcare, proxy and informed consent, behaviour and self control, paternalism and entrapment, are also considered major contributions in autonomy studies (Haworth, 1991). However, Cornelius Castoriadis, the most prominent contemporary philosopher of autonomy, took that concept to a higher level by developing the 'project of autonomy;' an ambitious account of autonomy based on the radical imagination of society.

4.3 *Autonomy as radical imagination*

The entire work of Cornelius Castoriadis is a political philosophy, in which he is mostly preoccupied with autonomy as a grand ongoing revolutionary project (Castoriadis and Curtis, 1988; 1997). His perspective on both individual and social autonomy is particularly radical and political; for example, he believes that radical and substantial changes cannot occur in the context of a civil society movement, and that instead a 'rupture' with the system is required (Gezerlis, 2001). However, certain parts of his overall work can be adopted and applied to organizational theory, and by extension, to the social aspects of computer security.

It could be argued that the ultimate goal of the 'project of autonomy' is the creation of a new *eidos* (είδος = kind) of society, and a new *eidos* of individuals (Castoriadis, 1987; 1994):

> *"Autonomy is not closure, but rather, opening: ontological opening, the possibility of going beyond the informational, cognitive and organizational closure characteristic of self-constituting, but heteronomous beings. It is ontological opening, since to go beyond this closure signifies altering the already existing cognitive and organizational 'system,' therefore constituting one's world and one's self according to other laws, therefore creating a new ontological eidos (kind), another self in another world. This possibility appears, only with the*

human. It appears as the possibility of challenging (not by chance or blindly, but knowing that one is doing so), one's own laws, one's own institution when society is involved."

Castoriadis (1992) fundamentally believes that in an autonomous society the following laws can substantially express freedom:

– The execution of decisions takes place only after the egalitarian participation of all individuals in the making of the decisions, and

– Laws are posited with the egalitarian participation of all individuals.

However, when referring to the concept of 'egalitarian participation,' Castoriadis does take into account the various shortcomings that stem from the self-limitation of democracy; he specifically calls democracy 'the only tragic political regime' that faces the possibility of its self-destruction openly (Castoriadis and Curtis, 1997).

His conceptualization of freedom implies that autonomous individuals can fully exist only in an autonomous society, and in turn an autonomous society can only consist of autonomous individuals (Castoriadis, 1987; Castoriadis and Curtis, 1988; 1992; 1997). The major presupposition of such a society is the possibility of questioning tradition, and of course, the enactment of this possibility (Castoriadis and Curtis, 1988; 1992; 1997). Individuals are expected collectively to create the rules they should abide to, being completely aware of this process, and most importantly, being prepared to change those rules when they become inappropriate or inadequate in any way (Castoriadis, 1987; Castoriadis and Curtis, 1992).

So, Castoriadis, too, moves away from the Kantian notion of autonomy, and approaches individual autonomy with the help of Freudian psychoanalysis. He suggests that autonomy is an endless and unlimited reflection and self-questioning of the institutions and the individual, by the individual, and for the benefit of the individual and the society (Castoriadis, 1987; Castoriadis and Curtis, 1988; 1997). This reflection depends decisively on the social fabrication of the individual (Castoriadis and Curtis, 1992). Notions such as 'inner freedom' and 'free will' have different meanings and connotations in different societies. Their manifestation and use varies greatly, and it largely depends on the very institution of society and by extent, on the kind of individual this institution ultimately produces (Castoriadis,

1987; Castoriadis and Curtis, 1992). The self-institution of society, which is a characteristic of autonomous societies, becomes possible with the formation of a 'social imaginary' and the realization of 'praxis.'

The 'social imaginary' of a society is a term used by Castoriadis to describe the society's creative ability, the unfolding human potentialities, which creates the significations society needs in order to determine its values, and moreover, the institutions that embody these values (Gezerlis, 2001). These significations are indispensable for all individuals, in the sense that they allow individuals to transform from 'wailing newborn species of Homo sapiens' into 'Spartans, Dogons, New Yorkers' (Castoriadis and Curtis, 1997). In other words, the social imaginary is the creation of a world of meanings that ultimately institute the values and hierarchies of social life, and also establishes the ways in which individuals are fabricated within society (Castoriadis, 1987; Castoriadis and Curtis, 1992); and so, institutions are symbolic networks that essentially combine imaginary and functional elements (Castoriadis, 1987; Gezerlis, 2001).

