

CAN LESS BE MORE?
MINIMAL STRUCTURING, IDENTITY AND LEARNING AROUND IT¹

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ABSTRACT

This paper focuses on how organizational structuring can facilitate or hinder organizations' capacity to learn when a new technology is implemented. We are concerned with a particular philosophy of structuring- minimal structure. We argue that learning ultimately depends on the way communities build their sense of identity while enacting existing structure. Organizational context can facilitate or hinder the processes by which a sense of community is created. Formative context plays a very important part in these processes. Underlying this sense of community, social identity structures meanings, coordination, learning and improvisation are all defined relative to action contexts, not to self-contained and abstract structures. Identity is critical to the enactment of minimal structures. An in-depth multiple case study design of two telebanking systems implemented and used are described, and analyzed. Findings indicate that there are ways by which the structuring can block improvisational activity, this in turn hinders both the social identity and the social learning processes. Moreover, minimal structuring design philosophy gives room to improvising and to making sense of the incoming events and the development of *ad hoc* solutions, within the community-of-practice. Only if identity unfolds, can organizational members enact consensual guidelines and agreements that constitute minimal structures. Furthermore, we claim that the theory of organizational learning can greatly benefit from the development of a theory of organizational improvisation.

The implementation of a new technology in the work setting can establish the conditions that might create a resource space for new organizational structures to emerge. The implementation of IT should be treated as an occasion for structuring in organizations: “Information systems can be particularly conducive to new and sustained rounds of social negotiation” (Barley, 1986, p.51).

Adler and Borys (1996) have differentiated two generic types of formalization: enabling and coercive. In the latter case, the organization entails an annulment of employees' autonomy and commitment, hence limiting innovation and learning. Employees have little motivation to contribute to a change in the mixes of routines or contribute to the complex non-routine tasks that can constitute improvisation. In the former case, formalization is designed to enable employees to master their tasks. These authors posit that employees' attitudes to formalization "depend on the attributes of the type of formalization with which they are confronted" (p.66) and call for the urge "to understand the distinctive features of the different types of rules and to understand what distinguishes how these types are formulated and implemented" (p.67). It is our contention that it is not enough to characterize the features of coercive and enabling structures, the design process or the implementation of the system. Instead, we need to understand how emergent structures are enacted in practice through recurrent interaction with the technology at hand that makes organizational members perceive those structures as enabling or as coercive. Until technology is used in some ongoing human action- and thus becomes part of a process of structuring- it is, at best, a potential structuring element, and at worst, a forgotten alien. Structures are only instantiated in practice. Orlikowski (2000) advocates that while the notion of appropriation of structures embodied in the technology captures well the importance of human action in shaping situated technology, the focus on emergent rather than embodied structures, allows us to frame what users do with technology not as appropriation but as enactment. Thus, this perspective starts with practice and examines how it enacts emergent structures through recurrent interaction with the technology at hand. People draw on their skills, power, knowledge, assumptions, and expectations about the technology and its use. Furthermore, the two extreme types of formalization do not allow for a trade-off between structure and flexibility/spontaneity, between exploitation and exploration (March, 1991), between specialization and coordination (Demsetz, 1988) and between innovative processes and organizational learning (Sorensen and Stuart, 2000).

MINIMAL STRUCTURES

In organizational adaptive processes, of which the implementation of a new technology constitutes an example, there is a constant and pervasive need for dynamically integrate structure and flexibility. Several authors have noticed the potential relevance of this type of structure. Kamoche and Cunha (2001), building upon the jazz metaphor, introduced the concept of “minimal structures”. Still on the basis of jazz, Kanter (2001) referred to them as the “theme” that prevents improvised action from degenerating into chaos. Brown and Eisenhardt (1997) described them as “semi-structures”. Minimal structures are a set of consensual guidelines and agreements, co-ordination devices that attempt to focus the activities of people around a common set of goals and deadlines without limiting their discretion to best decide how to reach these goals. Weick (1989, p.244) suggests that the value of a minimal structure is that “small structures such as simple melody ..., general assumptions, and incomplete expectations can all lead to large outcomes and effective action”.

As structuration theory (Giddens, 1984) applied to organizations might suggest, communities-of-practice (Lave and Wenger, 1991) will become ubiquitous sources of knowledge driving change (Brown and Duguid, 2001). These communities may make use of an improvisational model that is change-driven, unconstrained by the imperatives of function or sets of activities and lays more emphasis on combining the need of structure with that of dynamic flexibility. This is facilitated by the minimal structure, where appropriate levels of responsibilities, priorities and procedures are clearly defined and combined with wide *zones of manoeuvre* (Kamoche and Cunha, 1999). The minimal structure serves as a platform upon which learning and improvisation can take place and allow communities-of-practice to develop within these *zones of manoeuvre*. The sense of community structures discourses, learning and, coordinated actions through identity. Practice creates epistemic differences between communities within organizations and it is inside these communities that knowledge is created. The improvisation is characterized by an unrelenting quest for discovery and innovation along the social and technical dimensions. Kamoche and Cunha (2001) see minimal structures as comprising of two dimensions: social structures and technical structures. The application of social and technical structures reverberate socio-technical systems tradition (STS; e.g., Emery and Trist, 1960). STS ostensibly recognizes the importance of social forces in work organizations. This recognition frequently creates a shift from individual to group-or team- methods of performance. Positive variance within the work system is viewed favorably

as a sign that teams are adapting to their unique environment conditions. In what follows we will describe each of the constitutive parts of the minimal structure and how they might help to develop a dynamic understanding of IT implementation.

Social structures

Social structures are conceptualized largely in terms of behavioral norms and communicative codes that help determine performance standards. There is an unspoken understanding of the need to respect and comply with these basic guidelines for action, for without them the improvisational process may degenerate into chaos.

Formative, institutional or imaginative/cognitive contexts exert a major influence upon the form and course of social routines, yet one of the hallmarks of the formative context (Unger, 1987) is that it is itself hard to challenge, revise, and even identify in the midst of everyday cares. One important point is to consider two levels embedded in human action: the visible level of practices and routines and the invisible, taken for granted stock of knowledge within which routines are formed and from which they receive meaning. Formative context exercises a subtle, diffuse effect by its influence on social possibilities and collective identities. The context is 'formative' in that it shapes the ways people perceive, understand, make sense, perform and become organized and, also because it may help people to see and do things in new ways, or stick stubbornly to old ways. As Blackler pointed out, "Formative contexts are reproduced by the behavior of those affected by them, but this process involves a process of improvisation and compromise that will be poorly recognized, articulated or planned for" (1992, p.284).

