

An Ethical Perspective on Emerging Forms of Ubiquitous IT-Based Control

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Abstract The goal of this paper is to investigate the ethical implications of emerging forms of control that have developed along with the use of ubiquitous information technology (IT). Because it can be exerted at a distance, almost anytime and anywhere, IT-based control has become more subtle, indirect, and almost invisible, with many negative side effects. Yet the issues raised by this new form of control have rarely been interpreted, treated, and framed as ethical issues in business ethics literature. Thus, a more comprehensive inquiry rooted in ethical concerns is necessary to improve understanding of this more subtle form of control, its ethical consequences, and the way ethical considerations can be taken into consideration and acted on by management. This article addresses this goal with a qualitative, exploratory case study of a telecommunications company, in which salespeople have been equipped with ubiquitous technology. The findings specify the characteristics and consequences of ubiquitous IT-based control, thereby inviting a rethinking of the ethical issues related to the privacy, autonomy, human dignity, and health of salespeople. In particular, this article highlights four ethical issues raised by the use of ubiquitous IT at work: the ambivalence of this use of ubiquitous IT, the subtlety of the control exerted by ubiquitous IT, the invasiveness of ubiquitous IT, and the self-reinforcement of ubiquitous IT-based control. Such issues are not often taken into account, suggesting that ethical considerations fail to enter into managerial decision making. This study directly raises questions about the intentions,

responsibilities, and divisions across different categories of organizational members who participate in such control systems. It also provides useful insights into employees' perceptions and offers guidance to managers who want to apply a professional code of ethics to the uses of ubiquitous IT.

Keywords Autonomy · Control · Ethics · Information technology · Monitoring, privacy · Stress · Ubiquitous technology

Introduction

The goal of this study is to investigate the moral and ethical implications of emerging forms of control that have developed along with the use of modern ubiquitous information technology (IT) in the workplace. Ubiquitous technologies (i.e., mobile phones, smartphones, and Wi-Fi laptops) have invaded the workplace; according to some estimates, “73 million smartphones were purchased in Q3 2013, either by business users directly, or by companies for their business users, representing a 34 % increase over total business smartphone volumes a year ago” (Strategy Analytics 2013). The way these technologies are used in organizations has led to the development of new forms of control, which seem more insidious, subtle, and misleading than past forms of IT-based control (e.g., computerized performance monitoring), in that they are less visible, are indirect, and are often disguised with a rhetoric of emancipation and autonomy. A global discourse conveyed by the media, IT constructors, and business organizations has linked ubiquitous IT to new types of flexible, responsive, dynamic, and nonbureaucratic organizations. The advent of ubiquitous technologies, for example, has accompanied

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managerial and organizational discourse linked to employee empowerment, emancipation, autonomy, mobility, independence, and flexibility (Jarveenpa and Lang 2005). Nevertheless, the use of ubiquitous technologies in companies challenges the dynamics of classic organizational IT-based control (author) because control can now be exerted at distance, almost anytime and anywhere, and can lead to negative side effects (Cousins and Robey 2005; Robey et al. 2004). Control systems have become increasingly mobile, flexible, atomized, and free-floating (Deleuze 1992), which renders them less visible and direct and, ultimately, more insidious (author). Computerized monitoring in the workplace has long been viewed as an “electronic panopticon” (Poster 1990; Sewell and Barker 2001); IT-based control now takes more subtle forms that employees themselves co-construct through their own usage of IT, going far beyond Orwell’s notion of “Big Brother.” Lyon and Bauman (2012), in their concept of “liquid surveillance,” have recently emphasized the pervasiveness and mobility of new forms of control, as well as their lack of fixity and their ability to shape themselves to the forms they encounter.

The characteristics, uses, and challenges associated with these technologies for organizations thus demand a reconsideration of the understanding of ethical issues raised by IT-based control systems. Such ethical issues, related to the privacy, autonomy, and human dignity of employees, arise not only in the corporate spatiotemporal framework of organizations, similar to classic IT-based control systems, but anywhere and anytime. Ubiquitous IT use constitutes a potential threat to employees, placing them on an almost permanent front stage (Goffman 1959) from which they cannot exit at the end of their workday, because of the invasion of such technologies in every aspect of their professional and personal lives and their ability to blur such boundaries.

Although the ethical concerns raised by classic computerized performance monitoring have been studied extensively in business ethics research (Alder 1998; Hawk 1994; Hodson et al. 1999; Martin and Freeman 2003; Miller and Weckert 2000; Ottensmeyer and Heroux 1991), the ethical issues raised by the new forms of IT-based control have not received the same attention, likely because these practices are generally not understood or presented as control. Prior research in management and information systems has recognized the emergence of these new forms of indirect control (author), but like many other technology applications, the practices are “rarely interpreted, treated or framed” as an ethical issue in business ethics literature (Ottensmeyer and Heroux 1991, p. 523). Because “[m]anagers make little effort to anticipate the human effects of new technology applications” (Alder 1998, p. 730), new forms of IT-based control are rarely addressed within

frameworks of ethical theory. As DeGeorge (1986) notes, technological change happens so rapidly that managers are often not even aware that ethical issues exist. Furthermore, managers make decisions about IT usage in organizations on the basis of their legality or effectiveness rather than their ethical impacts (Ottensmeyer and Heroux 1991, p. 523). Yet beyond legal aspects and questions of effectiveness, it is necessary to investigate the ethical issues raised by these practices. As Ottensmeyer and Heroux (1991, p. 524) state, “ethical issues do not arrive on the doorstep neatly labeled or conveniently packaged.... They only arise in organizations when managers are able to see them and act on them as ethical issues.” Thus, it is critical to identify ethically relevant concerns with regard to these practices and provide empirical evidence related to those concerns.

Our goal is to shed light on the effects of the renewed and indirect forms of technological control on employees, as induced by the use of ubiquitous IT in organizations. We want to understand how control mechanisms have evolved with the use of ubiquitous IT in the workplace and examine the ethical concerns this raises. Thus, we ask the following questions: What are the ethical issues raised by the use of ubiquitous IT in the workplace, in terms of managerial relationships and control? Do employers and employees consider the ethical implications of ubiquitous IT in their organizational context? How can we interpret, think about, conceptualize, and frame these ethical issues? By providing evidence on the outcomes of such practices, we seek a better understanding of their underlying ethical considerations. In turn, we contribute to literature on the ethical aspects of IT-based control, by specifying four ethical issues raised by the use of ubiquitous IT in organizations: (1) the ambivalence of this use of ubiquitous IT at work; (2) the subtlety of control exerted by ubiquitous IT; (3) the invasiveness of ubiquitous IT; and (4) the self-reinforcement of ubiquitous IT-based control. We highlight these new ethical issues in the specific situation of a telecommunication company in which salespeople have been equipped with ubiquitous IT. We analyze how and why these ethical issues are virtually unprecedented in business ethics literature, with a focus on the blurring of lines between organizational actors and their respective roles, as well as how these actors address them. This study accordingly provides useful insights into employees’ perceptions and offers guidance to managers who want to apply a professional code of ethics to the use of ubiquitous IT.

To address this goal, we begin with an overview of the relationships between ethics and IT-based control. In particular, we investigate the new forms of indirect and insidious control that emerge from the use of modern IT in organizations and focus on the ethical concerns that they raise. We then present our research method, namely, an in-

depth analysis of a business case. Finally, we discuss the findings, analyze the theoretical and practical contributions of this study, and note its limitations and avenues for further research.

