

From connectivity to isolation : the implications of IT on psychological health at work.

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Abstract

The article examines in detail the effects of the use of information and communication technologies in organizations, based on a theoretical analysis and a review of the existing literature in the fields of management and psychology. IT s have brought many benefits to organizations, including greater flexibility, increased productivity and the development of employee skills. However, the use of these technologies can also have negative effects on the psychological health of workers. Indeed, IT can increase stress levels and pressure on workers, reducing flexibility and increasing work demands. Workers may also feel increasingly monitored, with the use of surveillance technologies such as video surveillance or performance monitoring. This can have negative effects on their psychological well-being, exposing them to risks such as burnout, depression and anxiety. The main objective of this article is to highlight the effects of using information technologies on the psychological health of workers, as well as the necessity to implement measures to prevent the negative effects of technologies. These measures can include organizational policies that encourage autonomy and flexibility, as well as training to help workers better manage stress and maintain a balance between their professional and personal lives. It is also important to encourage a culture of mutual support and mutual aid within organizations to help workers cope with the challenges of using IT .

Keywords: IT use, Flexibility, Work intensification, Burn out, Work stress

Introduction

The technological changes that the world of work is currently undergoing stem from the desire of those in charge of organizations to improve the practices of workers, to increase the productivity of goods and services and to maximize profit. It is the emergence of new forms of work organization that can be initiated or accompanied by the use of Information and Communication Technologies (IT). Indeed, IT s are perceived by most companies as essential and determining tools for organizational efficiency. They must contribute to the circulation of information, reduce the distances between departments and customers, optimize decision-making and the reactivity of the company, and improve collective actions and the creativity of employees.

Therefore, The objective of this work is to emphasize the implications of IT on psychological health at work, and the importance of introducing measures to mitigate their adverse effects.

Our paper will be structured around the following two points, we propose on the one hand to define more precisely which IT s are most used in the world of work by examining their role and function in the activity; and on the other hand, to identify their effects on the organization of work and on the activity, in order to better identify the workload and the health problems that this may pose for employees.

We would like to make it clear that our ambition here is not to conduct an exhaustive and structured literature review on the issue of occupational health in digitalized environments although scientific work in the field will be mobilized, but rather to propose a critical reflection on the way in which different approaches and models make it possible to consider the impacts of the use of technologies on occupational health. This reflection can bring interesting perspectives of analysis as to the way in which the various theoretical orientations mobilized (activity clinic, occupational stress model, activity system model) consider the psychosocial repercussions related to the use of IT in the workplace and the resources available to employees to cope with them.

1. Description and categorization of IT in the organizational context

According to Bobillier Chaumon (2003), the expression IT federates "the set of tools and resources that allow to receive, transmit, store, exchange and process different information and knowledge between individuals" (p. 27). For Brangier and Valléry (2004), "IT s group together all the techniques applicable to the processing of information and the communication of the latter through Man-Machine systems".

In the organizational context (companies, public and parapublic institutions, etc.), IT s are referred to in terms of work management modes that include collaborative work tools that enable the production, processing and transformation of information and communication using an electronic process. The idea of mediated collaborative work refers to a mode of work where the organization seeks to optimize or more simply to encourage collective activity by using appropriate technical supports to increase cooperation and coordination between employees and departments (Comtet, 2006). As Peters and Watterman also mentioned: (Peters and Watterman cited by Ciobanu & Bobillier Chaumon, 2006) the emergence of IT in the world of work also emanates from a search for excellence in the functioning of companies in order to fluidify decision-making circuits, bring actors together (intra- and inter-companies) and create a more flexible, reactive and agile organization in order to respond to the new and constantly evolving challenges of the work. As a result, Brangier and Bornet (2011) talk about the search for agility in work organizations. In other words, IT easily allows companies to innovate and improve their productivity.

