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Empirical Research
Digital overconnectivity at work

DIGITAL OVERCONNECTIVITY AT WORK: A QUALITATIVE AND QUANTITATIVE STUDY

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SUMMARY

The massive rise of communication technologies and their intensive use in the workplace, in conjunction with the 2016 French labor law's "right to disconnect", has resulted in peaked interest in occupational risk prevention and the challenges of regulating digital connectivity. This qualitative and quantitative study aims to define digital "overconnectivity", the causes of discomfort experienced by employees while connected, and the connection regulation strategies within the enterprise. The aim is to take targeted preventive actions based on the results. The activity and lived experience of digital connection is studied through a questionnaire and through general and explicitation interviews, with a population of executives at the company Orange. The results show that sales executives harbor the most negative feelings. Sources of discomfort associated with digital connectivity are identified (e.g. customers, internal solicitations, meetings and multiactivity) and the individual, collective and institutional regulations in the company are analyzed.

RÉSUMÉ

Le développement massif des technologies de la communication et leur utilisation intensive sur le lieu de travail, ainsi que le " droit à la déconnexion " inscrit dans la loi Travail de 2016, ont suscité un vif intérêt pour la prévention des risques professionnels et les enjeux de la régulation de la connectivité numérique. Cette étude qualitative et quantitative vise à définir la " surconnexion " numérique, les causes de l'inconfort ressenti par les salariés lorsqu'ils sont connectés, et les stratégies de régulation de la connexion au sein de l'entreprise. L'objectif est de définir des stratégies préventives ciblées sur la base des résultats de l'étude. L'activité et l'expérience vécue de la connexion numérique sont étudiées à travers un questionnaire et des entretiens généraux et

d'explicitation, auprès d'une population de cadres de l'entreprise Orange. Les résultats montrent que ce sont les cadres commerciaux qui éprouvent le plus de sentiments négatifs. Les sources d'inconfort liées à la connexion numérique sont identifiées (par exemple les clients, les sollicitations internes, les réunions et la multiactivité) et les régulations individuelles, collectives et institutionnelles dans l'entreprise sont analysées.

KEYWORDS: Digital connectivity, Communications technologies, Psychosocial risks, Lived experience.

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I CONTEXT

Communication Technologies, or CT, such as email, instant messages, video conferencing, phone calls, social networks, have saturated our professional and personal lives for several years. As of 2015, it was estimated that 90% of adults in the United States own a smartphone (Müller, Gove, Webb, & Cheang, 2015). Thanks to these technologies, access and transmission of information has become increasingly rapid. Moreover, the integration of these technologies has profoundly changed the way employees work and communicate with colleagues and superiors. These technologies have redefine jobs with a profound reshaping of the skills required by the employees or by the workforce (Zaware, 2020). At the same time, Communication Technologies offer a greater flexibility in terms of both working hours and location. This ability to work from anywhere can, at first, seem favorable (Buomprisco et al., 2021; Reuschke, 2019), but can also lead to privacy overflow. The literature on communication technologies also highlights executives are particularly prone to over-using these tools (Tarafdar & Saunders, 2022). This group is indeed more prone to stay connected because of "the values and requirements that underlie their professional identity, such as adaptability, flexibility, availability and autonomy" (Soubiale, 2016, p. 58). The literature also suggests that connection has become permanent for executives with a certain injunction to be continuously connected (Boswell, Olson-Buchanan, Butts & Becker, 2016). Therefore, this study focuses on their use of CT and their experience of the connectivity to see which type of solutions could alleviate the overload of messages.

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II CONCEPTS AND LITERATURE REVIEW

The study theoretical frame is the French theory of activity in ergonomics that focus on the real activity in natural settings to transform the situations, and the approach of the lived experience which considers not only the actions and the cognitive processes but also the sensorial perceptions and the emotions of the person as situated in a specific environment (Cahour et al, 2016). This section will present the concept of "over-connection", differentiated from "hyper-connection", followed by a review of the elements associated to this phenomenon (CT use consequences, associated psychosocial risks). Finally, we will describe the existing regulatory strategies in the company, and a model of changes in practices beginning with the need of awareness.

II.1 HYPERCONNECTION AND OVERCONNECTION

According to the literature, there is no clear definition of digital "hyperconnection". This notion can be associated with "technostress" (Camacho & Barrios, 2022, Tarafdar et al., 2007, Brod, 1984), a phenomenon described as a modern disease caused by an individual's inability to cope with and regulate their use of communication technologies in a healthy way. The increase in psychosocial load is also a factor in "telepressure" in which the user "thinks about messages from ICT with an overwhelming pressure or desire to respond to them" (Barber & Santuzzi, 2015, p. 173). The two components of this phenomenon - the anxious expectations and the strong desire to respond - refer to the mental and emotional state of the user and we propose to investigate digital connectivity in this perspective. This paper proposes to differentiate an important connection, dense but not especially painful ("hyperconnection") from a negatively experienced connection that we will call "overconnection". The literature generally use the term "hyperconnection" for both the positive and negative feelings associated to a high connection.

II.2 THE CONSEQUENCES OF COMMUNICATION TECHNOLOGICAL USE

According to previous research, three dimensions can be altered by excessive digital connection:

(1) *the quality of life at work*, occupational quality, and the quality of life outside work (Bobillier-Chaumon, 2014). Working remotely can have firstly an impact on the quality of life at work. Work is no longer done in one place (Tarafdar & Saunders, 2022; Lahtinen et al., 2015), people can work in transport systems, in third-party locations such as satellite offices or co-working spaces (Tremblay &

Scaillerez, 2020) which can often have unsuitable working conditions as surrounding noise (Hislop et al., 2015).

