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# USING THE INTRANET ENVIRONMENT FOR ENHANCING ORGANIZATIONAL CREATIVITY

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## Abstract

The use of intranet has become crucial to support managerial practices increasing organizational creativity. However, it can also generate “creaticidal” effects by reproducing practices hampering creative processes. Based on an in-depth case study at Schneider-Electric (France), this article studies the effects of the intranet usage on creativity within the four departments of the company. The intention of management is to encourage the innovation by stimulating the collaborators’ creativity through the intranet use throughout the departments. Although the intranet is impelled with similar intention, the results reveal that its use has reproduced the already existing managerial practices in departments. The study reveals the importance of reconsidering managerial practices so that the use of intranet that emerges in the human interaction, does not contribute to the “creaticidal” practices in organizational context.

**Keywords:** *Intranet, Organizational Creativity, Managerial Practices, Structuration*

## 1 INTRODUCTION

Creativity is commonly considered as a potential source of innovation which a company ought to be permanently developing. It is fundamentally a cognitive process of idea generation, while innovation corresponds to the social process by which the created ideas are accepted and implemented into an organization thus conducting to a social, economic or cultural change (Amabile, 1988). Because innovation presumes creativity, the capacity of management to stimulate collaborators’ ideas is a necessary factor of the success or the failure of organizations (Williamson, 2001). Among methods which can improve the creative potential of individuals, researchers distinguish methods modifying the individuals’ thinking manner from those providing a work environment favourable to the development of new ideas (Plucker and Runco, 1999). The first methods seek to improve this potential by techniques aiming at stimulating ideation such as the brainstorming<sup>46</sup> (Osborn, 1953), the synectics<sup>47</sup> (Gordon, 1961) or the lateral thinking<sup>48</sup> (De Bono, 1970). These techniques relate to the cognitive approaches of creativity making it possible to understand the nature of the creative thinking. Nevertheless, these approaches are the subject of many critics because they don’t demonstrate their efficiency in various types of work environment (Sternberg & Lubart, 1999; Nickerson, 1999). The second methods which can improve the creative potential of individuals, relate to the interactionist approaches supporting the role of the organizational context in the development of creativity (Woodman and Schoenfeldt, 1989; Woodman et al., 1993; Gundry et al., 1994; Amabile et al., 1996). According to these approaches, the management can influence the creative processes by managerial practices relating to the degree of work autonomy, the communication openness, the decentralization of decision-making and the group cohesiveness.

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<sup>46</sup> The brainstorming is based on the premise that quantity of ideas breeds quality that production of many different ideas increases the likelihood of coming up with a high-quality idea.

<sup>47</sup> The synectics means the joining together of seemingly unrelated elements using metaphors. This approach argues that, by using the similarity between apparently dissimilar objects, individuals will be able to look at objects differently.

<sup>48</sup> The lateral thinking approach consists of rejecting pre-formed ideas by making association between them or with others, and advancing by successive iterations and jumps rather than following a linear reasoning.

Among emergent technologies susceptible to support such managerial practices, intranet has also become crucial in large organizations (Curry and Stancich, 2000). Using intranet allows useful information to be easily reached and knowledge to be shared, which encourage users to act autonomously (Scott, 1998). Furthermore, intranet use helps to blur the boundaries between formal and informal communication by offering an open lateral communication (Badwen, 1986), thereby improving decision-making in organizations, as any collaborator can share his or her experiences (Sridhar, 1998). In this case, intranet use is faithful to “the spirit of the technology” (DeSanctis and Poole, 1994). Nevertheless, the usage of intranet can also generates “creaticidal” effects by reinforcing the power centralization (Bloomfield & Coombs, 1992 ), the excessive formalization of processes (Ciborra and Lanzara, 1994), the behaviour surveillance in workplace (Wood, 1998), thereby hampering the creative processes within an organization. Thus, it is important to clarify this ambiguous relationship between creativity and the use of intranet in managerial practices within an organization.

This article analyses the effects of the use of intranet on creativity in four departments of the same organization, Schneider Electric (France). It emphasizes that the ambiguity of intranet usage, which amplifies the creative processes in certain departments while it slows them down in others, can be explained by the appropriation processes which emerge from managerial practices specific to each department.

After clarifying the effects of the intranet usage on organizational creativity according to the literature, this paper justifies the methodological research used in the case study carried out at Schneider-Electric (France), and specifies the principle results before discussing them according to the theoretical findings.

## 2 ORGANIZATIONAL CREATIVITY AND INTRANET USE IN MANAGERIAL PRACTICES

We present in this section the concept of organizational creativity and managerial practices supposed to stimulate it, before analysing the effects of the intranet use on creative process.

### 2.1 Organizational creativity in the interactionist perspective

The concept of organizational creativity comes from an interactionist theory of creative behavior showing that a creative outcome emerges in the interactions among the person, the creative process, and the creative product occur within an organizational context (Woodman and Schoenfeldt, 1989) (see figure 1):

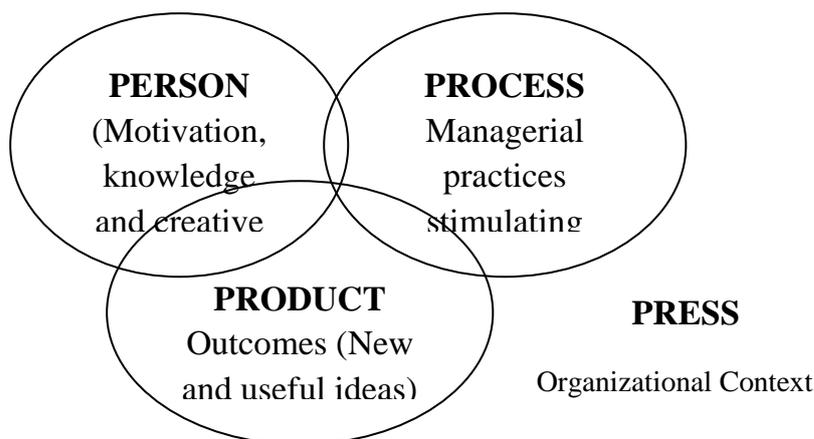


Figure 44 Organizational creativity according to the interactionist theory (woodman et al., 1993)

The essential assumption of the interactionist theories is that in a given organizational context, all individuals with normal abilities are capable of producing ideas with a certain degree of originality, and that management is likely to influence creative performance. Thus, management can positively

influence the intensity and the frequency of creativeness by stimulating motivation, as well as encouraging knowledge-sharing, and developing the creative skills of employees (Gundry et al., 1994; Amabile et al., 1996), but it also hinders them by bad practices (Amabile, 1998). According to the interactionist perspective, the organizational creativity is at the same time an emerging product of the human interactions, and the process by which managerial practices stimulate the development of ideas (Woodman et al., 1993). These practices concerns actions and habits which are developed by management and that are expressed through its decisions and its culture (Delbecq and Mills, 1985). Among practices susceptible to stimulate ideas in creative processes, the literature distinguishes:

- Communication openness

Is a well-recognized practice in stimulating ideas and in collective learning (Monge et al., 1992). Thus cross-functional communication, by means of internal communication or cross-functional teams, enables people to become involved in all parts of the organization and makes creativity useful to everyone. However, if corporate communication channels are implemented to promote formal vertical information-sharing only, people in different parts of the organization will never interact, hence preventing knowledge-sharing and decreasing organizational creativity potential. The aim of establishing an effective system of communication is to ensure that a systematic channel examines as many ideas as possible and that waste is reduced.