Bobillier Chaumon (2013) proposed a classification of professional technologies based on the research he was able to conduct on different categories of employees and users (managers, employees, nomadic employees...) in different fields and sectors of activity (service, production, hospital...) and on various types of technologies (contemporary and emerging). By crossing the utilitarian dimension of these technologies (functionalities, field of application, purposes) with the impacts and uses that he was able to observe in the research fields and also with the literature devoted to this subject, Bobillier Chaumon (2013), proposed a taxonomy of professional IT in five major families of tools:

1.1. Information transmission technologies

These technologies aim to optimize the transmission of information and to promote communication not only within work organizations, i.e., between employees, departments, and hierarchical levels, but also between the organizations themselves (case of the intranet and extranet). Indeed, according to Cacaly, Lecoadic, Pomart, and Sutter (2008), the intranet is "a

technological tool representing an internal computer network within organizations" (p. 129). This internal and secure network is accessible to employees for communication purposes. Thus, its use is based on Internet protocols for easy access to company information. An interactive tool, it favors group work and constitutes a private and protected computer network within an organization. It also aims to improve employee performance by pooling company information and data (as a sharing and resource platform) (Azzouz & Bidan, 2013). The extranet has symmetrical functions in the context of networks and information sharing. Indeed, expanding an intranet, the extranet is a private network allowing the company to exchange and share, in a secure manner, information with other partners of its choice (Valléry, 2005). However, this tool is neither an intranet nor an Internet site. It is an additional system that offers clients privileged access to certain computer resources of a Web interface, for example. Other technologies such as internet and social networks (Web 2.0) are part of it. Indeed, the internet allows employees to get closer together, to transmit and share information, to collaborate, to exchange and to communicate in an asynchronous and synchronous way (instant messaging and webcam). Social networks aim at networking geographically dispersed employees. It is about mobilizing employees and spaces of expertise oriented towards action.

There is also the Coupling of Telephony and Computing (CTI). Computer Telephony Interface (CTI) is a set of techniques that allow computer and telephone applications to work together. This device links, for example, a call center to a company's computer system (Valléry, 2005).

1.2. Collaborative technologies

Collaborative technologies seek to optimize teamwork (Ellis, Gibbs, & Rein, 1988). These technologies include groupware and workflow. Groupware is a concept that designates both the human and organizational process of group work and the technological tools necessary to accomplish this work (Lépine, 2002). The tools integrating groupware allow to improve the cooperative work between different members of the same team or between members of different teams having information to share (Brangier & Valléry, 2004). In this category of technologies, there is also workflow, which links several actors, tasks and documents, promoting a cooperation process (Van der Aalst, Pesic, & Schonenberg, 2009). As a tool for developing group productivity, workflow optimizes the flow of transmissions and reduces the time required to process administrative files.

1.3. Management technologies

The objective of this family of technologies is formalization (Bobillier Chaumon & Dubois, 2009). In other words, these technologies formalize the collection, processing and transmission

of operational data in work units. Thus, software of the Integrated Management Software Package (IMP) or Enterprise Resource Planning (ERP) type is part of this family.

According to Ducray (2015), emanating from a single designer, ERPs make it possible to manage all of a company's processes, such as human resources management, financial and accounting management, or e-commerce management. In the business context, ERPs meet the needs of the company (choice of management rules, adoption of processing and data format) (Moscarola, chaaboudi, & Triki, 2010).

ERP systems promote an organization based on just-in-time administrative production (Beretta, 2002). In this category of technologies, we can add the electronic document management system (EDMS or EDMS), which is a set of software programs used to carry out various stages in the processing chain of a dematerialized document (Lalaude, Gautheron, Bertrand, Soual, & Bescond, 2008). A true warehouse, it allows the archiving, visualization and manipulation of the company's digitized documents using a scanner (i.e. text, images, etc.). It is possible to link the functionalities of this tool to document and office automation software. For example, associated with the workflow, it is possible for the company and the employees to follow the whole process of the treatment of a file (reception-follow-up-archiving of the file). The malleable character of the EDM technology gives it the possibility to create new logics of treatment of files in the company.