(2) This occupational mode can also have a negative effect on informal relationships with colleagues and spark feelings of isolation for the teleworker or nomadic worker (Charalampous et al., 2019). The *quality of work* with CT can be diminished by the fragmentation of the work due to the solicitations/intrusions provided by the multiple technological tools used (Farivar et al., 2022; González & Mark, 2004). Because of these interruptions, employees are no longer in a position to concentrate on a single task over a long period of time, which can degrade the quality of their work by impairing their ability to be reflective and focused. This appears to be a source of stress for employees, notably by triggering a sense of continuous urgency (Barber et al., 2019; Hu et al., 2019; Rosa, 2013a).

(3) In addition, the volume of information conveyed by ICT can become unmanageable (Sun & Lee, 2021; Misra & Stokols, 2012). The rise of out-of-office work and the extension of work-time can also have a negative effect on the third dimension: the *quality of life beyond work*, by eroding professional and personal boundaries (El Wafi et al., 2016; Maruyama & Tietze, 2012; Nam, 2014a; Tietze & Musson, 2005) and by causing an uncontrolled overflow of the professional life into employees' private lives (Sun et al., 2021).

II.3 DIGITAL OVERCONNECTION AND PSYCHOSOCIAL RISK FACTORS

In order to gain a better understanding of the consequences of the use of Communication Technologies and connection on the activity and experience of employees, we establish a relation between psychosocial risk factors and the problematic elements identified for digital connection at work (Table 1). The Gollac report (Gollac & Bodier, 2011) and INRS (2020) identify psychosocial risk factors that can be summarized in six categories described in the following table:

Table 1: PSR factors and consequences of overconnection

Psychosocial Risk Factors	Consequences of overconnection	Literature
Work intensity and duration of work	Densification Infobesity Multiactivity Blurring of the boundaries	(LaRose et al., 2014; Pennington & Tuttle, 2007; Tarafdar et al., 2007; Carr et al., 2006) (Sun & Lee, 2021; Misra & Stokols, 2012; Eppler & Mengis, 2004; Farhoomand & Drury, 2002) (Salanova et al., 2016; Turner et al., 2010; González & Mark, 2004) (Tarafdar & Saunders, 2022; Boswell et al., 2016; MacCormick et al., 2012; Maruyama & Tietze, 2012)
Emotional demands	Fear Of Missing Out Burnout Masked emotions (stress)	(Barber & Santuzzi, 2015; Przybylski et al., 2013) (Bowling et al., 2015; Misra & Stokols, 2012) (Bauer & Murray, 2018; Boudokhane-Lima & Felio, 2015; Grandy et al., 2014)
Lack of autonomy	Interruptions Constant solicitations Impossibility of disconnection	(Farivar et al., 2022; Brooks, 2015; Cho et al., 2011; Garrett & Danziger, 2007; González & Mark, 2004b) (Ragsdale & Hoover, 2016; Brooks, 2015) (Camacho & Barrios, 2022; Hu et al., 2019; Ragsdale & Hoover, 2016; Duxbury et al., 2014; Mustafa & Gold, 2013; MacCormick et al., 2012; Sarker et al., 2012; Matusik & Mickel, 2011; Barley et al., 2011)
Poor quality of social relationships	Teleworker isolation, loss of collective support. Negative perception of telemanagement	(Charalampous et al., 2019; Salanova et al., 2016; Morganson et al., 2010; Mann & Holdsworth, 2003) (Mettling, 2015)
Ethical distress	Urgent ideology Loss of work sense	(Barber & Santuzzi, 2015; Rosa, 2013; Bittman et al., 2009a, 2009b; Renaud et al., 2006; Eriksen, 2001) (Sennett, 2006)
Insecurity of the work situation	Disappearance /unemployment of intermediate managers	(Zaware, 2020; Frey & Osborne, 2017)

The negative consequences caused by excessive use of CTs coincide with several risk factors mentioned in the Gollac report (2011) and INRS (2020), notably the "intensity and duration of work" dimension which is omnipresent. In light of these observations, the question of connection regulation strategies in companies that might limit the impact of overconnection on employees was examined.

II.4 EXISTING CONNECTION REGULATION STRATEGIES

The literature mentions two major categories of strategies for regulating connection in companies. These are individual and institutional regulations. *Individual regulatory strategies* often appear as partial disconnections. A rapid reconnection is frequently constrained by the expectation of a response from customers or colleagues, or because logoff is not favorably perceived by the company (Al-Dabbagh et al., 2014).

Therefore, individual regulation is considered as an attempt to control the situation. There are two strategies:

- *Filtering*, this involves preventing certain solicitations from arriving via ICT, by sorting out e-mail and selecting interlocutors, by activating the "silent" mode, by deactivating the push mode and sending the interlocutor directly to his voice mail. Some authors emphasize that this allows users to prioritize information and to regain some control over their schedule (Mark et al., 2016).
- *Preservation*, this is a time without technology or connection, which allows people to refocus on their activity or their private life. (Boudokhane-Lima & Felio, 2015).