Praxis, on the other hand, is 'what intends the development of autonomy as its end and, for this end, uses autonomy as its means;' 'true politics, true pedagogy, true medicine, to the extent that these have ever existed, belong to praxis' (Castoriadis, 1987; Castoriadis and Curtis, 1988). Praxis, is entirely different from the application of a previously existing knowledge, and it can only exist as a conscious activity (Castoriadis and Curtis, 1988). The knowledge required for the support and realization of praxis is fragmentary and provisional; this is because theories can never be exhaustive, and also because enacted praxis is itself creating and developing new knowledge (Castoriadis and Curtis, 1988).

5 Discussion

Interested in computerized bureaucracy, and not in the debate between bureaucracy and post-bureaucracy-there is no computerized post-bureaucracy!!!

The hypothetical scenario of 'Fail-safe' is a fine and, at the same time, typical example of austere rule following in a situation of asymmetric information; the commander of the bombers could not confirm the attack order, but he nevertheless decided to follow the rules,

even though the application of the rules would mean the death of millions of people. In the novel, the disaster happened when discretion was not fully exercised, after the occurrence of a 'normal accident'; that is, of a systemic accident generated by 'multiple and unexpected interactions of failures' (Perrow, 1984).

In reality, on the other hand, a similarly catastrophic scenario of an accidental nuclear war never came true in more than 20 cases. This was partly due to a series of safeguarding processes and mechanisms; but most importantly, it was thanks to the responsible and sensible exercise of discretion, on behalf of those who were in the chain of command, that false alarms were eventually interpreted as such (Phillips, 2000). Even in an authoritarian environment like the military, where control, discipline and rule following are of paramount importance, the exercise of discretion in the cases of the false alarms proved to be tremendously beneficial.

In any case, rule bending does occur in the military, as well as in other, less authoritarian environments, like for example bureaucracies. Although the view of modern bureaucracies as 'total' organizations is largely exaggerated, it is still interesting to see how non-inclusiveness as a fundamental property of bureaucracy, rule-bending behaviour and discretion, can co-exist under the same theoretical umbrella; namely that of bureaucracy. We were also keen to see whether non-inclusiveness involves brave assumptions regarding the mechanics of bureaucracy and the use of discretion within a bureaucracy.

It could be argued that, sometimes, rule-bending behaviour, discretion and autonomy are present in contemporary organizations and bureaucracies, only because they are not allowed; in such a case, the condition of their possibility is their impossibility and therefore, these phenomena are possible, only because they are impossible (Luhmann, 2002).

Modern bureaucracies are the creation of empirical hybrids that have been developed over time, and which move away from the Weberian ideal type and its classical definition of bureaucracy. In today's 'soft' bureaucracies, management uses discretion and autonomy, essentially as buzzwords and 'management fads' (Abrahamson, 1996; Kieser, 1997; Samonas and Angell, 2009). Terms like 'regulated' and 'professional' autonomy or 'active discretion,' are coined to grasp different perspectives of the granting of a degree of limited personal judgment and assessment to staff (Galligan, 1986; Hoggett, 1996; Samonas and Angell, 2009). The metaphor of 'the hole in the doughnut' illustrates that discretion is an open area

surrounded by a belt of restrictions. and by extension that there can be no discretion without rules, as there can be no 'hole' without a 'doughnut' (Dworkin, 1977; Samonas and Angell, 2009).

The complexity and multidimensionality of the tension between rule compliance and rule bending are similar to the ever-lasting problems of existential philosophy, which cannot possibly be resolved. However, there are certain pragmatic dimensions of this problem, that one can easily identify. In the Statesman, for example, it is suggested that it is impossible to devise laws or rules in general, which are proper for everyone (Plato, 1995):

> *"And so we must believe that the law-maker who is to watch over the herds and maintain justice and the obligation of contracts, will never be able by making laws for all collectively, to provide exactly that which is proper for each individual."*

So, there will always be some people who will not agree and/or accept the rules, either because they feel that the rules are not fair or appropriate, or because the rules do not favour and/or serve their organizational political interests. The alignment of different individual's interests and the accommodation of their values under commonly accepted laws is the quintessence of politics.