1.4. Decision support technologies

According to their name, these technologies are real decision support tools within organizations and participate in the reflection and problems that employees may face. Among these technologies, there are the expert systems still called Decision Support Systems (DSS). Expert systems are able to perform different logical reasoning comparable to those that human experts would do. Furthermore, following in parallel the same function as expert systems, the Data Warehouse is a true data warehouse (Peng, Kou, Shi, & Chen, 2008). The objective of the Data Warehouse is to synthesize a very large quantity of data in order to extract the essential information for decision making (Tufféry, 2010). A parallel could be drawn with the big data technologies based on artificial intelligence that are spreading throughout companies and that offer similar functions, but much more powerful and above all with unparalleled pred IT ive capabilities (Cardon, 2015). In this same category, there are also Knowledge Management tools that seek to capitalize on the company's intangible assets: its know-how, accumulated experience, tacit knowledge, tips and tricks, mistakes not to be repeated, best practices, etc. (Ledeuff, 2012). The aim is to make the employee more efficient (not starting from scratch,

innovating rather than inventing) and more efficient and reliable from a cognitive point of view (not reproducing the same mistakes) (Valléry, 2005).

1.5. Training and learning technologies

As their name indicates, these technologies accompany and support the learning process in companies: whether through E-learning systems (called Human Learning Environment (HLE)), virtual or augmented reality devices, serious-games (serious-games), MOOC (massive open online course) also called CLOM (Cours en Ligne Ouverts et Massifs). They thus give employees the possibility to connect remotely to consult various educational resources (alone or through tutoring) and to develop their knowledge (Lee, 2010), or even their skills through virtual or immersive training devices of the serious-game type (Martin & Lhuilier, 2016).

Apart from this classification, to our knowledge there are no other classifications in the literature, particularly in work and organizational psychology, of the nature of IT used in the world of work. Either undifferentiated technologies are mentioned, or studies focus on a particular tool for the company (Chesley, 2014).

With the aim, in a very deterministic vision, of propelling organizations towards innovation and productivity, we can ask ourselves what the impact of these devices may be on the activities of workers as well as on their psychological health at work? Through a critical analysis of the literature, we will try to identify, on the one hand, the impacts that these tools can have on the work of the employees (by demanding other ways of thinking, of doing, of collaborating and of organizing one's activity), and on the other hand, we will see what are the possible harms that they can cause on the health of the employees.

2. The use of IT in the world of work: paradoxical innovations?

Based on an analysis of articles dealing with the use of these technological tools on a case-by-case basis, we will show that IT s have finally generated radical innovations in organizations. These innovations are sometimes considered paradoxical, since they are accompanied at the same time by advantages and disadvantages, particularly on the socio-professional level. The choice of technologies cited in this article is justified by the fact that they are the subject of numerous studies.

2.1 IT and changes in work organization.

IT s are intended to accompany or trigger the implementation of a new organization that is characterized by flexibility in terms of location, space and time (Valenduc & Vendramin, 2016). They are introduced into organizations to improve work procedures and their efficiency. Thus,

thanks to information systems (internet and its derivatives, instant messaging, CTI), employees can connect to the company and be reached by it at any time and any place. The immediate benefits of this time and space saving are greater efficiency in individual and collective actions, reduced coordination costs and, above all, optimized communication and knowledge exchange (Besseyre des Horts & Henri, 2006).

This type of tool leads to the emergence of a horizontal type of work organization (Ruzé, 2011). The rigid organizational model of the classical type (known as silo operation), based on the hierarchical organization of positions and the str IT definition of tasks, is gradually giving way to a more flexible organization, favoring cross-functional relationships, autonomy and the emergence of networked work (Ughetto, 2007). In other words, the deployment of ITs accompanies the transition from a pyramidal organization to a matrix organization, i.e., towards greater interweaving between departments with similar or complementary skills and missions in order to promote better articulation between functions and activities.

