

Context-awareness, emotional tensions and operational risk perception

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Abstract

In spite of the emphasis on human failure, engineers and financial risk analysts tend to discuss operational risk without taking into consideration behavioural or micro-sociological aspects. The alternative approach presented here relies on the idea that the social construction of discursive frameworks and emotional tensions is a central aspect of what we call operational risk. The feeling that something might go wrong, if we don't do the right thing at the right moment, especially in technology-intensive organizational environments, is fundamental to operational risk perception. The perception of the risk of eventual failure stems, however, from a tension between belief and supposed evidence. We anticipate that something might occur, and this often implies emotional tensions. However, we can construe a situation only *ex post*, after we have experienced an event. We can show that this tension between imagination and interpretation, is also related to a tension between whether we believe that we need automatisms (i.e. rigid models of rules), or whether we believe that we need responsible behaviour through alertness and flexibility. In other words, the question is whether we prefer thinking in terms of model risks, or in terms of cognitive and behavioural risks as an implication of the management of complexity. Such choices depend very much on choices that agents have to make as a consequence of the perception of the social context in which they are called upon to operate. Emotions related to role perception and understanding of the position in hierarchical systems can be crucial in this respect. Restrictive stances and anticipation of constraints makes people feel that systems are discourse-sensitive, and thus they tend to prefer model risk. In the adverse case, when people think that alertness and flexibility in action can be combined with discourse-robustness of systems, they tend also to locate the sources of risks more in the direction of the complexity of systems, and thus more in the direction of cognitive competences (than in the direction of compliance to behavioural norms and operational standards). Conceptual frameworks which can be traced back to Perrow, Luhmann, Foucault and Elias can deliver the basis for the discussion of the behavioural settings which hinder context-aware actors to cope with this dilemma of choosing between model risk (related to discourse sensitivity) and complexity risk (related to discourse robustness). This line of argumentation can produce a relevant platform for a micro-sociological theory of operational risk.—

Operational risk perception

Reference to operational standards as a means to avoid unpredictable and not precisely specifiable organisational failures and subsequent reference to operational risks tend to become a dominant way of discursive embeddedness of action in safety and security-critical organisational environments, as well as in cases where losses from operational failures are expected to be very high and / or consequences irreversible. Technological intensity and tight coupling of performance to the quality of procedures, as well as the extent of eventual damage that may be caused as a result of procedural failures has created a new consciousness of organisational roles. The combination of procedural discipline with requirements for flexibility has in addition created new pressures on members of organisations who must cope with conflicting goals at the level of micro-management of situations but keep a constant eye on eventual damage to the overall organisational setting, by taking simultaneously into consideration strategic and tactical orientations of their superiors. In most performance-critical situations, pressure for compliance with supposedly success-promising institutional roles is growing, and subsequently operational risk management for the organisation raises social risks, and thus stress for the personnel. As a consequence, operational risk management standards have become a threat for everyday life in the social world of organisations, and at the same time an opportunity for those who are supposed to meet certain conventional behavioural standards. This influences significantly the emotional underlay and the emotional tensions related to the awareness of the features of spaces of social action and the fulfilment of social roles in organisational work environments. However, the threat is not only addressed in the form of anxiety to members of organisations at all echelons, but also to the organisation as a whole: the result can be forms of behaviour, which because of compliance and ritualistic handling of operational risk management discourses can produce risks with far-reaching implications, not only for the organisation itself, but also for its environment. All these outcomes that economists call 'negative externalities' but also complications in the relationship between the internal and the external environment of organisations, with sometimes devastating and irreversible consequences for complex societies, can be at least partially traced back to the embeddedness of action in discourses on operational risk, very often imposed by powerful actors like state authorities, rating agencies and regulators.

These powerful actors define also the discourses on risk. According to a top-down view, operational risk is related to the probability of an accident affecting the whole of the organisation (As we will see, a bottom-up approach to operational risk is more related to accidents affecting organisational roles conceived as social roles, and thus as accidents of the social world). Charles Perrow defines as an accident "a failure in a sub-system, or the system as a whole, that damages more than one unit and in doing so disrupts the ongoing or future output of the system" (Perrow, 1984: 66). However in the case of operational risk, occurrences are subscribed to the users and not to designers, and in this sense the user-organisation is the main stage of the eventual occurrences. Operational risk is a

concept related to organisational procedures. Focus on operational risk does not imply questioning technologies, it implies questioning modes of use. It is the estimated probability that a system might fail because of the un-previewed implications of decisions taken in the framework of formal organisations. Since one of the main characteristics of formal organisations is the explicitness of goals (despite the fact that this does not cover the whole story of purposive action in organisations), operational risks are always related to predictions of probabilities of deviations from goals set. This means that it is an inherent characteristic of all kinds of organisations, since no organisation can operate efficiently without the enrichment stemming from the informal aspects of its constitution and actual operation.

Estimating probabilities of operational failure and predicting deviations from organizational goals, as well as predicting the consequences and impact of supposedly undesirable effects is not a matter of individual subjectivity. Whenever people express themselves about organisational problems, focusing on implications either internal or external to an organisational setting, they take at the same time the risk of the exposure of their personal perception and feelings about a situation to the opinion of others. If they decide to dare to do so, they usually take into consideration the subjectivity of the others. Sensitivity to problems and imagination, as well as normative standards concerning the allowance of dramatisation of situations may be of decisive importance in this respect. This means firstly that operational risk, as any other kind of risk, does not exist without operational risk perception, and, secondly, that risk perception is a matter of inter-subjectivity, and subsequently stems from the structuration and dynamics of social contexts. This can have far reaching implications for the process of making decisions about undertaking action in the field of operational risk management. The perspective from which we understand risks, utter our risk perception and decide to undertake the appropriate action varies according to social and cultural dynamics of the settings and social networks in which we are placed.