The formative context results from a makeshift combination of everyday practice and *bricolage*, a sedimentation of local and global arrangements, where old routines are tested, discarded, retrieved, collated and combined along a mainstream of sense (Ciborra and Lanzara, 1994).

As we have argued, knowledge creation ultimately resides in communities-of-practice. Learning is implicated in the acquisition of knowledge but also in the acquisition of identity. "Learning processes are intrinsically social and collective phenomena" (Teece et al., 1994, p.15). Communities-of-practice provide the work context within which members construct both shared identities and the social context that helps the identities to be shared.

In these communities learning and improvisation occur when individuals mobilize the network to access the community's collective knowledge (Barley and Kunda, 2001).

Legitimate Peripheral Participation, or LPP (Lave, 1988) is the process by which newcomers become included in a community-of-practice. Most learning takes place through modified forms of participation that are structured to open the practice to nonmembers. Peripherality and legitimacy are two types of modification required to make participation possible (Wenger, 1998). Peripherality provides an approximation to full participation that gives exposure to actual practices, and in order to be on an inbound trajectory, newcomers must be granted enough legitimacy to be treated as potential members. Orr's (1996) study reveals that those modified forms of participation proceed in such a way that they remain inseparable from work. "The technician was important in the process of diagnosing and storytelling, whose participation could legitimately grow in from the periphery as a function of his developing understanding. His legitimacy is an important function of the social relations between the different levels of service technician, which are surprisingly egalitarian, perhaps as a result of the incoherence of problems this sort of technology presents: a specialist cannot hope to exert hierarchical control over knowledge that s/he must first construct cooperatively" (Brown and Duguid, 1991, p.12).

To open up to practice, peripheral participation must provide access to the three dimensions of practice by which it becomes a source of identity for a community (Wenger, 1998): (1) mutual engagement with other members; (2) their negotiations of the enterprise and, (3) the repertoire in use. These are "the small set of big rules" supported by minimal structures. When people receive favorable identity-relevant information from membership in an organization they respond behaviorally by cooperating with the organization (Tyler, 1999). The degree of cooperation within a community is shaped by people's use of organizational membership to create and maintain a favorable identity. So, the key to understanding how to develop and maintain cooperative behavior is understanding how identities are created, shaped and maintained within communities.

As Brown and Duguid (2001) have pointed out communities-of-practice are useful for examining organizational knowledge as well as identity for a number of reasons: (1) they are privileged sites for learning and knowledge creation; (2) They are important repositories for the development, maintenance and reproduction of knowledge; (3) The members provide for one another social affordances (Cook and Brown, 1999) that frame knowledge creation in practice; (4) Organization adaptability is to a significant degree determined by the communities-of-practice.

A minimal structuring design philosophy gives room to improvise and to make sense of the incoming events and the development of *ad hoc* solutions, within the community-of-practice. People draw on their skills, power, knowledge, assumptions, and expectations about the technology and its use. This includes meanings and attachments that users intersubjectively associate with particular technology and its use, shaped by the formative context and by their experiences with various technologies and their participation in a range of social communities. These social communities need to have a basis, which enables identities to develop. The way in which this identity process unfolds will lead employees to perceive their structure as enabling or coercive.

Technical structures

This refers to the techno-structural and performative conventions as well as the variety and combination of talents, skills and capabilities members bring to the community. Badham (1994) proposed a configurational model of technologies in organizations. As a variant of STS, technologies come to be understood as part of a looser, complex and changing technical system, and requirements of technologies are necessarily interpreted within, and influenced by, the social context in which they are used (Badham, 1993). The user, like the technology that s/he uses, is also ‘configured’ by interpretations of internal and external forces. The concept of ‘technological configuration’ points to the importance of specific constellations of knowledge, equipment and procedures, and loosely systemic, complex and locally constituted character of working technological systems. The development of ITs follows an uncertain process of experimentation and discovery that gives rise to unanticipated outcomes. Mistakes can be treated as an opportunity for organizational learning (e.g. Harryson, 1997; Sitkin, 1992), failure resulting from risk-taking can be rewarded (e.g. Sasaki, 1991), and managers can accept and encourage “rule-breaking” (Brown and Eisenhardt, 1997).

Multi-skilling or versatility is a central feature of improvisation; it also plays a crucial role in facilitating experimentation. Cross-functional skills are required by the interdependency inherent in team working. For example, Adler et al. (1999) found extensive training and rotation accorded a very high priority to the extent that workers attained sufficient competence to rotate around four jobs. Coupled with extensive competence is knowledge about tools/technology through which this expertise is accomplished.

Although project team-members cannot be expected to be expert in all the available technologies, an understanding of the available technology and how this helps to coordinate

collective action is essential for bringing multiple perspectives to bear on the distributed task (Seifert and Hutchins, 1992).

Stored knowledge and skills shape improvisation in important ways. Knowledge of the productive process is helpful in creating an ability to use whatever materials/tools are at hand and to apply them to the task in a manner similar to the practice of bricolage (e.g., Weick, 1993). Constant experimentation and trial-and-error have an enormous potential to achieve individual and organizational learning, but improvisation learning has also the potential to solve surprising problems and/or create value from an unexpected opportunity (Miner, Bassoff, Moorman, 2001). Different organizations can develop improvisation competencies in specific areas of activity. This prospect stresses the potential value of research on how improvisation may help create and sustain distinct communities-of-practice within an organization (Brown and Duguid, 2001).

In this paper, we empirically explore Kamoche and Cunha's (2001) improvisational model. We are particularly interested in two aspects: (1) the emergence of social structures within a minimal structuring philosophy, and (2) how did the combination of social and technical structuring features, facilitate or hinder learning. These issues were addressed through a contrast analysis of the implementation and use of two telebanking systems belonging to the same financial group.

METHOD

This research has been conducted under the broad banner of ethno-data. Ethno-data "are the extraction, from qualitative morass, of those data which researchers claim represent the native experience. It emerges from a variety of representational strategies, but is united in their commitment to representing empirical reality as it is experienced by organizational participants" (Stablein, 1996, p.515). The ethno-data approach also makes it possible to address the problem of inappropriately fixing meanings where these are variable and renegotiable in relation to their context of use. Ethno-research stresses the socially constructed nature of reality, the relationship between the researcher and what is studied, and the situational constraints that shape inquiry. The nature of the research questions tends to be concerned with how social experience is created and given meaning. Thus, the stress is on processes. There is an emphasis on the value-laden nature of inquiry (Denzin and Lincoln, 1994). As Barley as noted, "It is in the precarious balance between the controlled and the

uncontrolled, the cognitive and the affective, the design and the unexpected that fieldwork finds vitality and analytic power” (1990, p.220).