From the same angle, Reix (2000), argues that these new organizational structures are conducive to interactive and cooperative work relations. ERP systems provide data consistency and relieve employees of interface, synchronization and multiple data entry problems (Ruzé, 2011). They support mass productivity and the generalized control of work processes. As a result, ERPs are part of a new organization based on just-in-time administrative production, based on the production model developed in the industrial sector (Valléry, 2005).

In the management process, IT can enable better dissemination and sharing of information (Peaucelle, 2007). This is the case with the workflow system, which seeks to automate work coordination processes involving different actors carrying out various tasks at different times (on the same administrative insurance file, for example). This system organizes and structures work according to a fairly rational, even Taylorian vision of work, by proposing a common work reference system (Assadi & Denis, 2005). In addition to the strong prescription of the activity, there is also a centralization of information that allows for a quasi-permanent quality control of the work done or not done well. This tool provides information on productivity and failures (rejects, bottlenecks, delays, etc.) in order to better respond to customer demand.

The objective of EDM (Electronic Document Management) technology is to better manage all digitized paper documents (letters, brochures, invoices, etc.) in order to distribute them to the right people at the right time in the company (Lalaude, Gautheron, Bertrand, Soual, & Bescond, 2008). Other technologies, such as the intranet, seek to promote information sharing and group work. It constitutes a real private and protected computer network within the organization and aims to create a closer relationship between the company and its employees (Bobillier

Chaumon, 2003). This type of technology therefore aims to bring more freedom of interaction and more horizontal communication in professional structures.

In spite of these stated benefits, IT s, like ERP or Workflow, pose a problem of integration and/or alignment with the organization. Indeed, contrary to their flexible and efficient character, these tools impose a predetermined or prefabricated form of organization. They seek to standardize and formalize activities and relationships between employees in order to better control and evaluate them, and as a result they lead to a centralization of decisions (Terssac (de), Bazet, & Rapp, 2007).

2.2. IT and changes in employees' professional practices

As Engeström's activity system model (1999) points out, the introduction of artefacts, particularly technological artefacts, can have more or less favourable repercussions on the functioning of this system (what he calls tensions or contradictions). The management of these contradictions represents a source of development of the activity and contributes to the employees' power to act (Clot, 2008). Indeed, focusing on the activity in its developmental dimension, the activity system model consists not only in grasping the transformations undergone by the activity during its performance, but also those undergone by the employee during the performance of the latter. The contribution of this model lies in the definition and characteristics it attributes to the activity. From this point of view, the activity is considered as a collective dynamic, oriented towards an object, then mediated by tools and signs. For this model, the primordial elements of employee activity are the aim (object), the subject, the community, the instruments, the division of labour and the rules, focusing on the developmental dimension of employee activity. From this point of view, the activity system model shows that the use of IT in organizations often implies new rules of operation and induces a reconfiguration in the division of labor -horizontal and vertical- (Engeström, 1999).

In other words, from a developmental and job renewal perspective, we can envisage that technologies constitute resources leading to greater flexibility and versatility in the management of employees' activities and that they increase the margins of maneuver by enriching the work, provided of course that the system itself is flexible and authorizes initiatives and detour in the activity (Bobillier Chaumon & Clot, 2016).

This idea of autonomy and flexibility is also found in the occupational stress model developed by Karasek (1979), which seeks to understand the health problems observed in organizations. This theoretical model highlights two variables: psychological demand and decision latitude (Karasek & Theorell, 1990). The occupational stress model has been expanded to include a

third factor: the beneficial effects of work support. Several studies (Karasek & Theorell, 1990; Sargent & Terry, 2000) have demonstrated the value of social support within an organization. Most of these studies attribute different roles to social support such as informational support, work assistance during overloads or emotional support (Leduc & Valléry, 2012). Social support appears as a moderator or mediator of organizational pressure. Thus, a situation of job strain, i.e. work tension, associated with a lack of social support amplifies the deterioration of employee health (Van der Doef & Maes, 2002).

