Appropriation of Technologies
What Role for the Organization?

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Abstract. The concept of appropriation is frequently used in publications concerning uses of technologies. Firstly elaborated to analyze difficulties in diffusion of innovation, it was usually linked with characteristics of organization where those innovations were implemented. This concept knows great improvements in recent years. On one side, it is now common practice to link appropriation and characteristics of technology used. This "technology side" of appropriation is especially well described by the "Adaptative Structuration Theory" [6]. On the other side, it is common practice too to link appropriation with characteristics of users (interactions in groups, etc.). This "user side" of appropriation can be treated with the "Theory of practice" [20]. But, those frameworks appear not able to take really into account the "organization side" of appropriation. By presenting three case studies, this paper shows that it is necessary to reintroduce this "side" to have a complete analysis of appropriation.

1 Introduction

The concept of appropriation is frequently used in publications concerning uses of technologies. Appropriation differs from acceptance. Acceptance [4] refers to users's perception of an ICT tool but not their action. Thus, individuals may accept an ICT tool without using it. Appropriation refers to real action of persons and to their real uses (or not uses). This concept has been initially elaborated to explain difficulties in diffusion of innovations. In this first step, characteristics of organizations where those innovations were elaborated were at the heart of reflection [31]. They were considered as a major factor of explanation of success or fail of an innovation. Then, the concept of "appropriation" knows several improvements. The "Adaptative Structuration Theory" [6] appears as the first one. Those authors propose a strong framework that links the nature of the technology used (structural features and spirit of technology) and different types of appropriation of it. But this conceptualization conduces them to underestimate the role of users in the appropriation process. Orlikowski [20] proposes her "theory of practice" to better explain how users intervene directly in appropriation (that she names "enactment"). Therefore, concerning appropriation, two

complementary ways of reflection has been explored : the "technology side" and the "user side".

In this paper, we highlight that those improvements are fundamental but they both lose the link with the "organization side" of appropriation. As it was mentioned at the beginning of the reflection on appropriation, we underline that "structural features" and "spirit" of a technology are directly linked with the organization where the technology is implemented and we remember that users are not simply users of a technology. They are always members of an organization that have structures, powers, rules, cultures, etc. that play a role in appropriation that are done of a technology.

Our literature review details those major trend of literature on appropriation (1.). Then we present three case studies that underline three examples of organizational phenomena that seem to intervene in appropriation : the decentralization of power due to a professional bureaucracy (2.1), the centralization of power in supermarket group of stores (2.2.) and the difficulty to create a new hierarchical level (2.3). More analyses need to be done to reintroduce organization in the concept of appropriation. This paper just constitutes a first step in this direction.

2 Appropriation in Literature

2.1 Works Research on "Diffusion of Innovation" related to Linked Appropriation and Characteristics of Organization

Confronted to rejection or low uses of innovations, researchers on "diffusion of innovation" were the first to build the concept of appropriation. They measure acceptance of an innovation by measuring adopters' perception of the technology – for instance, "perceived relative advantage" and "perceived ease of use". The paper of Downs and Mohr [7] on "instability" of the findings in innovation research engaged the work on this theme. Dedicated to adaptation [11] and appropriation [2], several works study thoroughly this question. They consider appropriation as a continuous dialogic process in which technology is modified by users and, at the same time, users do efforts to adapt their uses to what permit by the technology. For example, Clark considers that the appropriation requires continuous, cumulative and incremental innovation in all its aspects [2].

In those pioneers papers, appropriation refers to the opposition between the logical design and the logic of practice, between the prescribed uses and customs staff [21]. Thus, Perriault [21] argues that the logic of the designer of a technology is to provide a framework and prescribing practices, while the logic of the user, as an independent, is to invent their own uses, according to its representations, its values and its objectives.

Works on diffusion of innovations highlight that *the organization where all those people work is an element of explanation of the nature of those representations, values, objectives but also of the logic of designers*. But they were insufficient in two complementary aspects. First, they do not explain enough precisely what role the technology plays in appropriation ("technology side" of appropriation). Second, they do pay enough attention to users logics ("user side" of appropriation). More recent

works explore those two aspects. But, they progressively lose the link with the "organizational side" of appropriation.

2.2 Adaptative Structuration Theory (AST) [6], A Powerful Framework to Analyse the "Technology Side" of Appropriation

The "Adaptative Structuration Theory" (AST) [6] is usually considered as the most powerfull theory of "technology side" of appropriation in IT and IS management literature [14].