Ethnography is an interpretation blending behavior and meaning. Interpretation is the consummate goal of ethnography because meaning is understood to derive from interpretation, where knowledge is significant only insofar as it is meaningful. Ethnography involves understanding the ongoing experiences of social actors in terms of their own subjective realities.

The research took the form of multiple in-depth case study comparison design: in particular, a clustered hierarchical design for the in-depth interviews was employed. This design is suited to delineate core characteristics of the work practices and its major variants. Rather than imposing an *a priori* theoretical framework, we wanted to be open to what the sites had to say, and therefore be prepared to change direction regarding initial assumptions and theories, as data emerged.

The methodological approach emphasized the rich, complex character of naturalistic settings and the importance of context, specificity and detail. Its relevance to work settings has been greatly promoted by the advocates of the practice-based approach, who signal a new attentiveness to the nature of working life as a context-bound social activity. The case study lends itself to ethnographic work, which positions *validity-as-reflexive* accounting (Altheide and Johnson, 1994). That is: “It places the researcher, the topic, and the sense-making process in interaction” (p.489).

For the purposes of the present research a comparative multi-case study of the implementation of two telebanking systems was used, employing ethnographic techniques, such as observation and in-depth interviews. The understanding of micro-organizational processes requires a method that captures the rich detail of organizational life within a multi-faceted context.

During observation, we sat next to operators or technicians and accompanied them while they were doing their job. Observation of meetings, of training classes and especially of individuals at work was carried out throughout the field study. Observation mixed with real-time interviewing is better suited for studying work practices. Overall, ten TB related meetings were attended and observed. A total of over 300 hours of on-site observations took place. We spent two periods of two weeks observing life in each site, analyzing documents and memoranda, as well as interviewing key personnel. A total of 57 in-depth interviews (TB managers, supervisors, technicians and operators) were conducted in an effort to uncover the

day-to-day sense-making activities associated with the establishment of a TB. A large number of informal conversations took place during coffee breaks or lunchtime, and hand written notes were taken.

The research sites were chosen on the strength of the quality of research analysis they offered. The organizations were able to offer high quality access, which as Streeck (1986) has pointed out, is an indispensable, but rarely granted, requirement for qualitative research. In addition, the company's TB represented an ideal case study through which to explore the ways in which the implementation of a complex information and communication system may affect, and be affected by, organizational sense-making activities.

The Research Sites

FlexSite and BlackSite are two telebanking systems belonging to the same financial group. Therefore, we will start this section by presenting the background of FlexSite and BlackSite, then explaining what is a telebank and what is the technology involved.

Background. PrivateBank was the result of the efforts of a group of European investors who were dissatisfied with the level of the banking service available in their country. PrivateBank was founded in June 1985. The overall strategy of PrivateBank was set out in the form of four core policy decisions:

- it would be a new bank rather than a copy of anything that had previously existed in the country.
- it would be a universal, high quality and nation-wide bank.
- it would be run by a professional board independent of shareholders.
- it would employ the latest technology in order to deliver high quality services to target markets.

The overall mission of PrivateBank was: "To become a major bank by providing excellent, innovative, and personalized products and services that are designed to meet all the financial needs and expectations of the most relevant domestic market segment." According to a member of the board, "the underlying philosophy is to be a "market-driven", people-driven and technology-driven bank". Operations strategy was a key to achieving overall objectives. Particularly relevant was the focus and process technology.

Focus and Technology. From the start, PrivateBank has been driven by a belief in market segmentation. This enabled PrivateBank to effectively plan its entry into the market and its subsequent development based on the attractiveness of segments and its ability to enter those segments. Each time it moved into a new segment it set up a new business group to manage it. Indeed, throughout its life PrivateBank has maintained separate teams and resources for separate segments. The bank recognized the importance of IT in supporting the implementation of its overall strategy. Its main strength is the deliberate attempt to link IT to its business strategy and build a competence in the business use of IT.

Technology has played a critical role as an enabler of some critical innovations, such as strategic databases for prospecting and selling to clients, distributed processing with centralized data for the different banks of the group, comprehensive information support systems for account managers, sophisticated automation in branches and the flexible and rapid deployment of systems to support new banking products.

Organizational Culture. The bulk of the information flows were informal and rapid. PrivateBank attached considerable importance to informal communications and motivating people. A clear majority of employees feel the internal orientation towards the customer and a strong pressure for quality, expressed by managers, is responsible for keeping high levels of work motivation. Several examples are shown below:

“Our culture mirrors efficiency, customer orientation and keeps levels of individual motivation high” (FlexSite, second line call-service manager).

“I think that PrivateBank culture is working methodically and enjoying what one does, and enjoying being here! The values of PrivateBank are that everyone is working for common goals and we are doing our best to achieve these goals. PrivateBank is a stable group, it has highly developed technology, good working conditions, benefits and career progression” (FlexSite, First Line plus 2).

PrivateBank prides itself on being a very informal institution. As one FlexSite manager explained: “We don’t have a real organization chart. We might draw them from time to time. But we never approve one. When we approve something and then you want to change it...

you have to take the decision to change it. Furthermore, having an approved structure would go against our strategic goal of remaining highly flexible. Or, flexible enough so as to ensure the creation of innovative products and services those meet the needs of the market. What we definitely do not want is to fall into the trap of bureaucracy!”

Teamwork was highly valued within PrivateBank from the outset. A FlexSite manager explained that the culture of informal communication was essential to teamwork within PrivateBank: “whenever I have an idea or a problem, I directly contact the person who I think can help. If we feel it is necessary, we get a group of people together to work as a team. We do not have bureaucracy obstructing the formation and functioning of the teams. Moreover, staff rotation is a common practice so this increases our overall knowledge of the group. Staff rotation happens about once every three years. The advantage of these rotations is that they make people more flexible. You also enrich the culture by making people more aware of the issues and difficulties being faced elsewhere.”

The team culture was instilled in all new employees when they entered the bank. They went on a three-week induction program in teams of mixed background, learning about the bank, the use of the bank’s systems, etc. PrivateBank culture was never formally defined, but elements of it are reflected in the following comments:

"We are strongly loyal to the company and the group. We know from the start that we are working in a clear project" (FlexSite, Supervisor 2).