If we refer to this model, we can see that IT s can give employees the opportunity to strengthen their learning capacity (i.e. training and learning technologies) and develop their professional skills and therefore their ability to act. Another dimension developed by this model is that of the flexibility that technological tools can foster, provided that the systems themselves are plastic and flexible (Béguin & Clot, 2004). Thus, IT can alleviate certain organizational constraints (shortening decision-making circuits, decentralizing and democratizing access to knowledge, making the transmission of information more fluid) by significantly increasing the autonomy of employees (Van der Doef & Maes, 1999). This has the effect of moving from a passive work situation (where the employee is a simple executor) to an active work situation (where the employee once again becomes the architect of his or her own process), developing capacities for action and initiative in the activity. IT can also contribute to enriching the content of the activity (more varied tasks, with higher added value) while developing the feeling of personal effectiveness during the performance of the computerized activity (Bandura, 2002). Nevertheless, this constructive character of IT for employees' activities is also discussed. According to some authors (Késsous & Metzger, 2006), IT s allow control and supervision of activities that are done or not done, and not well enough or quickly (i.e. ERP, Workflow, EDM). These technologies, which Bobillier Chaumon (2017) describes as prescriptive, close off the spaces for mobilizing intelligence and severely restr IT the employee's capacity for expression and initiative. They confine the activity to purely executional dimensions and also contribute to the individualization of the relationship to work. To illustrate this example, we can cite the case of "voice picking" type technologies (Gaboriau, 2012) which d IT ate by voice the path and the different products that the logistics employee must take to compose a pallet. It does not matter if the lightest products are placed underneath the heaviest boxes or if the pallets look more like unstable pyramids than beautiful sets that fit into the truck; only the performance of the task matters. The employees find it impossible to do quality work: their criteria - to compose a "beautiful" pallet - are in fact opposed to those laid down by the system: speed and productivity are expected. Consequently, the efforts made to maintain quality at all costs (by imagining other

ways of doing things in order to preserve their practices), or the fear of working illegally (by not respecting the system's prescriptions) can be the cause of a certain malaise.

If we refer to the approaches of Compeau, Higgins and Huff (1999) on the feeling of computer self-efficacy (CSE) - which they established in reference to Bandura's eponymous theory (1977); in the context of organizational change accentuated by the use of IT, some professionals doubt their capacity to master these tools adequately, and also their potential to adapt to the demands of this new mediated activity. The creative abilities of female employees may be altered or inhibited by devices that are too costly cognitively or too destabilizing professionally, which may generate psychological suffering in these professionals (Bobillier Chaumon, 2017). Indeed, in addition to the loss of autonomy, just-in-time work, and de-subjectification at work, certain tools with prescriptive aims force workers to stick only to set quotas and to maximize the profit of work units according to pre-established work standards, to the detriment of work well done and the rules of the trade (Clot, 2010).

In short, we see here that technology gives, in addition to a format and a framework, a reality and a conformity to the activity. Indeed, it not only tells us what to do and how to do it, it legitimizes the activity. It validates its (good) progress and recognizes its existence and its "value", via the traces and indicators that it collects and for which it reports to the company. In this type of environment, it is not only the power to act that is amputated, but also the subjectivity of the individual that is altered, implying the renunciation of a part of oneself: to his initiatives, his projects, his professional gestures and his quality criteria... Now if health is built in the capacity to create new norms, to make his practices evolve, to maintain his power to act, to deploy other uses of technologies (according to the requirements of the situation); the impediment and the renunciation of his ways of being and acting are a source of psychological suffering (Lhuillier & Godart, 2014). Thus, neotaylorism would unfold in and through these new technological devices with prescriptive aims (Valenduc & Vendramin, 2016). Professional activity can indeed be degraded or altered by untenable working conditions or by unfeasible work, generated by the technologies deployed. The incessant rhythms of work, the unpredictability and high frequency of interruptions, the digressions between multiple tasks (and the resulting multi-activity) (Datchary & Licoppe, 2007); Just-in-time work, urgency, immediacy, or the regular learning of new devices (through the multiplication, sophistication and heterogeneity of the tools to be used) (Bobillier Chaumon, Cuvillier, Sarnin, & Vacherand-Revel, 2018), are some of the characteristics of this dematerialized work and can be at the origin of the phenomena of overflow and intensification of work. This is also emphasized by Gollac and Volkoff (2007) when they indicate that "working in a hurry restrains IT's margins of maneuver