The central thesis of this conceptualisation is that social structures, whose structures included in the technologies, are produced and reproduced by individual members of a group, by mobilizing and adapting rules and resources over the interactions. DeSanctis & Poole [6] characterize ICT in terms of social structures, which may be of two types: structural features and spirit. Structural features are composed by type of rules, resources, opportunities to use, etc.. that technology proposes to the user. The spirit of the technology means the general orientation of the device, it summarizes the values and objectives that the structural features can be implemented ([6] p. 126). The spirit provides a normative framework, suggesting appropriate behavior, but it can also participate in the trial of domination, because it indicates the types of dynamic influence compatible with the technology, which may favor some users detriment of others.

When technology is new, its "spirit" is being defined. Designers show how the technology should be used, but the adoption of this technology in shaping the spirit. Over time, the mind is less open to conflicting interpretations and becomes rigid when the technology is stable and used by routines.

Structural features and spirit of an ICT form an potential of structure, which the group operates to generate social structures. The structure highlighted in appropriation is the result of a collective choice, which is even the expression of a set of factors in the internal dynamics of the group. DeSanctis & Poole [6] propose to use a grid which brings together four dimensions of appropriation:

- **Appropriation moves**, which means that "groups may choose to appropriate a given structure in many ways" (p. 129). For example, groups may choose to directly use the structures, to relate them to other structures, to constraint the structures as they are used or to make judgements about the structures.

- **Faithfulness of appropriation**(which means that appropriation may be faithful or unfaithful to the IT spirit),

- **Instrumental uses**, that are intended purposes that groups assign to technology as they use it (for example, task activities),

- **Attitudes** the group displays as technology structures are appropriated [6].

Two remarks must be done upon this theory:

First, the epistemological framework of this theory is interactionism and social constructivism. Several times many authors mention that appropriations depends on the context and the interactions at work. But we can clearly see that they do not take into account the organization as an all. They only consider that people locally re-structure social structures by interactions of individuals within a group.

Second, even they consider that users play a great role in appropriation they emphasize a lot on characteristics of the technology and give a smaller place to users. This is especially clear with their concept of "faithfulness of appropriation". By evaluating the appropriation from the point of view of its "faithfulness" or "unfaithfulness" to the spirit that designers inscribe in it, they finally do not give a real place to users. In opposition, some authors argue that "best appropriation" can be considered as the most innovative one (without taking into account if it is faithful or unfaithful to the original spirit of the technology ([23]; [21]; [5]).

2.3 Practice Theory [20], A Great Framework to Analyse the "User Side" of Appropriation

To improve analysis of the role of users, several works have been dedicated to the investigation of the "user side" of appropriation. Users have the power and the ability to resist, to adapt and to change uses that are imposed by top managers according to a top-down logic. Those works all highlight that appropriation differs from assimilation : while assimilation means "practices of accepting and regularly using a technological artefact within an organization" ([27]), appropriation process of IT takes the form of continuous reinvention [24], adaptation ([13]; [26]), adjustment [11], improvisation, diversion [21], "poaching" [5] or "coping" [1].

The "Theory of practice" is actually considered as the more efficient theory to analyse the "user side" of appropriation [20]. From Orlikowski's point of view, the concept of appropriation is too limited because its position is *related to the structure* which was embodied into the technology by the designers. All authors mentioned above demonstrate how the initially embodied structure has been sidestepped, transgressed, etc. by users. So, for this author, in relation to a specific technology, users demonstrate a much greater creativity that "social constructivists" admit. So much so, that it is impossible to say that a technology is « stabilized », it can, however, be said that a technology is « stabilized-for-now » [25]. The important point is that this creativity is not in relation to the structure (because structure does not really exist) but in relation to numerous factors, which must be identified. To highlight these point of view, Orlikowski suggests abandoning the term appropriation and adopting one which she takes from Weick [29], « enactment », that designates the real use that actors make of a specific technology.

When a technology is used in recurrent social interactions, it correspond to a « technology-in-practice » : an intangible shape which intervenes in ongoing practices, through facilites, norms and interpretive schemes. Each type of « technology-in-practice » therefore shapes specific facilities, norms, and interpretive schemes which in turn transform the "technology-in-practice" that individuals enact.

By regarding "technology-in-practice" as structure ([20], p.409), Orlikowski can then mobilize the theoretical framework of structuration and consider that:

- the structure « technology-in-practice » is in itself influenced by the other structures in the organization (hierarchy relations, remuneration/incentive system, etc.),

- all these structures and the interactions between structures are instantiated in recurrent social practice that employees maintain with the other members of the organization,
- and the structures contribute in formalizing the facilities, norms, and interpretive schemes that shape their social interactions…

Therefore, a « technology-in-practice » can be explained by a precise analysis of the different structures that exist in the social environment of a individual and can be analyzed concretely through the facilities, norms and interpretive schemes by which the structures are instantiated in practice.