PrivateBank culture, being both strong and traditional, was closely associated with the charismatic personality and religious beliefs of the group’s president. He worked outside the country for a private bank and was imbued with the work ethic and professionalism of the bank’s guiding influence, and with strong religious beliefs. The spirit is based on the sanctifying value of ordinary work, this means according to their statutes:

- Working with the greatest possible competence and with the greatest perfection possible.
- Carrying out their work with the fullest respect for the law and in conformity with the demands of ethics.
- Working with the desire of serving one’s fellow citizens and of making a contribution to the progress of society.

The Design Concept. The adoption of a green field site strategy was a core design specification and a fundamental pre-condition for a successful implementation of the whole group. The rationale behind a green field site points to the need for a fresh start as a pre-condition for implementing a new organizational model. Any new business was born from the green field and conceived according to the strategic guidelines endorsed by PrivateBank.

The implications of this strategy for the management of change have been widely recognized in the literature. Lawler (1982) has emphasized the holistic character of design connected with the adoption of a green field strategy. “New organizations simply have a number of advantages when it comes to creating high involvement systems. They can start with a congruent total system; they can select people who are compatible; no one has a vested interest in the *status quo*; it is possible to do the whole organization at once.” (Lawler, 1982, p.307). As Beaumont and Townley (1985, p.189) added, “the green field site offers the prospect of a *tabula rasa* (...) the possibility of establishing work organization, job design, personnel and industrial relations policies afresh rather than attempting to tackle these issues on an *ad hoc* basis in existing organizations. It provides the opportunity to experiment with the development of a coherent green field philosophy.”

A green field site provides a background for learning, discovering and improvising. Expansion green field philosophy, once it takes on the contributions of various organizational actors, is a very favorable circumstance for studying the implementation of a new technological-based project “Green field sites are a mixture of opportunity structures and structural constraints” (Blau, 1990, p.145). To a certain extent, the structural features of green field sites allow a company to keep some processes under control. For example, the absence of a solid industrial tradition associated with green field sites may facilitate the ‘indoctrination’ of the work force and the transfer of knowledge in a top-down manner. At the same time, the low degree of institutionalization of the initial stock of knowledge might create suitable conditions for the emergence of unforeseen events, which may challenge the original design concept.

The design concepts of FlexSite and BlackSite, embraced many of the ideas connected to the choice of a green field strategy. However, their implementation presented many idiosyncratic aspects which possibly explain the astonishing performance of FlexSite in particular, and the apparent failure of BlackSite. The various contributions from different

organizational actors need to be traced back to the project group. We will focus on these idiosyncratic aspects after having presented the technology that is common to both sites.

Technology involved in Telebanking Systems (TB)

Telemediated banking services involve the integration of telecommunications and computer technology to provide personal financial services remotely. There are two system components:

- Telephone Customer System (TCS)- Software that gives information to the operator in a synthetic and organized way.
- Meridien Max- this includes the Automatic Call Distributor (ACD is at the heart of the production process in TB, that pumps incoming calls wherever they need to go), the Agent Windows for the supervisors and the telephonic platform. It allows tracking of macro-view (overall system performance) and micro-views (individual agent's performance). IT provides both real-time statistics display and historical reporting on the callcentres performance in standard or customized formats on the Max PC terminal. This allows real-time reconfiguration of the system by the supervisor to ensure peak performance. The call arrives at the Meridien Max and it is routed either to a Voice Response Systems (VRS is concerned with automating the handling of customers by removing operators from the task wherever possible) or to the communicator who has been idle for the longest period. All automatic procedures are similar in FlexSite and BlackSite.

In what follows we will analyze the FlexSite and BlackSite developments, how they configured their customers, their technology and their personnel.

FlexSite: The effects of an enabling structure

Implementation. FlexSite was considered a pilot site for telephone banking in the country. It followed the market segmentation strategy and green field design, according to the loose guidelines endorsed by PrivateBank group. The implementation process followed PrivateBank strategic guidelines were set out in the previous sections: A highly effective service embedded in the strong religious culture and tradition. The starting point was

configuring and targeting their customers. Only then could customers be expressed in a particular technological and organizational form and solution.

Rather than relying on vendors who peddle pre-designed technologies, FlexSite stressed the need for a customer-tailored system that has been designed with the aid of the group's members to address the specific nature of their work. While the organization has employed consultants to help design the system, the consultants' role was to focus members' attention on organizational issues and the processes and practices of organizing the implementation of a socio-technical system. Vendors were contacted after the nature of the desired system had been defined. They were consulted as sources of information and technical expertise, but any final decision regarding the choice of the technology and its deployment were left to FlexSite team project members.

The cornerstone of this approach was broad participation by those who would be affected by the technology. A task force composed of a cross-section of the group's members was formed to assess the nature of the organization's work, to identify potential points where improvements were possible and to suggest how technology might enable current problems to be solved.

The implementation of FlexSite was a complicated task and a complex social structure where previous knowledge was demanded. A large amount of new knowledge or re-combinations of existing knowledge were needed, so the project team was composed in a way that a pool of different types of knowledge could be combined. The institutionalized knowledge was embedded in the social relations of the internal team. All these different but complementary types of knowledge and experiences constituted the background for improvising around FlexSite construction.

This community-of-practice was the prime context in which it was possible to work out common sense through mutual engagement. Thus, through their practice, the social and negotiated character of the various types of knowledge was highlighted. By engaging in the project team, different members started acquiring practical skills of negotiating meaning and simultaneously developed a process of constructing identity with a community-of-practice in the making. All team participants were able to engage with the technology, participating in social relations and all other activities. This internal part of the team who had full participation in the project went to the extent that data flows, work routines and practices but even cultural and social antecedents of FlexSite were embodied in the technology. The outcome was a transparent technology.

FlexSite in Action. Once first line communicators started working, the supervisor ensured the quality of communicators' performance through call coaching. While it obviously has a strong monitoring and control element, it is also used for training purposes. Call coaching has two objectives: discipline and learning. In FlexSite, control is perceived as a positive, constructive and an unobtrusive instrument.

Individual communicators often lack the personal and institutional resources necessary to respond to a given call. These communicators can draw on other resources of the organization by getting help or transferring the call to second lines. Thus, exceptions are handled by working inside the banking system. If, for some reason the communicator cannot give an immediate solution to the customer's problems, interactions with customers are expected to be in accordance with specified service standards following set of 'moves' (Pentland, 1992):

- Try to find a solution together with the client.
- Look for a solution to the problem, with the help of the supervisor while the customer is kept on hold.
- Transfer the call by overflow to second lines, if the communicator knows that it is among second lines' competencies.
- Transfer the calls to other departments or other companies of PrivateBank, where the experts on the subject matter are located.

