

Knowledge management through the development of knowledge repositories: towards work degradation

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This paper questions the consequences of the use of electronic knowledge repositories for work and employment. Drawing on critical research suggesting that knowledge management associated with such tools presents similarities to scientific management principles, it proposes to examine the following key research question: how do employees experience the transformation of the employment relationship when a knowledge repository is introduced to the workplace? The inquiry is grounded in an exploratory qualitative case study of a knowledge management system designed to foster knowledge-sharing in a Belgian public administration. The findings illustrate two complementary outcomes: this system resulted in employees experiencing deskilling and work degradation, and was met with resistance. Significantly, this paper considers work degradation as a reflexive phenomenon in the context studied, where knowledge-sharing systems produced deskilling and resistance as part of a specific re-regulation process.

Keywords: knowledge repositories, work degradation, knowledge management, critical management studies, resistance, deskilling, paradox, re-regulation.

Introduction

For more than 20 years, knowledge management (KM), defined here as '*any deliberate efforts to manage the knowledge of an organisation's workforce*' (Hislop, 2002: 59) has been on the agenda for numerous companies since knowledge is considered as the firm's core source of competitive advantage (Nonaka and Takeuchi, 1995; Grant, 1996). In order to create competitive value, many organisations have invested considerably in information technologies that support KM (Alavi and Leidner, 2001; Gallupe, 2001). Among the existing tools devoted to the fostering of knowledge-sharing, the electronic knowledge repository is one that has become widely accepted (see, e.g. Voelpel *et al.*, 2005).

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This information technology-based system supports the storage and reuse of organisational knowledge assets, and has the potential to significantly enhance knowledge transfer within organisations by thinning knowledge flows (Fadel and Durcikova, 2014). Nevertheless, it has been argued that '*a large number of [KM] initiatives fail due to the reluctance of employees to share knowledge through these systems*' (Kankanhalli *et al.*, 2005: 113). While current research seeks mainly to understand the numerous factors predicting the success of knowledge repositories (see, e.g. Bock *et al.*, 2005; King and Marks, 2008; Durcikova and Gray, 2009; Fadel and Durcikova, 2014), few studies have more critically studied the consequences that such technologies may have on work and employment.

Yet, the use of knowledge repositories challenges the employment relationship in its different components. For instance, Gray (2001) points to a reinforcement of managerial control, and a decrease in employees' power, whereas Brivot (2011) reports an intensification of control over knowledge production, sharing and use-related activities. Although these contributions identify similarities between this way of managing knowledge and the Taylorist principles of the organisation of labour (Luque, 2001; Alvesson and Karreman, 2001), this paper aimed to understand how and why the use of knowledge repositories has an effect on the employment relationship to the detriment of workers' conditions. Drawing on a qualitative exploratory case study conducted in a Belgian public agency, which had put in place an electronic knowledge repository, it provides evidence that the employees concerned experienced an intensification of their work and deskilling.

Far from the myth of the so-called knowledge society commonly associated with the 21st century, this paper proposes a critical analysis of the use of new technologies for KM purposes, with a focus on their role in the degradation of the employment relationship. Its contribution is twofold. First, empirical evidence is provided of the deskilling effect of 'new technologies' used in the context of KM. These results run counter to the consensus on KM, which holds that technology supports job enrichment and conveys an image of highly qualified and autonomous workers. Second, by showing the erosion of the employment relationship through the deployment of insidious forms of control under the mantle of 'development' and KM, this research contributes to critical management studies that have identified the 'fissured workplace' (Weil, 2014); within this field, the authors reassert that Braverman's critique of labour and monopoly capital—developed in the discussion section—remains relevant to our understanding of new technology, work and employment relationships.

The research design was inductive, so the paper is presented accordingly, with the theoretical discussion included in the final section. The overall structure is as follows: the first section describes knowledge repositories in reference to the knowledge transfer codification strategy served by these tools. The second section presents critical research on this topic, followed by a presentation of the research method and the results of the exploratory case study. Finally, the results are discussed in relation to the critical literature on work degradation.

Knowledge repositories, work and employment: two sides of the same coin

Knowledge repositories are designed to capture, store and disseminate relevant knowledge throughout an organisation (Fadel and Durcikova, 2014), and are often used to disseminate best practices among workers (Hsiao *et al.*, 2006). Knowledge is therefore codified and stored in a repository under the assumption that it will be useful to others in the organisation. From this perspective, knowledge is considered as an object (Nonaka and Takeuchi, 1995; Hislop, 2002) and '*is transferable from one place to another with less appropriation [. . .]. The role of technology is related to how to codify, represent and convert knowledge*' (Hsiao *et al.*, 2006: 1291).