Two remarks must be done upon this conceptualisation:

First, if users are correctly taken into account, "technology side" of appropriation appears quite absent. In fact, theory of practice does not link enactment with any kind of characteristics of technology that is used. The place of users is so important that appropriations become too close to uses [19]. Therefore it appears necessary to reintroduce "technology side" of appropriation in the reflection. As they belong to the same epistemological framework, it seems possible to articulate Theory of practice and AST by considering that "structural features" and "spirit" of technology intervene as factors to define "technology in practice". But this assumption would be rejected by Orlikowski [19] because she considers that she distinguishes herself from this previous theory.

The critical realist view on appropriation does the same kind of link [28]. In fact, this approach links those two side of appropriation by proposing the idea that objects (including people, material objects and social phenomena such as institutions) and relations among objects (for instance friendship or master-slave relations) must be taking into account to analyse appropriation.

Second, as it was the case for AST, practice theory's epistemological framework is interactionism and social constructivism. Orlikowski [20] mentions more precisely than DeSanctis and Poole [6] that appropriations depends on the leadership, hierarchy structure and incentive systems, etc. But she does not take into account the organization as a whole. She considers that people locally re-structure social structures by interactions of individuals within a group and she does not clearly link the nature of appropriation with, for instance, the repartition of powers in the organization.

Those two theories on appropriation have in common to be focused on the individual dimension of appropriation. They focus only on the individual behaviour and do not take into account employees behaviours within organizational context. Even authors that study the trial of appropriation at the group level, do not report appropriation characteristics related to organizational context.

3 Research Question: What about ICT Appropriation into Organizations?

DeSanctis & Poole [6] consider that structures are produced and reproduced by individual members of a group, in mobilizing and adapting the rules and resources over the interactions. They focus on small groups and decision-making processes

within the group. Generally, authors are interested in appropriation *by users* like individuals as for exemple in user appropriation of mobile technologies [30]. Thus, they disregard organizational context. Nevertheless, in the management and organization theory field, technolgies and ICT's are studied in relation with organizational contexts.

In this perspective, Joan Woodward [31] argues that technologies directly determine differences in such organizational attributes as span of control, centralization of authority, and the formalization of rules and procedures. Leavitt and Whisler [12] predicted in 1958 that upper management would use ICT's capabilities to *re-centralize* their organizations. Mintzberg [16] suggests that technology is a contingency factor that determines the structural variables of the organization. George and King [8] and Groth [9] look specifically on the effects of technology on the structure of organizations, and the question of whether or not the organizations become more or less centralized with the implementation of ICTs. Groth [9] argues that ICT at the same time can make organizations both centralized *and* decentralized. The author finds that ICT increases the complexity a single manager can handle, but at the same time the lower levels can be empowered by the information available to them through ICT. This eliminates the need for mid-level management, and the organization takes on a leaner structure [9].

Recently, Muhalmann [17] has shown the success (and failure) of implementation of groupware technology is intimately linked to the nature and structure of games of players. Precisely, these technologies come to integrate in the "tightly coupled systems" and to structure the least part of their operations and regulation, then they are generally rejected by the players in "loosely coupled systems" and do not in this type of configuration change players games. Thus, the penetration of technology in a groupware occupations are closely related to the degree of interdependence of this context [17]. According to this author, when managers action is supported by mechanisms of cooperation with the players, the introduction of groupware is experienced by actors as an opportunity that is to say, as a new medium to help the exchange. In opposite, when managers action is superimposed on a structure of little cohesive relations, and whose way of regulation is" flexible "and not integrated, the introduction of groupware technology is seen as a constraint by new actors, and they are therefore generally neglected.

In sum, when management is in a position of strength the introduction of new technologies just maintain and even reinforce an exchange already very cohesive, while when the management is in a weak position and is off and faced with "self-regulation" deployed by the players on the sidelines its action, the injection devices not only alleviates lack of social interdependence between management and players. Moreover, Muhalmann [17] argues the technologies introduced by management do not shape the organization but are rather systematically "digested" an "embodied" by the organization.

We may interpret this result by using Adaptative Structuration Theory [6]. In the tightly coupled systems [22], employees relate ICT structures to other structure. In opposite, in the loosely coupled systems, actors negate the ICT usefulness and reject it. These are two different appropriation moves (specifically, in the second type of situation, we may assist to an non-appropriation).