- Work autonomy

Several researchers have emphasized the potentially important role of autonomy in developing creative performance (Bailyn, 1985). Autonomy within processes fosters creativity because it gives people freedom in how they approach their work, heightens their intrinsic motivation, and increases the sense of challenge (Amabile, 1997). Therefore, creativity is fostered when individuals and teams have relatively high autonomy when carrying out their work, and a sense of ownership and control over their own ideas (Zhou, 1998). In contrast, an organizational context in which individuals are subject to a systematic monitoring of their behaviors impedes their creativity (Shalley, 1995). Because individuals are likely to perceive each of these practices as controlling, this may lead to a decrease in their intrinsic motivation that is necessary for creativeness.

- Decentralization of decision-making

Decentralization is more likely to encourage creativity (Carter and Cullen, 1984). This also facilitates information exchanges and interaction among individuals, leading to the generation of meaningful information and interpretations. Furthermore, decentralization improves the quality of decision-making through a better adaptation to the context, and favours the motivation of personnel by increasing inter-personnel and inter-department stimulation. In contrast, high levels of centralization can lead to conflicting perspectives and can hinder the development and implementation of new ideas. Furthermore, centralization tends to individualize work by limiting interaction and information exchanges between members within the same team, and by increasing formalization, thereby restricting the development of creativity (Hlavacek and Thompson, 1973).

- Group cohesiveness

Also known as cohesion represents another important characteristic of the creativity in working groups. Cohesion refers to the desire of all the members to work together and to adhere to group objectives (Leana, 1985). It is dependent on the compatibility of the group objective with the individual objectives of group members. If these objectives are compatible, the cohesion will be stronger as its members may find it beneficial to work together and individually accept the group objectives (Kramer et al., 2001). Good cohesion tends to create a climate of trust, encouraging the generation of new and useful ideas (Paulus et al., 2001). In contrast, weak cohesion can be seen in isolationist behavior and attitudes (Amabile et al., 1996). In fact, certain group members distance themselves from others and refuse any form of interaction therefore impeding their own creativity like that of the group.

We have so far identified and described the managerial practices which are supposed to stimulate organizational creativity. The question which arises is to know, how the usage of intranet can favours

these practices or on the contrary, impedes them. The adaptive structuration theory is a useful guide for bringing replies to this interrogation (DeSanctis and Poole, 1994; Nagasundaram and Bostrom, 1994).

## 2.2 The intranet use: amplifying or slowing down organizational creativity?

Intranet is an application of Internet technology within an organization for the purpose of information dissemination, knowledge-sharing, communication, integration and collaboration (Duane and Finnegan, 2003). It is a private computer network in which only authorized users have access. Its functionalities can be used for diverse applications such as individual communication (electronic mail and electronic agendas), group communication (collaborative spaces, electronic meetings, sharing-knowledge systems) and mass communication (Web server) (Curry and Stancich, 2000). If the use of intranet faithfully to the “spirit of the technology” (DeSanctis and Poole, 1994), can contribute to the organizational flexibility by facilitating exchanges and information-sharing, it can nevertheless exacerbate rigidity thereby encouraging conformist behaviors unfavorable to the creativeness (Ciborra and Lanzara, 1994). This ambiguity can be explain by the “duality” of structures (Orlikowski, 1992) whereby there is an interplay between the types of structures that are inherent to the technologies and the structures that emerge in human action as people interact with these technologies. The duality can explain how people appropriate structures embedded in technologies and adapt them to their particular work practices, or they resist them or fail to use them at all. The duality makes possible contradictory effects of the intranet use in the creative processes (Robey and Boudreau, 1999) (see figure 2).

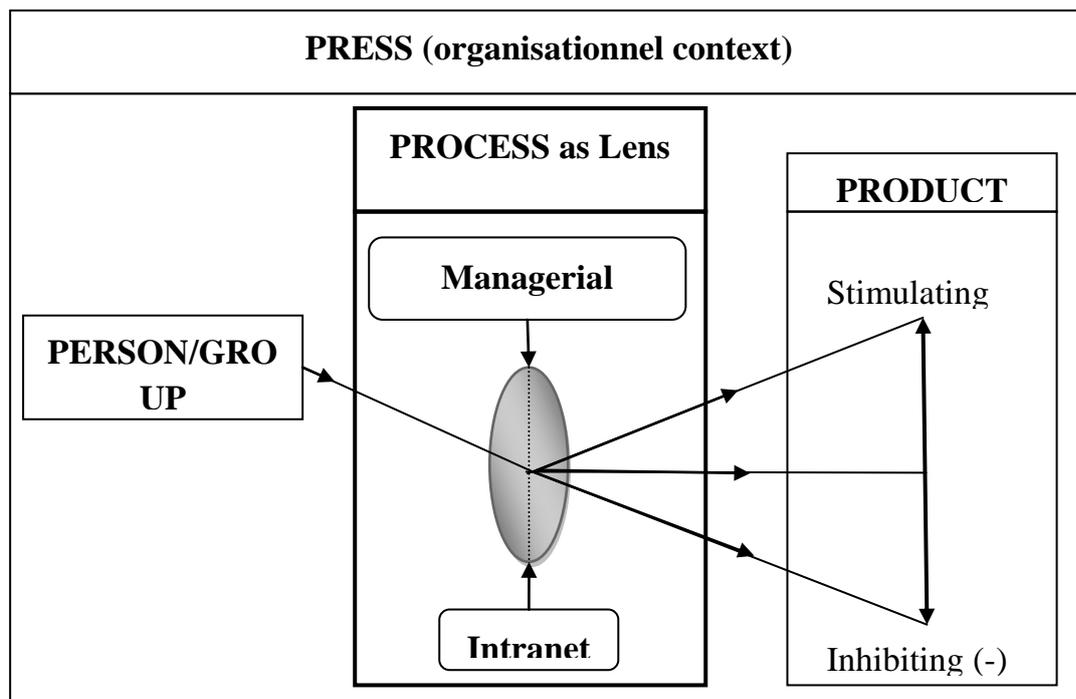


Figure 45 The structuring of creative process using intranet (Adapted from Nagasundaram and Bostrom, 1994)

The creative process is represented via the metaphor of a lens that influences the persons’ creativity by stimulating, neutralizing or inhibiting their idea generation. Thus, if managerial practices provide a set of structures that enable or constrain group interaction and communication, the use of intranet can support these practices through its structural functionalities. Employees can use functionalities and adapt them to their usual practices faithfully to the “spirit of the technology”, or they don’t use them, or subject them to their habitual practices which they seek to preserve. The effects of the structuring mechanisms, therefore, are not deterministic, but emerge from their interpretation and constant reinterpretation by group with respect to their work practices (Weick, 1990). According to the adaptive structuration theory, the emergent structure of social action as people interact with the intranet,

correspond to the appropriation process by which the structure of the intranet is produced and reproduced in conformity with work practices. Thus, managerial practices resting on communication openness, work autonomy, decentralization of power and group cohesiveness with positive attitudes might be expected to lead to “*faithful appropriation*”, consistent with the technology’s spirit. In this case, the use of intranet can reproduce and amplify over time these same practices thereby stimulating ideas within an organization. In contrast, practices that reflect a high level of formalization and centralization might be expected to lead to “*unfaithful appropriation*”. In this case, the usage of intranet might lead people to reproduce and reinforce barriers inhibiting ideas generation (Ciborra and Hanseth, 2000). Furthermore, a very negative attitude toward intranet might lead to the refusal of technology’s adoption (Damanpour and Gopalakrishnan, 1998), because people negate its usefulness, and prefer preserving their usual practices. This attitude explains the “*neutral structural state*” of the intranet usage in the creative processes (Nagasundaram and Bostrom, 1994). Finally, if the appropriation process of intranet clarifies the contradictory effects on the creativity within an organization, it remains a social process which is not completely foreseeable (Robey and Boudreau, 1999).