Accordingly, knowledge repositories are expected to improve organisational efficiency (Gray, 2001), that is organisations' productivity, flexibility and innovativeness by enabling organisational members to share, integrate and reuse knowledge more effec-

tively (Bansler and Havn, 2004; Voelpel *et al.*, 2005). However, to ensure this socio-technical revolution actually happens, a number of factors must be present.

Research has largely focused on the investigation and assessment of these potential benefits (see e.g. Bansler and Havn, 2004; Gray and Durcikova, 2005; Durcikova and Gray, 2009; Fadel and Durcikova, 2014). Indeed, as the organisational value of the knowledge repository depends on users' willingness to contribute, researchers have tried to identify factors to explain the adoption of knowledge repositories and effective knowledge-sharing through such technology. On the one hand, several studies show that users' computer comfort (Jarvenpaa and Staples, 2000), perceived usefulness (King and Marks, 2008), a user-friendly system (Kim and Lee, 2006) and monetary rewards (Kulkarni *et al.*, 2006)¹ have a strong impact on the effective use of knowledge repositories. Focusing on contingent variables, Bock *et al.* (2005) point to the role of a favourable organisational climate, which supports fairness, innovativeness and affiliation in the adoption of such tools. However, Hsiao *et al.* (2006) claim that the failed adoption of KM systems should not be examined solely through issues of technology acceptance. In their study of the practices of two groups of engineers, they shed light on the role of the work context—in addition to the study of knowledge barriers and technology acceptance—and suggest proceeding through 'embeddedness' analysis. By examining the way knowledge is embedded in the wider technical context, their findings suggest that knowledge content may be fragmented, rendering it inapplicable to engineers' practices. On the other hand, therefore, it has been demonstrated that knowledge-sharing behaviour through knowledge repositories is positively influenced by job autonomy and the commitment of colleagues and supervisors (Cabrera *et al.*, 2006). Research has also illustrated the role of other variables such as the willingness to improve one's professional reputation (Wasko and Faraj, 2005), the enjoyment of helping others (Kankanhalli *et al.*, 2005), self-efficacy (Watson and Hewett, 2006; Lin, 2007) and the perceived benefits of knowledge-sharing behaviour through knowledge repositories (Bordia *et al.*, 2006; Hew and Hara, 2007).

However, despite the relevance of these antecedents explaining employee contributions to knowledge repositories, implementation failures are common and the intended users are frequently reluctant to use knowledge repositories (Dixon, 2000; Huber, 2001; McKinlay, 2002; Bansler and Havn, 2004; Newell *et al.*, 2006). Gray (2001: 370) argues that knowledge repositories disconnect the seeker from the provider, thereby eliminating many of the social exchange benefits of sharing knowledge when it takes place *de visu*.

Other critical work criticizes knowledge repositories because the technology involved imposes an objectivist vision of knowledge without considering practice-based epistemology (Newell *et al.*, 2006). As argued by Hislop, and contrary to the objectivist perspective, the practice-based perspective assumes that the transmitter-receiver metaphor of knowledge-sharing is inappropriate, as knowledge-sharing does not involve the mere transfer of a fixed entity between two people; *'Instead, the sharing of knowledge involves two people actively inferring and constructing meaning from two different experiences'* (Hislop, 2002: 172).

As the very existence of electronic knowledge repositories reflects an objectivist ontological perspective that assumes knowledge is an object that may be codified to be diffused and reused, a deep scepticism can be fostered as to the effects of knowledge repositories on the employment relationship. According to Lam (2000: 492–493), *'encoded knowledge tends to generate a unified and predictable pattern of behavioural and output in organization. The abstraction of individuals' experience and knowledge into encoded knowledge also facilitates centralization and control in organizations. This is well-illustrated by the principles of Scientific Management which attempt to codify worker experiences and skills into objectives scientific knowledge'*.

Inspired by critical research and studying the experience of knowledge repositories as technologies that 'extract' individual knowledge—and in the process shifting the owner of this knowledge from the worker to the organisation—this paper questions whether this KM initiative could contribute to the standardisation of knowledge and other social norms (as Garrahan and Stewart, (1992) demonstrated in their critical study on flexibility in the car industry) by impoverishing organisational knowledge and

disqualifying work over time. It addresses the following research question: *how do employees experience the transformation of the employment relationship when a knowledge repository is introduced to the workplace?*

Research design

In order to address this research question, a qualitative approach based on a case study was adopted (Edmondson and McManus, 2007). This is due to the exploratory character of the study and because the aim was to focus on *how* and *why* something may happen (Yin, 2009; Thomas, 2011). As stated by other scholars who have relied on case studies (see, e.g. Miller and Friesen, 1982; Fearfull, 1996), this strategy is particularly appropriate for accessing workers' perceptions, especially when they face changes in their work experience.