Furthermore, employees' attitudes toward ICT are linked with the organization structure. They perceive the technology is of value to them in their work while they do not perceive this value in the tightly coupled systems.

We may also connect these sentence to the contingency theory and make hypothesis that the perceived value (or utility) of Its by employees is connected to the perceived autonomy and control the ICT provide and their need or willing to preserve their autonomy to complete their work tasks.

In addition, we may assume the hypothesis that the comfort degree associated to the use of an ICT or the utility of the ICT for their tasks are perceived differently by employees according to the type of organization structure they belong to.

We suggest that ICT appropriation is related to design parameters of organization form of structure.

The topic is not only to study the implications of information technology (IT) for organizational structures but also the consequences of information technologies on *both* organizational structures and appropriation aspects [6].

We consider that appropriation is a most suitable term than appropriation*s* in order to describe occupational groups (groups of players – [3] ; [16] –) behaviour and their (relative) stability in dealing and coping with Its.

4 Three Case Studies to Highlight Role of Organization in Appropriation

This paper proposes to reintroduce organization beside technology and user in the analysis of appropriation. We mention above that this question is quite exploratory because after several reflections that were linking technology and organization [31], researchers usually disregard organizational context of technology or uses they analyse. This phenomenon is poorly known. Its boundary and logic are uncertain. Therefore, case study seems to be the most accurate research method [32]. Nevertheless, as appropriation is directly linked with the nature of the organization where they appear and the technology used, we choose to develop a multiple cases study [15]. To give examples of what this element can add in the reflection, we analyse the use of ICT tools in three different firms. Each case underline three different aspects of the organization that play a great role in appropriation. The first one put forward the fact that in professional bureaucracy [16], the decentralization of power is a great factor of explanation of low uses of a corporate HR intranet (4.1). The second give an example of the opposite situation: a centralised power is a greater factor of the PGI assimilation and the local autonomy allows to "force" PGI uses (which means appropriation) (4.2) The third shows that the managing director of this SME does not only evaluate the success of the ICT on the basis of its "functional" results but on its capacity to help him to built a new organization (especially to create a new level of hierarchy) (4.3).

4.1 Assembly Line Managers, «Very Managers», Less «Corporate» HR Intranet Users[1]

4.1.1 Case Study Methodology

Aero belongs to an international group in the Aeronautical and Space sector. In Europe, Aero has more than 12,000 employees. It is leader in High Tech equipment. The group's activities occupy the complete (supplier to customer) process and range from R&D right through to specific hands-on training sessions for end users. In 2000, a HR decision is taken to improve the communication policy between management and employees. One of the actions was to develop a HR intranet offering access to all employees from the company's web site.

To analyze uses of this intranet, we used data triangulation and saturation [15] by employing different research methods: documentary analysis (in particular corporate archives), semi-directive interviews and participating HR intranet project observation. 53 semi structured interviews were realized with three employee groups: department managers or equivalent, level 1 (a department has about 200 people), sub-department managers or equivalent, level 2 (management of about 50 people) and team leaders, level 3 (management of about 10 people).

We used semi-directive interviews for this study because these result in a sounder analysis of the context and the interviewees' line of argument [15]. We use themes to encode interviews and distribute the data over those themes. The procedure that we use was the following one. We read all transcripts and isolate in them all phrases that were linked with the uses of this intranet. During the post-coding, we made a certain number of changes in the list of themes. This step is part of the interactive process where themes may emerge from interviews [15]. A first level of encoding was used to reduce the diversity of the data and to sum up important elements in the interviews. Encoding then enabled us to identify the main themes arising during the interviews [15].

4.1.2 A Low Intranet Use Explained by a Strong Decentralization of Power

Among department managers that we interview, it is particularly interesting to analyse the case of Assembly Line Manager's because the effect of the organization – in this case the decentralization of power due to a professional bureaucracy – directly explains the low appropriation of the HR intranet that we find.

Assembly Line Managers conduct us to enter a different world: the world of production, precisely industrial workshops and manufacturing lines (airplanes, helicopters, etc.). In « his » world, « his » workshop, the line manager is « master ». Corporate management has little hold on this world. The line manager is generally a charismatic leader, a man of action with a strong personality, respected for his integrity, an excellent technician with a human dimension capable of making « *fair* » decisions. Nevertheless, he is under the pressure of high production rates. Respecting final assembly dates push him to be very demanding (overtime, Sundays, etc.) of the different teams he manages. The work rhythm is so intense that the border between

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[1] A wider presentation of this case study can be found in [10]. All data presented here has been gathered by Karine Guidedoni-Jourdain.

private and professional life is often over stepped. This leader must be extremely close to his « *guys* » in order to achieve objectives.