and makes the difficulties less avoidable" (p. 59). Subjects then see their capacities for action and reaction severely limited and their autonomy reduced (in terms of anticipation, imagination and personal innovation). Under such conditions, the individual's fulfillment and well-being may be compromised. The study conducted by Kunda (1992) had already shown that those whose tasks are supervised by the computer present more symptoms of stress than those whose activities are not supervised.

2.3. The impact of IT on the psychological health of employees

In the literature, there is no unanimous definition of psychological health at work. Based on a synthesis of the work done on this concept (Baba, Jamal, & Tourigny, 1998; Foucher, 2004; Voyer & Boyer, 2001; Warr, 1990; Watson, 1988), psychological health in the workplace would be the worker's ability to satisfy his or her fundamental psychological needs for well-being and adjustment at work, through personal and organizational resources.

As mentioned above, the use of IT can lead to forms of work intensification. Intensification refers to the acceleration of the pace of work (intensity), the amplification and simultaneity of the tasks to be carried out (density) and the reduction of room for manoeuvre (Gollac & Volkoff, 1996; Green, 2004). Thus, the heterogeneity of the information flows generated by the different technologies that must be processed on the one hand, and the pressure in terms of reactivity, or even proactivity on the other, mean that the individual works at a continuous pace, just-in-time, requiring continuous investment and attention (Assadi & Denis, 2005). This cognitive overinvestment (Wajcman & Rose, 2011) is at the origin of various types of overload. These include quantitative overload related to the excess of information to be processed and the multiple interruptions and digressions of work.

In addition to the abundant volume of information processed by an individual, there is the requirement for greater concentration (Bobillier Chaumon, Brangier, & Fadier, 2015). Furthermore, communication systems such as email, instant messages, and alerts represent a cause of overload when, during a work day, the amount of information to be processed reaches an unmanageable volume for employees, and it is difficult to distinguish relevant and useful information from futile and anecdotal information (entropy phenomenon) (Creno & Cahour, 2016). The subject may also experience psychic overload, particularly when technologies impose work procedures that are contrary to the quality criteria of the profession.

Daniellou (2006) defines this type of intensification in the following terms: "it is to be hurt more and more to produce something of which one is less and less proud, and in certain cases, of which one is ashamed" (p. 42). This psychological burden arises when the tools do not allow

the employee to develop his activity, to do a job in which he recognizes himself and through which he is recognized by his professional environment (peers, managers, clients): in this case we speak of an amputation of the power to act (Clot, 2008). This amputation of power to act has very unfavorable consequences for the psychological health of employees. In a study conducted by Drutel and Bobillier Chaumon (2014), on the use of a production software package among jewelry setters, the authors had shown that because the systems required ways of doing things in the manufacture of jewelry and that this was opposed to the gesture of the trade, then the employees experienced ill-being linked to the impression of doing their work badly.