This approach to operational risk can be, at least partly, traced back to Mary Douglas's frequently cited idea of socially and culturally bounded risk perspectives (Douglas 1996), as well to the distinction between extensional and intentional states of mind, as made by the philosopher Rudolf Carnap (1947), the economist Kenneth Arrow (1982) and the cognitive psychologists Daniel Kahnemann and Amos Tversky (various pertinent contributions in Kahneman / Tversky 2000). But what the latter approaches lack, especially if applied to settings of social and intra-organisational interaction, is an emphasis on the idea presented by Niklas Luhmann (1991; 1992), that all kinds of organisational decisions are bound to forms of communication, and consequently to decisions on communication. Luhmann went so far to state that all organisational decisions are communications. If operational risks stem from organisational decisions, then according to this view, they inevitably depend also on social communication, i.e. on the recursive relationship between our understanding of a situation and our understanding of how others might understand this specific or any other possible situation, and thus accept our pertinent utterances. However, this does not work without mobilising our

ability for empathy, as well as our ability to move the other towards listening to what we have to say, i.e. without rhetoric mobilising the intentionality of the other.

Discursiveness and operational risk management

Emotions are in this respect of crucial importance. If operational risk cannot be detached from risk perception and risk communication, then the question is why potential failures concern us and why we think we can do something about the situation through expressing those concerns to the significant others? As risks are related to extraordinary occurrences, it can be assumed that it is highly improbable to cope with this eventuality through procedural ritualism and through totally conventional conduct. Acting according to plans formulated under circumstances which differ significantly from the ones in which risk perception and subsequent emotional tensions emerge is perhaps not the wisest way to handle complex situations. Improvisation and creatively handling a rather unstable cognitive setting might be more appropriate.

Creativity in this respect is not something required only by charismatic operators and leaders. We need a creative stance in almost every situation, since without informal action (i.e. by sticking into formal and bureaucratic procedures) formal organisations paralyse, even collapse¹. Contrary to the widespread rhetoric of bureaucrats and middle management, we cannot be efficient just by operating according to plans. As Claudio Ciborra stressed (2002: 157), “plans, while providing sense or meaning to an action through a formalised representation of events, resources, and interactions over (clock) time, do not help cope with unexpected breakdowns and more generally emerging circumstances.” This view must be however extended, since emerging circumstances is not a characteristic solely of moments of crisis. Emergence is inherent to any organisational and operational procedure, at least as an implication of unintended consequences of action through shifts of symbols and resources in processes of complex interaction. Further, the need for informal action, even if this is related to tacit knowledge or non-discursive practices due to suppression of feelings and thoughts, can create deviations from plans and thus the need for short-term micro-management of situations. In this sense normality, defined as acting according to plan, is rather exceptional. People do somehow improvise, and this improvisation can not be productively accomplished without elaborating emotions. The latter is even more crucial, whenever we try to disguise non-conventional handling of situations, especially of complex ones, by disguising our action with apparently conventional role-playing². This aspect of improvisation is however not something that immediately provokes positive associations if related to problems of technology-intensive organisational systems characterised by “interactive complexity” and

¹ This view belongs to common knowledge among post-formalistic organizational theorists.

² Information economists would understand this as a situation of moral hazard (Molho 1997).

“tight coupling”. These terms can be found at the core of Charles Perrow’s sociology of “normal accidents”.

The main problem in Perrow’s approach is interactive complexity. With this concept he understands the cumulative interactions between occurrences of failure, which instead of outbalancing negative effects, they intensify problems through the accumulation of complications (Perrow, 1984: 4-5). We must stress here that interactive complexity appears not as a user-related, but as designer-related problem. The hidden assumption in this case is that the undesirable scenarios can not be easily anticipated by the designers and the planners of system procedures. This is not their strength, since they are impregnated by the mentality of heterogeneous engineering according to which it renders possible to “design” the user as a performer of a set of pre-specified operational roles. Compliance with these pre-specified roles and role-plays, makes them to robot-like parts of the system. As a consequence of such heterogeneous engineering design, the perception of negative effects caused by interactive complexity is expected to lead to ex-post (corrective) action which includes re-engineering of both the devices and the users³. Interactive complexity is crucial according to Perrow, because of tight coupling and in addition because of time-criticality of operations in certain systems. He stresses also that the more tight coupling combines with time-criticality, the more we are facing a sliding into irreversible conditions, as well as into cognitive complexity we cannot any more cope with.

However, the main problem, from a sociological point of view, is the discrepancy between technological systems and the social world. According to Perrow (1984: 317), in the real world we operate in webs of loosely coupled events which do not require complete accuracy and thus we can handle situations with more or less working heuristics and approximations. In contrast, the way we are socialised to encounter our every-day social world does not equip us with the skills we need to perform according to standards of precision set in technological worlds that are tightly coupled by engineers and managers⁴. We need to be trained and disciplined, in order to comply with these standards⁵. At the same time, this pressure diminishes our potential towards independent and creative action which seems to be necessary in extraordinary situations of normal accidents emerging from not quite understandable interdependencies among of failures (Perrow 1984: 10). Pressure for quick reactions lead to rather standardised modes of thought according to conventions prevailing in this particular setting. Here Perrow comes closer to what one

³ Engineering and re-engineering the user is one of the central problems in the discussion on heterogeneous engineering introduced in the social studies of science and technology by theoreticians such as Steve Woolgar, John Law, Lucy Suchman and Peter Checkland.

⁴ Niklas Luhmann points that this “causal enclosure” of systems differentiates technological constructs and artifacts from social systems (Luhman 1991).