« *We are also top management's representatives in the shop, so it's our job to maintain a positive social atmosphere, that means we have to be on the field constantly, so the guys are happy to come to work every day. It's also a sensitive position, because you must be attentive: if a worker is not right or upset, you have to go and see him quickly. Talking with him, you understand that his child is sick or his wife left him ... so, that's when you have to take the time and support him. You have to maintain direct contact* » (William).

He is considered as the guarantor of team spirit that can be found in the sectors used to working with permanent urgencies[2]. This leader manages an average of more than 200 workers. Generally he works his way up through the ranks. Because of that, he usually holds the technicity of the product close to his heart.

How does this type of person consider the HR intranet? He spontaneously states: « *I feel more at home in the workshop than behind a computer* » (William). Therefore, the use of the HR intranet is rare or inexistent. The tool is seen as « *a waste of time* » because « *we can get the information elsewhere* » (Jean).

Decentralization of power, pressure and the pace of work mean that managers needing to find answers to HR questions prefer to contact the local HR units in workshops and assembly lines, either in person or by telephone. This quick and easy method of contact meets their needs. Since the trade unions have greater influence in this world, these shop floor managers also maintain regular contacts with trade union representatives, who generally receive HR information before them. This state of affairs is deplored by these managers who it places them in an awkward position, but they simply have to put up with it.

With this case study, we clearly see how a professional culture, reinforced by an organization based on decentralization and pressure of time can directly conduct to a very low use of an HR intranet.

4.2 Assimilation and Appropriation: The Case of a ERP

4.2.1 Case Study Methodology and Description

The business units (a store) of a group of supermarket uses the same IS command assisted.

The group has a divisionalized form of structure [16]. Business units enjoy some autonomy, which is greater for those franchises. However, the headquarters of the group often seeks to increase the control at the local level. The use of a computer system to aid in the store is the main way of control by headquarters. The ERP can manage all the elements that make up the shop (discounts, ordering, data products / suppliers / shops / customers, cost management, inventory, rates / prices, turnover). At any time it is possible to publish reports of turnover, cost per day, for promotions, etc..

The PGI manager out daily a proposed order. The major problem stems from the current inventory. In fact, with the increasing number of products available in departments store, the errors are many and in addition updates the test in the store.

To analyze uses of this intranet, we conducted five semi structured interviews with the department managers (managers level 3) in the same store and a store manager. As in the previous case, we read all transcripts of those interviews, isolate phrases that were describing the use of intranet and distribute data over those themes. The post-coding conduce to change certain themes [15]. A first level of encoding was used to reduce the diversity of the data and to sum up important elements in the interviews. Encoding then enabled us to identify the main themes arising during the interviews [15].

According to department and store managers, the PGI has several advantages for the Business Unit: transmission of skills, strong interaction with its environment, controls prices and assistance for daily tasks manager department, increasing the performance (powerful analytical tool, Electronic Data Interchange and daily tasks of the business). But it also has drawbacks, as follows: proposals command not representative of the store, integration of suppliers in the SI, which reduces the flexibility and strengthens the control of the headquarters, reducing the flexibility of the store.

Specifically, to avoid disruption of stocks, the management software assists in making orders for each day command a proposed order. It is based on the threshold replenishment (equal to safety stock inventory consumed during the delivery period) and the theoretical demand for each product.

However, errors are frequent in these orders and proposals for several reasons:

- Inventories are recorded because of erroneous breakage, theft, omissions registration entries, etc.
- Misinterpreting by ERP that examines each product according to its theoretical demand often unrepresentative of the local demand (because of strong seasonal sales).

In other words, the ERP makes it difficult to take into account the specificity of the local business unit. This data type must be changed manually by the department manager which "forces" commands.

4.2.2 Appropriation Moves

In this organization the ERP is a tool for units business monitoring performance by headquarters and, locally, for managers department performance monitoring. In addition, the store manager uses supervision control with a high degree of centralization. Both on the group level and on the local level, the organization is a tightly coupled system. Managers and department managers have no choice for the whole organization of the work, the use of ERP is required. In this sense, we can speak with an *assimilation* of PGI. However, if the business unit operates effectively at the local level, a degree of autonomy is necessary. ERP appropriation is manifested particularly by way of "forcing" the order.