Bureaucracy is not an apolitical institution and, in fact, politics do play a major role in its overall operation. In bureaucracy, 'the degree of bureaucratization is a function of human striving' and the 'outcome of a contest between those who want it and those who do not,' and it can even lead to an autocratic type of organization (Adler and Borys, 1996; Gouldner, 1954). This political dimension of bureaucracy directly opposes the Weberian bureaucratic property of non-inclusiveness, according to which, the individual cannot possibly reflect on his role and his position within the bureaucracy.

In practice, bureaucracy, just like any instance of society and organization, operates in a 'realpolitik' mode, and in direct contrast to what the Weberian ideal stands for. The 'bureaucratic balance of power principle,' which refers to policy making is indicative of this (Wheeler, 1970):

"When a conflict over alternative policy proposals arises, they tend to be evaluated on the basis of the extent to which they imply an alteration in the relative power positions of the various subsystems affected. That decision is favored which least disrupts the existing balance of power among the subsystems."

In this context, certain instances of rule-bending could well be considered as a purely political behaviour, or as a manifestation of resistance to power (Farrell and Petersen, 1982). So, it could be argued that in a bureaucratic system, rules do not necessarily change to maximize its efficiency or to reflect to changes of the environment; rather, changes in the rules of bureaucracy are part of a wider a political process, in which the 'will to power' of the individuals comprising the bureaucracy plays a central role (Nietzsche, 1968):

"Humans create the tensions, conflicts and dynamism in bureaucratic structures and, through the exercise of their capacities, reshape the internal structures of organization." (Jaffee, 2001)

Bureaucracy comes full circle by constantly reconfirming and perpetuating its closed-ness, without evolving and without essentially transforming its modus operandi. In the 'glass cages and glass palaces' of 'soft' bureaucracies, the fallacy of non-inclusiveness is more evident than ever before (Gabriel, 2005). That is why, the non-inclusive forms of human involvement in organizations need to be radically redefined (Kallinikos, 2006). We believe that this redefinition is possible and feasible in the context of autonomy, and we argue that through autonomy, modern organizations can deal with the shortcomings of bureaucracy. But most importantly, through autonomy, organizations will become able to address the risks associated with computerized bureaucracy; that is, both the opportunities and hazards that lie ahead (Angell and Samonas, 2009; Samonas and Angell, 2009).

Let us clarify that we only provide mere descriptions and suggestions, rather than prescriptions, and in fact we're not promoting autonomy as a panacea. Nevertheless, we do argue that, especially in the context of organizational integrity, the qualities of autonomy are quintessential for the deterrence, correction, prevention, mitigation of risks, as well as for the recovery from a breach (Samonas and Angell, 2009). In this respect, autonomy should be seen as a necessary e-ville; that is, as an integral part of any preventive and curative security

policy, and an unavoidable step towards organizational integrity. With autonomy, positive results cannot possibly be guaranteed in advance, because it is only after it is applied that we can know if and how successful it has been; and this characteristic of autonomy is very much similar to that of hazard (Angell and Ilharco, 2004). Therefore, autonomy should be treated itself as a risk (opportunity and hazard). Of course, this tautological statement means much and nothing; it is a pragmatic statement that bluntly recognizes the inherently paradoxical nature of categories, terminologies and methodologies, while at the same time appreciating the added value they offer when they are used sensibly.

It seems that there is a longstanding need for elements of the notion of autonomy that we have presented in this paper, so the issue of autonomy is certainly not new (Harrell and Alpert, 1979). However, in organizational settings, autonomy is either banned or put up with, and sometimes even genuinely encouraged, and in this latter case it can indeed lead to innovation and evolution. In an organizational context, the concept of autonomy stresses the need for the development of an 'organizational collective imagination', an 'organizational imaginary' in Castoriadis's terminology, that signifies the creative ability of the organization, and exploits the richness of human capacity (Robinson and Aronica, 2009). As Ken Robinson notes in describing the value and mechanics of creativity, being wrong does not necessarily mean that someone is creative; creativity is all about 'being prepared to be wrong' (Robinson and Aronica, 2009).