⁵ Almost all recent, “post-formalistic” approaches in the sociology and social psychology of organisations, as well as in the sociology of technology, converge towards the conclusion that this is not possible in most cases. There is also enough evidence in this direction from research in engineering psychology.

may call the issue of model risk. Although he does not use this term, model risk in his approach is related to technological fixes, institutionalisation of practices and expertise. As he puts it: “Technological fixes in the systems, including safety devices, sometimes create new accidents, and quite often merely allow those in charge to run the system faster, or in worse weather, or with bigger explosives. Some technological fixes are error reducing ... But other technological fixes are excuses for poor organization or an attempt to compensate for poor system design” (Perrow (1984: 11). The same applies to expertise which is often based on the advantage for quick reactions and decisions given by well-formed preconceptions of the expert. Whenever expertise, either personified or in the form of technological expert systems prevails, we run into model risk based on the fact that expertise becomes more important than insight (Perrow 1984: 318-319).

Perrow uses then Geertz’s concepts (Perrow 1984: 328). By using Clifford Geertz’s ideas Perrow (1984: 328) goes along to state that from the point of view of dominant technological expertise, discourse on risk is based on a “thin”, and not a “thick description” which “recognizes subjective dimensions and cultural values and, in this example, shows a scepticism about human-made systems and institutions, and emphasizes social bonding and the tentative, ambiguous nature of experience. A thick description reflects the nature of system accidents, where unanticipated, unrecognizable interactions of failures occur, and the system does not allow for recovery.” What can one critically remark to these views of Charles Perrow is that this is not the only possible inference which can be drawn from these thoughts: The problem is whether tightly coupled and discourse-sensitive human-made systems designed on the basis of heterogeneous engineering are appropriate for managing operational risks. This question is related to the assumption that such systems shrink discourses to expertise and thus eliminate reflective practices on the basis of which we could cope with accidental conditions. However, contrary to Perrow’s perspective, human-made systems are not necessarily discourse-sensitive; they can be very well discourse-robust⁶. Perrow has developed a theory of discourse-sensitive systems, where operational risks can be reduced to model-risks. Discourse-robust systems function in a different manner. People in them reflectively encounter situations and (in Donald Schön’s words) manage messes. The risk in discourse-robust systems is that social fields of creativity and ordered improvisation can under circumstances shrink into non-creative fields of convention and compliance, and thus acquire the disadvantages of model risk, but without the centralized control mechanisms stemming from the design of discourse-sensitive systems. The break-down of fields of creativity leads also to a break-down of horizontal communication and co-ordination. If there is neither horizontal nor vertical communication, there are no

⁶ With the terms discourse-sensitive, respectively discourse-robust we understand the variation of degrees of disturbance of stability of systems due to the expressivity of the human factor involved in systems operations. Discourse-sensitive systems would in the extreme case collapse even with the slightest deviation of humans involved from demonstrating total robot-like compliance with formal rules and technical prescriptions. Discourse-robust systems are characterized by the hyper-stability of open system architectures and “push (information) technologies”.

decisions. Operational risk emerges then from a gap of decisions. This is very often the case when the informal fields of action in organisations collapse.

Emotional involvement and technologies of the self

Decision gaps, as a consequence of the collapse of informal fields of action, are due to problems of emotional tensions. Calculative rationality, as Antonio Damasio (1994) has shown, is by no means sufficient to cope with situations where we have to take decisions, and especially risky ones. These thoughts if taken into consideration can alter our attitude towards operational risk management. We cannot cope with operational risk if we consider the actor as a “cognitive robot” who learns about circumstances, and plans or reacts to emergent conditions. Coping with situations and the problems they pose to involved agents requires the right mood without which orientations to cognitive resources and their exploitation can either work in the wrong direction or even break-down. Situated action depends on the situation of the actor, as defined specifically by her moods (Ciborra, 2002: 160). Moods are very fluid and undulating according to varying situations. However, if we restrict our observations to organisational settings, the range of relevant situations is not infinite and this restricts also the range of dominant moods. Put in a different perspective, the spectre of events producing situations, the perception and elaboration of which influence the emergence of moods, is characteristic for the organisational climate and the dynamics of the organisational culture. The dominant organisational culture corresponds to a dominant set of moods which tend to be reproduced over a longer time span. These more enduring sets of moods constitute emotional states which interact with the processes of emergence of situations. Situated moods, and situated action are embedded in these emotional states comprising sets of possible and more frequently appearing moods. As Ciborra points out, (2002: 160-161), “When we encounter the world in a situation, certain things, people or circumstances matter. This ‘mattering’ is grounded in one’s affectedness. Hence affectedness discloses the world as a threat, boring or exciting. It sets the stage, shaping problem definition, solving, design, and action.”

The main aspect here is the relationship between emotions and forms of social interaction. For the emergence of emotional conditions, the anticipation of the reactions of the significant others, as well as forms of objectification, are of decisive importance. There have been extensive discussions in the literature concerning the propensity of actors towards regulating their feelings to fit in the normative frameworks which are the structural make-up of the situations. Freund (1998) points out that if these normative pressures set conflicting demands upon us, then we may feel “dramaturgical stress”. The idea here is that if internal drives conflict with the external ones, if our intention to internalise conditions in the framework of attempted “technologies of the self” do not really work because of conflicting motivations, then ambivalence and uncertainty can make us feel ill-equipped to deal with the situation. This implies a greater self consciousness and subsequently a loss of the ability to spontaneously adapt to the situation

by encountering the institutional setting and the role-games as if they were familiar. We then start monitoring our own feelings and in addition we are very much preoccupied with pretending roles which are not well accommodated in the world we are socialised in. Organisationally successful people can disguise their feelings and pretend that they are someone else's self, a self which meets the standards emerging from the obvious characteristics of the normative framework, according to the common understanding of involved participants. But these forms of "successful" behaviour are not necessarily creative and productive for the organisation. The easiest way to pretend is through hiding uncertainty and through compliance to dominant conventional roles and not through a creative handling of the situation.