The case study carried out at Schneider-Electric France offers a better understanding of the effects of intranet use on creativity in the managerial practices of the four company’s departments.

### **3 SCHNEIDER ELECTRIC CASE STUDY**

The case study was carried out during 2006 within the French Units of the Schneider-Electric Group, which had integrated intranet tools throughout the company departments for accelerating innovation by stimulating the creativity of collaborators.

#### **3.1 Creativity as innovation catalyser at Schneider-Electric Group**

Resulting from strategic acquisitions (Telemecanique in 1988, Square D in 1991, Merlin Gerin in 1992 and Lixel in 1999), and strategic alliances in particular with Toshiba (for creation of Schneider Toshiba Inventor in 2000), this French Group is one of the world leaders in the market of electrical energy distribution and industrial automation. It proposes solutions, products and services in the field of power supplies and distribution, automatisms, the control of processes and supervision. Present in 130 countries, the Group employs 85,000 people around the world and 20,000 in France.

The managerial desire to foster innovation has led Schneider Electric to place creativity at the centre of its activity, thereby encouraging it, so as to anticipate its clients’ needs, and maintain a competitive advantage.

Therefore, the desire to promote intranet use in the whole of Schneider Electric departments seemed to be an answer to this need, in order to accelerate innovation by enhancing managerial practices and stimulating creative processes. Thus, for faster and better innovation, Schneider Electric integrated intranet<sup>49</sup> in order to connect all its 8,000 employees in France that had PCs in 2006. The challenge for Schneider Electric through the usage of intranet was to make it the pillar of managerial practices in all parts of the organization, thereby making creativity useful to everyone.

#### **3.1 Research methodology**

The objective of this research is to understand the effects of the intranet use on organizational creativity by analyzing the manner by which the managers use and appropriate intranet in their work practices.

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<sup>49</sup> The intranet at Schneider Electric was set up in 1999 and has been constantly improved and reinforced ever since. It contains the global intranet France portal which guides the research towards the various local intranets and towards practical information; the local intranets which belong to each department putting at the disposal of employees a serious of information, documents, tools and data bases; and the applicative tools, which are the totality of collaborative tools managed by specific software, allow virtual meeting and collaboration at a distance (Quick-place space, NetMeeting, discussion forums, electronic mail, ...).

Indeed, we chose a qualitative approach founded on a unique case study, in order to reconstitute the appropriation processes, and to articulate the sense assigned to the intranet with their instrumental uses in managerial practices. It is a methodology adapted for conducting interpretative field studies in information systems (Walsham, 1995; Klein and Myers, 1999). Our device of research rested on semi-structured interviews, carried out on the workplace of the questioned people, and on a direct observation of the technological practices of the managers to the course and/or the end of each interview. The data were collected, thanks to the open-ended questions approaching five main themes: presentation of manager and his responsibilities; description of the organizational orientation towards the creativity and managerial practices in vigour; description of the conditions of intranet implementation and its uses; description of the effects of the use of intranet on behaviors in managerial practices; and finally description of the perceptions which had managers of the future of the intranet use as regards creativity. Thirty-one (31) interviews, lasting approximately one and a half hours for each one, had carried out with managers in the four company's departments (see table 1).

Departments	Description
Technical department (9 managers interviewed)	Department primarily orientated towards the design of new products which regroups the R&D, Product Quality, Design and Manufacturing Methods services.
Commercial department (8 managers interviewed)	Department mainly orientated towards the development of new offers and sales approaches which includes the Communication, Marketing and Purchasing Services.
Operational department (7 managers interviewed)	Department mainly orientated towards industrial production and preparing orders which regroups the services concerned with the finalisation of business affairs, contract management and the processing of orders.
Administrative department (7 managers interviewed)	Department orientated towards planning, organizing, commanding and controlling of management process which includes the Human Resources, Management Control and the centres for Shared Services.

*Table 17 Characteristics of the four departments in Schneider Electric*

Interviews were recorded and integrally transcribed without any corrections to the style. The total of the transcripts represented a corpus of more than 200 pages to which we applied the thematic analysis method to interpret the content (Krippendorff, 1980). This method is based on a codification of the text by themes, and enabled us to fully understand the perceptions and obtain summarized representations of each interview. Using the software<sup>50</sup> we have applied the factor analysis<sup>51</sup> to represent individuals' convergences and divergences in the coded interviews.

The results of the analyses and observations were regularly communicated to the departments, which enabled us to ensure their relevance for the managers interviewed. The conclusions drawn from the discussion of the results were formulated by successive iterations between the theory and the empirical data, following Miles and Huberman's (1984) recommendations. In addition, summaries were written and systematically compared with the previous theoretical findings on the subject, in order to enable a theoretical generalization to be made according to the findings of Walsham (1995).

### **3.2 Empirical results**

The empirical results emphasize that in each department of Schneider-Electric, managers appropriate intranet tools differently. Thus, in technical and commercial departments, they appropriate intranet to

<sup>50</sup> The Sphinx-Lexica Software.

<sup>51</sup> Factor analysis shows a visual representation of modalities (coded themes in this case study), which restores as well as possible the differences between the individuals' perceptions in the different Schneider Electric departments. The distribution of modalities and their positions the ones compared to others on each of the two axes are determined by the calculation of Chi2.

exchange and share their knowledge faithfully to the spirit of the technology as it is presented originally, whereas in administrative department intranet is appropriated unfaithfully to the spirit because it is especially used to control behaviors and to increase hierarchical power. In operational department, intranet does not make particular appropriations since the managers resist to its use in order to preserve their usual work practices.

This appropriation multiplicity of the same intranet, impelled with a similar strategy, explains the contradictory effects of its use on creativity in the managerial practices of the different departments at Schneider-Electric (see figure 3).

The dependence is very significant  $\chi^2 = 132,98$ ;  $df = 72$ ,  $p \leq 0,1\%$  (VS).