The case study presented herein was selected based on the research objectives. In this respect, a set of criteria was used to identify the company (Yin, 2009). First, the authors sought an organisation that had introduced a knowledge repository. Second, the KM strategy had to be based on a codification approach, as the aim was to report and analyse the consequences of knowledge repositories at the workplace level in terms of perception and rationalisation (how do employees represent the aim and consequences of such a tool?). Finally, the case selection was also guided by opportunistic considerations (see, e.g. Schultz, 2000). Healthdesk is a Belgian public agency in charge of public health, environment and food safety affairs, with about 2,000 employees (all names shown are pseudonyms).

The empirical study took place in the Human Resources (HR) department of Healthdesk, comprising 50 employees in charge of traditional human resource management activities. In the last decade, like all other Belgian public agencies, Healthdesk had to face major public management reforms: the Copernic plan², inspired by new public management philosophy (de Visscher, 2005). This meant that Healthdesk introduced many changes. In the HR department, client- and results-based approaches were instilled in order to improve the service offered to other agents. To this end, the HR director decided to introduce a knowledge repository called 'SRIPEL' with the aim of providing a better service by optimising procedures. In this context, a project leader was hired and 15 employees were recognised as 'experts' in their job and assigned as 'process owners'. Under the supervision of their project leader, each of these employees first had to conduct an in-depth review of the procedures related to a specific HR process that they mastered (recruitment, payroll, career mobility, etc.). These reviews had several objectives: eliminate redundancy and mistakes on each process, and avoid any discretion in the completion of tasks so as to make them totally accessible and transparent. Thereafter, all procedures were entered into the knowledge repository and all employees were trained to apply them by the process owners. Due to the reluctance of employees to use the knowledge repository, the implementation of SRIPEL started in 2007 and ended in 2009. The HR director left Healthdesk in 2010.

Data were collected between April and September 2010 (see Appendix 1), just after the HR director's departure. Although 50 people were involved in the KM initiative, the number of interviews was highly restricted because of the sensitivity of the project. Indeed, despite having a personal contact in the HR department, it was impossible to negotiate broader field access with the project leader. According to her, employees were not available for interviews about SRIPEL because the workload in the HR department was very high at the time of the study. In this context, six semi-structured interviews were first conducted with the main stakeholders involved in the implementation of the knowledge repository. Interviews took place either inside or outside the agency, depending on the preferences of the interviewees. The respondents were the HR director, the project leader, one of the five unit managers, two employees and one process owner (i.e. one of the 15 experts in charge of encoding and operating the knowledge repository). All interviewees had to use SRIPEL. With the exception of the project leader, who refused, all interviews were recorded and transcribed, with durations of between 58 and 90 minutes (average of 71 minutes). Translations are ours.

Table 1: Themes and categories of analysis

Themes	Categories
Healthdesk SRIPEL implementation Work organisation	Work standardisation Work intensification Deskilling perceptions Disinvolvement Knowledge hoarding Sabotage

Data was triangulated by documentary analysis and direct observation (Golafshani, 2003; Bluhm *et al.*, 2011). The document collection aimed to provide information about the work context and KM practices in addition to observation and interviews (Merriam, 2007). In this regard, both official and internal documents were collected: annual reports, press articles, web pages about the running of Healthdesk and its HR department, the 'quality manual' on using SRIPEL, and folders related to KM activities in Belgian public agencies. Finally, one employee was observed for 2 working days to see the database in use. As part of the second and more participatory phase (the second day), the participant was asked to introduce the tool and to use it. The authors were seated in the same (open) office and wrote their observations at lunchtime and in the evening. These observations were analyzed using the same grid as for the interviews (see Table 1).

Data analysis started by indexing the corpus. Specifically, all pages and notes were dated. The aim was to establish a timeline in order to respect the chronological nature of events associated with the SRIPEL project (Langley, 1999). The interview data were then imported to Nvivo7 (developed by QSR international) for coding. This process was organised following a content analysis based on themes and categories (Miles and Huberman, 1994; Paillé and Mucchielli, 2012).