Whereas conventional behaviour and compliance requires hiding emotions, creative behaviour and improvisation requires emotional expressivity and the energy for influencing the situation. If one does not possess the social capital for setting the stage, or this social capital cannot be created in the context of network dynamics, then we may have a conflicting, insulting or humiliating situation for the non-conventional subject who is not in the position to develop the appropriate rhetoric to cope with the appraisals of situational stimuli. In this sense emotions depend on socially constructed discourses on improvisation, either in order to comply, or in order to innovate. In either case, emotions are tightly linked to situated expressions of approval or disapproval of role-identities as they appear and are interpreted in spatio-temporal and in network contexts. There is a correspondence – not a one-to-one – between emotional experience and expression on the one hand, and qualitative characteristics of role-identities on the other. Positive emotions are normally related to feeling at ease with a role identity, which means a combination of internal drives and external acceptance. "Normally" means, that most people do not possess the self esteem which allows them to encounter or bypass negative psychological sanctions. Negative emotions as an implication of context-awareness can emerge either in situations where the disguise of our feelings in order to comply with standards set is not successful, or because our internal drives do not allow us to mobilise a considerable potential towards pretending, and thus our role identity remains in conflict with the situation and the context. Private emotions do not make sense without the elaboration of identities as a problematic emergence out of contradictory situations, without an encountering of the problem of the self as it appears in situations of social interactions.

This is also one of the reasons why moods change. The fluidity of moods depends very much on the changing configurations of self-identities and profiles of situations of social interaction which impose upon individuals and groups varying normative pressures. In cases of successful interaction the inner drives stemming from primary socialisation which create the emotional underlay of roles correspond to the external normative pressures which contribute to the expressive consolidation of role-sets in specific situations. Or at least actors can find a way to compromise and rationalise and make these elaborations acceptable to the significant others. Then, interactants experience emotions which are characteristic to their role-identities, and these are mostly positive emotions. In other words, positive emotions emerge out of the confirmation of role identities, which means

that there can be cases where a correspondence between motivation and normative pressures is possible. But not only motivations and normative pressures are there, but also tendencies towards “rationalisation” in the Freudian sense of the word. Actors try to compromise between the motivations and the normative pressures on the one hand, and the realities they perceive on the other hand, by attempts to persuade themselves that they have a place in the situation. In other words, they try to create rationales, and on the basis of these rationales to create their roles and put them on a stage they try to set. In this sense the way actors try to compromise between perceptions of realities and configurations of motivations and normative pressures is very close to what Michel Foucault calls “technologies of the self”.

Technologies of the self according to Foucault are ways in which people put forward, and police, their “selves” in society; and ways in which they are enabled or constrained in their use of different techniques by available discourses. In this sense technologies of the self are also expressions of context-awareness (and consequently, in the case of intra-organisational contexts, also of operational risk perception). This notion of the self as emerging out of self-disciplining, as well as out of projecting itself onto rationalising discourses, reverses also the idea of governmentability. Hierarchies and the imposition of standards, following orders and reproducing stereotypical perceptions of the powerful and dominant figures and groups is, according to this view, only to a limited extent due to the strategic conduct of the ones holding positions of power or the social capital attested by their placement in high-rank institutional roles. This strategic conduct, even if it is bound to explicit and not to tacit practices, it is also bound to discursive practices of the involved participants aiming to self-adaptation and self-conditioning in order to make them psychologically fit for the reproducing sets of situations they encounter. This up-side-down approach to governmentability, besides veering Foucault’s theoretical labour to an exit from the blockage of a theory of action characteristic of his earlier work, creates a platform for the micro-sociological study of macro-phenomena of power. He includes to his analytics of power the study of individual intentionality, and embeds intentional states in processes of self-control. These processes show the capacity of individuals to creatively comply with constraints and opportunities as perceived by their angle of perspective. This is then, how individual actions and discourses relate to processes of subjectification which are the basis of political rule and economic exploitation (Foucault 1985: 6 and 1988).

Technologies of the self and technologies of domination stand in a recursive relationship. Technologies of domination and imposition upon individuals (either from objectified or personified agents) are viable only if linked-up to processes by which the individual acts upon him/herself. Conversely, technologies of the self can only emerge from a context where structures and practices of coercion and domination prevail. It makes sense to stress here that this should not be considered only as applying to grand politics; these practices can be very subtle, as in primary socialisation or in processes of everyday social intercourse. Governance, and in that matter organisational governance, is not an issue of top-down governing of people by forcing them to comply with standards or to follow orders. The question is not what the intentions and expectations of the governing bodies

and individuals are, but a question of how the self places himself in the situation by constructing and modifying his practices and discursive elaborations of the perceived situation (Foucault 1993: 203-204). This is very crucial to the emotional underlay of conditions of governance. Technologies of the self are technologies of emotional adjustment, of efforts of oneself to persuade himself that he or she should feel in such and such a way, and that one must feel good in accepting to feel in this way.

In this sense Foucault's technologies of the self are very close to processes of internalisation as they appear in Norbert Elias's theory of the civilising process. One important aspect of the civilising process as conceived by Elias is the selective hiding of emotions behind public utterances and expressions of the self. In this sense, according to Elias, with civilisation there is a growing tendency towards a division between the intimate and the public sphere (we can hereby understand as "public" also limited, with few nodes but dense, spaces of networking and social intercourse among people with weak ties). Elias stresses that one of the interesting aspects of this process is that this division becomes something obvious and objectified, so that people do not realise it; it remains outside of explicit consciousness (Elias 1977, Vol.1: 261-262). Civilisation becomes then a long-term transformation of external pressures into internal ones. This long term view is linked to macro-processes taking place in macro-fields. However if we take this down to micro-fields where we encounter forms of internalisation which stabilise social figurations, then there can be a discourse on emotions and on hiding emotions which rather quickly transform a conflictual situation into a consensus driven one. Civilising processes at a lower spatio-temporal scale are then related to technologies of the self. There comes another aspect of Elias figurational sociology, which refers to the problem of socially constructed knowledge as a consequence of processes of alternation between involvement and detachment. As knowledge depends on the way people socially construct themselves through discursive utterances apt to cope with situations, the whole process depends also very much on how people externalise external pressures and then integrate them in their discursive utterances. According to Elias, this relationship between external pressures, internalisation and expressivity depends on the need felt by individuals to acquire and retain social prestige, bound to contextual processes. In the second volume of his classical by now work on the civilising process he is writing that the shier angst of even partial loss of social prestige is one of the strongest movers towards trans-mutating external pressures into internal ones (Elias 1977, Vol.2: 366). The logical consequence, which is also a challenge to micro-sociological theory, is then that people have to accommodate themselves, to place themselves in the situation through the appropriate discursive elaboration.