Several strategies are also implemented at an *institutional level*, regulated by written rules (charters and agreements) and by formal learning (training). *Charters and agreements* concerning disconnection have become more frequent, prohibiting time slots (e.g. not sending emails on weekends) and advising the manager to be an example in terms of disconnection. Employees often negatively perceive these charters because they shift responsibility away from the company by being too broad and too far from the specificities of the activities, e.g. stopping emails at 6pm seems inappropriate for managers. These rules seem to have been elaborated in a top-down and uniform manner, without any consultation or involvement of employees, nor any knowledge of the specificity and requirements of each profession and activity (Spira & Burke, 2009). Institutional regulation through an agreement or a charter limiting connection is therefore not the answer for everyone. Many managers perceive connection and ICT as an opportunity for flexibility and adaptability and do not want regulation by prohibition, even though they admit to being overwhelmed by urgent work (Karr-Wisniewski & Lu, 2010). They perceive this autonomy as a right and an opportunity to reduce their workload at their own pace. However, these prohibitions can nevertheless limit certain abusive practices and allow them to be refused. Some companies, such as Orange, also offer virtual *training programs* via a platform (Digital Academy) as well as face-to-face training. The relevance of the training courses is sometimes questioned as they are judged inappropriate, boring, and are, along with the charters, perceived as a way to make the company feel less guilty (Cagnin, 2020). Digital detoxification programs have also been developed (Gless, 2013), however, it does not seem relevant to focus solely on technological determinism and individual responsibility (Lecours & Therriault, 2017). Risk prevention through attempts to adapt employee behavior (by writing procedures or training) does not seem to be an adequate solution to the issue of information overload. Very few attempts about regulations by teams and managers are proposed in the literature.

II.5 FROM AWARENESS OF OVERCONNECTION TO CHANGES IN PRACTICE

As mentioned above, managers are under pressure to be quick and efficient and to never waver. In addition, as Jeantet points out, "expressing emotions is almost systematically associated with a lack of professionalism. Being emotional, being

emotionally overwhelmed [...] is often seen as an expression of over-sensitivity, weakness and permeability" (Jeantet, 2018). Admitting and even being aware of its own weakness can be a problem: the current corporate culture encourages employees and especially managers not to show weaknesses, to be seen as successful and apt to fulfil a higher position. In order to achieve a possible change in connection practices, it may be necessary firstly to use a technique (explicitation interview or other) that allows an awareness of the difficulties to emerge, followed by a process of reflection for the executives. This method is particularly well suited to address overconnection problems for employees who sometimes do not want to fully admit they are suffering. Derived from these observations, we constructed a model of change in work situations (Figure 1) inspired by Balas-Chanel (2014) and the work of Vermersch (Vermersch, 1994). This model postulates that awareness of pre-reflective phenomena (Cahour & al 2016), such as the overconnection for some employees, are the basis for more analytical reflection and situational changes at the individual, collective or institutional levels.

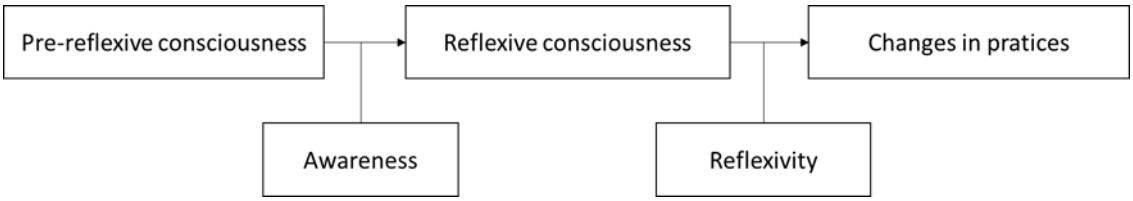


Figure 1: Model of change in work situations (inspired by Balas-Chanel and Vermersch, 2014)

III EMPIRICAL CONTRIBUTION

The perspective of understanding the practices and experiences of executives' connection lead to developing two methodologies focused on four research objects. In the first part, we will present the research objects, followed by the research tool 1 (questionnaire) with a description of the survey population, the construction and administration of the questionnaire and its analysis method, followed by the research tool 2 (interviews) with the same structure. A summary table outlining our empirical approach is presented at the end of the section.

III.1 RESEARCH OBJECTIVES

The aim of this study is to characterize overconnection in terms of population differences, connection (and disconnection) practices, activity, and lived experience of the activity. For this purpose, the study is organized around four research questions.

- RQ1: Are there any differences in the level of connection based on professional characteristics (nature of work, level of responsibility,…)?
- RQ2: What are executives' connection practices and sources of negative experiences with this connection?
- RQ3: What are the lived experiences of the connections and how do the general descriptions of the practices match the situated descriptions?
- RQ4: Which connection regulation strategies are currently present in the large company studied?

III.2 RESEARCH TOOL 1: QUANTITATIVE STUDY BY QUESTIONNAIRE

III.2.A Population

The quantitative study was conducted with 436 executives, 139 women and 296 men, aged 24 to 62 with an average age of 48 (SD = 8,48). The executives were divided into 4 levels of hierarchy (Table 2) and into 4 functions (Table 3).