This loss of meaning can also result from the incompatibility of the values held by the individual with those held by the organization in which he or she works (this is known as Person-Environment Fit; Edwards, Cable, Williamson, Lambert, & Shipp, 2006), or from the mismatch between the employee's professional skills and those required by the company (Person Job fit: Kristof-Brown, 2007). In both of these cases, technologies can provoke or accentuate this dissonance, making it more difficult for employees to be involved and satisfied with what they do. For example, the implementation of digital social networks in organizations requires the pooling of all employees' data and knowledge as well as greater visibility/traceability of what each person does in order to foster a culture of sharing (Barville, Bobillier Chaumon, & Vacharand-Revel, 2014). However, this collaborative mode of operation and this injunction to transparency demanded by the company via the social network may clash with the rules of protection of certain professional know-how (Person-Environment Fit); as we have already seen above with the jewelers. In the same way, the reuse of pre-existing practices available on these collaborative networks leads to the standardization of skills and to the reduction of the singular contributions of the collaborators (Person Job fit). In this type of environment, the loss of meaning comes from the fact that know-how is not or insufficiently mobilized in the activity, and that the very nature of the activity carried out is far removed from professional concerns. Using Karasek's (1979) model of occupational stress, already mentioned above, it also appears that IT s can increase the level of demand in work situations (acceleration of the pace of work, diversity and volume of information to be processed, multiplication of software to be mastered, multiple and often distant collaborations) and at the same time lead the organization to reduce the autonomy of employees by deploying systems, which as we have seen, reduce the room for maneuver/decision latitude as well as the initiative of users (ERP system, Workflow...). Moreover, collaborative tools and telecommuting increasingly contribute to a remote management, where the supervisor is distant from the place of activity and from his

collaborators (Vacherand-Revel, Ianeva, Guibourdenche, & Carlotti, 2016). This situation is described by Karasek's (1979) model of occupational stress as very constraining for employees. Thus, when the worker finds himself in a situation where he has less room for manoeuvre, a high psychological demand (via IT) and a lack of social support, he is vulnerable and more susceptible to cardiovascular disease (Van der Doef & Maes, 1999).

From this perspective, IT can be a source of stress, indirectly affecting the physical and psychological health of employees (Öhlin, Nilsson, Nilsson, & Berglund, 2004). Studies conducted on occupational health (Coutanceau & Bennegadi, 2016) show moreover that the use of IT in organizations represents one of the factors of stress at work.

Authors such as Barber and Santuzzi (2014) speak of Telepressure (or telepressure, our translation), to refer to this digital tension at work. This concerns, "the fact of constantly thinking about messages from IT with the irrepressible need to respond to them in order to be satisfied" (op.cit. p. 173). More specifically, it is a "combination of both the desire to be more attentive and responsive to the demands of people at work through IT and the desire to provide a faster and instant response" (p. 173). This situation represents a psychological state that encourages the employee to be constantly connected to his or her socio-professional environment: it is hyperconnection (Thomé, Härenstam, & Hagberg, 2011). This extreme behavior is also one of the manifestations of "workaholism", i.e., an extreme dependence on work, involving compulsive behavior (Schaufeli, Taris, & van Rhenen, 2008). Hyperconnection may also be the means by which this unreasonable investment in work can be accomplished, notably through the ease of consultation and interaction outside of work, or through the permanent availability of the employee. Symptoms of workaholism include weakened defense mechanisms, mood disorders, increased risk of heart disease, neurological disorders, and an increase in work-related accidents (Derks & Bakker, 2014).

On another level, the use of IT accompanies the development of "remote work", such as nomadic work or telecommuting (Vacherand-Revel, Ianeva, Guibourdenche, & Carlotti, 2016). Studies show that these new work modalities often cause porosity between work and non-work life systems: the excesses of work spill over into the personal sphere and the employee has the impression of a constant spillover into their private life (El Wafi & Brangier, 2013). This feeling of intrusion and loss of control is part of the problem of disconnection at work. Similarly, the use of IT most often leads not only to an increase in mental load, but also to a decrease in recovery possibilities for workers (especially among nomadic workers): the domestic atmosphere is degraded, time for resting and taking a step back is reduced, the quality of sleep is altered, and connection time with work is almost frequent (Paridon & Hupke, 2009).