Staff rotation within the PrivateBank Group enriches the mutual repertoire and mutual understanding. It also allows for making 'human back up' by switching personnel between teams. They have de-contextualised and re-contextualised the resources in different situations giving room for change. The rotation also allows actors to meet more people and to know what they are good at, so they can draw on their knowledge or skills whenever required. This enables them to solve a broad scope of problems by inspiration elsewhere. This community-of-practice became a mobile database; which is part of their support for improvising.

FlexSite is a product of the accumulated negotiated actions and improvisation that occurred while developing, and new solutions were needed to face problematic situations. The collective construction of a local practice, among other things, makes it possible to meet the demands of the institution and create a stock of knowledge to draw on when required. Although jobs in FlexSite are primarily designed and organized individually, actors become

important to each other. They act as resources for each other, exchanging information, making sense of situations, sharing new tricks and new ideas, as well as keeping each other company. In the community-of-practice, they know these materials intimately. Thus, they are able to form the insights or materials in combinations anew when facing problematic situations.

When there are system errors or other types of breakdowns in the workflow, communicators typically consult the supervisor or develop interim coping strategies, while experts are solving the problem. In FlexSite, technical breakdowns are perceived as happening very seldom; nevertheless internal technicians give constant support. Although in the interviews only managers and helpdesk technicians could recall a few breakdowns, during observation the researchers were able to observe several small ones. When confronted with this contradictory information a second line communicator opined: “Breakdowns here mean that we cannot make any sense of what is happening and we have to stop working. The small ones, that you have observed, are pervasive, everyday phenomena that we are able to solve and to harness thanks to...I have no idea! It seems that we absorb them because there is some recurrence.”

FlexSite has absorbed breakdowns through the incorporation into some kind of problem solving routines. Nelson and Winter (1982, p.129) provide a similar example: “Consider the foreman of a work team responsible for a particular operation (set of routines) who observes that a machine is not working properly. He routinely calls the maintenance department, which in turn routinely sends out a machine repairman. The machine repairman has been trained to diagnose in a particular way the troubles that such a machine might have. He goes down a list of possible problems systematically, and finds one that fits the symptoms. He fixes the part so that the machine again plays its role in the overall work routine. He may also, however, report to the foreman that this particular kind of trouble has become very common since the supplier started using aluminum in making the part in question and that perhaps the machine should be operated in a different manner to avoid the difficulty.” The authors suggest, “the responses described fall into the typical pattern in which a crisis or ‘exception’ condition in one part of the organization is part of the routine content of jobs of other personnel” (Nelson and Winter, 1982, p.130).

In FlexSite, we have an exemplification of how the routinisation of activity allows organizations to harness the occurrence of disruptions. The actors involved in the solution of a problem are forced to articulate knowledge through a series of organizing moves,

decisions, narratives and so on, which enact certain structural features of the organization (e.g., the division of labor, the application of problem solving procedures, the deliberate use of equipment and work tools).

BlackSite: The effects of a coercive structure

BlackSite is the only standalone telebank in the country. It started in May 1994. PrivateBank always wanted BlackSite to provide, on an independent basis, all kinds of services and products of any network and have its own customers. BlackSite was a quasi-autonomous structure within the PrivateBank Group, but its customers could use the ATMs or branches of PrivateBank. BlackSite, like FlexSite, is another business network of PrivateBank, because it does not have self-equity.

As with all the new projects within PrivateBank, the design philosophy was the green field site. BlackSite was established as a new company and began its operations for the first time in a new site. Unlike FlexSire, BlackSite could already draw on positive experiences from other PrivateBank callcentres.

Implementation of BlackSite. The goal of BlackSite was no different from any other telebank: to increase customer access hours to the bank. Their uniqueness lay in the status as a standalone telebank, a bank working only through direct channels, with a very personalized service, which thus avoided automatic call answering. Like FlexSite, the implementation of BlackSite followed the strategic guidelines of the PrivateBank group. BlackSite was an attempt to supra-impose the work values and religious ethics, but taken to an extreme. For example, control is perceived by communicators as reaching unbearable levels, and conformity to norms and standards was enforced. The use of IT-control measures enabled the setting up of surveillance imposed blindly on communicators. The impact of this surveillance especially has the ability to instill a profound sense of self-defeat. BlackSite is a clear counter-example of what the management of PrivateBank group believes as the unifying and overarching culture shared by every single member of the group. The perceived power distance is enormous, informal communications are discouraged, teamwork is non-existent, and communicators have no discretion in how they do their work. Hence, this can question the management credo of a consensual and homogeneous culture.

The major difference between FlexSite and BlackSite was that an external multi-national consulting company managed the BlackSite project from the start. None of the workers were aware of the different phases of the implementation of BlackSite. Most of the team in charge of implementing BlackSite belonged to the consulting firm.

This perception by people inside the communication area has its roots in the implementation process. None of the communicators had access to the three configurational processes (customer, technology and work). For example, for most people the technology involved in BlackSite was perceived as a ‘turnkey solution’. Only the technicians acknowledged that there were alternatives, more accurate paths to be followed, namely in the development of TCS. Thus, the workers at BlackSite did not have the possibility of borrowing the knowledge required to operate the technology, because they did not have the chance to legitimately participate in that social practice. Moreover, a strong competitive environment based on highly individualized job design existed, and informal communications were very restricted. These aspects were reinforced on all fronts:

- The implementation of a ‘unopenable’ black-box.
- The copy of UK’s First Direct mixed with the modes of working and organizing that pre-exist at the group PrivateBank branch level.
- The implementation of a technology, developed for FlexSite, imposed a contested formative context on the existing supra-imposed one.
- The high level of standardization of the tasks, to the extent that communicators had no discretion in how they do their job.
- The ‘octopus’ of control that spread its tentacles all over the place, from IT-based control (which monitored performance and output and the wallboard of stacked calls) to the direct normative control of supervision (even the creation of an additional supervision level to reinforce this latter type of control).
- The work levels were imposed by manager outside the communication area, who, due to lack of knowledge about the workflow inside the communication area, set unachievable goals.

All these aspects prevented social interaction among actors inside the communication area. The identity process around the task did not take place, communities did not develop, and only individual forms of resistance took place in response to the deep self-defeating

feeling. Participation was crucially affected by the social structure and power relations that shape possibilities of learning.

The transparency of the socio-political organization of practice, of its content and of the technology engaged in practice, was a crucial resource for increasing participation. At BlackSite, this transparency was absent because of values favoring control and the maintenance of a system, the implication is that collective learning is inhibited. Only individually could communicators find their own way of coping with the gaze of the 'big brother'.