Levels of hierarchy (N=436)	**%**
Expert without a managerial role (n=249)	58,7%
Proximity manager (n=75)	17,7%
Mid-level managers (n=80)	18,9%
Senior managers (n=20)	4,7%

Table 2: Levels of hierarchy

Function (N=436)	**%**
Commercial (n=65)	15,1%
Cross-functional (n= 124)	28,8%
Technical (n=206)	47,9%
Other (n=35)	8,2%

Table 3: Function

III.2.B Construction and administration of the questionnaire

The study was conducted in the Company Orange, a large French company of Telecommunications[1]. The participants came from sites located mainly in the east of France and in the Paris region. The sites were either technical sites, commercial units, or offices for administrative and transversal functions (finance, real estate, legal, human resources). Together with the Occupational Health Department of the company studied, we constructed a questionnaire on four themes:

- Practices and feelings outside working hours (4 questions) which aims to characterize the frequency, content and perception of work outside traditional hours,
- Professional connection and disconnection practices (12 questions),
- Subjective links between connection and health problems (5 questions),
- Global health (6 questions).

The company's occupational physicians administered the questionnaire during medical examinations. We do not present the questionnaire in this part but all of the

[1] In 2021, the company was employing 132000 individuals.

questions we will discuss are included in the footnotes of the results. Few questions are not considered in the results, Q1[2], Q4[3] and Q21[4] because the results were not significant and from Q23[5] to Q28 because it was the medical part, not in focus for this paper.

III.2.C Questionnaire analysis method

An automatic division of the questionnaire's respondents was realized on the basis of four questions assessing the level of connection by using the K-means clustering method (Hartigan & Wong, 1979). The chosen criteria to assess the level of connection are the scores (from 1, low, to 4, high) to the following questions:

- Question 2: during the last twelve months, for your professional activity, did you work in the evening / at night / at weekends / during your vacations / during your commute / during your breaks.
- Question 3: what uses do you make of the time you work outside of conventional working hours? We selected the answers: collaborative work, reading emails, sending emails and social networks.
- Question 11: Do you ever "disconnect" from work outside of work hours?
- Question 12: Do you sometimes find yourself checking your email when you were willing to disconnect?

After several iterations, the K-means Clustering algorithm has stabilized on 3 groups of homogeneous respondents of balanced sizes with an F-test showing systematic difference in mean. The three final groups are the following:

- Group "low connection" (n = 143) corresponds to the least connected individuals with a mean score of 1,68. They obtain the lowest average scores in terms of frequency of work outside of working hours (1,50) and use of ICT (email, social networks) outside of working hours (1,50) and also the highest scores for frequency of disconnection (2,03).
- Group "intermediate connection" (n=171) corresponds to individuals who obtain average scores of 1,90 for the frequency of off-duty work (1,94) and the use of ICT (2,29), and who report disconnecting a lot (1,33).
- Group "high connection" (n=122) corresponds to the most connected individuals with an average score of 2,69. They obtain the highest average scores in terms of

[2] Q1: On average, how many hours do you currently spend on your work activity during a full week?
[3] Q4: In your opinion, the possibility of working outside conventional hours is an evolution…. ?
[4] Q21: Is the travail you do for work a problem for you?
[5] Q23: Blood pressure
Q24: BMI
Q25: Regular sports practice?
Q26: Modification of your sport practice
Q27: Regular use of psychotropic medications
Q28: Increase in consumption of Tobacco? Alcohol? Other (illicit substances, …)

frequency of work (alone or collaborative) (2,34) and use of ICT outside of work hours (2,55).

After the constitution of this automatic partition of respondents, we then performed Student t-tests and one-factor anova to be able to compare the three groups in terms of professional characteristics and mean scores on other questions.

III.3 RESEARCH TOOL 2: QUALITATIVE ANALYSIS THROUGH INTERVIEWS

The interviews of 20 executives of the company Orange include general descriptions of their connection at work and a situated description of a real day of work.

III.3.A Population

The qualitative study was conducted with 20 executives, 7 women and 13 men, aged 30 to 57 years. Participants were self-identified volunteers after completing the questionnaire. We selected employees with 3 functions; commercials (7), technicians (5) and cross-functional employees (8).

III.3.B Construction and conduct of interviews

We conducted interviews lasting 45 minutes to 110 minutes with two distinct parts.

A first part of the interview was semi-directive and focused on the *general* (non-situated) activity, following 4 themes:

- The global context of the activity,
- CT uses in the professional field,
- Connection practices,
- Connection regulations.

A second part of the interview was focused on the activity *situated in specific moment* with the "explicitation" of the lived experience during a real and representative day for the employee[6]. The days described could have taken place a few days or up to 2 weeks before the interview; to ensure a reliable recall, the participants first used their calendar and their emails if necessary to recall the events of the day. Then, based on a schema sketched progressively by the interviewer, the latter carried out an interview inspired by the "explicitation interview" techniques in order to get him/her to specify the course and the lived experience of this specific day. As this part focused on a whole day and not a single moment of activity, and was conducted during an interview with time constraints, we were unable to explore in great details the

[6] The instruction was: "Can you describe a recent day that is representative of your work? You can look at your calendar, email or cell phone if you wish to help you remember this day. We will create a timeline of the day's activities if you agree".

participants' lived experience but nevertheless we were very much inspired by the technics of the Explicitation Interview.
The *Explicitation interview* technique (Light, 2006; Maurel, 2009), created in French by Pierre Vermersch (1994), an ergonomist and psycho-phenomenologist, consists of describing a short event in the life of an individual as precisely as possible. The purpose is to "resituate" this person in the event, i.e. to help him/her to remember this moment (with specific questions), so that the interviewee describes in the most detailed way possible what happened, what he/she did, what he/she thought, what he/she perceived and what he/she felt at the moment of the event, limiting the rationalization of the events. This state of vivid recall is called "evocation". The aim is to approach the lived experience of the activity that is described by "what people have experienced subjectively during their activities, which includes the whole stream of actions, thoughts, emotions and perceptions[7] that occur at a given moment while performing an activity, of which the actors are either aware at the time or can be subsequently made aware" (Cahour, Salembier, Zouinar, 2016).