Finally, a last incidence of the use of technologies is "Cyberbullying", also called electronic intimidation at work (Rayner, 1997). Cyberbullying is most often manifested by behaviors of abuse of power or verbal attacks that consist in offending or intimidating an employee by threats or insults via messaging tools. Intimidation can come from the hierarchy, clients or colleagues.

Conclusion

In the end, the impact of technology on work activity and organization seems rather paradoxical. We have seen that IT s can accompany (or precipitate) the disappearance of traditional pyramid-like organizational structures. They make companies more flexible and agile. This new way of working transforms organizations while maximizing their productive efficiency. The classical organizational rigidity, based on the hierarchy of positions and the str IT definition of tasks, is gradually giving way to a much more flexible structure, favoring cross-functional relationships, collective and networked work, which is conducive to the capitalization of employees' collective experience and skills. Collective work is also a resource that companies are seeking to develop in their organization. From this point of view, collaborative technologies encourage interactive and cooperative work relationships, at the risk of creating artificial work collectives, whose members are ultimately exposed to isolation. However, the maximization of mediated relations between employees (when it is designed for and through collective activity) can add value to the content of the work, by encouraging creativity, knowledge and experience sharing. From this point of view, IT can therefore bring real innovation to the quality of work and the functioning of organizations.

In other words, information systems are not only intended to give a new label to companies (technological showcase of an innovative company), they can make the management of individual and collective activities more efficient, accompany and support the activity and allow its development, and thus contribute to organizational performance.

However, these beneficial effects also have their counterpart, with potentially harmful consequences. Indeed, IT s tend to accentuate control, to favor centralization and rigidity of certain work processes, to such an extent that one wonders if their use in organizations does not contribute to a kind of modern Taylorism (what some call neo-Taylorism). Some IT s will thus allow the str IT supervision of employees' practices, hence the paradox between their flexible character and this tendency to formalization and constant supervision to which these systems lead.

In short, if, as we have seen, technologies can enhance the value of work and be a factor of efficiency and performance in the workplace, they can also contribute to distorting the activity and divesting the subject of all that was meaningful to him: in his practices and professional links, in his room for manoeuvre and his relationship to work. They can also contribute to distorting the activity and to divesting the subject of everything that used to make sense to him: in his practices and his professional links, in his room for manoeuvre and his relationship to

work. The dematerialization of the activity can therefore be to the detriment of the employee and his work. Either because IT s are implemented to replace the individual (substitute technology), and thus appropriate what represents the heart of his activity: that which has meaning and makes sense for the individual. Or because these tools imply such reconfigurations and demands that they destabilize the work and weaken the individuals and groups in place. Consequently, the question of the introduction of IT s and their constant renewal in organizations fundamentally refers to the place and role that these devices play in the activity, as well as to the way in which specialists in the human factor can seize upon them in their interventions to involve employees in a design that is truly participatory, i.e. centered on the activity and the end users. It is under these conditions that it will be possible to deploy empowering systems that are conducive to the execution of employees' projects, to the development of their activity and to the implementation and recognition of their power to act. And it is precisely when these systems enable work to be done better (performance and efficiency criteria) and to be done well (quality and meaning criteria) that these technologies will have a positive and lasting effect on the psychological health and well-being of employees (Bobillier Chaumon & Clot, 2016).

Our objective was to report on the more or less favourable relationship between technology and psychological health at work, according to the different theoretical perspectives mobilized in our analysis and our reflections. Although this initial critical analysis opens up interesting horizons, it should nevertheless be completed by a more refined and structured literature review, which could make it possible to validate certain identified orientations (i.e. on the effects of new work modalities -nomadisation, teleworking, work in shared spaces- on health at work, on the socio-cognitive and professional resources mobilised to cope with the demands of dematerialised work, etc.) This bibliographical analysis could also allow, in a more prospective approach, to reflect on the possible psychosocial and socio-organizational consequences of the diffusion of more recent technologies (such as: artificial intelligence, robotization, big-data, immersive environment with virtual/augmented reality) and in new forms of work (such as the factory of the future or shared work spaces).

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