Theoretical Background

Ethics and Computerized Control

The role of computers and IT in monitoring employees' performance (Forrester and Morrison 1991; Garson 1988; Zuboff 1988) or employees' conversations and e-mails (Hodson et al. 1999; Langford 1995; Miller and Weckert 2000; Severson 1997) has long raised ethical issues. Given their capacity to save, store, and analyze information flows, computers and IT are far from being neutral elements with respect to control systems. They provide employers with the ability to gather, process, and analyze information about their employees' work activities in unprecedented detail (Ottensmeyer and Heroux 1991). Because of the capabilities of computers and telecommunications technology, companies have begun to collect, store, and analyze information on employee performance on an almost continuous basis. Like an "electronic panopticon" (Lyon 1993, 1994; Poster 1990; Sewell and Wilkinson 1992; Webster 1995; Zuboff 1988), computer-based methods have allowed employers to observe and quantify their employees' work (Hodson et al. 1999). Despite the obvious benefits, however, considerable controversy has surrounded the use of computerized performance monitoring.

Although prior studies in management and information systems have long avoided the direct use of ethical reasoning (Ottensmeyer and Heroux 1991), academic research in ethics has begun to consider the ethical concerns raised by computerized control. Ethics is defined as the "systematic attempt, through the use of reason, to make sense of our individual and social moral experience, in such a way to determine the rules that ought to govern human conduct" (DeGeorge 1986, p. 15). Business ethics focus on "economic transactions between individuals and profit-making organizations" (DeGeorge 1986, p. 18), in which people are considered "moral agents and worthy of respect" (DeGeorge 1986; Ottensmeyer and Heroux 1991). Two dominant ethical theories inform the ethical dilemma that exists in the context of computerized control between an organization's legitimate business interests and an individual's right to privacy (Miller and Weckert 2000): utilitarianism and Kantianism (Alder 1998; Beauchamp and Bowie 1993; Hawk 1994) (see Table 1).

Utilitarianism asserts that "the morality of acts can be judged on the basis of their consequences," such that "an action would be judged ethical to the extent that it results in

the greatest good for all concerned parties" (Hawk 1994, p. 950). Electronic monitoring programs have been justified by their two basic functions in organizations, namely, providing performance feedback to employees and implementing control over activities (Alder et al. 2008), with control being one of the basic functions of management (Mintzberg 1994). Thus, IT-based control is legitimated by a strong cultural tradition, in both law and practice, of management monitoring and controlling workplace activity, both of which are essential to a company's performance (Ottensmeyer and Heroux 1991). However, higher levels of stress, lower levels of job satisfaction, more absenteeism, and turnover have been linked to people's awareness that computerized methods are used to monitor their work performance (Hodson et al. 1999). Thus, decisions regarding computerized control need to be evaluated on the basis of both their benefits for organizations, such as increased productivity, improved quality and service, and decreased costs (Alder 1998; Hawk 1994), and their harm to employees, such as stress and health problems, unfair performance evaluations, and invasion of privacy (Alder 1998; Hawk 1994).

Kantianism proposes that "the inherent features of an action make it right or wrong" (Hawk 1994, p. 950). A "categorical imperative" for ethical behavior dictates how we should always act (Alder 1998; Hodson et al. 1999). The emphasis in this view is on the intrinsic worth of individuals, whose rights to privacy, dignity, and autonomy must be respected. According to this perspective, any managerial practice that causes harm to any of the organization's stakeholders may be unethical, regardless of the potential benefits these practices hold for other stakeholders (Alder 1998). Research that has adopted a Kantian approach has judged the use of computer devices and IT to monitor and control workers in organizations as unethical to the extent that it breaches such obligations and violates basic rights of privacy, dignity, and autonomy (Alder 1998; Hawk 1994). Companies that have implemented computerized monitoring systems are often compared to "Orwellian places" or "electronic sweatshops" (Garson 1988), in that these systems represent "Big Brother" in the workplace, invade workers' privacy, create a dehumanizing and unsatisfying work environment, increase stress, decrease work-life quality, and negatively affect employees' health (Alder 1998; Hawk 1994).

Prior research has examined this fundamental struggle between the rights of individuals and the needs of the community (Miller and Weckert 2000) and suggested various ways thoughtful managers could respond to productivity improvement directives from their superiors while treating employees with respect and fairness (Ottensmeyer and Heroux 1991, p. 523). For example, Grant and Higgins (1989) investigate the efficiency of computer

Table 1 Synthesis of the new ethical issues raised by ubiquitous IT-based control

	Utilitarianism	Kantianism
Underlying principle	The morality of acts can be judged on the basis of their consequences (Hawk 1994, p. 950)	The inherent features of an action make it right or wrong (Hawk 1994, p. 950)
Focus (in the context of ubiquitous IT use)	Balance between the positive consequences for organizations and employees and the negative outcomes	Violation of basic rights: reinforcement of control and employees' traceability beyond the company's boundaries
Ethical issues raised by ubiquitous IT-based control	<p><i>Ambivalence of the use of ubiquitous IT at work</i> Ubiquitous IT as particularly equivocal and double-edged, with both intended and unintended effects for organizations and employees</p> <p><i>Subtlety of the control exerted by ubiquitous IT</i> Emergence of a more invisible, indirect, and insidious form of IT-based control</p>	<p><i>Invasiveness of ubiquitous IT</i> Less opportunity for respite throughout the workday and continuous exposure as a permanent threat</p> <p><i>Self-reinforcement of ubiquitous IT-based control</i> Co-construction by employees of the rules, norms, and implicit constraints to which they are then subjected</p>

monitoring and its ethical impacts. Marx and Sherinzen (1986) look to ethics codes developed by both users and sellers of surveillance technologies as ways to protect abuses. Overall, researchers and managers have been encouraged to make more informed ethical evaluations of computerized control systems (Hawk 1994). Some research also has attempted to overcome the issue by suggesting that electronic monitoring is neither ethical nor unethical but rather a neutral management practice that can be used in ethical or unethical manners (Alder 1998).

This more neutral viewpoint seems particularly insightful in the context of sophisticated, ubiquitous technologies, whose use in organizations seems to raise more subtle and complex ethical issues related to the emergence of new forms of distant, invisible, and free-floating control (author). Yet, while research in business ethics has long studied the ethics of employee IT-based monitoring, the ethical issues raised by the use of more modern IT in the workplace have not been studied, framed, or interpreted as such by ethics scholarship. In the following section, we analyze the ethical issues raised by ubiquitous IT-based control and specify how they differ from and are more insidious than the classic ethical considerations covered by prior IT-based control literature.

New Ethical Issues Raised by Ubiquitous Technologies

Ubiquitous technologies provide an innovative answer to the challenges generated by a competitive, changing, and global environment in which companies are subject to cost constraints and an ever-greater need for reactivity (author). As the emblem of the mobility of our society (Urry 2005), these technologies express, and simultaneously facilitate, a wider transformation of society, lifestyles, and economies, because they enable mobility that is both “physical and

social” at the individual level. In organizations, these technologies imply a radical change in the way people communicate, work, exchange information, and manage others, beyond traditional corporate space–time frameworks (Hislop and Axtell 2011; Prasopoulou et al. 2006; author). By generating a reconstruction of the relationship between time and space, these technologies act as catalysts for deeper managerial and behavioral changes. They may be used in a variety of situations and in both private and professional contexts, which blurs the lines between boundaries and uses. Consequently, basic organizational practices such as management, coordination, and control are no longer limited to the traditional idea of time and space and no longer necessarily occur in a context of shared action. The resultant ubiquity also means that employees can access their company's information systems and be in contact, or be contacted, at any time and in any place (Robey et al. 2004). Thus, ubiquitous technologies appear as “dual” instruments: their use in the workplace can lead to intended or unintended positive or negative effects that require reconsideration of ethical issues, especially because the effects can spread far beyond the company's spatiotemporal boundaries. Unfortunately, as already recognized by past research on computerized monitoring, such ethical considerations often fail to enter into the decision-making process regarding these practices (Hawk 1994).