First, a thematic analysis was conducted following the structure of the interview guide. The aim was to identify themes related to the context of the implementation of the knowledge repository, effective knowledge-sharing, its incidence on the employment relationship (control, autonomy, support and social relationships). The second phase involved categorisation. Contrary to themes, categories are not used for description purposes. Rather, their function is to make sense of the phenomena identified by the researcher, from the corpus itself (Gavard-Perret and Helme-Guizon, 2008). The authors identified categories related to the degradation of work and the employment relationship as reported in the study by Carter *et al.* (2011), including resistance strategies adopted by employees (see Table 1).

Finally, the limited number of interviews may be considered by some as a limitation, especially if seeking of generalising the results—which is not the goal of such exploratory inquiry. In order to verify that sample size is adequate in qualitative inquiries, the concept of saturation has become the gold standard in social science research (Guest *et al.*, 2006). However, as pointed out by Morse (1995) and others, there are not clear guidelines or tests of adequacy for estimating the sample size required to reach saturation. Nevertheless, several authors recommend in the context of applied research that the size of a purposive sample must be selected according to predetermined criteria relevant to a particular research objective (Miles and Huberman, 1994; Patton, 2002), and some even give a quantitative indication—six interviews are enough in phenomenological studies, according to Kuzel (1992, quoted in Guest *et al.*, 2006).

The next section presents the results of the case study. To this end, the findings are divided into three parts. First, the background of Healthdesk is described by emphasising on work patterns that can be used to characterise the job content of employees. The context in which SRIPEL was introduced is then outlined. Finally, employees' perceptions are reported and the work degradation process is presented.

Healthdesk before SRIPEL

With 50 employees of varying levels of education (high school diploma to master's degree), the HR department of Healthdesk is made up of five interdependent units, each dedicated to one specific human resource process (recruitment, selection and mobility; working conditions and payroll administration; personal development; organisational development; KM). Employees are generally specialised and are even called 'advisors' in reference to their expertise.

Nevertheless, the work structure is mostly based on routine. Consequently, work is coordinated in a way that seems to rely on the standardisation of processes and rules (Mintzberg, 1982). However, since each unit includes about five or six employees, mutual adjustment is also a characteristic of coordination.

In terms of culture, employees describe their department as young and dynamic and refer to the notions of 'change' and 'clients-focused' when describing the workplace culture. They are relatively committed and an environment of solidarity was observed. However, all interviewees complained about their heavy workload and the increasing pressure, which results in high turnover and internal mobility rates. Over 30 months, for example, 15 employees had left the HR department but only four of them were replaced.

Our agents are nearly systematically forced to work overtime every day. Since my arrival, I have worked more than 45 hours a week. It's a big workload with a lot of pressure. . . . For instance, we cannot systematically award permanent contracts, so at the end of each year agents wonder if their contract will be renewed. (Manager)

The introduction of SRIPEL

In early 2007, against the backdrop of the modernisation of Belgium's public agencies (the so-called 'Copernic reform'), the HR director took a set of strategic decisions in order to position the HR department as a 'strategic partner' (full details can be found in the Management plan 2007–2010). The department was audited by internal clients as not sufficiently efficient, services provided as not satisfactory, information as dispersed and completion of procedures as poor and not always consistent, notably due to the native language of employees (Dutch or French).

In order to improve the situation, 80 processes were identified to be re-engineered. In collaboration with the project leader hired to supervise the re-engineering processes, the HR director decided to introduce an electronic knowledge repository called 'SRIPEL' with the following aims: foster knowledge transfer in order to face the impending retirement of baby-boomers, represented by a large numbers of employees (often recognised as experts in their job); compensate for employee turnover (the average duration spent in the same position is three years); train new employees faster and cheaper; and improve agents' versatility. Four objectives associated with SRIPEL were announced: provide a single database of timed and reliable data for all staff; maintain a good image of HR within Healthdesk; avoid extra workloads; and improve the quality of data in the short term and systematically (PowerPoint used on 26 May 2009 to present the project). Beyond this, the HR director also wanted to promote cross-cutting capabilities:

We must evolve towards more efficiency, more professionalism and towards more client focus, and SRIPEL serves this (. . .). My vision was to broaden everyone's skill sets: we must stop splitting each process into little compartments. Our objective for each unit was that all members, after a timeframe to be determined, would be able to work on each process. (HR director)

Within units, managers communicated about SRIPEL using a top-down approach. Meetings were organised in early June 2008 during lunchtime or working hours, and the functions of the electronic knowledge repository were described. Interviewees particularly highlighted the tools' characteristics and the anticipated advantages. Developed by a consultancy firm, SRIPEL is designed to make available the technical know-how about administrative law and HR procedures, via schemes and hyperlinks.