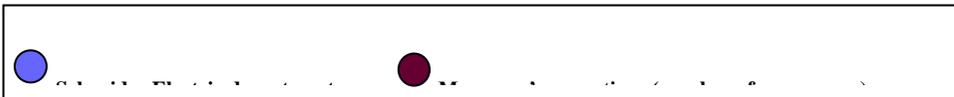
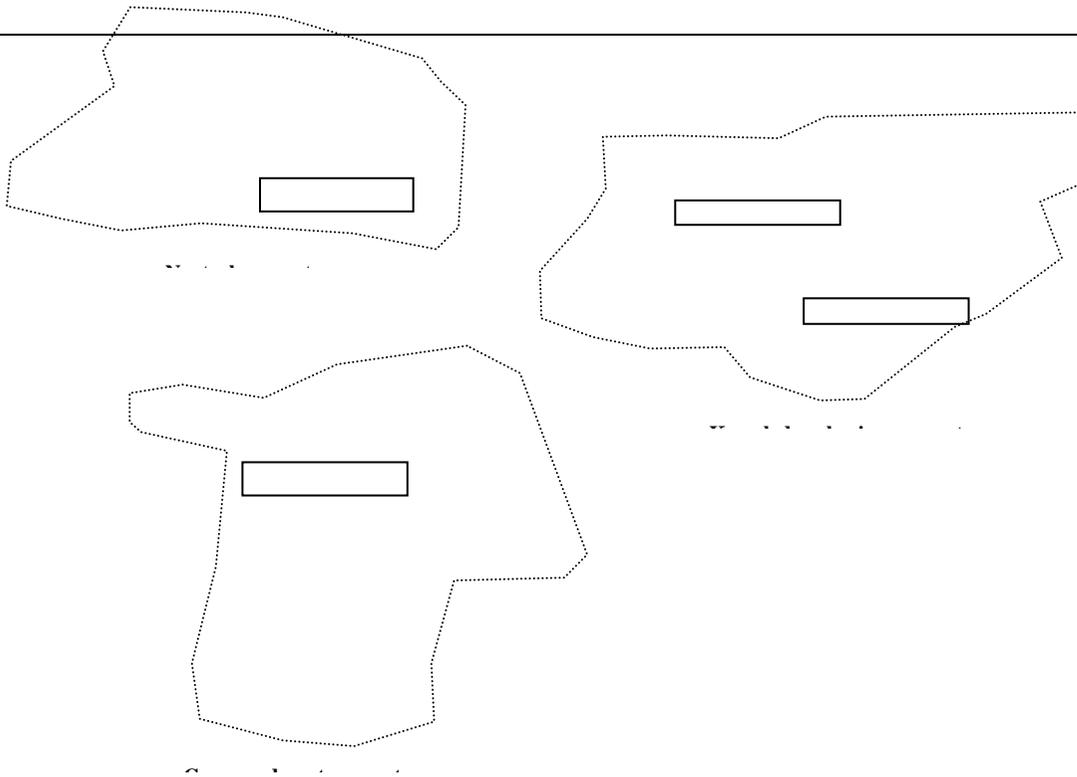
93% of the total variance explained by the two axes of which axe1 (60%) and axe2 (33%).

The modalities which are gathered by surfaces represent characters of remarkable constellations which retain the individuals who are in the corresponding zone and push back those which are distant.

The dependence is very significant  $\chi^2 = 170,45$ ;  $df = 78$ ,  $p \leq 0,1\%$  (VS).

93% of the total variance explained by the two axes of which axe1 (47%) and axe2 (46%).

The modalities which are gathered by surfaces represent characters of remarkable constellations which retain the individuals who are in the corresponding zone and push back those which are distant.