A renewed inquiry regarding the use of ubiquitous technologies at work is necessary to understand their broader ethical implications. The utilitarian approach leads us to weigh the costs and benefits associated with the use of ubiquitous technologies in the workplace with respect to management and control. On the one hand, ubiquitous technologies provide a new form of spatiotemporal flexibility (Varshney 2003) and promising opportunities, such as improved individual productivity through decreased

work constraints, greater flexibility, and reduced coordination costs. In addition to enhancing communication, the use of these technologies allows information to be accessed immediately, improves decision-making performance, and facilitates quicker reactivity (Davis 2002)—all compelling reasons to explain why more companies provide their employees (primarily field workers, such as sales representatives, consultants, and technicians, but also more sedentary workers) with ubiquitous technologies. On the other hand, negative side effects emerge from the use of ubiquitous technologies within companies (Cousins and Robey 2005; Robey et al. 2004), such as the demand for nearly continuous availability and responsiveness. Information and cognitive overload are linked to the use of these technologies in the workplace. This “digital traceability” (Robey et al. 2004) can generate a certain degree of stress and anxiety and decrease productivity too. As a result, ubiquitous technologies represent particularly equivocal tools, whose use leads to both intended and unintended effects for organizations and employees.

A Kantian approach provides a basis for determining whether the use of ubiquitous technologies in the workplace and the underlying managerial practices raise problems from the standpoint of the intrinsic worth of individual employees. The use of ubiquitous technologies in organizational contexts may reinforce control and demands for constant availability and responsiveness (author). These technologies facilitate employees’ traceability, acting as a sort of “electronic lead” that extends beyond organizational boundaries (Jarveenpa and Lang 2005; Sorensen and Gibson 2004). They also imply a breakdown of borders between private and professional life (Cousins and Robey 2005; Prasopoulou et al. 2006). Their use leads to issues of fragmentation and interruptions at work (Davis 2002), fostering distraction rather than time for reflection (Middleton and Cukier 2006). Similarly, employees may feel oppressed by the emergence of a culture of speed and instantaneousness and a sense of permanent urgency. Ironically, such practices are co-constructed by employees themselves, who, through their usage of IT, build norms of communication that further constrain them and enable a subtle and indirect control of their own actions at a distance (Mazmanian et al. 2005). The use of ubiquitous technologies creates a “powerful communication and information network that keeps employees in a position of ‘allowed subjection’” (author). According to the Kantian approach, such practices can be judged as unethical, insofar as they represent an invasion of privacy beyond organizational boundaries, considerable losses of autonomy for employees, and a breach of dignity; they also negatively affect employees’ stress levels, health, and job satisfaction.

Consequently, though IT-based control has always been an ethical dilemma, some renewed and unprecedented moral and ethical issues emerge with the use of ubiquitous IT in organizations (see Table 1). Among these new ethical issues, the first is the *ambivalence of the use of ubiquitous IT* at work. Compared with classic electronic monitoring, a paradox emerges with respect to these technologies, in that they can be used ethically or unethically, enacted as instruments of autonomy or disguised as instruments of indirect control (Arnold 2003; Jarveenpa and Lang 2005; Wiredu and Sorensen 2006). As suggested by a utilitarian approach, a balance opposes the positive consequences of ubiquitous IT uses for both organizations and employees (new spatiotemporal flexibility, autonomy, improved individual productivity, and decreased work constraints) against the negative outcomes for the latter (demand for nearly continuous availability and responsiveness, information and cognitive overload, digital traceability). Ubiquitous IT thus is especially equivocal and double-edged, and its use leads to both intended and unintended effects for organizations and employees.

The second interrelated ethical issue pertains to the *subtlety of the control exerted* by ubiquitous IT. The implications raised by such ubiquitous IT use tend to be more subtle and less visible, in that these technologies are presented, developed, and used in an organizational context that emphasizes their potential for autonomy and flexibility, yet also gives rise to a more invisible, indirect, and insidious form of IT-based control. Unlike electronic monitoring systems, in which employees are generally aware of the use of computerized methods to monitor their work performance, ubiquitous IT can be used in ways that render employees unaware of the potential distant and informal control exerted on them. Ubiquitous technologies thus lend themselves to a broader notion of “liquid surveillance” (Lyon and Bauman 2012; i.e., a combination of Lyon’s surveillance studies and Bauman’s “liquid modernity”), which can be contrasted with the centralized, panoptic model, in which the watched and the watcher are designated by their positions within a fixed structure. As suggested by the utilitarian approach, a dilemma thus arises between the official presentation of ubiquitous IT by management as instruments to reinforce the autonomy and flexibility of employees and the potential for a more invisible, indirect, and insidious form of IT-based control, extending more subtly beyond the company’s boundaries.

The third ethical issue is the *invasiveness of ubiquitous IT*, because this use transgresses the border between professional and private spheres. Because of the pervasiveness of ubiquitous technology use, in both professional and personal life, and the subsequent blurring of boundaries it provokes, employees have less opportunity for respite,

whether during their workday or, more important, after it or during moments that previously were private. The continuous exposure that ubiquitous IT imposes on employees constitutes an almost continuous threat, because it puts them on a stage they cannot escape (Goffman 1959). As suggested by a Kantian approach, such uses represent an invasion of privacy and loss of autonomy, even beyond the organization's spatiotemporal framework, for employees who have less and less opportunity for respite throughout the workday and who are increasingly subject to continuous exposure as a form of permanent threat.

The fourth and final ethical issue is the *self-reinforcement of ubiquitous IT-based control*, in that the employees themselves, through their usage of IT, tend to co-construct the rules, norms, and implicit constraints (e.g., constant availability, cult of urgency, allowed subjection) to which they are then subjected. The notion that these ethical issues potentially are co-generated by the victim of control is rare in prior research. Only in the new forms of indirect IT-based control do the observed often cooperate implicitly, willingly or not, with observers by building norms of communication that further constrain them and enable subtle, distant control over their own actions. Such practices give rise to more atomized, "free-floating" control systems (author) co-constructed by people through their own use of technologies. An irony exists, in that employees themselves, who are increasingly tech-savvy, demand the use of such technologies at work. This ethical issue accordingly is co-generated by the victims of control themselves, through their co-construction of the rules, norms, and implicit constraints to which they are then subjected. The ethical issues raise the question of the roles and intentions of organizational actors, as well as their responsibilities for the emergence of such forms of control and ethical implications.

Although the ethical reflection carried out in the preceding discussion with regard to both utilitarianism and Kantian approaches is insightful, this analysis lacks any consideration of how ethical issues actually emerge in the workplace, to what extent they differ from the ethical considerations observed in prior research on IT-based control, and whether they get taken into account in organizational contexts by employers or employees. These new moral and ethical issues thus require a deeper investigation that considers the broad ethical implications of these practices. Such an investigation could yield insights that help decision makers make more informed ethical evaluations of these practices. It would also inform management responsibilities in developing such practices. As for computerized monitoring, the analysis should focus not on whether these practices are ethical or unethical but rather on how ubiquitous technologies can be used in ethical ways (Alder 1998).