Involvement and detachment is of crucial importance for the understanding of practices in emerging and evolving in performance oriented organisational contexts, in which tensions between compliance and improvisation are constantly in the agenda. Creativity and improvisation require detachment, at least to some extent. Under conditions of creative "flows" and handling of situations, we are not part of the situation. Our Ego is detached from the group and handles objects. This is possible because we are not struggling to be

accepted, there is no need to be preoccupied with any eventual loss of prestige. We are acting as if we were enjoying our marginality, we don't need to manage moral density. We are handling situations and objects as something external, we are detached from them. If we want to describe Elias's view in Foucauldian terms, then we can say that in situations of detachment we do not seek to apply predominantly technologies of the self, but more technologies of objects. This is easier if we adopt a non-conformist stance and let the others to accept it, without trying to use any rhetoric of compromise. If there is any need for technologies of the self, then these are the ones which allow someone not to suffer because of being non-conventional. One can draw from this the conclusion that performative practices presuppose a certain degree of detachment. In Elias's terms (Elias, 1983: 30), whereas understanding the structure of a physical entity or of an artefact we don't need to know how does one feel as being one of its parts, this does not apply to social groups. In order to understand the functioning of human groups it is indispensable to know from the point of view of the insider how people perceive and experience their own group and other groups; and this seems to be impossible without active participation and involvement. This requires emotional settings and their discursive elaboration, empathy, imagination and the intelligent use of metaphors. The discursive elaboration of emotional settings requires a certain degree of distanciation and objectification; empathy requires hypothetical involvement. Thus we would need a constant movement between involvement and detachment, i.e. between a point of view from which we assume something may occur in an emotionless field which is and cannot be ours, and the opposite, a field which can not be in any case objectified, because it is overwhelmed by our very emotions. (Elias 1983: 56). What creates a link between context-awareness and emotions is then involvement. The problem can be solved by detachment. But a relevant solution works in a realm of a dynamic balance between involvement and detachment. Without this it seems that operational risk management at the level of micro-fields is rather impossible. If we are too detached, our social practices can render irrelevant, although they can render "technically" efficient. Involvement diminishes efficiency, because we need too much energy to place our selves among others and to persuade them to accept us, especially if we are not ready to give up our individual expression and adopt other people's stances by applying the appropriate technologies of the self, but raises relevance. Adopting other peoples stances, or pretending to do so is very often the main problem caused by context-awareness. Hierarchies, regulatory sanctions (soft or hard), as well as normative pressures can be the source of the problem or intensify it. Hierarchies play a crucial role in any case. They are one of the main sources of the emotional make-up of organisational contexts, and at the same time very often the source of the social mindscapes which connect context-awareness with perception of risks (personal as well as organisational risk)⁷.

⁷ As I have shown elsewhere, hierarchies can be the source of context awareness which leads to technophobia in organizational environments (Kyrtsis 2005).

Context-awareness and operational panic

Context-awareness can be one of the main sources of operational panic. One of the problems in organisational settings which influence operational standards and especially coping with moments of crisis is that many of the staff find themselves in the mood of panic, because of scarcity of time and the abrupt shrinking of social space (which is a resource of action) in front of pressing problems. This hinders improvisation and creativity and leads in most cases to a recourse to standardised action. Panic is the feeling stemming from the combination of the perception of threat and the perception of time and resource scarcity. Ciborra (2002: 165) formulates this with the following words: “When the fundamental attunement of panic sets in, the ordinary way of understanding and acting in the world stops. The world overwhelms us. It ceases to appear as a set of tools ready for use; we lack the time to implement our projects. Resources are not at hand; in particular time is not available. We quickly come to inaction or engage frantically in whatever activity comes to hand, after having considered all possible options and jumped to the conclusion that that none will be successful. Angst for the lack of time to pursue further exploration of alternatives blocks decision-making, which in its turn may lead to inaction or to the haphazard compulsive pursuit of an activity picked from those available in the situation, but with no really adaptable strategy.” What Ciborra describes here is a problem of involvement in social figurations. We need detachment, or what Ciborra (2002: 164) characterises coolness as a mood. Coolness as a mood, “is the secret engine of the capacity to improvise, to find all the time that was needed to come up with a solution, though paradoxical, and implement it.” Thus, according to this view, improvisation needs coolness: One has to lean back and even if acting in haste, or under constraints implying also the arbitrary intervention of the powerful agents in the context, keep coolness (Ciborra 2002: 168-169): “The cognitive perspective focuses on how smart improvisers are able to quickly reregister the world and recombine resources. But this is possible only because suddenly the world, its resources, and people matter differently, so that they can be singled out and recombined anew. Here, quickness is far from implying rigidity and reversion to the already known. Improvisation is a particular mood which hosts the reconfiguration of the ground in which we encounter the world (and devise and carry out those projects and actions of the cognitive perspective).” But according to the discussion of the impact of context-awareness, this can become very difficult. Context-awareness can hinder this, because under circumstances it is a source of panic. Ciborra (2002: 170) puts it as follows “In the new perspective evoked here, we can rephrase that cognitive science statement as follows: any entity existing, being able to reflect on its existence and endowed with moods, feelings, and emotions, is able to improvise”. But this is not always possible in all contexts and under all possible circumstances of context-awareness. If improvisation is impossible, because of emotional complications, also operational risk management from the perspective of the user of systems is impossible. In this case operational risk management shrinks into model risk management. Not the user’s moods are then of decisive importance, but the designer’s moods out which emerge the models, which in turn have to be used and respected in a ritual manner.