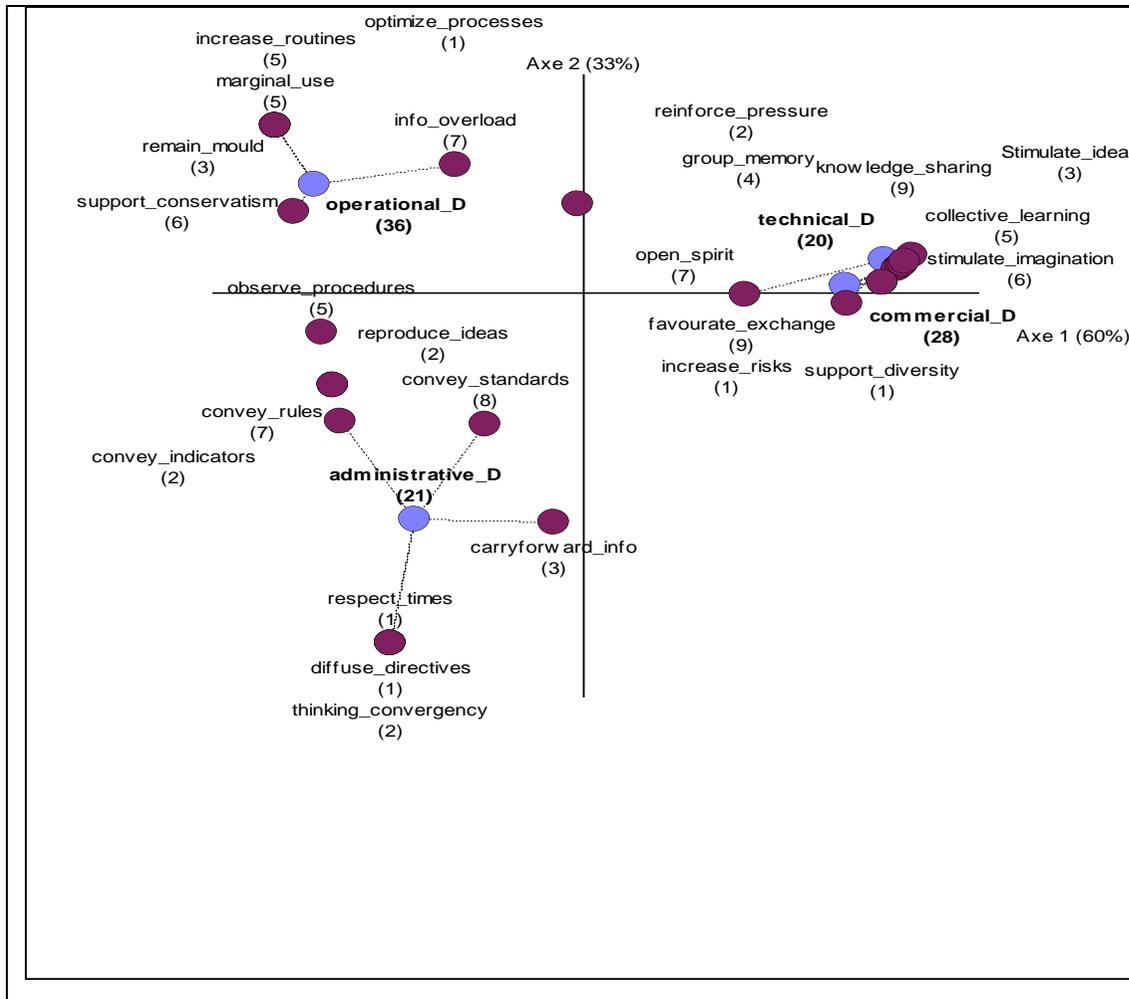


Figure 3a. Effects of the intranet use on creativity via communication openness

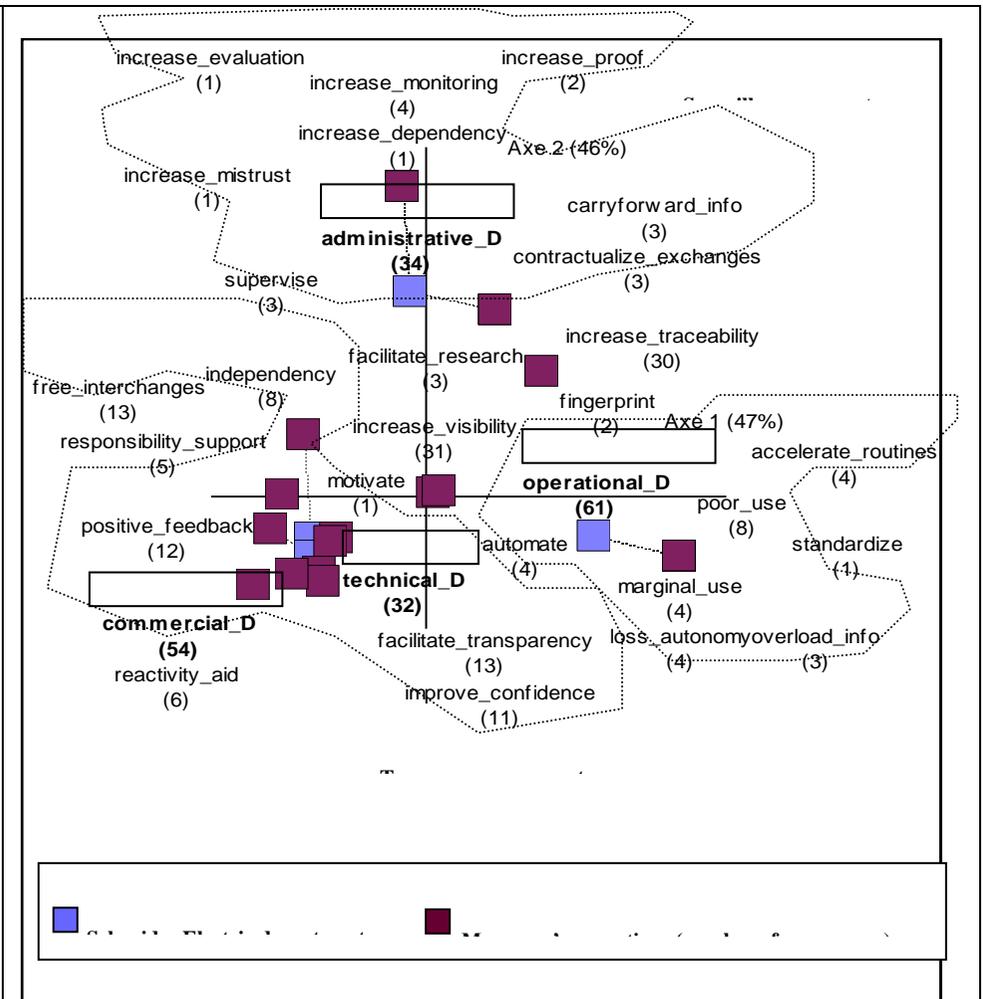


Figure 3b. Effects of the intranet use on creativity via work autonomy

The dependence is very significant  $\chi^2 = 130,84$ ;  $df = 57$ ,  $p \leq 0,1\%$  (VS).

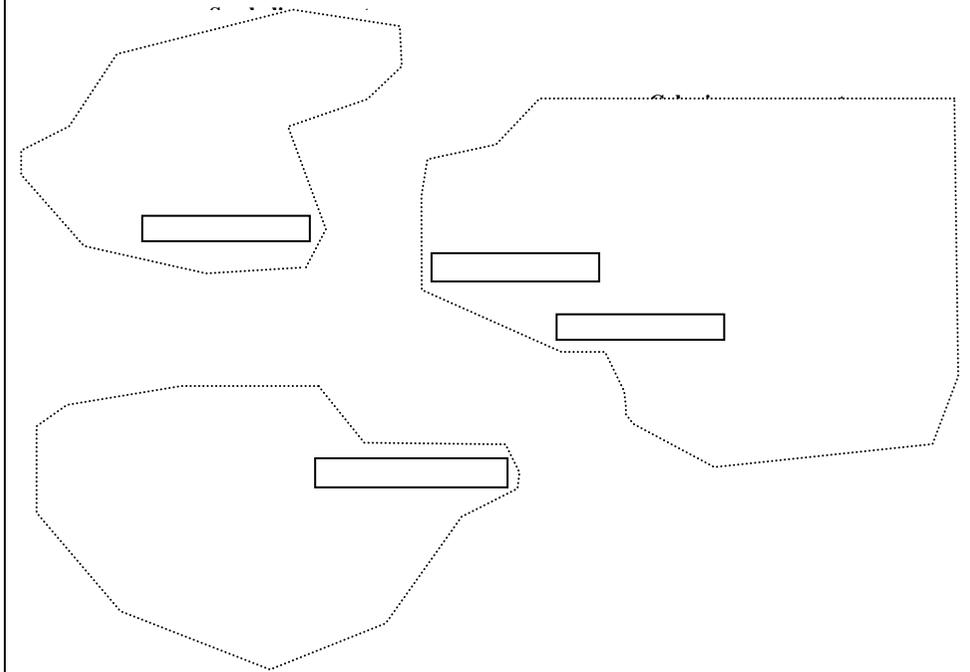
93% of the total variance explained by the two axes of which axe1 (48%) and axe2 (45%).

The modalities which are gathered by surfaces represent characters of remarkable constellations which retain the individuals who are in the corresponding zone and push back those which are distant.

The dependence is very significant  $\chi^2 = 140,10$ ;  $df = 69$ ,  $p \leq 0,1\%$  (VS).

80% of the total variance explained by the two axes of which axe1 (50%) and axe2 (30%).

The modalities which are gathered by surfaces represent characters of remarkable constellations which retain the individuals who are in the corresponding zone and push back those which are distant.