Methodology

To get a better understanding of the ethical issues raised by the use of ubiquitous technologies at work, we developed an exploratory qualitative case study (Eisenhardt 1989; Miles and Huberman 1994; Yin 2003) of a company that had been using ubiquitous technologies for several years. Qualitative case studies are useful for revealing what lies behind a complex, underresearched phenomenon and for understanding the contextual meanings of events, actions, and processes (Eisenhardt 1989; Yin 2003)—in our case, analysis of the ethical issues and consequences of the use of ubiquitous technologies at work.

The site chosen for our case study is a commercial division in a large French telecommunications company, Frenchcom,¹ which we investigated from 2008 to 2010. This division specializes in the provision and sale of telecommunications solutions, offering business-to-business customers access through multiple platforms (fixed line telephones, broadband access, and mobile phones). The telecommunications sector is characterized by intense competition in the national market among the three leading communication companies. As such, the role of salespeople is crucial for maintaining and increasing the company's market share. Salespeople are in charge of the relationships with business-to-business customers, from initiating a contract to after-sales services: their mission consists of selling telecommunications solutions to the established customer portfolio, managing customer relationships on a daily basis, and increasing this portfolio at the national level by finding new prospective clients. Salespeople are located throughout the French territory and attached to four local agencies. Salespeople directly report to their local sales managers, with whom they are in permanent contact; the sales managers in turn report to the division's coordinator (i.e., national sales director).

The company's culture is focused on innovation, participative management, dynamism, and merit (measured exclusively in terms of achieved results). Management asserts that such an environment offers important professional growth opportunities. Moreover, as ambassadors of the company's products and communications solutions, all salespeople have been equipped with the most cutting-edge ubiquitous technologies and sophisticated devices, which, according to management, give them more autonomy to achieve their mission and empower them through distant and permanent access to the organization's resources. Their smartphones are directly connected to the company's information systems; the client database; the customer relationship system; other diverse applications, such as billing

¹ We modified the names of the company and the respondents to ensure anonymity.

and holiday systems; and productivity tools, such as e-mail, shared agendas, scheduling, and a knowledge-based system with shared files. Management expects its salespeople to be representatives of the communications solutions it promotes. Management also encourages salespeople to use their technologies to their full potential, for example, by showing customers how their smartphone enables them to receive and respond to e-mails in real time or by demonstrating how the technology can help plan a route every morning for mobile employees. The device is linked in real time to the customer relationship management system, which can be updated after every client visit. Through its own usage and example, the company aims to show how convenient mobile information can be built and how it can provide people with access anytime and anywhere to organizational resources, even as they move from place to place.

In this case study, we focused on two local agencies to study and compare different work environments in the same company. To ensure triangulation, we collected different types of data. First, we carried out 28 semi-directive interviews between 2008 and 2010 with salespeople, two local sales managers, the national sales director, the chief information officer, and the human resources (HR) director (Table 2). Each interview lasted between 45 and 120 min and was conducted at local agencies, the company's headquarters, or client sites to better understand the context, discourses, and salespeople's real work conditions. Given the sensitivity of our research project, our investigation was initially introduced to organizational members as a study about the efficiency and uses of ubiquitous technologies by mobile staff in their working environment. Discussions about the potential evolution of managerial relationships and control mechanisms then arose naturally, followed by a deeper investigation of the underlying ethical issues. Thus, we first strived to create a climate of trust to help organizational members (particularly salespeople) express their feelings, perceptions, and potential concerns about the use of ubiquitous IT. Salespeople were interviewed at different times to understand the evolution of their perceptions; after these interviews with salespeople,

we interviewed different sales managers and members of the board of directors to introduce some of our findings and solicit their feedback on specific points related to the evolution of control mechanisms and the ethical issues raised by the use of ubiquitous IT at work.

Each interview, which was tape-recorded, fully transcribed, and double-coded, covered different questions depending on the respondent's profile, but all of them generally began with open topics linked to people's activity, the requirements of their mission, and their use of ubiquitous technologies. Other questions focused on organizational, managerial, and relational aspects, as well as the role of ubiquitous technologies in such interactions. We asked additional questions related to respondents' perceptions of the uses of ubiquitous technologies, their role in reporting and control, their effects on interactions with clients and peers, and the balance between private and professional lives, to address the four ethical issues we identified through our analysis of ubiquitous IT-based uses at work. Through on-site observation, we tried to grasp the daily uses of ubiquitous technologies (frequency, regularity, goals of communication, access to organizational resources, autonomy, and constraints), as well as their effects on modes of management, control systems, and work practices. Through direct observation in the field, our goals were to obtain a richer description of the way ubiquitous technologies were used, understand the new forms of control that might emerge with and through the use of such technology, and analyze the ethical issues raised by such practices.

The case study was conducted in an abductive manner (Baskerville 1999), following both deductive and inductive principles. The main topics were identified a priori, in line with our literature review of research into ethics (and pertaining particularly to the four new ethical issues we identified: the ambivalence of the use of ubiquitous IT at work, the subtlety of the control exerted by ubiquitous IT, the invasiveness of ubiquitous IT, and the self-reinforcement of ubiquitous IT-based control), IT-based control, and ubiquitous technologies. However, we also identified emergent topics from the transcriptions of the interviews, enabling us to frame the ethical issues raised by the use of ubiquitous technologies at work, as well as understand how those ethical issues were perceived and acted on by various organizational actors. The interviews, field notes, and observational data were transcribed into written text for analysis (Miles and Huberman 1994). Our interpretative orientation led us to organize and reduce these data to deconstruct discourses and uncover patterns of human action and meanings. In particular, we wanted to interpret the meaning communicated by people and their perceptions when they used ubiquitous technologies at work, thus enabling us to distinguish official, formal discourses from unofficial discourses, such as private conversations and informal

Table 2 Summary presentation of interviews

Local agencies	
Salespeople	22
Local manager	2
Headquarter	
National sales director	2
Chief information officer	1
Human resources director	1
Total	28

testimonies. We content analyzed the collected data using NVivo software, by applying our coding scheme. Three major categories were identified, each of which included several themes (“nodes”) and dimensions: (1) ubiquitous technology legitimation, adoption, and use; (2) effects on managerial relationships, structures, reporting, and control; and (3) perceptions and awareness of ethical issues. Our content analysis helped us understand the nature of the ethical issues raised by the use of ubiquitous technologies in the workplace in terms of control and managerial relationships and to specify how such issues were taken into consideration by both employers and employees.

Findings

To present our findings in a consistent way, we build a comprehensive narrative of how the use of ubiquitous technologies at Frenchcom progressively raised ethical issues, drawing on the three major categories that we identified in our content analysis.

Ubiquitous Technology Legitimation, Adoption, and Use at Frenchcom

Our content analysis helped us examine the general discourses from both management and salespeople, pertaining to the deployment of ubiquitous technology at Frenchcom. We identified certain discourses related to the deployment and use of ubiquitous technology, which were intended to legitimize its use by salespeople. By emphasizing specific characteristics of technologies, these discourses had the underlying effect of eschewing any discussion of control and obscuring ethical issues regarding the use of ubiquitous technologies at Frenchcom.

The salespeople appeared to welcome the implementation of ubiquitous technologies at Frenchcom. Some inherent characteristics of the company and its organizational members explain this situation. First, as an innovative, young telecommunication company at the forefront of technology, Frenchcom internally developed many of the technologies and solutions it offered to its clients; thus, it made a point of fitting each employee, and each salesperson in particular, with the latest technological innovations. Furthermore, as the company’s population pyramid shows, the professional category of salespeople at Frenchcom comprised mostly men between the age of 20 and 38 years. For these dynamic, young digital natives, the deployment and use of sophisticated IT was initially a fun, pleasant benefit of their job, as stated by a salesperson:

I’m fond of technology. I think it’s no coincidence that I’m working there! Using the most recent

technologies, like a smartphone, is a real pleasure! I’d say it’s one of the advantages of working here.