In business, failure is a prerequisite of invention and failure-tolerant leaders are those who help staff overcome their fear of failure through their words and actions, thus creating an organizational culture of 'intelligent risk' that leads and nurtures sustained innovation. (Farson and Keyes, 2002). Staff are then preoccupied with learning and reflecting on their experiences, rather than solely thinking in terms of success or failure (Farson and Keyes, 2002). In this educational process, mistakes can substantially enhance individual and organizational learning, and become the 'signposts on the road to success' (Farson and Keyes, 2002).

However, autonomy can also turn into a substantial hazard. In business environments, for example, it has been noted that too much autonomy can sometimes have adverse effects on the team productivity (Sethi et al., 2002). Recent research findings indicate that, within limits, when senior management is closely monitoring a team, then the team immediately appreciates

the importance of their project (Sethi et al., 2002). Of course, autonomy does not imply complete lack of supervision or responsibility, quite the contrary. So, it is essential to stress once again that a pragmatic and sensible approach is required and a balance between neglect and excessive control should be sought (Samonas and Angell, 2009; Sethi et al., 2002).

Autonomy needs to be treated and used with care for yet another reason; theories of autonomy have been traditionally developed within a radical humanist paradigm and so, they fundamentally lie on an idealist belief in the human potential (Burrell and Morgan, 1985). As the term 'idealist' implies, this belief is lacking essential practical considerations about the human nature and potential. So why and how can autonomy contribute to the mitigation of security risks and ultimately, the strengthening of organizational integrity?

We argue that the application of certain aspects of the Castoriadian 'autonomy' in organizations could lead to an ongoing humanistic educational process that is based on self-reflection and self-governance (Rogers, 1969). Our view of management, and security management in particular, is clearly inspired by the values of radical humanism (Burrell and Morgan, 1985; Dhillon and Backhouse, 2001). Furthermore, we recognize that scientific approaches and categorizations cannot be used as solutions because they are a problem in themselves (Angell and Ilharco, 2004). In this context, we suggest that epistemological anarchism can sufficiently address two highly important issues that are related to computer security (Feyerabend, 1987; Feyerabend, 1975). First, the complex and challenging nature of computer security, and second, the apparent demise of the Information Security Department in modern organizations, which has been recently brought to light in various particular cases (see for example, the case of Paul Moore at HBOS), where decent security professionals have been sacked just for doing their job (BBC, 2009a; b)!

We do believe that security awareness and training, even as they are being performed nowadays, are indeed important, however they fail to develop any key skills and competencies of staff and therefore, they are largely inadequate. Being informed is one thing; being ready to deal with security breaches and disasters when they happen, is something completely different. Organizations and firms really need to move a step forward; they need to cultivate security education and aim at actively engaging their staff in the security process. Security education should be a creative and ongoing process that should be ideally based on the creativity and imagination of staff.

The ultimate goal of the use of autonomy is to nurture 'autonomous managers,' rather than create 'managerial automatons.' The former have a great advantage over the latter; they can step outside the system and initiate a process of self-reflection, which can constructively help them in their thoughts, decisions and interpretations of the world. Individual and collective understanding of the issues of security and systemic integrity in organizations is of paramount importance, especially since 'no law or ordinance is mightier than understanding' (Plato, 2005). On this basis, we do stress the need for security awareness in organizations (Johnson, 2006; Karyda et al., 2005; Leach, 2003); but most importantly, we strongly emphasize the need for an elaborate and 'humanistic' security education programme that will actively engage both the management and the staff alike, in the endless pursuit for organizational and systemic integrity (Rogers, 1969; Samonas and Angell, 2009).