Available online anywhere and anytime, the electronic knowledge repository was supposed to make work easier, respond to client's requirements when a colleague is on leave, find responses in case of technical problems, and access official documentation more easily.

Their policy about SRIPEL was really to facilitate our work. So, a daily tool to use in order to enable us to manage a file or to follow a procedure from A to Z without needing further information (Employee 1).

Using SRIPEL: towards the degradation of the employment relationship

Drawing on the data gathered and presented herein, the authors illustrate how the employment relationship has been affected as a result of the introduction of the knowledge repository. First, we see how employees perceive a process of deskilling through work standardisation and intensification, and second how this led them to develop resistance strategies (like disinvolvement, hoarding and sabotage) that have resulted in an impoverishment of organisational knowledge.

Deskilling work through standardisation and intensification

The use of SRIPEL was expected to improve service performance and agents' versatility. To this end, the HR director initiated the global re-engineering of processes with the aim of standardising the procedures involved in each of the department's processes, and consequently, avoiding redundancy and inconsistency in the services provided to 'internal clients'. The project leader began by meeting the process owners identified by their managers as 'experts'. Together, they reviewed and fragmented the processes.

Here, we talk about KM. This project involves capturing knowledge, systematizing knowledge (. . .). The first step is to describe all processes (. . .). The test for me, when I imagine that I'm new, is to see if I can learn from what is written, is it going to help me to train myself? (HR director)

These meetings were intended to be constructive and friendly. However, this work method has progressively transformed the way work is organised in the department. All *know-how* must now be checked and formalised and knowledge must be standardised in order to be recorded in the repository. To this end, the project leader applies the RACI method (For Responsible, Accountable, Consulted, Informed), that is, asking who is responsible, who assists completion of the task, who must be consulted and who must be informed. Through this technique of codification, no critical knowledge is forgotten because each element of each task is subject to the examination of the project leader and all employees may access them.

The content of documents must be simple. Sentences must be declaratives: subject—verb—complement (. . .) Moreover, the process must always be completed by documents. It's like a sort of model that describes how to complete a form and encode in the appropriate database. (Project leader)

Moreover, each process is also supported by a specific diagram and template(s). While the former serves to illustrate the sequence of actions that agents must follow for each scenario, templates offer the required material to execute well-defined tasks. The interviews reveal feelings of a lack of autonomy and initiative among employees in this new context.

Regarding work intensification, three different levers were observed. First, the change process itself contributes to the increase in the time required for coordination. Numerous meetings with process owners and project leaders were required in order to analyse and formalise processes, following the RACI method requirements.

It took me many hours. I worked with the project leader on this. I had to do this during my working hours (. . .). What is difficult is that colleagues were committed when they were asked to explain their procedures because they were interested to share their knowledge and to show that they knew things but at the same time, it also raised some problems because there are some people who said they had been doing it wrong for 20 years. (Process owner)

Once the revision of one process comes to an end, a 'steering committee' made up of the HR director, the unit manager in charge of the execution of the HR process and legal experts meets in order to proceed to the functional validation of the process. Again, the legitimacy of the process is challenged and the process owner must explain the reason for each action and the relevance of each template. The regular update of the process is then discussed and set as an individual performance objective for the employee and her/his unit manager. Specifically, this means that the employee must henceforth teach colleagues the process while the manager has to ensure that subordinates rigorously update the process. Gradually, this additional task has become mandatory for each validated process, which has led to an intensification of the work involved.

For each process, we created a functional validation team. Once validated by the steering committee, we needed to make sure that the regulations would be updated regularly, because if there was a change in the process, there would be an impact on the process and therefore we had to make sure to update it. (HR director)

Second, in order to ensure an effective appropriation of SRIPEL by the employees, the project leader established a training plan associated with each validated process. Planned to last half a day, each session is dedicated to the implementation of a specific process. Sessions usually proceed as follows: first, the process owner shows or reminds her/his colleague how to use SRIPEL; second, she/he covers the whole procedure in theoretical terms; to conclude with a practical exercise, the process owner proposes an example based on the real requirement of a particular client. Attendance at these sessions was reported by respondents as an additional workload.