Emotional implications of regulatory pressures

However, in the real world things can be even worse than that. The designers are subdued to regulators, who are not interested in operational models, but in configurations of consequences, and thus in models of sanctions. This detachment of consequences from procedures and its implications for design practices have been already discussed in the field of architecture and construction works where rigidities stemming from legislation can end-up in technical complications and to disadvantages which the introduction of legislation is supposed to prevent or at least to mitigate (Lawson 1997: 88-112). Performance in terms of the external compliance and the creation of appearances as opposed to the cultivation of internal qualities works very often in the direction of adverse selection. The ones who take risks to improve internal procedures have in this case a significant disadvantage. If investment towards ameliorating internal procedures is the decisive factor influencing short-term performance, then prevailing conventional approaches can lead to phenomena of adverse selection. Compliance to rigid standards works to the disadvantage of the innovators and risk-takers, and to the advantage of the ones who can accumulate resources because they act conventionally – and thus don't take the risk of innovative problem solving. At the level of inter-organisational competition this means that only powerful organisation can work with high operational costs stemming from compliance; costs which could have been avoided through innovation. This effect is furthermore linked to the fact that powerful organisations prefer to enhance and reproduce established practices rather than promote innovation which always entails risks. Setting their own standards in this sense, results in creating competitive advantages based on shier size.

This can result in devastating effects for smaller organisations, but also for organisational sub-systems in which the social life of organisation takes place. Operational standards adopted by legislators can very often originate from how auditors and engineers view organisational procedures independently of resource limitations encountered in smaller organisations. This leads either to informal practices of the ones who resist regulations or to adverse selection of organisations. Organisations, which try to avoid adverse selection, tend to adopt moral hazard practices. Many others, which try to absorb the pressure for compliance in their internal procedures, tend to transfer these pressures to the lower echelons with the result to produce counter-productive emotional tensions. This produces more risks than the ones regulations are supposed to try to avoid. This is the problem of the vicious cycle of formal regulation of procedural rationality which is supposed to be at the basis of operational risk management. We can give several examples showing this complication, many of those stemming from chemical and nuclear plant or maritime traffic regulation. The main idea of operational risk management as conceived by regulators of plant and in general system safety is related to the idea of imposing sanctions to the organisations they produce such risks because of operational and procedural negligence. Perrow puts the problem as follows: "Time and time again warnings are ignored, unnecessary risks taken, sloppy work done, deception and downright lying

practiced. ... it occurs in all organizations, and it is part of the human condition. ... But when it comes to systems with radioactive, toxic or explosive materials, or those operating in an unforgiving, hostile environment in the air, at sea, or under the ground, these routine sins of organizations have very non-routine consequences.” Avoiding such non-routine consequences is the main issue, but the means selected is the routinisation of the avoidance of sins.

This can be clearly seen in various regulations and guidelines. For example according to a “Fact Sheet” of the US Nuclear Energy Institute published at www.nei.org, safety is ensured at nuclear power plants in the United States according to four interlocking steps: a) establishment of extensive government regulations aiming to protect the public; b) formulation and implementation of regulations which have to be followed in the process of design of nuclear plants; c) introduction of controls on eventual change of designs and on specifications according to which owners are required to operate the plants; d) appointment of resident inspectors stationed at every site to monitor operations and compliance with regulations. It seems that such regulatory activities are apt more to encounter deviations from standards due to corruption or short-term unaccountable behaviour of owners and managers, than to gratify appropriate practices and responsible transformations of problem recognition and emotional tensions into practices leading to higher levels of avoidance of eventual failures. Such controls are a very good example of heterogeneous engineering, in the sense of Steve Woolgar and John Law, which shifts the whole responsibility to the designers of systems and to the designers of the user, as if he were a robot. Similar approaches apply to chemical plants regulations, although the authorities in this domain have implemented control procedures which embrace not only the users of technologies, but also the designers. For instance, authorities in the US mandate the public disclosure of “technology and materials options analyses” requiring companies to report the rationale behind choosing a particular process or material over others. Furthermore, authorities responsible for chemical plants demonstrate a balance between regulations introduced to avoid damage to the environment and damage to the personnel, and thus require the application of legislation and labour union demands related to the implications of chemically reactive substances and reactive hazards. Despite pressure from labour unions, the environmental impact of operational failures is the dominant aspect.

Preoccupations with environmental consequences, understood in a quite different sense, were also the origin of discussions on the risk operational failures in the financial sector. The problem here is that the eventual breakdowns of financial organisations can have immense negative consequences for the overall financial system, for national economies, and further for the whole of the international economy. More precisely, what is meant is that the operational practices and standards in individual organisations can have a significant, and in cases of failure, a devastating impact on the overall financial environment. According to Friedman’s and Terzuoli’s formulation: “For a financial services firm, operating risk is the chance that inadequate controls, human errors, or system failures will create unexpected losses from a financial transaction.” (Friedman /

Terzuoli 1995: 220.) If these losses multiply, then the cumulative effect goes well beyond individual organisations and becomes the main concern of those entrusted with formulating, implementing and monitoring economic policies.