6 Conclusion

> *"Nobody seems to know much about how organizations operate in untroubled times; the day-to-day, routine existence of organizations is not given much attention. In the world of theories, organizations seem to hop along from crisis to crisis and to do nothing very interesting in between."* (Weick, 1995)

It could well be argued that bureaucracy is a paradigm of organizational structure, and as such, it is a set of epistemological and ontological presuppositions and properties (Garvey, 1997); therefore, it is a mere description of the world, or in Castoriadis's words, a symbolic signification (Castoriadis, 1987). As he argues, 'total order' and 'total disorder' are limiting concepts of reality, rather than components of the real, and this practically means that if they are considered in absolute terms, they become 'illegitimate' and 'incoherent' (ibid).

In this respect, every human action (even the very writing of these lines) and much more, every observation and interpretation of human action, is solely based on categories; that is, on 'subjective' first-order observations, where the observer has no other choice, but to come up with categories in order to make sense of the world (Luhmann, 2002). However, the issue is whether these distinctions and categories are of certain utility value to the observer, and if they are appropriate for the context in which they are used. The purpose of our analysis of bureaucracy is clearly not to suggest that the categories upon which bureaucracy has developed are useless or inappropriate, quite the contrary. Bureaucracy is an outstanding

mode of management, but only in 'normal,' 'regular' conditions and situations (Angell and Samonas, 2009; Samonas and Angell, 2009). However, we do want to stress that in theory, in the first instance, bureaucratic theory is lacking consistency, just like any theory does (Luhmann, 1995; 2002).

Computers can deal with objectivity, that is with well-structured problems, with an amazing speed and in detail, but they cannot cope with subjectivity, subtlety and ambiguity (Angell and Ilharco, 2004). Computerization is a 'prisoner of societal consequences,' which cannot possibly be controlled, regardless of the management's initiatives and good intentions (Angell and Ilharco, 2004). However, there are still many managers who believe that most of their problems can be sufficiently addressed by the computerization of organizational tasks, processes and ways of problem-solving (Angell and Ilharco, 2004; Inbar, 1979).

Computers systems do become autonomous at some point, and they impose their own *modus operandi*, which need to be absolutely accepted and followed by all staff. As we have argued in our trilogy of papers, computerized bureaucracy can and does generate a whole range of risks that are sometimes difficult to mitigate. On the other hand, the partial or full computerization of organizational processes and decision-making can create grave problems for organizations, and this is clearly illustrated in the countless errors in systems design that never cease to occur.

According to Angell (2004), computerization has gradually led managers to an 'obsessive compulsive neurosis' that urgesthem to strive constantly to tidy up the world; in other words, to 'strive for failure' (Ciborra, 2002). Neurotic organizations usually attract tidy minds and in this way, they ultimately reinforce organizational neuroses (Angell and Ilharco, 2004; Kets de Vries, 1991; Kets de Vries and Miller, 1984). The problem, of course, is that the intrinsic ambiguity and complexity, which are prevalent in organizational environments, cannot be dealt with the functionalist methodologies that are still out there; the neo-functionalist methodologies are dressed with the clothes of 'groundbreaking' frameworks that essentially rely on superficial accounts of individuality, management, organization and society itself.

Plans, intentions, or technologies do not drive action, on the contrary they misguide it. Action is driven by the disposition in which the company, as a whole, grasps the environment; action is influenced by describing, thinking and reflecting, activities than can transform the ongoing

activity of living beings, because 'thinking changes the world' (Angell and Ilharco, 2004; 2009; Heidegger, 1984). This is the spirit of autonomy, and this is the essence of its contribution, not only for security professionals, but also for organizations as a whole.

7 References

Abrahamson, E. (1996) Management fashion, management fads, *Academy of Management Review,* **21,** 1, 254-285.

Adler, P. and Borys, B. (1996) Two Types of Bureaucracy: Enabling and Coercive, *Administrative Science Quarterly,* **41,** 1, 61-89.

Aeschylus (1991) *Seven against Thebes: Translated by A. Hecht and H. H. Bacon,* Oxford University Press, New York.

Angell, I. O. and Ilharco, F. M. (2004) Solution Is the Problem: A Story of Transitions and Opportunities, In *The Social Study of Information and Communication Technology: Innovation, Actors, and Contexts*, (Eds, Avgerou, C., Ciborra, C. and Land, F.) Oxford University Press, Oxford, pp. pp. 38-61.