However, during the change of brand strategy, the Business Unit will in future use an Information System where a command would be automatic (not assisted, allowing manual changes). The local managers are concerned about the disappearance of this degree of autonomy. It would be interesting to study the adoption and appropriation of this system.

4.3 A Functional Success, a Managerial Deception, the Case of "Think Together"[2]

4.3.1 Case Study Methodology

The case study was carried out in a software and computer services company that produces and markets several software packages (registry/public records office management, mail digitisation and management, document classification). In 2006, the company's turnover was 4.5 million euros and it employed a total of 48 people. The workforce is distributed among 6 departments: digitisation software (10 people), electronic data Interchange (EDI) software (7 people), customer support (10 people), implementers (8 people), sales (10 people), administration (3 people).

In the autumn of 2007, this SME began to use the 'think together®' software package, the purpose of which, according to its designers, is to *'facilitate and accelerate decision-making in organizations'*. In order to understand the 'spirit' of this technology, we conducted three interviews with the designers of the software. We also interviewed the SME's managing director. He told us that this software package was intended in the first instance for use in the Electronic Data Interchange software department. Accordingly, we interviewed more than half the members of this department (4 out of 7). In order to extend the scope of our analysis, we also interviewed the head of the customer support department. Coding techniques presented above has been used to analyse data.

4.3.2 To Be Functional is Not Enough, Technology Must Create a New Organization to Be Considered Valuable

The interviews conducted in this firm revealed that some uses of 'think together®' fit with what the designers previously expected.

Thus one developer stated: '*We'd been holding meeting after meeting for four months in an attempt to solve a problem, namely how to link our 'mail' product* [which digitises incoming mail] *and our 'document' product* [which automatically classifies documents]. *Customers had been asking us for months to link the two together and we couldn't decide on how to do it. I gathered all the e-mails we had exchanged and fed them all into* ['think together®']. *That was Friday (...) This created a stir, with everybody giving their opinion... The Wednesday afterwards, we had a meeting and we came out of it with a firm decision. We really unblocked the situation thanks to* ['think together®'].'

This example shows that the structure of the 'good decision' that the designers incorporated into the software may sometimes reflect the decision-making process in an organization. In this case, the actual use may be reasonably faithful to the spirit of the technology incorporated into the software by the designers.

The SME's managing director that we interview recognizes that 'Think together®' allows them to find a solution to link "mail" and "document" softwares but he is nevertheless disappointed by 'Think together®'. To better understand this phenomenon, we ask him: '*Could you tell us why you decided to implement* ['think together®'] *in your company?*'.

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[2] A wider presentation of this case study can be found in [17].

His answer is not simply and not "functional" at all. He replies: '*it's a rather complicated story... The Electronic Data Interchange team, which is where I wanted to use it, had not had a manager for a long time.. We had a person, who was supposed to be the manager, but in fact he concerned himself only with the technical side of things, he wasn't the one who did everything that was pure management... When he left for health reasons, we replaced him but things turned out very badly... In terms of interpersonal relations, the new manager was a complete failure... We had to let him go and since then I've been in charge of this team... But I've got too many things to do and I can't devote enough time to them. What's more, on the technical level, I'm not knowledgeable enough about what they're doing. Everything changes too quickly. There's someone in the team, X, who you're going to meet, that I would like to promote to manager. I think he has the strength of character and the abilities, but he has to mature gradually... To my way of thinking, the use of ['think together®'] could help him take on this new role*'.

This SME's Managing director judges 'think together®' not only in term of functionality (does it permit to take good decisions?) but also in terms of its ability to change its own organization. In a certain manner, we can say that like other users, he develops uses of this software relative to the problems he encounters in his work. For him, the aim is to identify a manager for his Electronic Data Interchange software group and to get him accepted by the team. This manager's principal role is to foster professional cooperation within the team (its community of practice aspect) and functional coordination with the other departments when decisions have to be taken collectively. The MD is using ['think together®'] in the hope of being able to provide the future manager with a tool to help in carrying out his duties as well as to legitimate his managerial role.

This use accords fairly well with the initial spirit of the technology (organising exchanges of ideas with this software equates to a standard managerial activity). It is reinforced by the converging use of other available coordination tools (for example, they create meetings that join all members of this team). However, this SME's managing director does not evaluate the software's contributions solely in relation to the decisions it helps to make (which is officially why it was purchased and developed) but primarily in terms of its ability to bring about organizational change. However the designers developed this software around the notion of 'organizational transparency', which can be practised in various formal hierarchical organizations, in so far as they can maintain such transparency. In this case, this 'transparency' was being sought by this managing director in order to legitimate a particular choice of hierarchical organization. Thus these issues of organizational change (which are not explicitly included in the designers' offer) emerge as an important factor in the disparity between the uses expected by him and the actual uses.