Although the problem of operational risk existed since the idea of system efficiency and performance was a relevant issue for all kinds of practitioners, the term operational risk has been coined in the early 1990s and it has been adopted in wider usage after the financial disasters of the mid 1990s which were attributed to deficient understanding and control of internal organisational procedures and related operations. The interesting aspect hereby is that because the term as such originated in the financial services, procedural dimensions have been conveyed a specific meaning, which was very much drawn back to accountancy cultures. The Basle Committee on Banking Supervision within the Bank for International Settlements institutionalised operational risk as an issue of regulatory attention. The management of operational risks along other financial risks, drew however attention away from procedural action towards pecuniary measures. All financial risks produce probabilities of financial losses which can be outweighed by available assets which can be used to replace the lost ones. If operational risks were to be treated as financial risks, as sources of losses, then only available assets could counterbalance risk exposure. Indicators should show the level and probability of exposure to eventual procedural disruptions or even collapses, calculate the damage in financial terms, and thus specify the amount of assets available to repair eventual damage. In this sense, exerting pressure in order to make members of financial organisations to comply with sane procedural standards (which because of their quality, are supposed to contribute to the mitigation, even to the avoidance of risky behaviour) are considered the basis of operational risk management. Deviations from standards produce negative points on a scale defined by standardised procedural quality indicators. These negative points correspond to capital units which must be put aside for the case of need to repair damage. This is a kind of penalty because this so called capital adequacy blocks productive resources. But for the logic of the BIS regulators this means that if (financial) losses can be financially compensated, then the eventual damage can be viewed as repaired in advance. This is a typical case of externalisation with severe implications for the emotional underlay of operations in financial organisations. Conventionally minded members of organisations in this case do not tend to think about the problems or about assessing situations and acting prospectively by having in mind the eventual emergence of alternative complexities, but tend to think about how they could comply with assessment and evaluation systems. If auditors and inspectors fill the forms and give good grades, then in case of failure responsibility is shifted to the assessment model. Those who for various reasons cannot cope with this bureaucratic attitude of irresponsibility are putting themselves in situations of high exposure to personal and social risks. The emotional tension stemming from the choice between compliance (which means eventually raising operational failures) and improvisation in a responsible manner in order to avoid such failures can be more easily resolved through mythologies and role-plays of compliance, with obvious negative consequences for procedural rationality.

Concluding remarks: Context-awareness, management of emotions, and operational risk management

To the extent that operational risk depends on decisions, creativity, and micro-management of emotional tensions, it is socially constructed in micro-fields of organisational action. These micro-fields of action can be located in designing as well as in user-organisations. Contrary to operational risks, operational hazards are not socially constructed⁸. They can be related to socially constructed decisions stemming from risk perception, but given a form of communication or action, the threat does not depend on them. Exposure to risks is in this sense something different from the exposure to hazards. Exposure to operational risks stems from the process of decision making, whereas exposure to hazards depends on the external resources of a field of action selected by the outcome of decision making. The selection of a field can then be risky, because it brings action close to hazards. In this sense hazards differ from risks. They derive from given, pre-made decisions; hazards do not emerge from the process of decision; they become probable through a one-off decision to locate action in a specific field of interaction. Operational risk differs also from technological risk, which is the risk related to the selection of devices and forms of synergies between devices in terms of closed systems of causalities. However, it is the process of use which makes a hazardous technology risky; not the resources and the external influences make the use of a technology risky, but the decisions related to the process of use.

Decisions depend always on moods⁹. Not taking moods and emotions into consideration, means that one brings systems close to decisionless areas where automatism determine situations and thus hazards prevail. All possible situations result then from one decision: to apply the model, and thus to allow automatism to determine the course of action. The only possible reaction would be then not to alter the modalities of operations, but to move to a different field determined by alternative automatism, i.e. by alternative pre-fixed operational models. This means that we often make decisions to move from convention to convention, so that we don't have to manage the emotional tensions implied by trying to make decisions on operational matters, and thus to micro-manage forms of social interaction, as well as to micro-manage forms of both vertical and horizontal communication. In this sense, not taking moods and emotions into consideration can be a very risky practice. This is the case with fixed and bureaucratic models of operations, or with making action dependent on calculative models. It is also the case with external sanctions, related to consequences, without reference to procedures (i.e. with emphasis on consequential and not on procedural rationality). This leads to the problem of the

⁸ Luhmann has discussed this distinction between risks and hazards in his sociology of risk (Luhmann 1991).

⁹ Of course rational choice theorists would not accept this. But there are strong arguments against rational choice approaches, especially to the ones which rely on ultra-rationality assumptions. Most objections have been raised by representatives of new cognitive science (e.g. Damasio 1994).

externalisation of operational risk management, which results from the formulation and implementation of regulatory frameworks.

Regulatory approaches have implications for intra-organisational emotional states. They may help succeeding high marks on certain indicators, but they do not necessarily bring about the procedural rationality needed for sustainable practices. They completely neglect the informal aspects and the importance of improvisation and creativity, and they shift responsibility to filling forms of quantified quality assessment systems, instead of introducing parameterised qualitative observations. No system can be safe because of compliance to appearances, unless there can be a completely successful heterogeneous engineering according to which there can be a robot-like shaping of users and contexts of use.

What is at stake here is the relationship between procedural rationality and context-awareness. The argument is that, contrary to managerialistic approaches, context awareness that suppresses creativity and improvisation can not be easily combined with procedural rationality which can help to mitigate operational risk in the sense of avoiding operational accidents. Operational ritualism and formalised quality assessment are constant sources of risk in a fluid and changing world, where any possible model of operation is suspect of evolving very soon into a creature alien to the requirements of both internal and external organisational environments. Lack of context-awareness due either to ritualistic adaptation to formalisms, or to playful detachment, can produce model risks, although they may also imply less emotional tensions, since the main ones in this case stem from pressures to compliance to rules (and thus also of interpretations of rules), in the case of formalisms – less in the case of playfulness. Too much reflexive context-awareness can lead to high emotional tensions and thus to a blockage of improvisation and creativity, but also to inability to comply with any rules, since they are reflexively questioned. Of course what we are proposing here is not the truism of the middle way. The problems lies more in the fact that external observers and assessors, as well as organisational leaders and managers, view procedural contexts as black-boxes, and thus adopt a radically consequentialist stance. This consequentialist stance is also compatible with formalised risk assessment systems. This leads also to binary approaches, in terms of totally accepting or totally rejecting practices, with the consequence in both cases of creating shadow spaces of action where actors operate arbitrary and irresponsibly in the back-stages. Thus, an alternative risk assessment approach would not be possible without involvement of the relevant public, rhetoric and argumentation. The emotional tensions stemming from context-awareness can be managed only on the bases of meta-emotions of their reflexive elaboration. This can be the basis for operational risk management, and not technocratic stances and conventional role-ascription or conventional role-acceptance and induced internalisation in connection with compliant technologies of the self.