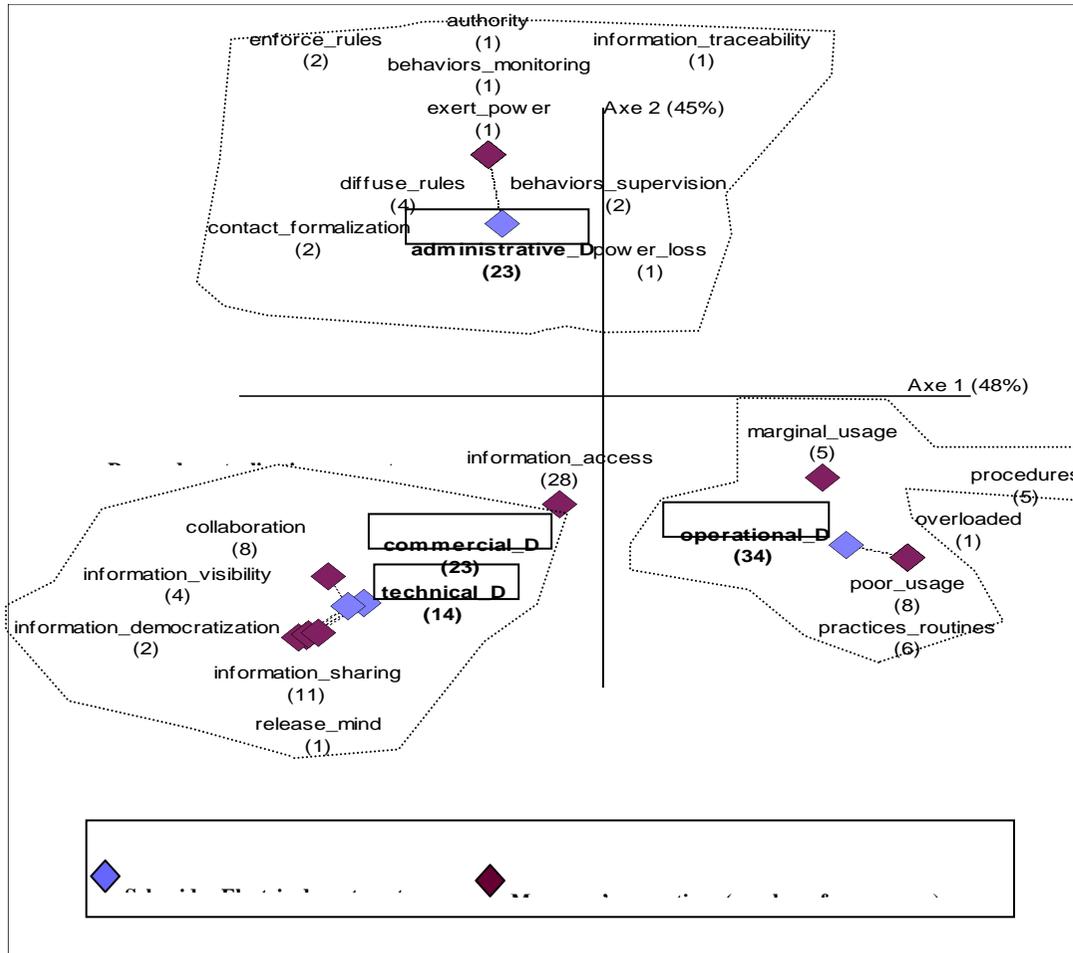


Figure 3c. Effects of the intranet use on creativity via power decentralization

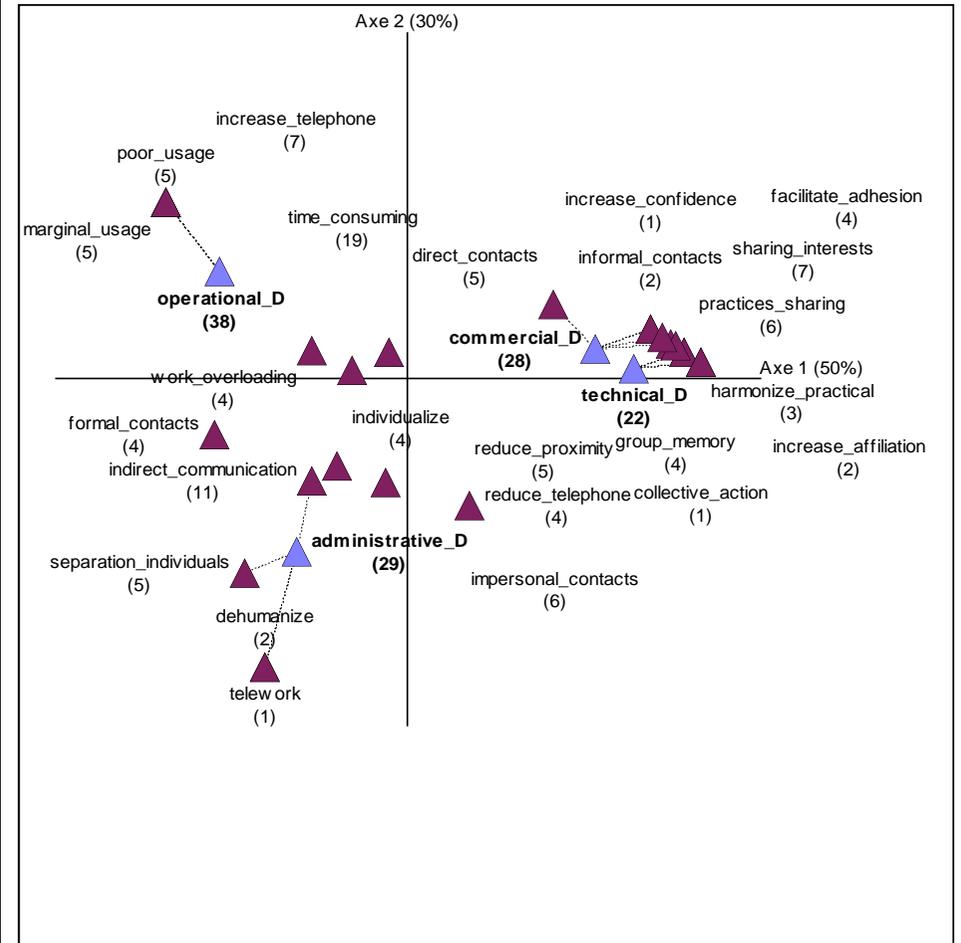


Figure 3d. Effects of the intranet use on creativity via group cohesiveness

### 3.1.1 The creativeness effects in the technical and commercial departments

The interviewed managers in technical and commercial departments, expressed that the use of intranet has stimulated creativity as well as improving communication openness, work autonomy, decentralization of decision-making and group cohesiveness:

- Communication openness

If the managerial practices are primarily based on the formalization of a working plan enabling each person to obtain the assigned results, they are accommodated with open communication and with the hierarchy benevolence as to the means needed by the collaborators to achieve their goals. There are sufficient interchanges and sufficient knowledge-sharing to enable ideas to be clearly expressed and discussed. Moreover, the necessity to reduce the life-cycle of products also encouraged managers to share their knowledge. Considered as useful for these activities, collaborators appropriated intranet to accelerate the information exchange and the knowledge-sharing. They thus capitalized on what had been acquired during the projects carried out while gaining information from the Knowledge-sharing databases and through the regularly use of collaborative tools<sup>52</sup> such as quick-place and NetMeeting; which stimulate individual creativity (see figure 3a).

*“The life-cycles of our products are extremely long; we need many knowledge and ideas in order to reduce them. The collaborative tools are very useful to facilitate their sharing ...Today; Sharing makes our creativity easier.”* (Marketing Manager).

Thus, the necessity of knowledge-sharing and the perceived usefulness of the technology have evolved the intranet use towards a knowledge-sharing support stimulating the creativity of every one.

- Work autonomy

Autonomy is the essence of research and development activities. If today managerial practices rest on a management by objectives, planned and rational, the executive allocates much freedom to the collaborators in order to imagine the means and achieve their goals. Moreover, the trust which reigns in these departments favours a better control of activities and independency by positive feedback, founded on the openness of exchanged information, and self-evaluation without the fear of sanctions or value judgements. This work climate, associates with positive attitude towards intranet, encourages a use reinforcing the trust useful to the creativeness (see figure 3b).

*“When we talk about control, it’s more in the positive sense ... A sense of openness and results valorisation... It’s a more independency for accessing to online useful information”* (Strategic Marketing Manager).

Furthermore, managers regard the information visibility and traceability as factors increasing the collective memory, and not like factors heightening the surveillance of behaviors. In this work context, it is not surprising that the usages have made of intranet a support reinforcing the information openness and developing the autonomy of each one in the creative processes.

- Decentralization of decision-making

The managers interviewed have explained that the exercise of power is not a practice privileged in their culture which is characterized by the desire to work together and to respect the collective objectives of the work groups. In this context, the usage of intranet has improved the quality of decisions by the sharing of information useful to the creativity (see figure 3c).

*“Wielding power is not in our culture. It’s by giving knowledge, communicating, sharing-knowledge that you can acquire power... Today, our creativity is better thanks to the useful information-sharing...”* (Marketing Manager).

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<sup>52</sup> The collaborative workgroups are available in the four organisational sectors but are only used in the technical and commercial departments.

In addition, if the intranet use has heightened the visibility of the exchanged information, this visibility was perceived as facilitating the creative decision, thanks to the climate of trust. Therefore, these good practices have made of intranet use a support reinforcing the decentralization and thereby stimulating the collaborators' ideas.