Angell, I. O. and Ilharco, F. M. (2009) Dispositioning IT All: Towards a Theory For Thriving Without Models In *Bricolage, Care and Information Systems: Claudio Ciborra's Legacy in Information Systems Research*, (Eds, Avgerou, C., Lanzara, G. F. and Willcocks, L.) Palgrave Macmillan.

Angell, I. O. and Samonas, S. (2009) The Risk of Computerized Bureaucracy, *Journal of Information System Security,* **5,** 2.

Angell, I. O. and Smithson, S. (1991) *Information systems management,* Macmillan, London.

Ashby, W. R. (1958) *An introduction to cybernetics,* Chapman and Hall, London.

BBC (2009a) *HBOS whistleblower probe demanded,* In BBC News, http://news.bbc.co.uk/1/hi/uk_politics/7882119.stm, 11th February

BBC (2009b) *Sir James Crosby resigns from FSA,* In BBC News, http://news.bbc.co.uk/1/hi/business/7883409.stm, 11th February 2009

Blau, P. M. (1963) *The dynamics of bureaucracy; a study of interpersonal relations in two Government agencies,* University of Chicago Press, [Chicago].

Burdick, E. and Wheeler, H. (1962) *Fail-safe,* McGraw-Hill, New York,.

Burrell, G. and Morgan, G. (1985) *Sociological paradigms and organizational analysis : elements of the sociology of corporate life,* Gower, Aldershot.

Castoriadis, C. (1987) *The imaginary institution of society,* Polity, Cambridge.

Castoriadis, C. (1994) The logic of magmas and the question of autonomy, *Philosophy Social Criticism,* **20,** 1-2, 123-154.

Castoriadis, C. and Curtis, D. A. (1988) *Cornelius Castoriadis, political and social writings, Vol. 1,* University of Minnesota Press, Minneapolis.

Castoriadis, C. and Curtis, D. A. (1992) *Philosophy, politics, autonomy,* Oxford University Press, New York.

Castoriadis, C. and Curtis, D. A. (1997) *The Castoriadis reader,* Blackwell, Oxford.

Ciborra, C. (2002) *The labyrinths of information: challenging the wisdom of systems,* Oxford University Press, Oxford.

Clegg, S., Courpasson, D. and Phillips, N. (2006) *Power and organizations,* SAGE Publications, London ; Thousand Oaks, CA.

Courpasson, D. (2000) Managerial Strategies of Domination. Power in Soft Bureaucracies, *Organization Studies,* **21,** 1, 141-161.

Courpasson, D. and Clegg, S. (2006) Dissolving the Iron Cages? Tocqueville, Michels, Bureaucracy and the Perpetuation of Elite Power, *Organization,* **13,** 3, 319-343.

Courpasson, D. and Dany, F. (2003) Indifference or Obedience? Business Firms as Democratic Hybrids, *Organization Studies,* **24,** 8, 1231-1260.

DeHart-Davis, L. (2007) The Unbureaucratic Personality, *Public Administration Review,* **67,** 5, 892-903.

Demetis, D. and Angell, I. O. (2007) The risk-based approach to AML: representation, paradox, and the 3rd directive, *Journal of Money Laundering Control,* **10,** 4.

Dhillon, G. and Backhouse, J. (2001) Current directions in IS Security research: toward socio-organizational perspectives, *Information Systems Journal,* **11,** 2.

Du Gay, P. (2005) *The values of bureaucracy,* Oxford University Press, Oxford ; New York.

Dworkin, G. (1988) *The theory and practice of autonomy,* Cambridge University Press, Cambridge.

Dworkin, R. (1977) *Taking rights seriously,* Harvard University Press, Cambridge, MA.

Farrell, D. and Petersen, J. C. (1982) Patterns of Political Behavior in Organizations, *The Academy of Management Review,* **7,** 3, 403-412.

Farson, R. E. and Keyes, R. (2002) The Failure-Tolerant Leader, *Harvard Business Review***,** August, pp. 64-71.

Feyerabend, P. (1987) *Farewell to reason,* Verso, London.