Now, the diffusion of new processes is inscribed within our development circles. For example, I must oversee the implementation of one process per month. (Unit Manager)

Suddenly, the expectations of clients have become secondary compared with implementation sessions. Some managers were not aware that a day is defined in terms of hours. When you ask them what I can consider as not being a priority, they say: *'Everything is a priority!'* (Employee 2)

Third, two knowledge managers were hired in order to optimise the use of SRIPEL within the department. Under the supervision of the project leader, their role covers the organisation of training sessions and the quality control of knowledge posted on SRIPEL. According to employees, using SRIPEL is seen as a waste of time. Indeed, possibilities to contribute to SRIPEL are very binding and particularly limited. Exclusively controlled by knowledge managers, employees are only authorised to write electronic comments about mistakes and updates. The request is then examined by knowledge managers who decide whether or not to modify the content. Employee's knowledge is not only captured and standardised, but also constantly controlled.

In order to foster the use of the system, and drawing on the SRIPEL objectives, the HR director finally proceeded to restructure the department. This meant certain units were merged and employees must now be able to work on all HR services by relying on SRIPEL. Moreover, each agent now has a determined client portfolio and files are supposed to be processed much faster. Considering the multitasking expectations announced by the HR director, SRIPEL in theory is supposed to help enrich tasks (see earlier). However, a perception of deskilling prevails among the employees interviewed. For most of them, the agent's specialisation has disappeared: knowledge has become fragmented into short and easy-to-understand sentences, which makes knowledge accessible only through limited training. Agents feel like links in a chain and report deskilling.

Now, management considers from the outset that SRIPEL is the knowledge of everybody and everybody knows SRIPEL. (...) And the problem is that we lose our distinctiveness, we are 'disqualified' and have to process files without particularity. We are no longer considered as advisors, our HR expertise is no longer recognized, we are just there to execute. (Employee 2)

Currently, a dichotomy is present at work. On the one hand, we have a centre of expertise for the management and on the other, only operational tasks for us where we are primarily seen as sellers of sauerkraut and so there is huge dissatisfaction which is being created at the level of units. (Employee 2)

In conclusion to this first set of observations, two main perceptions reported by Healthdesk employees are of note. First, employees feel they are being dispossessed of their knowledge, especially of the autonomy and capacity for initiative they used to have regarding the way they disseminated and enriched this knowledge. Interviewees also report that SRIPEL does not make it possible to significantly increase collaboration among employees. Some regret their former *learning-by-doing* habits and report less interactions with peers. Second, the change process has led to an increase in perceived workloads, as well as intensification and fragmentation. As a result, employees evoke a loss of meaning related to their job and the way it is now organised; again, they feel dispossessed of that which previously contributed to their singularity.

Braverman's (1974/1998: 6) critique of the degradation of work in the 20th century stemmed partly from the 'personal affront' and 'social outrage' he encountered among workers in deskilled industrial settings. The subjective and material components of the employment relationship are clear from the data presented herein, including the observations carried out. The dispossession highlighted is clearly comparable to Braverman's 'personal affront'. This has led Healthdesk employees to resist in an effort to preserve the richness and coherence of their work.

The emergence of resistance

A first set of 'resistance strategies' can be seen by a lack of commitment to the project or relative disinvolvement. For instance, when they decided to attend the training sessions on process implementation rather than to opt for strict absenteeism, the agents adopted the practice of reducing their interaction to a minimum, and some of them saw this as an opportunity to go home earlier than usual or to work on their own tasks. Other employees also refused to commit themselves to the process, justifying this behaviour by the lack of time and high workload.

During sessions, there are times when people leave early or surf on the Internet . . . hm . . . not on the Internet, they read their private e-mails . . . not private, professional! Sometimes, there are times when it's so boring that we need to wake up and some people work on their tasks to meet the customers' requirements within 48 hours because management has already demanded half a day to attend this session so they try to save time elsewhere. They say they can do two things at once and they do! (Employee 1)

No, it is during working hours at dates well-defined where we are invited to participate. They show slides about SRIPEL and the person who made them explains the process. But the problem is also that since the beginning of the year, I have been invited ten times but I have never been to any of these ten times because I have selections or others things to do. (Process owner)

A second form of resistance involves withholding knowledge. For example, one senior employee jealously retained his knowledge instead of sharing it with the junior employee supposed to represent him during meetings with the project leader. Here, expertise is used to manage personal legitimacy and not participate in the introduction of SRIPEL. This phenomenon illustrates the fear among experts that they will lose a source of their own power in their organisation (see Crozier and Friedberg, 1977).