It is obvious that the validity of the theoretical ideas presented here can be questioned, and that empirical research could eventually shift many of these assumptions into a quite different perspective. However, it is worth producing testable hypotheses or construing

realities through narratives, which take into consideration the theoretical point of view adopted in the previous paragraphs. They may perhaps drive us into alternative research designs on the impact of assessment, evaluation, formalistic organisational quality management and regulatory systems. As already stated, operational risks are organisational risks, i.e. risks stemming from the fact that organisational structuration blurs information and creates modalities of behaviour which can have as a consequence doing the wrong thing at the wrong moment. The problem is then not to try through research to find out when and how people comply with rules. Societies depend more and more on large technological systems the failure of which could cause considerable damage and have long-term and complex irreversible consequences. The frequency of occurrences is one aspect, but the degree of impact is what makes the operational risk high. Many people think that assessment and sanctions can make systems safer. This is the aspect of consequential rationality. But consequential rationality makes systems less safe. What we need is procedural rationality, which can be succeeded on the basis of the internal social life of organizations.

Not compliance, but reflective action is needed in most cases, either at the stage of organisational and technological design (which is also an organisational product) or at the stage of the adoption of normative pressures and implementation of practices. Compliance shifts everything to model risk. Furthermore, compliance is not something stemming directly from rules, since there is always a discrepancy between the formulation of rules, the formalisms they produce and actual practices stemming from alternative and significantly varying interpretations of rules in various demarcated fields of action and discourse. Understanding the sources of operational risks, means understanding social figurations, as well as understanding processes of involvement and detachment. This approach can have also implications for organisational design. The question would be then whether it makes sense to focus on the creation of design spaces of positive emotions and creativity. In the case of discourse-sensitive systems this must happen in advance in the designing and producing organization and not in the user-organisation. In the case of discourse-robust systems this must happen as part of the process in the user-organisation. This can also be a platform for the micro-sociological theory of operational risk with implications for research.

The question posed very often is under what conditions actors comply with regulations and rules. But, as we have discussed earlier, compliance is not the safe basis for the avoidance of operational failures and eventual break-downs. This is also based on the assumption that domains of norm generation coincide, at least in terms of their features, with domains of norm application. Because this is not the case, rules appear in domains of application as interpretations of rules, even in cases where strict guidelines appear, or there is an attempt to stabilise both internal and external organisational environments in the sense of closed architectures with tightly closed causal interrelations. In the latter case, members of organisations and users of technological systems, are required to adjust their behaviour to technical prescriptions and to accordingly condition themselves. Engineers sometimes do not take into consideration what the consequences of the command “don’t

think, just follow rules” are. They think that if on the basis of a thorough design model risk can be excluded, discourse sensitivity of systems is preferable. The only problem is then training and conditioning of the operators. One of the problems here is that discourse-sensitive systems susceptible to model risk emerge from discourse-robust systems of designing organisations. On the basis of what kind of assumptions or preconceptions do they decide that handling model risk of discourse-sensitive systems is preferable from more open discourse-robust systems? How do they know that the transformation of emotional tensions appearing in organisation settings or among users of technologies into conventional and ritualistic rule following behaviour produces fewer failures than improvisation and creativity? Wouldn't be safer to produce more discourse-robustness and space for improvisation and creativity than automatism, even if these are based on sophisticated artificial intelligence?

It is sociologically interesting that there are counter-examples which show that ideas of standardisation as a means for operational risk management prevailing in chemical and nuclear plant safety regulations, do not apply in other safety critical systems, such as spacecrafts and ocean travelling vessels. In the case of ocean travelling vessels external information support is cut down to the level required to safeguard the operational autonomy based on local knowledge and local judgement. In the case of spacecraft, discourse-robustness is preserved by making scientific and technical ground personnel an organisational part of the mission, whereas because of the eventuality of telecommunications failures part of these functions are supposed to be carried out on board and spacecraft personnel are appropriately trained and have high standard physics and engineering knowledge. Here comes a macro-perspective. Throughout this paper I have put emphasis on the micro-sociological perspective and on the importance of the emotional underlay in hierarchical formal organisations, which operate on the basis of a dialectics between formal and informal aspects. However, pressure for standardisation and subsequent operational risk management practices does not stem predominantly from organisational leadership and management. It originates in most cases from public pressure. Public opinion and politics with which dynamics of public opinion is interwoven constitutes a highly complex environment, the survival in which is possible only through rhetoric. To what extent actors make use of the rhetoric of standardisation and compliance, and to what extent does this strike back to organisational, technological and design practices, as well as to their legal and judiciary expressions? What kind of emotional implications does this have for micro-fields of action in organisations and what are the risks implied from the fact that actors in order to cope with complexities shift responsibilities to the designers of standardised systems of assessment and performance indicators? Risky behaviour especially in moments of crisis emerge from the way actors handle emotional tensions in micro-fields of organisational action. But these emotional tensions can be traced back to pressures generated by public opinion and politics culminating in legislation (either hard or soft) and regulatory frameworks, which then trickle-down into normative frameworks constituting micro-fields of social construction of risk discourses, with consequences for forms of action generating exposure to operational risk._

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