BlackSite in Action. The customer call triggers the dynamics inside the BlackSite communication area. The customer assistant relates first to the customer, and in case of doubt, they contact either the supervisor or assistant supervisor. In an unproblematic phone call, the procedures are the same as in FlexSite. In the case of a problematic call, assistants stand up in the callcentre and call the supervisor while the customer is kept on hold. Whenever there is a technical problem they ask for the technicians' help via the supervisor. Thus, the standard procedures suggest the following 'moves' (Pentland, 1992):

- Keep the customer on hold, stand up while waiting for the supervisor or assistant supervisor.
- Look for a solution with the help of a supervisor or assistant supervisor.
- If the problem persists, either the supervisor or assistant supervisor searches for a solution in the back office.
- The customer assistant notes the name and contact number of the client.
- People from the back office call the customer back in order to solve the problem.
- If the system is down, wait for the technician and ask the customer to call back later.

In the case of a problematic call, the customer assistant is but a transparent filter between the customers and BlackSite. Not only do they not solve any problems, but also they do not get back to the customer. The supervisor's (or assistant supervisor's) role is as a first order problem-solver together with customer assistant and the link between the communication area with the back office, where they are supposed to reach a joint solution. Back office is the decision center of the communication area and a depository for records of all transactions.

Tasks were, in most cases, strictly individual and communication among co-workers was discouraged. Two aspects of the work constrained co-workers' relations while working: the standardization of the tasks and information capacity of IT to regulate and circumscribe communicators behavior, whereby communicators were evaluated according to how much time they spend on the phone. This meant little time available for communicating among co-workers, with an associated high chance of decreasing the quality of work.

The customer assistants were aware that their own output and performance were being monitored electronically. They were also confronted with prominent digital wallboard displays, making highly visible the number of stacked calls waiting to be answered. It might be difficult for the assistant to speed up, yet s/he is conscious that the current call must be terminated promptly, in order to take the next one.

"We are cannon powder!" (BlackSite Customer assistant)

"People here live with control in their heads!" (BlackSite Technician)

Learning-by-doing or from co-workers was not encouraged. Assistants mainly depend on their supervisors for learning. Communicators always felt under pressure and were constantly aware that the completion of one task is immediately followed by another, 'they have an assembly line in the head' (Taylor and Bain, 1998, p. 10). Some customer assistants tried to circumvent what they perceive as unbearable control levels. Hence, they developed non-canonical (Brown and Duguid, 1991) resistance routines to deal with the perceived inadequacies of formal ones. It was, in a sense, a last resort in an almost unbearable situation. A number of interviewees reported being able, albeit to a limited extent, to disengage from the waiting queue calls and we also observed the practice of individuals giving the impression of being engaged on a telephone call when, in fact, no interaction was taking place. There are blind spots in the gaze of the electronic eye which could enable individuals to resist the rationalizing forces of surveillance (Sewell, 1998). This meaningful opposition was a widespread form of behavior and practices at BlackSite.

Assistant communicators were subject to continuous normative pressure to behave appropriately and were constantly monitored to that effect. IT-generated information was the basis for control complements by direct control imposed by the supervisors. Some output measures were also used for financial products selling campaigns. It was very hard for

assistants to escape the continuous gaze of supervisors and managers (Taylor, 1998). Supervisors were always trying to improve performance based on the measures and criteria considered adequate. Furthermore, customer assistants viewed call monitoring very negatively. The direct supervision was not only highly obtrusive but also highly visible. Communities-of-coping were not formed because of the pervasive role of control, namely direct supervision, and the lack of support for informal interaction among communicators.

While the technology allowed extensive monitoring it did not spell the end of human supervision. That was why the additional level of supervision was created. Assistants' performance reports still needed to be interpreted by managers external to the communication area. The role of human supervision was equally obvious for the assessment of taped conversations. No electronic machine could summon the assistant to a coaching session to point out the deficiencies of their communication with the customer. Interdependence between customer assistants was low, and supervisor-customer assistant relations were hierarchical. Thus, the teams should be called workgroups instead. Teamwork involves, at the very least, verbal interaction between team members, which was denied both by the organization of work and the supervisors. An assistant dealt with a continuous flow of calls and divided from fellow assistants by a partition was separated both physically and audibly from the rest of the group members. There was a clear top-down process for relying on information. Hence, working in a team did not mean working together. Teams, indeed, fostered supervisor-led learning and in the process mitigate this otherwise hierarchical experience. These constraints meant that team working was, in terms of its management objectives, aimed more at aggregating individual levels of output and attempting to create a sense of collective identity in an organization of work that was inherently individualizing (Kinnie, Hutchinson and Purcell, 1999).

There was low learning interdependency among communicators and the back office. They had very high task interdependency, combined with functional division of labor. The back office assumed a central place at BlackSite; they did not merely receive the unsolved problems from the communication area, but also had to crosscheck and validate all the "solved" problems. Thus, communication workers were depended on back office personnel to approve their work. The relations between communication area and back office were quite tense, despite the fact that there was very little direct interaction among adjacent workers, since supervisors and managers mediated relations with communication workers and the back office.

DISCUSSION

In this section we will start by presenting the main conclusions from each case separately and then compare what the sites had to tell us and draw the main conclusions.

FlexSite. Despite PrivateBank's strong traditional culture of control and efficiency, FlexSite was a green field and a pioneering experience, a sort of organizational *terra incognita*. Therefore, only the objectives were established in a top-down manner. The design concept was neither highly structured nor planned and this allowed for a highly participating enterprise, which gave room for improvisation. This loosely-structured design concept and guidelines took the position of a minimal structure, because they circumscribed the set of controls employed to accomplish effectiveness, for which improvisation has been touted (Weick, 1998; Orlikowski, 1996).

From the outset, these implementations are more likely to win the support of those who will use the technology and to reflect problems that participants perceive as real and pressing.

The cornerstone of this approach was broad participation by those who would be affected by the technology. They did not wait to act until they had the perfectly conceived plan; instead, they create an always temporary plan by acting.

An experimental culture resulted from a set of values and beliefs that promote action and experimentation as a way of facing reality. They had peripherally been exposed to the actual practice. However, it was only when they were granted the legitimacy of being treated as project team members that they had full access to practice. They were able to engage with the technology, participating in social relations and all other activities. The internal part of the team were under the influence of a formative context (Unger, 1986), which accounted for their skills and the lack of awareness of their actual practice. This formative context constituted the background condition for their actions, enforcing constraints, giving direction and meaning, and setting the range of opportunities for undertaking action. There was tension between a deep-seated formative context which was conducive to formalizing and defining rules, roles and tasks, and the action of this community-of-practice, that was unfolding and developing simultaneously with the progressive institutionalization of work practices and routines. However, the outcome of the formative context was a transparent, taken-for-granted neutral technology for the communicators who daily execute the routines with TCS.