III.3.C Analysis method of the interviews

To analyze the *first part of the intervie*w, a thematic analysis grid was constructed by iterating on the interview guide (general part) and the verbatim interview (Coffey & Atkinson, 1996; Mason et al., 1996); we have categorized the verbatims into global themes for each interview (in italics), and then made a synthesis of the verbatim by progressively abstracting and grouping the discourse into sub-categories (cf Bardin 1997):

- *General*: characteristics of the person; position; work organization; work environment.
- *Tools*: supports; management; notifications.
- *Connection*: connection practices; effects; feelings and sources of overconnection.
- *Regulations*: Individual (management of work/personal life boundaries, disconnection practices); institutional; collective.

The interviews allowed us to refine the category "high connection", to split it into two different categories: "hyperconnected" and "overconnected"; we then have three categories (cf figure 2):

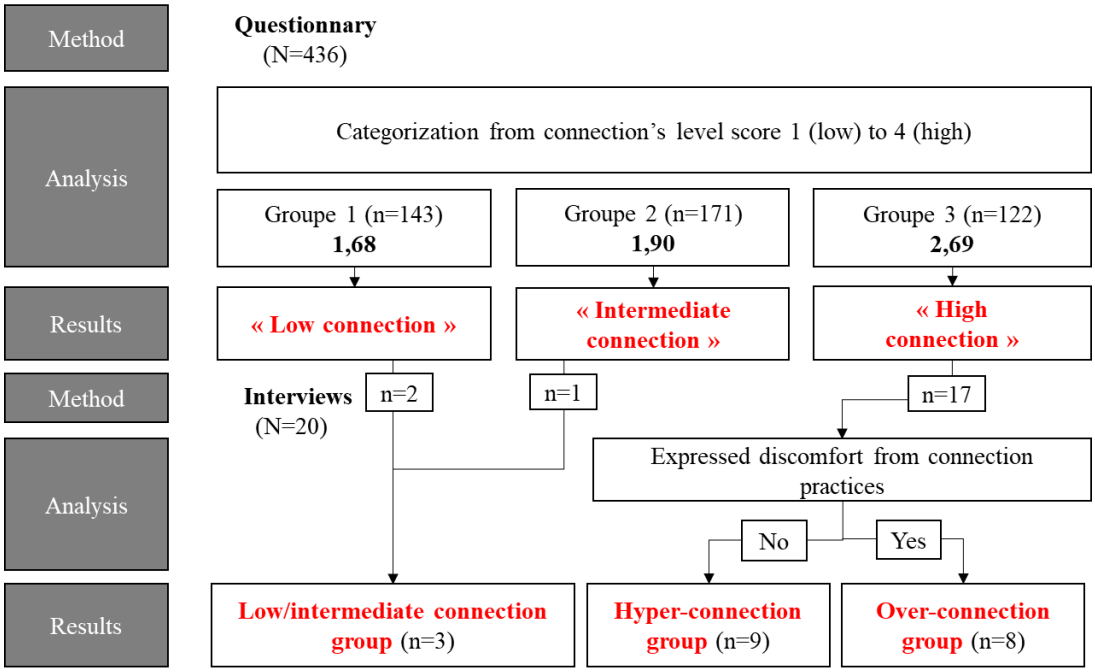
- The *less connected / intermediate connection* (n=3): executives from the "low connection" and "intermediate connection" groups of the quantitative study, describing little connection outside of work hours and not expressing a lived experience of painful connection.
- The *hyper-connected* (n=9): executives from the "high connection" group of the quantitative study, describing important connection practices, but not expressing a negative lived experience concerning the connection. The criteria to distinguish

[7] The phenomenological categories driving the interviews are actions, thoughts, feelings and perceptions.

them from the "over-connected" are the absence of verbal and non-verbal signs of discomfort when they talk about their connection.

- The *over-connected* (n=8): executives from the «high connection " group of the quantitative study, describing important connection practices associated with negative feelings. The criteria to distinguish them from the "over-connected" are the verbal and non-verbal signs of pain, frustration, anger, and suffering during the interviews.

Figure 2: Categorization of groups for the questionnaire analysis and for the interviews analysis



For the first part of the interview (more general questioning), we analyzed how these three types of employees reacted according to their functions, the role of CT in the activity, the articulation of the spheres of life, the impacts on one's health, and the regulation of the connection.

For *the second part of the interviews*, we built "chronicles of activities" schematizing the course of a day, based on each of the 20 interviews. The facts and actions (meetings, phone calls, etc.), some thoughts and feelings related to different moments of the day were extracted from the interviews. We focused more on moments of first and last connection, moments of interruptions caused by technologies, moments of multi-activity, and other moments with negative feelings. These elements were

included in the diagrams, sketched by the interviewer with the help of the participant during the interview, to produce what we call a schema of the "chronicle of lived activity".
Two individual cases are presented, of Aline and Yvan, by combining the results of the general interviews and the situated elicitation interviews; both of them resorted to the overconnected category. The impact of technology on their day-to-day planning and connection practices was highlighted. Lastly, some elements from their general, non-situated discourse were compared to the situated elements from the explicitation, especially for Yvan.

III.4 SUMMARY OF THE EMPIRICAL APPROACH

Table 4 proposes a synthesis of research objects, research tools and associated analysis methods. We highlight that we will mix questionnaire and interviews for the analysis of the research objects.