5 Discussion and Conclusion

Our literature review showed that at the beginning, characteristics of organizations were at the heart of the reflection on appropriation. This concept knows several important improvements. "Adaptative Structuration Theory" can be a strong framework of the "technological side" of appropriation [6]. In fact, it explains in

details how structural features and spirit of technology play a role in the nature of appropriation. On the "user side", "Theory of practice" [20] is a conceptualisation that analyses precisely how users enact a technology. But those two theories have in to common to be inscribed in an interactionism approach which have a lots of difficulties to take the organization as a all into account.

It appears necessary to develop a new reflection on appropriation that beside this "technological side" and this "user" side of appropriation reintroduce a real "organizational side" of appropriation. In this paper, we just propose three different examples of role that organizational phenomena can play in appropriation. With the first one, we saw that professional bureaucracy can explain a low level of use of an HR intranet. In fact, this kind of structuration is synonymous of decentralisation of power. Professionalism of employees permit them to keep their hierarchy at a certain distance. If we add that those people prefer face-to-face discussion and that they have the possibility to discuss directly with the local HR manager, we can see that organization of this firm plays a great role in the explanation of low uses of the HR intranet that we describe.

The second case is an example of the opposite phenomenon : effects of centralization of power on uses of an ICT tool. In this firm, the use of the ERP is an obligation. Local managers can only order through this ICT tool. This obligation corresponds to an high degree of centralization of power. Headquarters have the possibility to impose use of ICT tool to lower levels of hierarchy. But, even in those highly centered firms, power of headquarters must construct compromises with different reality in stores. As we saw above, inventories are erroneous, theoretical demands do not match with real local demands, etc. ERP cannot take into account the specificity of the local business unit. Therefore it appears necessary that orders can be changed manually by local managers. A certain degree of autonomy for local managers is indispensable if headquarters whish that all local managers use ERP. This case is interesting because, as they change of brand strategy, those headquarters implement a new version of ICT tool that does not permit to change orders manually. As mentioned above, it would be interesting to analyze how this higher level of centralization of power (local managers cannot change orders even at the margin) change the appropriation of this system. This appropriation move is directly linked with a transformation of organizational side of appropriation and, especially, the reinforcement of centralization of power.

The third case shows how a tool can be used to try to create a new level of hierarchy. This case is interesting because it shows that the link between organization and appropriation can be effective in both sides : organization influences appropriation (as we see in first two cases) but appropriation can influence organization too. As we saw in this case, an ICT tool can be used to try to create a new organization of a firm.

This study is limited. Our three cases are only examples that underline that "organizational side" of appropriation seems to play a role that need to be taken into account for a better explanation of appropriation. The foundation of this paper was a proposition : does organization play a role in appropriation processes of ICT tools? Our cases are examples that permit to turn this proposition of research into hypothesis. But future researches need to improve this reflection, to reintroduce organization beside technology and users in the analysis of appropriation and to validate (or not) the hypothesis. Among different tasks, those researches should create

a methodological tool to measure appropriation, a grid to better analyse the degree of centralization and decentralization of the organization, areas of autonomy (linked with uses of ICT tools), etc. All those tools should permit to better understand all different forms of appropriation in an organization.

As it has been the case for the "technological side" and "user side" of appropriation, it appears that a real strong framework is necessary to give a complete place to "organizational side" of appropriation. It seems to be a great project for future researches in this area.