- Group cohesiveness

The practices in vigour rest overall on a good cohesion and the working members are bounded themselves towards a common goal. Interviewed managers explained that there is no disagreement because missions are well deliberated, thanks to the well established communication and to the commitment of the project team members. Moreover, while it is true that the use of intranet has multiplied impersonal contacts, it did not involve or particularly reduce direct contacts. To avoid the drifts of individuals' isolation which can be generated by the multiplicity of the relational interfaces, regular meetings at short intervals were organized to discuss the urgent problems; phone calls were preferred for intra and inter-departmental relations; and informal exchanges such as coffee breaks and office discussions were favoured to humanize relations. All these practices helped and strengthened the cohesion within the team work (see figure 3c).

*"The risk is when we work only by emails and by teleconferences. In our department we have good practices, we see each other regularly and we discuss matters between us. The use of tools has reinforced cohesion because we share the same goals. Our creativity is better today"* (Marketing Manager).

Other managers expressed that the team spirit is reinforced in their departments, thanks to the use of intranet which has supported the simultaneity and the group's norms, providing every one equal access to communication and increasing participation. In addition, if certain managers regret the time wasted on the emails, others prefer answer only to the emails to which they are the main recipients or use the telephone to release time. Thus, the collective conscience, associated with the good practices in intranet use, has favoured an appropriation preserving a good cohesion and stimulating the work group creativity.

### 3.2.1 The "creaticidal" effects in the administrative department

Managers in the administrative department explained that the use of intranet has strengthened existing barriers to the creative processes:

- Communication openness

The challenges connected with the processes formalization, encourage more the conformist behaviors rather than creativeness. Certain managers explained that intranet use is enforced in order to reduce administrative costs and to formalize practices. For them, it's not surprising that the use of intranet did not transform the habits towards more openness. Its usage has specially increased vertical communication by accelerating downward information, rules and directives (figure 3a). Although these practices existed before the intranet implementation, its appropriation has only reproduced the practices of commandment and has introduced an additional conformist mould unfavourable to the creativity.

*"For me, the use of intranet encourages conservatism and reproduces the same procedures and the same directives. This always boils down to the same mechanical and automatic structures"* (Human Resources Director).

In addition, managers deplored the fact that the knowledge management tools such as Knowledge Base Software is not truly exploited and that intranet use was limited to consulting administrative information which are not necessarily useful for their creativity.

- Work autonomy

The practices in vigour rested specially on a rigorous control of managerial processes which are judged as excessive. Certain managers associate the use of intranet with management processes that they

denounced as being top-down, and reducing creativity by imposing a mould, stereotyped behaviour and standard ideas. They explained that the usage of intranet has increased behavior monitoring because certain managers used it for tracing, supervising and saving proof (see figure 3b).

*“There is more check than before. There is more traceability and monitoring ... It is difficult to think creatively”* (Human Resources Manager).

These drifts in the usage of intranet have created a climate of mistrust, hampering autonomous initiatives useful to creativeness. Managers explained that the origin of drifts is due to the lack of sensitizing on the good manners whose intranet should be used.

- Decentralization of decision-making

The excessive practices of formalization and centralization have reduced the exchanges and the interactions between collaborators. Certain interviewed managers explained that these practices existed before the intranet implementation but its use has increased hierarchical power and the centralization of decision-making by reinforcing the traceability and the behaviors supervision (see figure 3c).

*“Today the use of intranet has accelerated the power centralization. Before, these practices were not seen and now, there are directives, traces, more control and surveillance ... I do not believe that our creativity is better today”* (Human resources Manager).

Furthermore, others managers expressed a feeling of regret in the use of intranet which has generated a non negligible loss of power since certain administrative information that they held in the past are online today.

This double feeling of centralization and loss of power which occupies the minds explain why the usages in administrative department made of intranet a support of power recentralization, hampering the exchanges of information useful to the creativity.

- Group cohesiveness

The stakes in formalization and the reduction in communication costs have multiplied indirect communication to the detriment of direct exchanges such as telephone and face-to-face meetings. Certain managers explained that the reduction of relational direct practices has decreased the cohesion in their services (see figure 3d). The work environment based on the monitoring behaviors has generated a phenomenon of isolation in the use of intranet which has caused more distance between managers and their collaborators. Others managers have denounced the “creaticidal” character of intranet, of which an abusive use went to slow down the direct exchanges at the time of cohesion seminars.

*“Communication has improved but isolation has rapidly increased. We even use the telephone less because we would rather have a small written trace than make a phone call, which is something that I prefer and I’m not the only one”* (Manager for Shared Services Centre);

*“We have become aware of the fact that sometimes there were four-hour meetings: imagine a big room with everybody in front of their PC while somebody is talking by a whiteboard and nobody is paying attention because people are doing anything...For me the use of intranet kill creativity because we are not in the good practices”* (Human Resources Director).

Thus, the practices in vigour in administrative department made of intranet a technocratic support reducing direct contacts necessary to the group cohesiveness and to the creativeness.

### 3.2.2 *The neutral effects in the operational department*

The managers in the operational department explained that the use of intranet has no significant effects on creative processes because it was marginally used thereby preserving traditional practices which are not favourable with the creativity.

- Communication openness

The pressures of time and the undertaking of tasks conforming to procedures have obliged managers to be less concerned with the creativity of their collaborators. The routines and habits which characterize this domain led individuals to conserve their traditional working methods rather than to use collaborative tools to capitalize knowledge (see figure 3a).

*“Today I have about twenty businesses to deal with; I haven’t once capitalized the knowledge made available for these businesses. We have knowledge bases software but I’m not sure that everyone uses it, because procedures existed before intranet”* (Business Manager).

Interviewed managers do not perceive the utility to use intranet, which remains for them poor and requires an important time of training, whereas there is a lack of time. They are opposed firmly to its use and do not seek to change their usual practices of communication. For this standpoint, the marginal use made of intranet a neutral support for creativity in operational department.

- Work autonomy

There are no notable changes to autonomy compared with the already existing practices which are centred round the routine inspection of behaviors. The use of intranet does not enable individuals to become more independent. According to the interviewed managers, the memorising of information has replaced the system of archiving on carbon paper; the traceability of information has replaced acknowledgements of receipts in old-style mail; and the new online management practices has replaced the typing work carried out by secretaries. Moreover, if for certain managers the use of intranet is considered to be without any added-value as regards creativeness, others managers, regret its use which has reduced the time necessary to develop their creativity.

*“It’s a pity to use the time of managers to do tasks that take up a lot of time. We no longer have any time to develop creativity.”* (Operational and Industrial Manager).

Thus, the use of intranet is considered as generating a loss of autonomy since it is considered as time-consuming (see figure 3b). Therefore, its usage has a significant negative incidence on the creativity of managers, who saw their autonomy decreasing.

- Decentralization of decision-making

The routine of tasks and the procedure in vigour have obliged the managers to be less preoccupied by the creativity of their collaborators. Certain managers explained that the decisions are always made by the direction and that their creativity is related to the respect of the procedure.

*“The creativity comes from upstream, it comes from the direction, we are much normalized and we try to standardize each activity. Therefore, there is a creative in our entity and we apply his ideas for all the services... Our creativity is centralized, i.e. a single point which will be diffused by Intranet at various places.”* (Operational Unity Manager).

Others managers has wondered about the way in which the email might be used to avoid the overload due to the number of mails exchanged and to release more time to the creative decisions.