The deployment of the most up-to-date technologies was thus largely expected by salespeople and even considered normal by most of them in this context. To address their expectations and requests, the company made a point of letting salespeople choose and request the technology they wanted to use at work, provided they were connected to all the company’s required applications to achieve their mission.

Second, the deconstruction of managerial discourse enabled us to comprehend its nature; specifically, the firm justified the implementation of ubiquitous technologies in terms of striving for better reactivity, efficiency, empowerment, and transparency. According to management, the use of ubiquitous technologies provided a window into the proposed solutions offered by the firm and served as a “showcase” of their internal skills. Internally, these technologies were also used as a means to increase salespeople’s responsiveness, efficiency, and productivity, while reinforcing their responsibility, as all necessary information was now at their disposal from a distance. In its broad organizational discourse addressed toward salespeople, management emphasized the potential for the increased autonomy and empowerment offered by these technologies, which were directly connected to the company’s organizational resources (information systems, client databases, and main applications). Thus, management presented ubiquitous technologies as a means of increasing salespeople’s independence within the organization. As the director of the business-to-business sales division stated,

These technologies are amazing! As I tell our salespeople, these technologies allow them to access all the company’s resources when and where they want. If they need information about a client, they don’t need to call an assistant at the local agency; they can access it directly on their smartphone. Our salespeople are a lot more autonomous than in the past, when they had to go back to their agency every day to get information about their round and deliver their report. Now everything can be done at distance, which gives them a lot more independence and freedom.

Salespeople initially seemed proud to be using such technologies at work and to show customers and prospective clients all the possibilities offered by such devices when directly connected to the company’s information system. For example, following management’s implicit request, salespeople would show clients and prospective clients how any company could benefit from equipping its entire sales staff with such technologies:

Since I am personally equipped with the solutions that I'm meant to sell, then I like using my own example. It's the best example we can give our clients to demonstrate the possibilities offered by technology and seduce them.

Most salespeople apparently appreciated being able to use their own technology as a means of demonstrating the increased autonomy they experienced through their permanent access and connection to the company's informational resources and the possibility of sending and receiving e-mails anytime and anywhere. By doing so, they also demonstrated the technology's efficiency and usefulness for any company concerned about its salespeople's performance; for example, an application enabled salespeople to access their planned route of visits on a daily basis, which helped them avoid having to report to their local agency in the morning before beginning their sales meetings. Salespeople also demonstrated how they could easily enter data pertaining to customers' visits directly into their smartphone, which then flowed into the company's customer relationship management system. According to these salespeople, this process simplified reporting, insofar as they did not need to prepare and submit to their manager a paper report on their visits; the report was automatically generated as a result of the data they entered in real time directly into the system. Salespeople presented the possibility for sales managers to be directly informed about their team's performance, despite distance, because they could know exactly how many visits had been made by salespeople during a certain period of time, enabling them to compare performance and identify potential anomalies and gaps. Such demonstrations tended to have a significant impact on clients, who quickly realized, in a concrete manner, the possibilities offered by ubiquitous technologies in terms of increased visibility, follow-up for mobile employees, and remote performance monitoring. The most striking observation was the apparent initial lack of awareness by salespeople pertaining to the consequences of such practices in their own company. Yet beyond official discourses, our observation in the field revealed salespeople's progressive realization of the related constraints and negative effects of such practices, indicating *the ambivalence of the use of ubiquitous IT* at Frenchcom.

Emergence of Subtle, Disguised, and Insidious Forms of Control Through the Use of Ubiquitous IT

A disguised form of indirect surveillance and control of distance activities emerged from the use of ubiquitous IT over time, which appeared all the more insidious because it was not presented as such but rather rationalized with the rhetoric of autonomy- and empowerment-based managerial

discourses that the salespeople had largely internalized, showing the *subtlety of the new type of control exerted through ubiquitous IT*. Although it was tacit, this emergent, insidious control raised serious ethical concerns related to salespeople's privacy, fairness, autonomy, human dignity, and health.

First, what was initially presented as an increase in autonomy, ubiquity, and independence for salespeople turned into a matter of continuous commitment to, availability for, and engagement with the company. In particular, our observations revealed that shared expectations were formed through behavioral regularities and interpersonal influences, which contributed to the emergence of implicit norms of behavior, embedded in specific uses of ubiquitous IT. For example, though salespeople initially viewed the possibility of sending and receiving e-mails anytime and anywhere or working at unexpected moments as an advantage in terms of flexibility and autonomy, we observed that in the long run, a norm of continuous availability progressively emerged, even outside the organization's spatiotemporal boundaries, thus revealing the *invasiveness of ubiquitous IT*. Such a norm built through the repetition and accumulation of salespeople's individual decisions to answer their phone or check their e-mails anytime and anywhere; these decisions then effectively disseminated through interpersonal relationships and dependencies, contributing to the *self-reinforcement of ubiquitous IT-based control*. Moreover, we observed that managers took advantage of salespeople's use of ubiquitous technologies by progressively enforcing continuous commitment and compliance. This norm of constant availability became associated with a norm of responsiveness, embedded in particular uses, which was perceived and described by salespeople as an "obligation to remain reachable," as recognized by the following salesperson:

Of course I'm working more with these technologies. I'm working almost all the time. But it's like a moral duty. I think it's normal; now everybody is doing the same; everybody is answering phone calls during holidays; everybody is answering e-mails during the weekend or late in the evening. I have to remain reachable. I don't see how I could do otherwise.

Second, these norms of availability and responsiveness translated into the perceived impossibility for salespeople to "disconnect." Such norms implied that what was initially considered professional conscientiousness became, over time, a real addiction. For example, all the salespeople we interviewed confessed that their smartphone had become an indispensable and "vital companion" and that they were "always on." Our observation in the field revealed addictive behavior by salespeople toward their ubiquitous devices, including strong compulsions to check

them often, though few of them seemed really aware of the potential consequences of such behaviors, such as the difficulty of disengaging. As one salesperson stated,

I know it must be irritating for my wife, my family, but I feel obliged to check my e-mails regularly on my smartphone. I sleep with it. I can check when I want. It's so easy, it takes 2 min! I need to be sure I won't miss any important information. It's very important in my job.

Third, as we observe in this example, a duty of performance, embedded in specific technology use, is closely associated with the use of ubiquitous IT at Frenchcom. What was initially considered an interesting and novel productivity tool became a “proof instrument,” through which salespeople strived to demonstrate their commitment to their manager and peers. The way ubiquitous technologies were used implied that information regarding salespeople's performance was constantly updated, displayed, posted, and compared on a daily, weekly, monthly, and quarterly basis. The change in the reporting process initiated by the use of ubiquitous IT implied that salespeople changed the way they behaved because they began to react in terms of their managers and peers, in an “anticipatory conformity” logic (Zuboff 1988). Our observations revealed that they were always striving to demonstrate improved performance to their peers and managers:

Now that I know that everybody can see what I'm doing, I really want to do more, for example, to show that I've done more visits than expected or to show that I've won new contracts. In the past, such information was less accessible, less visible. Now that everything is visible, almost in real time, I want to show the others I'm a performer and that I'm the best. But it's two-edged logic... Sometimes it can be tiring and stressful. The problem is that everybody is expected to do more now.