Feyerabend, P. K. (1975) *Against method : outline of an anarchistic theory of knowledge,* NLB, London.

Fineman, S., Sims, D. and Gabriel, Y. (2005) *Organizing and organizations,* Sage, London, UK ; Thousand Oaks, CA.

Fleming, P. and Spicer, A. (2007) *Contesting the corporation : struggle, power and resistance in organizations,* Cambridge University Press, Cambridge.

Foucault, M. (1979) *Discipline and punish: the birth of the prison,* Penguin, Harmondsworth.

Foucault, M. and Rabinow, P. (1986) *The Foucault reader,* Penguin, Harmondsworth.

Gabriel, Y. (2005) Glass Cages and Glass Palaces: Images of Organization in Image-Conscious Times, *Organization,* **12,** 1, 9-27.

Gabriel, Y., Hirschhorn, L. and Allcorn, S. (1999) *Organizations in depth: the psychoanalysis of organizations,* Sage Publications, London ; Thousand Oaks, Calif.

Gaddis, J. L. (1987) *The long peace : inquiries into the history of the cold war,* Oxford University Press, New York.

Galligan, D. J. (1986) *Discretionary powers : a legal study of official discretion,* Clarendon Press; Oxford University Press, Oxford [Oxfordshire]; New York.

Garvey, G. (1997) *Public administration : the profession and the practice : a case study approach,* St. Martin's Press, New York.

Gezerlis, A. (2001) Castoriadis and the Project of Autonomy. A Review of The Imaginary Institution of Society, *Democracy & Nature,* **7**469-487.

Gouldner, A. W. (1954) *Patterns of industrial bureaucracy,* Free Press, New York.

Gouldner, A. W. (1957) Cosmopolitans and Locals: Toward an Analysis of Latent Social Roles.I, *Administrative Science Quarterly,* **2,** 3, 281-306.

Handy, C. B. (1993) *Understanding organizations,* Penguin, London.

Harrell, T. and Alpert, B. (1979) The Need for Autonomy among Managers, *The Academy of Management Review,* **4,** 2, 259-267.

Haworth, L. (1991) Review: Dworkin on Autonomy, *Ethics,* **102,** 1, 129-139.

Heidegger, M. (1984) *Early Greek thinking,* Harper & Row, San Francisco.

Hoffman, D. (1999) I Had A Funny Feeling in My Gut, In *Washington Post Foreign Service*, 10th February, Washington, D.C., http://www.washingtonpost.com/wp-srv/inatl/longterm/coldwar/shatter021099b.htm

Hoggett, P. (1996) New modes of control in the public service, *Public Administration, 74,* 1, 9-32.

Hopfl, H. M. (2006) Post-bureaucracy and Weber's "modern" bureaucrat, *Journal of Organizational Change Management, 19,* 1, pp. 8-21.

Hornby, A. S., Ashby, M. and Wehmeier, S. (2000) *Oxford advanced learner's dictionary of current English,* Oxford University Press, Oxford.

Inbar, M. (1979) *Routine decision-making, the future of bureaucracy,* Sage Publications, Beverly Hills.

Jaffee, D. (2001) *Organization theory : tension and change,* McGraw Hill, Boston.

Johnson, E. C. (2006) Security awareness: Switch to a better programme, *Network Security*, 2, pp. 15-18.

Kallinikos, J. (2004) The Social Foundations of the Bureaucratic Order, *Organization, 11,* 1, 13-36.

Kallinikos, J. (2006) *The consequences of information: institutional implications of technological change,* Edward Elgar, Northampton, MA.

Karyda, M., Kiountouzis, E. and Kokolakis, S. (2005) Information systems security policies: a contextual perspective, *Computers & Security, 24*246-260.

Kets de Vries, M. F. R. (1991) *Organizations on the couch: clinical perspectives on organizational behavior and change,* Jossey-Bass, San Francisco.

Kets de Vries, M. F. R. and Miller, D. (1984) *The neurotic organization: diagnosing and changing counterproductive styles of management,* Jossey-Bass, San Francisco ; London.

Kieser, A. (1997) Rhetoric and Myth in Management Fashion, *Organization, 4,* 1, 49-74.