Research Objects	Research tools	Analysis method
1: Determine the difference in the level of connection based on socio-biographical characteristics	** Questionnaire (Q2, 3, 11, 12) ** Semi-structured interviews	Statistical analysis (Student t-test and anova) Thematic analysis of verbatims
2: Identify executives' connection practices and sources of negative connection experiences	** Questionnaire (Q5, 6, 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 22) ** Semi-structured interviews	Statistical analysis (Student t-test and anova) Thematic analysis of verbatims
3: Understand the lived experience of digital connection	** Explicitation interviews	Chronicles of lived activity
4: Finding out the connection regulation strategies currently present in the company studied	** Questionnaire (Q11, 12, 13, 14) ** Semi-structured interviews	Statistical analysis (t student and anova) Thematic analysis of verbatims

Table 4: Synthesis of the empirical approach

IV. RESULTS

Instead of presenting successively the results of the questionnaire and those of the interviews, we choose to integrate elements from the questionnaire (quantified elements) and elements from the interviews (including verbatims), and the results of both methodologies are grouped by topics. The following section presents the differences between the hyperconnected and the overconnected executives (professional function, role of CT's, professional/personal life, health impacts), as

well as the sources of discomfort linked to overconnection. Two cases of overconnected commercials are then developed in further detail, based on their experience of a representative day and their more general comments.

III.5 WHO ARE THE MOST CONNECTED AND WHAT ARE THE CONSEQUENCES?

The analysis of quantitative and qualitative data enabled the drawing up of two profiles of hyperconnected and overconnected people in the company studied. The outcomes are summarized in *Table* and will be developed point by point.

Profiles	**Hyperconnected**	**Overconnected**
Function	Transversal function	Sales representatives
Role of CT in the activity	Prescriptive	Intrusive
Articulation of life spheres	Soft boundary for greater flexibility	Overflow of professional life on personal life with a feeling of loss of control
Health impact	None	Fatigue, concentration problems, sleep problems, anxiety
Regulation of the connection (developed §4.4.)	Disconnects on weekends and vacations Presence of collective regulations with positive effect	Little or no disconnection

Table 5: Profiles of the hyperconnected and the overconnected

IV.1.A Professional functions and role of the CTs in the activity

In the questionnaire, 52.3% of the salespersons were in the «high connection» group, compared to 23.8% for the other functions (χ^2 (1,430) =22,46, p < .001).
In the interviews it was observed that the hyperconnected (without expressed discomfort towards their connection practices) were more likely to work in *transversal* functions, whereas the overconnected were more likely to work in *sales* representatives functions. Communication technologies play a different role in their activities; for the hyperconnected, they are the main vector of activity, and the technologies are *prescriptive*, allowing the employee to access a task (the receipt of an invoice, a new file to be appraised). A lawyer told us "it is the emails that guide the activity or it is the solicitations; many emails and sometimes phone calls". For the over-connected, communication technologies are experienced as intrusive and interrupt the activity in progress (e.g. a client meeting, writing a report). For example, a salesperson reports, "emails arrive in the inbox, my meeting is postponed because of interruptions and I say to myself 'I still haven't worked'".

IV.1.B Articulating the spheres of professional and personal life

In the questionnaire, 66.4% of the individuals in the *high connection* group report negative remarks about their connection from their family circle[8] (χ^2 (1,436) =50,66 p <. 01), associated with a feeling of being overwhelmed and losing control. 47.5% (χ^2(1,436)=28,528 p <.01) of individuals from the high connection group also report professional consequences[9] such as loss of information or work overload and 50.8% (χ^2(1,436)=58,91 p <.01) negative feelings[10] (guilt, anxiety, lack) in case of disconnection (of the high connection group).

We learned in the interviews that *hyperconnected* find this boundary flexible and porous, it does not have negative consequences in private life and allows greater flexibility between professional and personal levels. A manager in his fifties said about his connection practices, which are important in terms of quantity and temporality, "*I don't feel that they play a role in my behavior at work, with my children, in my personal life with my wife*". A technology resource developer also explains that for him "*constant connection is quite natural. It's not at all bad, it's not very restrictive*".

In contrast, the *over-connected* persons report negative consequences of their home connections. Several executives told us about guilt caused by disconnection, related to a comparison with colleagues as said one 30-year-old sales rep: "*They work 12 hours and I do not*".

IV.1.C Health impact

The analysis of the quantitative data gave a picture of the different disorders perceived by the participants as related to their connection practices[11]. In the questionnaire, employees who establish the most associations between health problems and connection, all problems combined, constitute the high connection group. The most common disorder cited was *visual fatigue* (High connection group = 56,40%, χ^2(1,436)=9,37 p <.05) followed by general fatigue for more than half of the strong connection group (55,7%) and one third of other connection levels (G. low connection = 27,3%, G. intermediate connection = 34,5%, χ^2(1,436)=24,15 p < .005). This *general fatigue* can be linked to sleep disorders reported by 41% of individuals in the high connection group χ^2 (1,436)=20,46 p <.005.Participants also said they linked *anxiety and irritability* (including stress) to their connections (35.2% of the high connection group χ^2(1,436)=8,28 p < .05). Finally, the last connection-related disorder was *weight change* for 18% of the high connection group χ^2(1,436)=10,46 p <.05.).

[8] Q10: Have you ever had negative feedback from family and friends about your at-home connection practices?