Furthermore, such behaviors were largely reinforced by indirect managerial practices and implicit pressures, which tended to turn emulation between salespeople into rivalry. For example, every Friday evening at approximately 7:00 p.m., management sent a short message to all salespeople to identify “who's on top” and to synthesize the best performances of certain salespeople, who were rewarded with financial bonuses. This subtle but powerful reminder of performance, transmitted via salespeople's smartphones just before the weekend, often in a familial context, served not only to reinforce the duty of performance that salespeople co-constructed but also to arouse competition among them, increase rivalry, marginalize many of them, and encourage a constructed culture of “the goods” versus “the bads.” In the end, rivalry and conflicts

created a stressful work environment. As the following salesperson recognized,

I hate Friday evenings... I hate them because I know I'll be stressed. We all receive the results of the week, and we see the names of the best performers... Not necessarily the best, but those who have a big mouth... Of course, it's never me... Sometimes I feel discouraged. I'd really like to be one of them at least once, to be proud of myself, to tell my wife I'll bring a bonus at home. But it's hard, there's more and more competition.

Finally, the psychological pressure exerted on salespeople increased the stress and anxiety to perform. For example, we observed, with the help of a salesperson, that specific results were sometimes achieved after some procedural diversions (e.g., manipulation of the data entered into the system, modifications to sales dates and visits to adjust the reported ratio during a specific period). In other cases, we observed that this psychological pressure had the effect of discouraging some salespeople and lowering their performance motivation, due to an increase in anxiety, stress, fatigue, and even aggressiveness. A local sales manager recognized an increase in stress-related illness among salespeople in recent years. The HR director also confessed:

The use of these devices has certainly introduced more pressure and more stress in the way they do their jobs. Some of them take it well; some of them take it bad. Now they have no excuse not to be reached. In the past, we didn't know whether they were on the road, were visiting a client, or anything else... We could have doubts on whether they were prioritizing their own interests or optimizing their round... Now, the doubt doesn't exist anymore. They follow a given round; we can contact them at any time. There is more transparency in their behavior. But of course, this has some drawbacks. Like any other technological change, it can generate some fears. Some of them fear it might be more tracking; some think we don't trust them... What can I say? For sure, it has led to more stress, maybe more anxiety... But there are many advantages too! We shouldn't forget all the benefits for the company. And for salespeople; if they manage to be more productive, then they will have a financial reward. So it's a win-win situation.

As this example demonstrates, a critical reflection on the ethical issues raised by such practices is essential. Yet these ethical issues have not properly entered into decisions surrounding these practices at Frenchcom.

Lack of Consideration of Ethical Issues Related to the Use of Ubiquitous Technologies

Our analysis reveals the existence of strong but unacknowledged ethical issues linked to the emergence of subtle but insidious forms of IT-based control. Our observations in the field and the interviews we conducted with management revealed that such concerns were not taken into consideration at Frenchcom. Therefore, no ethical reflection or action was carried out in this company regarding the use of ubiquitous IT and its potential consequences on managerial relationships, control systems, and the well-being of salespeople.

First, salespeople were not necessarily aware of the *ambivalence of the use of ubiquitous IT* at work, the *subtlety of the ethical consequences of using ubiquitous IT*, and the indirect mechanisms of control that emerged with it. Not only did they not complain, but most of them described their use of ubiquitous technologies as a result of their strategies to manage the pressure from their managers and peers to address their daily challenges, thus contributing to the *self-reinforcement of ubiquitous IT-based control*. Like most of his colleagues, the following salesperson invoked his own choices and behavior when recognizing some abuses related to ubiquitous IT use:

I'm more stressed with these technologies, but it's my fault. It's me who put a bigger pressure on my shoulders. I feel more anxious because I'm more sensitive to the time pressure and the need to perform.

Other salespeople noted that such practices and potential abuses related to the *invasiveness of ubiquitous IT* were part of a broader system that overwhelmed them:

I know I am more stressed at work, and I feel more anxious. My smartphone is great; it allows me to do many things, but at the same time, when I see it, I'm stressed... because it's a permanent tie with my job... I never disconnect in fact. But I think that it's the system that is like that, our job is like that, and our society is like that. I know that if I don't meet my objectives, everybody will know it, and it puts a kind of pressure.

To conclude, most salespeople considered that the consequences of using ubiquitous technologies resulted either from their own choices or from a broader system. In general, salespeople did not seem aware of the strength of the ethical issues raised from the use of ubiquitous IT at work, though most of them seemed to suffer silently from its consequences.

Second, when such practices and the ethical issues they raise were mentioned in our discussion with members of management and the board of directors, most of them

released themselves from any responsibility. As the two local sales managers stated, the management of the company did not explicitly ask salespeople to be more connected or to remain available anytime and anywhere. According to the director of the sales division,

Salespeople create their own mechanisms of surveillance. They make a rod to beat their own back... We've never asked them to work more or to be addicted to their smartphone. We don't ask them to answer an e-mail right away. At least the official policy is that we don't require them to be connected all the time. If they do so, it's because they have an interest in doing so.

In this regard, to avoid any abuse, management recently enacted a formal rule that explicitly states, "there is no obligation to read and answer and e-mail sent in the evening—after 6:30 p.m.—or during weekends." However, as we observed in the field, some problems arose because, in practice, salespeople were regularly "asked by their manager why they have not checked their e-mails yet!" as one salesman confessed. Eventually, control seems to be such a valued function in the eyes of management that "even if these practices were proven to be control and tracking, we [managers] are free to use whatever control method we want," according to one local manager.

Furthermore, as we observed in the field and as the HR director confirmed, the problem is that overall, little effort by management has been undertaken to anticipate the human effects of employing technologies in the company, in particular ubiquitous IT, which challenges the spatiotemporal frameworks of organizations, the way management is exerted, and the grounds of collective action. In particular, we noticed that the use of ubiquitous IT at Frenchcom was considered exclusively a technological concern, falling within the IT function's capabilities. Despite the human consequences, organizational and managerial impacts, and ethical issues raised by the use of these technologies, local management and the HR director were not involved in any reflection regarding the use of these technologies. For example, the HR director seemed aware that strong actions should be taken by management regarding the deployment and use of these technologies at work, but he regretted a "feeling of worthlessness":

I know that the HR direction should be more involved in these questions of technological deployment and use, because it changes many things in the way people work together and live together, but actually it is not the case. It's the territory of the IT function, and it's hard, and often not desirable, to interfere in such decisions. I must say that I don't feel listened on

these aspects. But I think it's the case for many companies.

To conclude, our observations in the field and our interviews with various organizational members revealed that the ethical issues raised by the use of ubiquitous IT were not properly addressed, despite their negative consequences for salespeople's satisfaction, motivation, and general well-being.

Discussion and Conclusions

In this article, we provide an analysis of the ethical issues raised by ubiquitous IT-based control systems, a topic insufficiently examined thus far by academic research in business ethics. We first synthesize our findings in this section, to offer insights into the processes by which the legitimation and use of ubiquitous IT at Frenchcom reinforce each other and create more subtle forms of control that raise new ethical issues. We then present the theoretical contributions, before analyzing some limitations, potential avenues for research, and practical implications. In

Fig. 1, we summarize graphically how the legitimation and use of ubiquitous IT at Frenchcom reinforce each other and create a more subtle form of control that raises new ethical issues, with important consequences for employees.