*“In relation to time, I think that when we have sixty mails per day, plus a number of operational meetings, there are certain decisions we are unable to do. I think that the use of intranets and emails are more an impediment than a help.”* (Operational Unity Director).

Thus, the routines and the procedures, associated with a negative attitude towards intranet, explain the absence of a notable incidence of the intranet use on creativity via the decentralization of decisions (see figure 3c).

- Group cohesiveness

The use of intranet did not affect the relationships between collaborators; it neither led to the cohesion, nor the isolation of team workers because it is marginally used (see figure 2d).

*“The tool is not used. It has neither led to collaboration, nor cohesion, nor isolation, no more that it could have.”* (Manager processing orders)

Furthermore, managers insisted on the limitations of intranet use, which is only a facility whose available scope is limited, therefore interfering very little with their creativity and that of their collaborators. Thus, acting more as a facility than a real aid for cohesion, the use of intranet is completely symbolic in the operational department.

Globally, the results of the Schneider-Electric case study emphasize the coexistence of creativeness and “creaticidal” effects in managerial practices of the different departments. The creativeness effects are identified in technical and commercial departments, while the “creaticidal” effects are located in administrative and operational departments.

#### 4 DISCUSSION

The divergences observed with regard to the effects of the intranet use on managers’ creativity can be explained by the appropriation processes which emerge from managerial practices specific to each department (DeSanctis and Poole, 1994) (see table 2).

	Technical and commercial Departments	Administrative Department	Operational Department
Intranet appropriation	Faithful to the technology’s spirit	Unfaithful to the technology’s spirit	Non appropriation
Communication openness	Improved (increasing information exchange and knowledge sharing)	Deteriorated (increasing vertical communication and directives)	No change (Preserving habitual work practices no very favourable to creativeness)
Work autonomy	Increased (increasing openness and trust in exchanges)	Decreased (increasing behavior monitoring and traceability of exchanges)	
Decentralization of decision-making	Improved (increasing participation)	Deteriorated (Reinforcing centralization)	
Group cohesiveness	Improved (increasing direct communication and informal exchanges)	Deteriorated (increasing indirect communication and formal exchanges)	
Creative processes	Stimulation of ideas	Inhibition of ideas	Neutrality

*Table 1 Synthesis of the effects of the intranet use on the creativity in the departments of Schneider-Electric*

##### 4.1 Communication openness

Because of the products complexity to be created and the commercial approaches to be unceasingly renewed, communication openness is the privileged practice in the technical and commercial departments. Seen as being very useful for this practice, intranet is used for improving knowledge-sharing which explain its “faithful appropriation” stimulating ideas (DeSanctis and Poole, 1994). With regard to the administrative department, practices are centred round the formalization of management processes and vertical communication, which are more favourable when seeking conformity than for stimulating creative behavior (Monge et al., 1992). The intranet appropriation has reproduced not only these practices but it reinforced them by multiplying the directives and by accelerating their transmission (Ciborra and Lanzara, 1994). Finally, the routines necessary for the optimization of the production processes explain the refusal to use intranet in the operational department (Markus, 1994). If the marginal use of intranet has not affected the idea generation, usual practices inhibit them.

## **4.2 Work autonomy**

In technical and commercial departments, autonomy is essential for the creative activities. It is founded on the openness and the trust in exchanges. In this climate of work, managers has appropriated intranet by adapting its features to their usual practices which explain why its use has improved creativity in these departments. Indeed, by reinforcing openness and information visibility, the use of intranet has improved, at the same time, the feedback of useful information (positive feedback) and the individual independency. In the administrative department, the control practices during operations did not make it possible to create such a climate of trust which has reduced work autonomy. The intranet appropriation even reinforced the monitoring, because treatability and visibility of information were used as an additional control which maintained the climate of mistrust, inhibiting ideas (Zuboff, 1984). In the operational department, the traditional working methods calling for meticulous control mechanisms unfavourable to the idea generation, led little place to autonomy and to the appropriation of a tool primarily perceived as being a waste source of time.

## **4.3 Decentralization of decision-making**

In the decentralized context observed within the technical and commercial departments, the appropriation of intranet has improved the quality of the information system by facilitating useful information-sharing, thereby stimulating individual creativity within these departments. On the other hand, the centralization practices which characterized the administrative department have led to a creaticidal usage of intranet when exercising hierarchical power. These results concur with the analyses showing that creativity is stimulated by the use of information technologies in a context of decentralization, whereas these same technologies impede the exchanges of knowledge necessary for the development of organizational creativity in a context of centralization (Bloomfield and Coombs, 1992 ). As regards the operational department, the marginal use of intranet does not have any significant managerial change, each person preferring to preserve his usual communication practices rather than wasting time using a tool considered as being time-consuming. We here find the idea that the habits in communication play as much a role, and sometimes more, than the potential offered by communication support (Markus, 1994).

## **4.4 Group cohesiveness**

The use of intranet in the technical and commercial departments has stimulated the group's ideas by reinforcing the cohesion of its members. In the approach adopted at Schneider-Electric, the use of intranet has not hindered the usage of traditional communication means such as face-to-face meetings and phone calls but, on the contrary, had reinforced them, thereby consolidating the interpersonal links and group cohesiveness (Walter and Burgoon, 1992). The complexity inherent in the technical and commercial activities led managers to combine the means of communication, thereby preferring networking for the questions requiring an important capitalization of knowledge, and using direct contacts to humanize the relations. This positive aspect of intranet use on group cohesiveness was not being found in the administrative and operational departments. In the administrative department, the appropriation of intranet has reproduced not only the excessive formalization already existing, but it also intensified the indirect communication, by reducing the number of phone calls and the face-to-face meetings and by creating compartments inside the same service. A consequence of all these practices is a feeling of isolation on the part of the actors who see their creativity inhibited. With regards to the operational department, the empirical study revealed an absence of the effects of intranet use on creativity via communication practices. In spite of the interest of emails, the preferred means of communication for dealing with problems continued to be phone calls and direct contacts which were often formal and not favourable to make good group cohesiveness.

## 5 CONCLUSION

In spite of the limitations due to the subjective measurements based on managers' perceptions, the results of this research emphasize the ambiguity of intranet use in respect of organizational creativity. It highlights the coexistence within the same organization of positive effects stimulating idea generation, and negative effects inhibiting creativity and appearing "creaticidal". The divergences observed can be explained by the appropriation processes which emerge from managerial practices specific to each department at Schneider-Electric. The use of intranet in creative processes is in fact the subject of interpretations made by group with respect to their work practices (Weick, 1990). Thus, if intranet was made necessary because of a head office strategy that aimed at improving managerial practices stimulating creativity and accelerating innovation, its appropriation did nothing but reinforce the existing managerial practices. Although the practices in vigour within the technical and commercial department have favoured an appropriation faithful to the technology's spirit (DeSanctis and Poole, 1994), stimulating creativity, those which prevailed within the administrative and operational department hardly supported creativeness; so that we cannot speak about a creative organization model (Gundry et al., 1994).

This research emphasize also that the diversity of organizational context and the managerial practices within the same company make illusory the search for a unique model of creative organization (Steiner, 1965). In the end, the technological argument tending to make evolve the company to an interactive platform "intranet 2.0", where intranet would be the vector for collective dynamics supporting the creative processes, runs up against the technological maturity to which testify certain managerial practices.

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