References

1. Beaudry, A., Pinsonneault, A. (2005), « Understanding user responses to information technology: A coping model of user adaptation », *MIS Quaterly*, Vol. 29, No 3, pp. 493-524.
2. Clark, P.A. (1987). *Anglo-American innovation*. New York: De Gruyter.
3. Crozier, M., Friedberg, E. (1977), *L'acteur et le système*, Seuil, Paris.
4. Davis, F.D., Bagozzi R.P. and Warshaw, P.R. (1989), « User acceptanace of computer technology: Aa comparison of two theoretical models », *Management Science*, Vol.35, n°8, pp. 982-1003.
5. De Certeau, M. (2002), *L'invention du quotidien. Arts de faire*, réédition, Gallimard, Paris.
6. De Sanctis, G., Poole, M. S. (1994), « Capturing the Complexity in Advanced Technology Use: Adaptative Structuration Theory », *Organization Science*, Vol. 5, n°2, p. 121-147.
7. Downs, G. W., Jr., Mohr L.B. (1976) « Conceptual Issues in the Study of Innovation », *Administrative Science Quarterly* (21), 700-714.
8. George, J.F., King J.L. (1991), « Examining the Computing and Centralization Debate », *Communications of the ACM*, Vol.34, n°7, pp. 62-72.
9. Groth, L. (1999), *Future organizational design: the scope for the IT-based enterprise*. John Wiley & Sons.
10. Guiderdoni-Jourdain Karine, Oiry E. (2008) « "Local Universe" and use of an HR Intranet. The case of Middle Management », *in* Bondarouk T., Ruël H., *Electronic HRM in Theory and Practice: a Reader,* IGI Group, Hershey, Pennsylvania.
11. Ives, B., Olson, M.H. (1984), « User Involvement and MIS Success : A review of Research », *Management Science*, Vol. 30, No. 5, pp. 583-603.
12. Leavitt, H., Whisler, T. (1958), « Management in the 1980's », *Harvard Business Review*, November-December, 1958, p.41-48.
13. Leonard-Barton, D. (1988), « Implementation as Mutual Adaptation of Technology and Organization », *Research Policy*, n°17, pp. 251-267.
14. Markus, M.L., Silver M.S. (2008), « A Foundation for the Study of IT Effects: A New Look at DeSanctis and Poole's Concepts of Structural Features and Spirit », *Journal of the Association of Information Systems*, vol. 9, Issue 3/4.
15. Miles, M.B., Huberman, A.M. (1994), *Qualitative Data Analysis*, Beverley Hills, CA: Sage Publications.
16. Mintzberg, H. (1979). *The structuring of organizations: a synthesis of the research*, Prentice Hall.
17. Muhalmann D. (2003), *The organizational impact of new technologies. The case of groupware and knowledge management*, Thèse en sociologie, Sciences Po Paris.
18. Oiry E., Pascal A., Tchobanian R. (2008) « From tool to organization: uses of a collaborative application in a high-tech SME », *8th International Conference on the Design of Cooperative Systems*, May 21-23, Carry-Le-Rouet, France.

19. Ologeanu-Taddei, R., Staii, A. (2008), « Comment analyser l'appropriation ? Le défi de l'opérationnalisation empirique », *13ème conférence de l'AIM (Association Information et Management) – pré-ICIS*, Paris, Université Dauphine, 14 décembre.

20. Orlikowski, W. (2000). Using technology and constituting structures: a practice lens for studying technology in organizations. *Organization Science,* 11(4), 404-428.

21. Perriault, J. (1989), *La logique de l'usage*, Paris, Flammarion.

22. Perrow, C. (1972), *Complex Organizations: A Critical Essay* , Glenview, Ill.: Scott, Foresman.

23. Proulx, Serge (dir.) (1988), *Vivre avec l'ordinateur : les usagers de la micro-informatique*, Boucherville, Québec.

24. Rice, R., Rogers, E. M. (1980), « Reinventing in the Innovation Process », *Knowledge: Creation, Diffusion, Utilization*, Vol.1, n° 4, pp. 499-514.

25. Schryer, C.F. (1993), Records as Genre. *Written Communication*. Vol. 10, April, 200-234.Miles, M.B., Huberman, A.M. 1994, *Qualitative Data Analysis*, Sage Publications, Beverley Hills, CA.

26. Tyre M. J. et Orlikowski, W. J. (1994), « Windows of Opportunity: Temporal Patterns of Technological Adaptation in Organizations », *Organization Science*, vol. 5, no. 1, pp. 98-118.

27. de Vaujany F.-X. (2008) (1) Capturing reflexivity modes in IS: A critical realist approach Information and Organization, Vol. 18, pp. 51–72.

28. de Vaujany F.-X. (2008) (2) Strategic Alignment: What Else? A Practice Based View of IS Value, ICIS Proceedings, *Twenty Ninth International Conference on Information Systems,* Paris.

29. Weick K. E., (1969). *The social Psychology of Organizing.* Reading, MA: Addison Wesley.

30. Wiredu, G.O. (2007), « User appropriation of mobile technologies: Motives, conditions and design properties », *Information and Organization*, Vol. 17, n° 2, 110-129.

31. Woodward, J. (1958), « Management and technology », *Department of Scientific and Industrial Research; Problems of Progress on Industry*, n°3, Her Majesty's Stationery Office, London.

32. Yin, R.K. (1994), *Case Study Research : Design and Methods*, London: Sage.