The deployment of ubiquitous IT at Frenchcom initially is legitimated by organizational discourses that focus on the need for more reactivity and efficiency, as well as on the autonomy of employees and transparency of information. The enactment of ubiquitous IT over time then leads to behavioral regularities, shared expectations, and the co-construction of norms of communication, which play a key role in the emergence of insidious forms of ubiquitous IT-based control, in terms of continuous commitment, availability to and engagement with the company, perceived obligation to remain reachable, and a duty of performance, independent of the organization's classic spatiotemporal framework. Our interviews and observations in the field reveal that the paradox between the rhetoric of autonomy- and empowerment-based managerial discourses and the way ubiquitous IT are used effectively to trace employees' activities at a distance raises ethical issues, in terms of the ambivalence of the use of ubiquitous IT, the subtlety of control exerted by ubiquitous IT, the invasiveness of

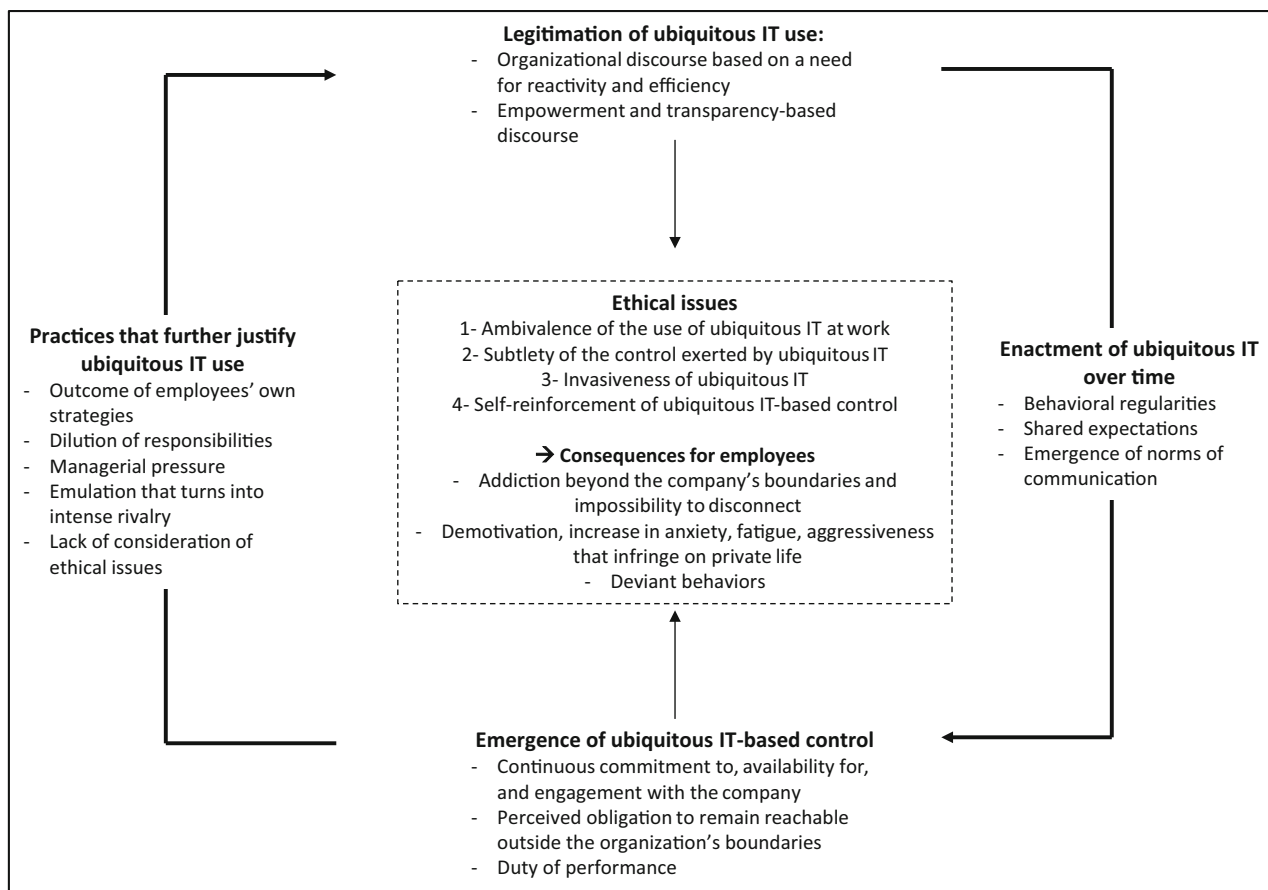


Fig. 1 Synthetic view of the ethical issues raised by the use of ubiquitous IT at Frenchcom

ubiquitous IT, and the self-reinforcement of ubiquitous IT-based control. These ethical issues in turn have important consequences for employees' basic rights (i.e., autonomy, privacy, human dignity, and health), as exhibited in the evidence we find of addiction beyond the company's boundaries and incapacity to disconnect; demotivation; increases in anxiety, fatigue, and aggressiveness that infringe on private life; and the emergence of deviant behaviors. However, some specific practices justify ubiquitous IT uses, such that they potentially reinforce ethical concerns, including perceptions of such practices as the result of employees' own strategies, the dilution of responsibilities, the absence of any culprit, managerial pressure that leads to emulation and even intense rivalry, and a lack of consideration of ethical issues. These effects combine to further intensify and justify ubiquitous IT use at Frenchcom.

Theoretical Contributions

Our case study contributes to prior literature on IT-based control and electronic monitoring, especially by confirming the complexity of IT-based control (Ottensmeyer and Heroux 1991). In particular, with these findings, we can explicate how the four ethical issues we identified in our literature review become manifest at Frenchcom, and we analyze their emergence process, consequences for employees, and perceptions and interpretations by various organizational actors, which lead to specific practices that further intensify and justify ubiquitous IT uses at Frenchcom.

First, in line with the predicted *ambivalence of the use of ubiquitous IT* at work, our case study reveals the emergence of a type of control that is more complex than classic IT-based control, because the same facets of ubiquitous technology can be enacted in very paradoxical ways: On the one hand, technology can be used to enable omniscient communication and make it ubiquitous and particularly attractive. On the other hand, it can be used in unethical ways, manifested as insidious instruments of control that undercut the autonomy of salespeople.

Second, reflecting the *subtlety of the control exerted by ubiquitous IT*, we reveal that the ubiquitous IT-based control observed at Frenchcom appears as a more subtle, indirect form of control, because of the enactment of the ubiquitous technology. Such control is less visible than classic control mechanisms, because it is never presented as a form of control but rather is disguised, in a managerial discourse of autonomy and empowerment.

Third, in line with the anticipated *invasiveness of ubiquitous IT*, rather than providing employees with more autonomy and power, the usage of these technologies in the workplace can lead to an invasion of privacy, through the

co-construction of implicit norms of availability and responsiveness, which occurs beyond the organization's spatiotemporal boundaries; a breach of employees' dignity and autonomy whose freedom to disconnect and opportunity for respite comes into question not only during but also after the workday, and who are drawn deeper into the cycle of technology use through competition and rivalry; and considerable health impacts (e.g., anxiety, anger, fatigue, aggressiveness, stress-related illnesses) (Hawk 1994; Martin and Freeman 2003) due to addictive behaviors and a psychological pressure to perform, leading employees to act in terms of the "observer," in an "anticipatory conformity" logic (Zuboff 1988). As with computerized monitoring, this control represents a denial of individual autonomy, privacy, and dignity, echoing a vision of salespeople as "objects to be manipulated in accordance with organizational goals" (Maguire 1999, p. 112). Moreover, beyond classic computerized monitoring, such control raises unprecedented ethical issues, because it generally goes unnoticed, relying increasingly on the unacknowledged and implicit psychological pressure exerted on salespeople.