[9] Q7: Have you ever observed negative professional consequences because you were not connected outside your working hours (remarks, loss of information, work overload, time pressures, etc.)?

[10] Q8: Have you ever felt negative about not being connected outside of your work hours (guilt, anxiety, and lack)?

[11] Q20: Do you relate any symptoms or pathologies to your connection practices?

	Low connexion	**Intermediate connexion**	**High connexion**	**Overall sample**	**Khi 2**
Visual fatigue	51,0%	52,6%	68%	56,40%	9,37*
General fatigue	27,3%	34,5%	55,7%	38,10%	24,15**
Sleeping disorders	16,1%	27,5%	41,0%	27,50%	20,46**
Anxiety and irritability	19,6%	26,3%	35,2%	26,60%	8,28*
Weight change	5,6%	10,5%	18,0%	11%	10,46*
Wrist / hand pain	14%	14,6%	13,9%	14,2%	NS
Digestive disorders	7,7%	10,5%	13,1%	10,3%	NS
Palpitations	4,2%	5,3%	7,4%	5,5%	NS

Table 6: Percentage of people linking disorders to digital connection (** p < .01, * p < .05)

The interviews indicate that it is the over-connected and not the hyper-connected who experience health problems. Three sales reps mention fatigue and concentration problems and sleep disorders (insomnia, sleepwalking). The over-connected also mention stress linked to the immediacy and the expectation of performance: "the connection generates stress, if you are in a meeting and there are phones everywhere and you see the many emails that demand your attention". It is coupled with an anxiety of system failure: "the stress when you see the battery draining".

To summarize, salespeople are more connected overall than other functions and are also the ones who express the most suffering towards this connection. Indeed, for them, the connection leads to numerous interruptions in their tasks (emails during a meeting), while for cross-functional functions, the connection leads to the prescription of a task (new case, etc.). The connection also leads to a porosity of the border between private life and professional life. The difference between hyper and over-connected employees lies in their feelings: hyper-connected employees see an advantage in terms of flexibility, while over-connected employees feel guilty when they disconnect on their personal time. Finally, in terms of impact on health, we observe in the questionnaire that people with a high level of connection experience more fatigue, sleep disorders, anxiety and irritability and weight changes than people with a lower level of connection. The interviews allowed us to clarify that it is mainly the overconnected who experience these symptoms.

III.6 SOURCES OF DISCOMFORT RELATED TO THE CONNECTION

IV.2.A The pressure of dealing with customers

The pressure linked to customer relations is a source of discomfort for the commercials. Three of them talk about their availability and their desire to be reactive within 24 hours: "I tell myself that the customer's answer should be sent within 24 hours, I don't want to go beyond 24 hours for the answer", or "whatever the time of day or the day of the week, I will take all the calls". This constant disposal is not necessarily well lived, as is the case for two of them who report that they do not appreciate calls from customers during their vacations. Not all commercial employees have the same function and do not experience the same constraints in their interactions with the outside world. This explains why some salespeople are in the hyper-connected group and others in the over-connected group. Indeed, salespeople who do not have a portfolio or dedicated customers do not report this constant time pressure. The relationship with the outside world through the Communication Technologies (and the maintenance of a good relationship and a good image with the outside world) thus appears to be a potential source of malaise.

IV.2.B Interactions within the company

The interviews revealed several other sources of discomfort linked to internal interactions: over-solicitation and the receipt of e-mails outside working hours. Over-solicitation from instant messages seems to be a problem, for 7 of the 8 over-connected (except the technical manager),"our internal solicitations are extremely strong". These solicitations often lead to interruptions in work and multitasking. Regarding the perception of others' connection outside of work hours, the low-connected individuals report that they do not perceive any connection-related difficulties in their teams. However, two of them point out that some employees are too connected outside of work hours, but do not understand the reason: "there are always tricky people answering on weekends". The hyperconnected also agree on this fact and say they are shocked or disturbed to see an email on a Sunday. A salesman said: "*I'm more shocked when I receive an email on a Sunday at 3pm, I think to myself f*** you have no life*". Sending emails outside of traditional working hours also bothers 5 out of 8 of the over-connected; "he [his colleague] sometimes sends emails where I am copied at 1am, I find it tactless."

IV.2.C Meetings and the resulting multi-activity

The analysis of the chronicles of lived activity (developed later) made it possible to report on the multi-activity during the day. Several employees described dealing with instant messages, phone calls and emails throughout the day "as they go along". In

reality, they often handle these solicitations when they are in meetings. The chronicles made visible the high frequency of these, either in person or via video conference. Out of 20 days described, 6 involved meetings that were experienced as problematic:

- Because of their duration, "at 9:00 a.m. I had a meeting, a meeting that takes place every month, except that it was abnormally long", "it was a meeting that lasted from 9:00 a.m. to 2:00 p.m., so at the end I was a little tired of it, well everyone was a little tired of it".
- Because of overlapping schedules: it often happens that several meetings take place at the same time, "there was normally a first meeting from 9:30 to 10:30 a.m. and another from 10:00 to 11:30 a.m., so it overlapped» Therefore, employees organize themselves to carry out other tasks during meetings: "I finished the minutes that were due at 9 a.m. during the telephone meeting I had earlier". Two salespeople admitted to "continuing to work" during meeting ("during a telephone meeting with a client, I continued to work anyway"). The most surprising thing is that even when they are the meeting facilitator, they sometimes continue to process their messages. However, this is difficult for this assistant from the real estate department: "since I am the organizer, I try not to look at them [the emails] too much, otherwise I lose track of things'", or "sometimes, during a presentation, I even answer a Skype call while talking to the client." Several executives (10/20, including eight over-connected) mention the negative effects on concentration, varying from "you can lose track" to "it's physically impossible [to stay fully concentrated in a meeting]". The responses to various requests through CTs in parallel to the multiple meetings therefore seem to be a source of discomfort.