This resulted in a smooth process of identity building that evolved into a community-of-practice around their tasks and its constant need for redesign.

Clearly there was a struggle between an invisible, conservative, formative context which wanted to remain the same and the visible, ephemeral routines, between dynamic stability and unwillingness to change, between ‘transient constructs’ and more permanent ones (Lanzara, 1999). It was the flexible nature of the workforce, resulting from LPP, that allows this dynamic balance, and kept FlexSite going, and it was an important space for the creation of new practices and routines that alter the formative context.

In FlexSite, there was a held belief that a great plan could only be accomplished by finding an emerging pattern in actions taken in the past through sensemaking (Weick, 1995). The implementation of TCS, in turn, affects the formative context inasmuch as tacit knowledge became embedded in TCS, therefore the boundary shifted between what was tacitly held as background knowledge and what they were aware of as situational knowledge.

‘Design is a process of sensemaking that makes do with whatever materials are at hand’ (Weick, 1993, p.351). The organizing process of implementation of FlexSite was, from the start, an ongoing process of designing and sensemaking (Ciborra, 1999), where improvisational learning played a major role as an embryo to set routines. The design of FlexSite was a function of the negotiated actions and interpretations of some of its members and was in a constant activity of change. Improvising means using the resources at hand (material, social and/or cognitive) while action unfolds and organizing takes place. It is the capacity to create resources from the residues of past experience that guides the design. Building from scratch might require improvisation, because improvisation has the ability to serve as a transmitter of tacit knowledge and also because there is a lot of sensemaking activity going along all the non-routine situations.

One could argue that the construction of FlexSite from scratch rested upon the high-institutionalized know-how of PrivateBank. However, a large amount of new knowledge or re-combinations of existing knowledge were also needed, so the project team was composed in a way that a pool of different types of knowledge could be combined.

The actor must make sense of a situation that makes do with whatever materials are at hand (Weick, 1993). ‘Such constructions [*bricolage*, reflective practice and situated practice] are part of learning, additions to the *bricoleur*’s set, and will be revisited in retrospection or when attempting to analyze new problems’ (Orr, 1996, p.12). For Schön (1983) notions of knowing in action and reflecting in action are essential for *bricolage* to occur, since it

requires the enactment of items from the context. The *bricoleur* is a pure agent of structure (Weick, 1999).

The first group of communicators became important. For them it was a formative experience whereby they molded their 'own telebanking'. This promoted in them the development of a sense of belonging to a community of pioneers. In stabilizing FlexSite, participation legitimately crept in from the periphery as a function of their developed, negotiated understanding and identity, under the influence of the formative context. Their legitimacy was an important function of the social relations between different hierarchical levels inside FlexSite. The community-of-practice acted as a locally negotiated regime of competence. Its members were connected by their tasks and by socially constructed webs of beliefs. This community was the locus for understanding social practice inside FlexSite.

Legitimate Peripheral Participation was the pattern for socializing newcomers into FlexSite. The extra-functional skills requested from any newcomer are like an ID, which will give him/her the legitimacy to enter the participation ladder. This starts with induction program in teams with various backgrounds. This primordial community-of-practice developed locally their idiosyncratic language. Both Orr (1990) and Lave and Wenger (1991) understand improvisation as a sense-making process of the incoming events and the development of *ad hoc* solutions within the community-of-practice and consist of non-canonical routines. The main purpose is to create a uniform knowledge base, but this can generate some conflicts and episodes of negotiation, shaping each other's experience of meaning, which in turn might increase their shared knowledge base. The original nucleus had situational, procedural and declarative situational knowledge. What they lacked was theoretical knowledge of different areas. They recruited the new group 'college boys' who had explicit, formal, theoretical knowledge- who on the one hand could enlarge FlexSite stock of knowledge, and on the other hand, their lack of experience made them a highly manipulable group. However, this was not necessarily a conscious process. The first group of communicators was perceived by this second group as having the competence and experience that they lacked. Both groups start their process of constructing or reconstructing their identity. This happened from the training onwards.

Learning took place especially through modified forms of participation that were structured to open the practice to these yet non-members. Peripherality provided an approximation of full participation that gives exposure to actual practice. With observation as a means of precluding actual engagement, special assistance by experienced communicators

and the exchange of stories that are part of practice and take place within it. This type of participation provided them access to the three dimensions of practice: mutual engagement with other members, their actions and their negotiation of the enterprise, and to their repertoire-in-use. This provided them with a sense of how their community operated and, at the same time, granted them enough legitimacy to be treated as potential members.

These communicators became included in the community-of-practice, which was a high involvement system. This initial community-of-practice was the backbone of FlexSite. It was the key to successful situational on-the-job and improvisational learning. They were the ones who progressively, and largely, by trial and error or by discovery, organized work inside FlexSite.

Despite the direct supervision, standardization and indirect controls coordinated via PrivateBank's culture, improvisation took place. The touchstone of controlling improvisers lies not so much in the degree of obtrusiveness of those mechanisms, but in their invisibility. In what concerned direct supervision, the facilitative supervision assumed by FlexSite supervisors allowed this type of co-ordination without hampering creativity (Sewell, 1998). Second order controls were rendered invisible not only because they were incorporated in the 'production' technology, but because very little relevance was given to performance data: because they were already working at full capacity.

The community-of-practice still profited from the work enrichment policies of PrivateBank, namely flexibility and rotation. The emphasis on the flexibility of the work force and the rotation policy, and at the same time the stability of PrivateBank as a whole, allowed this community to improvise. Because of these policies, they were able to develop a good pool of resources from which to draw when a decision or problematic situation arose. They improvised concerning recruitment policies, organization of work and job design inside FlexSite. Hence, FlexSite is a product of the accumulated negotiated actions, *bricolage* and improvisation that occurred while developing, and new solutions were needed to face problematic situations. These policies, training programs and system designs were often at odds with the reality of their work. We found that it was the collective construction of a local practice that, among other things, made it possible to meet the demands of the institution. Although communicators' work may appear individually designed, and though their jobs are primarily defined and organized individually, communicators become important to each other. They were quite aware of their interdependence in making the job possible and the pleasant atmosphere.