Kropotkin, P. (1910) *Anarchism*, In The Encyclopaedia Britannica, 11th Edition, Cambridge University Press,

Leach, J. (2003) Improving user security behaviour, *Computers and Security, 22,* 8, 685-692.

Little, A. (1998) How I stopped nuclear war, In *BBC News Online*, 21st October 1998, Correspondence from Moscow, Russia, http://news.bbc.co.uk/1/hi/world/europe/198173.stm

Luhmann, N. (1993) *Risk: a sociological theory,* A. de Gruyter, New York.

Luhmann, N. (1995) *Social systems,* Stanford University Press, Stanford, Calif.

Luhmann, N. (2002) *Theories of distinction: redescribing the descriptions of modernity,* Stanford University Press, Stanford, Calif.

Morgan, G. (1997) *Images of organization,* Sage Publications, Thousand Oaks, Calif.

Nietzsche, F. W. (1968) *[Der Wille zur Macht.] The Will to power. A new translation by Walter Kaufmann and R. J. Hollingdale. Edited, with commentary, by Walter Kaufmann, with facsimiles of the original manuscript,* pp. xxxii. 576. pl. VIII. Weidenfeld & Nicolson: London.

Perrow, C. (1984) *Normal accidents: living with high-risk technologies,* Basic Books, New York.

Phillips, A. F. (2000) *20 mishaps that might have started accidental nuclear war,* http://www.peace.ca/20mishaps.htm, Last accessed on 23rd June 2009

Plato (1991) *Protagoras: Translated by C. C. W. Taylor,* Clarendon Press, Oxford University Press, Oxford; New York.

Plato (1995) *Statesman: Translated by J. Annas and R. Waterfield,* Cambridge University Press, Cambridge; New York.

Plato (2000) *Laws: Translated by B. Jowett,* Prometheus Books, Amherst, N.Y.

Plato, P. (2005) *Essential dialogues of plato,* Barnes & Noble Classics, New York, NY.

Robinson, K. and Aronica, L. (2009) *The element : how finding your passion changes everything,* Viking, New York.

Rogers, C. R. (1969) *Freedom to learn; a view of what education might become,* C. E. Merrill Pub. Co., Columbus, Ohio,.

Sagan, S. D. (1993) *The limits of safety : organizations, accidents, and nuclear weapons,* Princeton University Press, Princeton, N.J.

Samonas, S. and Angell, I. O. (2009) The Power of Discretion in IS Security, *Journal of Information System Security,* **5,** 4.

Sethi, R., Smith, D. C. and Park, C. W. (2002) How to Kill a Team's Creativity, *Harvard Business Review***,** August, pp. 16-17.

Sophocles (2003) *Antigone: Translated by D. Franklin and J. Harrison,* Cambridge University Press, Cambridge; New York.

Thompson, V. A. (1977) *Modern organization,* University of Alabama Press, University.

Toffler, A. (1970) *Future shock,* Bodley Head, London.

Unknown (2009) *Fail-safe*, In Encyclopædia Britannica, Encyclopædia Britannica Online, http://www.britannica.com/EBchecked/topic/200271/fail-safe, Retrieved February 09, 2009

Webb, D. (2001) *Some Consequences of the Future Development of Star Wars at Fylingdales*, Paper presented at "The consequences of Star Wars on US bases in Yorkshire" conference, held by Just Defence and Yorkshire CND, Leeds, UK, 31st October 2001, http://www.russfound.org/Launch/webb.htm

Weick, K. E. (1995) *Sensemaking in organizations,* Sage Publications, Thousand Oaks.

Wheeler, H. (1970) Democracy in a Revolutionary Era: The Political Order Today, *Occasional Paper of the Center for the Study of Democratic Institutions,* **Vol. III,** no 3, Santa Barbara, Calif.

Winner, L. (1977) *Autonomous technology: technics-out-of-control as a theme in political thought,* M.I.T. Press, Cambridge, Mass. ; London.

Wolff, R. P. (1970) *In defense of anarchism,* Harper, New York ; London.

Zuboff, S. (1984) *In the age of the smart machine: the future of work and power,* Basic Books, New York.