Fourth, it is more insidious, insofar as it is not a direct type of control that can be denounced and easily challenged, as is the case in situations of classic electronic monitoring (Maguire 1999). On the contrary, in line with our prediction of *self-reinforcement of ubiquitous IT-based control*, it finds its roots and strength in the individual strategies, emulation, competition, and rivalry co-constructed by salespeople themselves, through their own complicit use of IT and the implicit norms of behavior that result. The perversity of this IT-based control system thus relies on co-generation and co-construction of control mechanisms over time, by employees themselves (i.e., the "victims" of excessive control). It directly raises the question of the intentions and responsibilities of different categories of organizational members involved in control systems (i.e., employees, operational managers), both for letting such forms of control develop and for addressing the ethical issues they raise.

Our understanding of these four ethical issues in the context of Frenchcom enables us to highlight the irony of these ethical considerations: despite their prevalence and the importance of their consequences for employees, neither salespeople nor managers seem to be aware of them, feel responsible for them, or appear able or willing to identify the responsibilities involved in this process. The potential abuses of electronic monitoring are easy to denounce, and the "culprit" is easily identifiable, as in the Orwellian Big Brother metaphor, but our findings reveal the lack of any clear culprit in the newer forms of control that we observed. The case study shows that there is no Big Brother figure, thus indicating a systemic dilution of

responsibility for the consequences and ethical issues raised by the use of ubiquitous technologies. If this lack of accountability is dangerous, it is because it “prevents [employees] from voicing moral doubt, disagreement and protest” (Maguire 1999, p. 113). Such issues are clearly not taken into account at Frenchcom, confirming how often ethical considerations fail to enter into managerial decisions. Local and operational managers, as well as HR directions, are rarely used or trained to consider the ethical dimensions of business decisions, especially when they relate to technological deployment (Ottensmeyer and Heroux 1991). Thus, little effort is made to anticipate the human effects of new IT, and ubiquitous IT in particular, which indicates the need for more managerial, ethical, and moral consideration.

Limitations and Potential Avenues for Further Research

This paper has some limitations, due primarily to our methodology (i.e., an exploratory study with a limited number of respondents from a single telecommunications company, such that its characteristics differ from those of companies in sectors other than telecommunications). The results should be validated with empirical research and field testing in other contexts and in application to other technologies. Our case study was carried out between 2008 and 2010, so other uses, norms of communication, behaviors, and forms of IT-based control might have emerged since then, considering the constantly increasing sophistication of ubiquitous devices. Finally, managers with different cultural backgrounds and in different circumstances may have distinct views of acceptable ethical behavior (Chen 2001). Nevertheless, there are reasons to believe that the same ethical concerns and similar types of subtle control related to the use of ubiquitous IT would emerge in other contexts.

Practical Contributions

Despite its limitations, this study offers practical insights. To date, organizations remain not fully aware of the impact of ubiquitous technologies, so few measures have been taken to manage their consequences and the related ethical issues. It is important to clarify how ethics can be rethought in this context. In particular, this study raises a question about the responsibilities for the renewed form of distant control implied by ubiquitous technologies. Our findings reveal a co-generation process that includes employees themselves, because through renewed IT-based control, they co-construct their own behavior and usages of ubiquitous technologies. Many questions thus arise, involving employees' ambivalence about the use of ubiquitous IT

(Ashforth et al. 2014). They may appreciate the use of state-of-the-art technology, but employees dislike the permanent control and heightened transparency enabled by such technologies. Moving beyond the two dominant ethical theories that have informed prior ethical considerations of IT-based control (i.e., utilitarianism, which focuses on the balance of costs and benefits, and Kantianism, which focuses on the intrinsic worth of employees), this study thus raises questions about employees' reactions to, intentions toward, and consent to ethical issues that have not been analyzed previously in research into the ethics of IT-based control (Gratz 1984). We observe that salespeople agree with, claim for, and even appreciate the use of ubiquitous IT at Frenchcom, adhering implicitly to organizational goals, even as they simultaneously worry about the intentions of their employer, such as potential control or tracking of their activity. A more comprehensive inquiry into the ethical issues associated with IT-based control thus requires an analysis of employees' ambivalence (Ashforth et al. 2014) and individual perceptions of managerial intentions related to IT-based control, to understand subordinates' behaviors and reactions to such potential forms of control.

Furthermore, our findings involve managers' duties and responsibilities toward employees for their own uses of ubiquitous IT. Although this form of control is co-generated by the users of the technology, our study suggests that these ethical issues are related not to “determinism” but rather to a sort of “thoughtless implementation” of IT, which denotes the critical importance of ethical training in IT and HR settings. It also suggests that companies and managers may be at least partially responsible for regulating such usages and protecting employees from potential deviances, addictive behaviors, and excessive usages, whose outcomes could be detrimental in terms of their privacy, autonomy, human dignity, and health. Another viable option might be to empower employees and provide them with greater, true autonomy to manage their own work. A more comprehensive inquiry, with ethical concerns at its center, could help ensure further progress toward understanding this subtle form of control, its ethical consequences, and the way they should be taken into consideration and acted on by both employees and management.

In this regard, our paper also raises a more general question of social responsibility in the organization. By disrupting the constitutive corporate unit of time and place, the use of ubiquitous IT necessarily involves the social responsibility of organizations in terms of performance surveillance and the development of control systems. This issue appears all the more salient when the use of these technologies generates a form of indirect, subtle remote control, both during and outside working hours (i.e., in the

evening, on the weekend, and during holidays). The resulting ethical issues related to the privacy, autonomy, human dignity, and health of salespeople (Ottensmeyer and Heroux 1991), as raised by such control systems, are unprecedented in business ethics literature, in the sense that they go beyond the organizational context. As Clegg (1990) recognizes, when questions of the extension of time and space are needed to guarantee organizational action, it becomes important that forms of regulation exist to inform practice. Thus, our research suggests a need to develop standards, practices, and regulations for employees, their managers, and their peers to control ubiquitous technology use. There is a need to review organizational methods and managerial practices—such as objectives, reminders, pressure to perform, competition, and rivalry-based management—and to develop new rules for ubiquitous IT uses to enhance both employee efficiency and fulfillment (fulfillment being itself a source of effectiveness). For example, it could include accepting overlaps into certain social times and rethinking the boundaries between distinct spaces. Jouët (1993, p. 113) speaks of “a dual spatial movement,” which leads to both taking a person’s private universe into the public and the professional space and having access to the public, professional space from home. Because they are divested of their working time to some extent, employees also need to be able to reappropriate their personal time.

Furthermore, this research indicates that the maturation of ubiquitous technologies and their widespread use in organizations demands better coordination in companies, especially between functions. In particular, these uses have implications for both IT and HR, but the latter are rarely involved in technological decisions, which are considered the territory of the former, who legitimately want to defend their turf. Companies that understand the real impact of distance working in managing geographically distributed populations and work organization are rare. Yet these IT developments lead to new working practices (through a break with traditional units of time and place) and directly affect the bases of collective action. Our study therefore suggests a greater need for HR to engage with technology-related issues. More widely, we argue that the maturation of ubiquitous technologies and their widespread use in organizations demands better firm-level coordination between IT and HR functions, such that they can address not only the technological but also the human, social, and ethical implications of the use of ubiquitous IT at work. At the dawn of a new era in management, the line of inquiry we have explored herein is crucial. Such ethical considerations regarding the use of ubiquitous technologies in the workplace ultimately affect employees’ quality of life, as does the effective utilization of the tools placed at their disposal. Our findings thus have implications for

employees themselves, in particular for mobile populations whose contact with their companies is increasingly dependent on these technologies.

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