Lave (1988) argued that everyday, routine activities are especially appropriate topics for practice theory. The calls and all the moves inside FlexSite were interesting from the organizational point of view because they invoke and enact the major structural features of the organization. The stabilization of FlexSite owed a lot to improvisation because that was one important process through which knowledge was transmitted and meanings were 'rented' by individuals (Holquist, 1983). Through these processes, minimal structure was enacted.

BlackSite. The black box that constituted BlackSite was impossible to open. The implementation of BlackSite, from structure to organization of work, to constitution of the workforce was carried by the consulting company, with the Board of Directors only establishing the goals and guidelines. The latter wanted TB to be a highly competitive bank. This in turn was converted into an internal, competitive environment. Moreover, some technicians participated in the adaptation of TCS, but their participation was restricted to minor developments, once it was assumed that the developments done for FlexSite were enough. Hence, some of the formative context of FlexSite was imposed on BlackSite by means of the technology.

BlackSite was black-boxed for its users. As opposed to FlexSite, BlackSite was physically isolated from any of PrivateBank's companies and the lack of perceived technological and job content changes reinforced this idea of a black box.

BlackSite faced a number of challenges almost from day one. These included: considerable IT problems, an inexperienced management team (which was mostly from the PrivateBank branch network) and centrally determined human resources policies and procedures which were inadequate to the particularities of telebanking. The various groups of employees, who were at least slightly aware of the outcome of the implementation process, blamed the consulting company for having devised an over-ambitious project, trying to imitate UK's First Direct, without acknowledging the specificity of the market.

The structure of BlackSite being similar to other organizations from the group was a clear sign of the pre-institutional stage BlackSite was in (Tolbert and Zucker, 1996). The way the BlackSite project was designed and implemented lead to a poor understanding of the technology, very ambiguous goals and the environment itself created symbolic uncertainties. Thus, BlackSite modeled itself on the PrivateBank branch network that had already proven its success. This was accomplished by imitation or by what DiMaggio and Powell (1983) refer to as mimetic mechanism of institutional isomorphic change. Although, BlackSite was a

green field site designed ‘all at once’, it was actually the outcome of two institutional isomorphic changes. The first one was imitation-by-design held by the consulting company, the second results from the first by generating uncertainty. BlackSite ended up by imitating established practices existing in the bank branches from which they were more closely dependent. Thus, it was little wonder that the structure of BlackSite, a standalone bank, was the same as in the branches of the group. It was again the power of the formative context imposing the rules of the coercive organizational structure and design and the corresponding ways of not sharing information in the context of use.

The concept of the stand-alone bank was understood as independent from any PrivateBank structures, and this remains something of a paradox. On the one hand, BlackSite depended on PrivateBank information systems but they did not use the support and stock of knowledge already available. Moreover, while they previously had good experiences, such as FlexSite, to draw on (which is closer in terms of the knowledge and expertise required), the green field design concept together with the idea of an independent bank led PrivateBank to hire the consulting firm. As a result, the branch structure was copied and people from within the group were selected which, taken to the extreme, can question the design concept.

BlackSite was a multi-layer sedimentation of incompatible formative contexts (that is, PrivateBank culture and FlexSite). These contexts were incompatible because there was no room for its enactment in action, and therefore, sensemaking processes were very hard to take place and/or to attach meanings to their work or to the technology. The lid of black box could not be open, hence technology and work never gain interpretative flexibility. As a consequence, there were not only material limits to interpretative flexibility but also cognitive hurdles.

The stability of BlackSite depended on the black boxing of the whole enterprise supported by high levels of control and the development of non-canonical coping strategies to circumvent the perceived inadequacies of the formal routines.

CONCLUSION

At a first glance, we would be led to the belief that in both sites the minimal structure philosophy of structuring had been adopted. The espoused green field implementation strategy, together with the loosely structured guidelines emanated from PrivateBank board of directors could easily match the definition and all the benefits of minimal structuring. However, we need to delve simultaneously into both their definition and into what the sites

had to tell us. In order to achieve this endeavor we revisited the cases and then got back to the characteristics of minimal structures. In FlexSite, the green field philosophy together with the fact that it was a pilot site in the country, created among its members the need to keep some processes under control (structural constraint) and due to the low degree of institutionalized knowledge, it created the conditions for the enactment of unforeseen structures (opportunity structure). To find the balance between these opposite forces and to face the underlying formative context, FlexSite members' had to rely on each other to make sense of their work setting. Therefore, they engaged with each other, negotiated and created a mutual repertoire and placed themselves on an inbound trajectory. A strong community-of-practice was created that allowed them to actually enact the minimal structures and a highly involvement system. Various types of learning were encouraged, including trial-and-error and improvisation.

At BlackSite, there were only structural constraints. Here, people felt they were compelled to follow the supra-imposed guidelines and conform to the rules. Control was perceived as reaching unbearable levels. The impact of IT surveillance especially impregnate a profound sense of self-defeat. There were no *zones of manoeuvre* to engage with fellow coworkers. There was no shared identity, which compromised situational learning to develop and any but imposed self-contained structures to play their part. As we have said before, the pre-existing formative context exerts a major role upon the form and course that the development of communities-of-practice. It can enable them or hinder any sort of social identity to take place.

Despite the study's limitations, which include the limited number of cases, lack of developmental focus and lack of a wider systematic context within which the technology under scrutiny is operating and the difficulties of analytic generalization. Several observations from our cases should be considered in future research. This study allows testing the concept of minimal structures in an empirical, dynamic way. Thus, going back to Kamoche and Cunha's (2001) definition and confronting it with our cases, it seems that we should read between the lines. "co-ordination devices that attempt to focus the activities of people around a common set of goals and deadlines without limiting their discretion to best decide how to reach these goals". The first part of the definition is what the consulting company tried to do at BlackSite. The implementation of minimal structures should then consider the way people actually enact the co-ordination devices. In Blacksite, they enacted co-ordination structures as unbearable control structures, where employees' discretion was

non-existent. What the cases seem to tell us is that, to take more out of the minimal structure philosophy, several requirements should be considered. A strongly shared identity, in particular, emerged as increasing the chances for communities-of-practice to flourish and the various types of situational and improvisational learning to take place. Minimal structures seem to be enacted in practice through recurrent interaction with the technology at hand. It is precisely interaction what makes the community-of-practice perceive those structures as enabling.

The theory of organizational learning can greatly benefit from the development of a theory of organizational improvisation, or vice-versa. The fluidity and interpenetration of identity, learning and improvisation makes it increasingly difficult to 'know the dancer from the dance' (W.B. Yeats, *Among School Children* VIII).

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