For example, when I was hired at Healthdesk, I was asked to work on the process of ministerial staff because I very often used to work with an expert on this matter. She had been in charge of this process since the beginning of her career and she knew all about the subject. But at the beginning of our meetings, she was reluctant to share her knowledge with me as she told me: '*Don't worry, I deal with it and I do it very well*'. (Process owner)

Information retention also emerges when managers do not directly transmit the names of the experts to the project leader needed to plan a meeting in order to proceed to the externalisation of their knowledge.

In the beginning, people did not write. They did not tell me. So I did some research but nobody knew or wanted to help me. Over time, I became fed up. And one day, I told the Director. Then, with time, people were willing to describe their processes. (Project leader)

Furthermore, the use of SRIPEL revealed a third form of resistance directed by the need for emancipation from the control exercised by management and the tool being implemented. This form of resistance is sabotage. When coordinators were hired, employees resisted again. Thus, when they had to contribute to the electronic knowledge repository, they decided to send either a surplus of comments or no comments at all via SRIPEL's dialog box. By doing so, experts kept their knowledge for themselves and prevented managers from exercising control over the process and themselves. If there is little knowledge in SRIPEL, the tool's quality and its use may be questioned.

About current reluctance, it is not really reluctance but I notice that some agents inundate us with comments. It's hell! For a yes or a no and it's like they do it on purpose to see if the faults that are reported are really up to date. It seems that they challenge us, me and my two colleagues (the two coordinators). (Project leader)

Another expert adopted deviant behaviour by falsifying the knowledge transmitted during his first three meetings with the project leader.

During re-engineering, I sometimes encountered difficulties like: *'Who are you to tell me that, it has been 20 years since I started working in this business!'* (...) And then, on another process, the situation was blocked after two or three meetings. (Project leader)

The knowledge stocked in SRIPEL is often perceived as poorer. In order to preserve the richness of their work, agents simply avoided using the tool by arguing that the processes are very often known. Otherwise, they prefer to ask colleagues for information rather than losing time or running the risk of making a mistake by using SRIPEL.

On average, I go on SRIPEL once a week. That's really the maximum. I'd rather talk with my colleague, and if he's not there I'd rather wait than look for the information because that will eventually annoy me. (Employee 2)

It appears that employees refused to adapt their routines and organisation methods to the technology introduced in order to capture and diffuse their knowledge. These resistance strategies reflect the personal affront felt by the advisors observed. This is further evidence that the knowledge repository has an effect on the employment relationship: standardisation, control, loss of autonomy, loss of social interactions and perceived support, as well as intensification were reported. In addition to this demonstration—which is limited by our empirical exploration—it shows how employees act in order to lampoon the managerial logic underpinning KM repositories. Employees oppose the 'technologisation' and 'objectivification' processes at stake in the implementation of such knowledge repositories with 're-humanisation' and 'subjectification', intelligibly claiming that knowledge is neither an asset nor an object, and that managing knowledge first of all means managing people instead of assets, resources, tools, strategic plans, technology or repositories.

Discussion: work degradation in the context of knowledge transfer

At the beginning of the research process, the expectation was to find evidence of the standardisation process involved in this kind of socio-technical innovation, in contrast to the enrichment perspective largely promoted by the KM literature. This expected finding was in line with existing critical work on KM, inviting scholars to consider knowledge-sharing from an interpretivist and practice-based perspective (Lam, 2000; Hsiao *et al.*, 2006; Newell *et al.*, 2006; Hislop, 2002). The authors did not expect to record work experiences that would challenge the employment relationship and the relationship to work, or even to observe perceptions of work degradation; this led to a return to the literature on labour process theory, first read by the authors several years ago. Two main contributions can be identified: first, the evidence of employees' experience of work degradation and deskilling, as described by Braverman (1974/1998), in the specific context of knowledge-sharing systems; second, the analysis of the way in which resistance emerged in such an 'embedded' context, where skill is at the heart of the technology introduced.

First, as stated at the beginning of the paper, the many proponents of KM argue that knowledge repositories foster collaboration, knowledge dissemination, organisational efficiency and so forth, through the recognition of knowledge and expertise, and by developing expertise and employability. This is exactly the same view that is associated with the 'humanisation' of work, in the context of the modern workplace, resulting from the scientific-technical revolution and 'automation' in the 1950s and the following two decades. This is a perspective to which authors like Friedmann and Braverman oppose their 'dehumanisation' thesis. Friedmann (1956) observed that the introduction of technological instruments in the conduct of work, far from allowing workers to focus on richer tasks, led to greater task fragmentation. In his words, the 'machine' is 'intercalated' more between the worker and his/her output. Other sociologists, taking Friedmann's analysis further in a more general critique of capitalism, have argued that task specialisation leads to knowledge fragmentation (Braverman, 1974/1998; Freyssenet, 1977). The argument is that while work environments gain from standardisation, they became poorer in terms of knowledge creation and the richness (variety) of tasks:

At the same time, a mounting dissatisfaction with the conditions of industrial and office labor appears to contradict this view. [...] work has become increasingly subdivided into petty operations that fail to sustain the interest or engage the capacities of humans with current levels of education; that these petty operations demand ever less skill and training; and that the modern trend of work by its 'mindlessness' and 'bureaucratisation' is 'alienating' ever larger sections of the working population. (Braverman, 1974/1998: 3)

Although Braverman's labour and monopoly capital has been the subject of much criticism (notably inviting scholars to consider gender and class issues more accurately—see the overview by Noon and Blyton, 1997), the investigation conducted at Healthdesk, in the context of KM systems, points to the same observations. Saying this in the context of mechanisation is one thing; saying the same statements in the context of the knowledge society and the observation of knowledge workers is another and requires both a historical review and a nuanced interpretation of what this may mean for research in the field of new technology, work and employment.

Healthdesk's employees seek to free themselves from the degradation that resulted from work standardisation and fragmentation. The processes observed have both similarities and dissimilarities with Friedmann's analysis. Similarities, because electronic repositories act here as the 'machine' that comes between the worker and his/her output and leads to fragmented knowledge, and also because of the disqualification of work that is observed: instead of creating—original and creative—collective knowledge that can sustain individual knowledge creation, this tool seems to isolate individuals (and, in that way, appears as a management tool fostering individualisation, see Taskin and Devos, 2005). Dissimilarities, because the division of labour pointed to by Friedmann is of another nature here: if there is a distinction between the users and the designers of the electronic repositories, this does not directly lead to a specialisation in the content of the knowledge mobilised by the experts.

In this case study, the employees interpreted the electronic knowledge repository as a threat to the richness of their work and deployed different strategies of resistance (falsification, withholding, boycott). This reminds us that HR policies are the result of a social process 'involving choice and often negotiation between management and labour' (Edwards and Wajzman, 2005: 25). One cannot compel employees to transfer their knowledge, and consequently, build a collective knowledge capital. The resistance strategies reported led to the abandonment of the electronic knowledge repository.

In sum, one contribution of this paper has been to present empirical evidence on the deskilling effect of 'new technologies' used in the context of KM, thus complementing the existing critical literature.

Second, considering the concept of deskilling developed by Braverman as too broad and difficult to operationalise, Rolfe (1986; 1992) made an important contribution to management research by characterising deskilling in terms of the two main dimensions he operationalised: the technical complexity of skill and discretion, that is the capacity to influence a process, product or job performance. The case presented herein allows us

to consider degradation as a *reflexive process* involving, first, deskilling as a result of job fragmentation and standardisation, and second, organisational knowledge impoverishment as a result of employees' resistance based on their perceptions of deskilling and reflecting the process of negotiation of the rules of the game, here knowledge-sharing. Degradation refers to the consequence of electronic knowledge repositories, but also to the reflexive process of actors' appropriation, which includes negotiations and decisions on the new rules associated with knowledge-sharing, as part of a re-regulation process (see Taskin and Edwards, 2007). This is the second contribution of this paper: by showing the effect on the employment relationship of the deployment of insidious forms of control under the mantle of 'development' and KM, it contributes to the literature on work degradation and deskilling, which is relevant to our understanding of the relationships between new technology, work and employment.

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Notes

1. Note that other scholars have pointed to contradictory results concerning this relationship (e.g. Bock and Kim, 2002; Lin, 2007).
2. The 'Copernic reform' aimed to improve the quality of service offered to citizens and to develop a vision focused on 'clients' and 'results'. The reform resulted in a large number of changes affecting both structures and the organisation of work within each public administration. It was in this context of change that the exploratory case study presented herein was conducted. Moreover, it is part of a broader scientific research programme funded by the Université catholique de Louvain, whose purpose was to propose an agency-based analysis of knowledge-sharing policies.

Appendix 1

Data collection

Data sources	Healthdesk
Interviews	Process owner (May 2010) Project leader (May 2010) Employee 1 (May 2010) Employee 2 (May 2010) Unit manager (June 2010) HR director (September 2010)
Document analysis	Official documents: Annual report (2010) Press articles Organisation's website Internal documents: Knowledge management policy Knowledge management toolkit
Observation	Two working days observing use and presentation of SRIPEL (May 2010)

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