The sources of discomfort expressed in relation to the connection are, on the one hand, related to external interactions (client interactions) and internal interactions (solicitations from colleagues). External interactions are particularly pressurizing for salespeople since there is a customer and financial relationship at stake. Another source of discomfort is the overwhelming number of physical and video meetings, compelling employees to work in multi-activity mode in order to keep up with their other tasks.

III.7 TWO INDIVIDUAL CASES ILLUSTRATING OVERCONNECTION

In order to illustrate the activity of salespeople, we propose the analysis of the case of two over-connected people in the large company studied. They are two salespersons, chosen because they are representative of the problems encountered in terms of interruptions linked to CT, the number of meetings and allow us to explore the different sources of discomfort that we mentioned earlier. Firstly we present general elements from the first part of the interview and then we describe the chronological development of one classical day. These case studies, because they are based on the daily reality of specific employees, present less abstract and more embodied results,

we go into the real course of action of a working day, and it provides a more detailed account of the individual's psychological dynamics and the course of parallel actions.

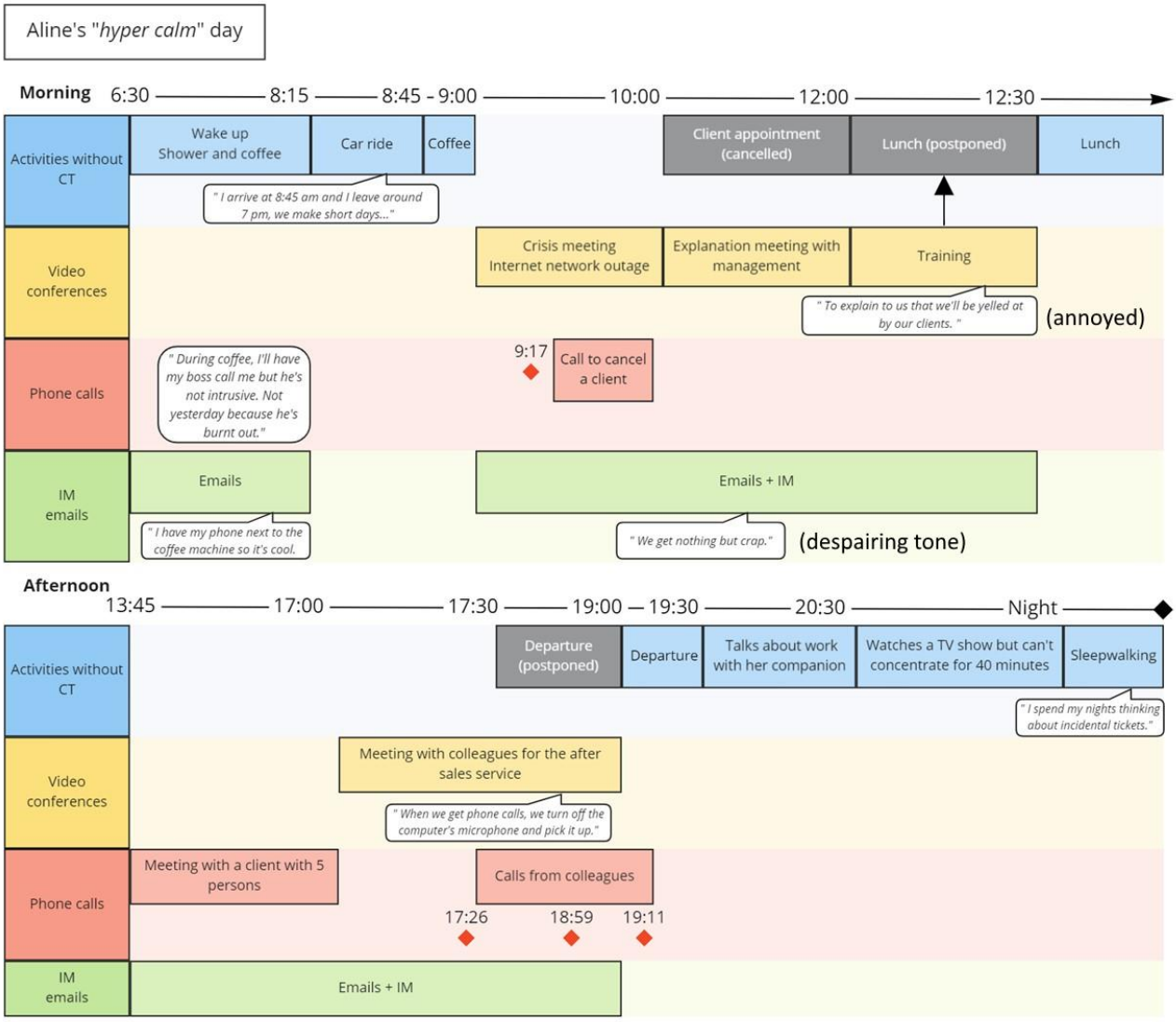
IV.3.A *Aline, an over-connected saleswoman in her thirties*

Global elements on Aline's activity and experience were collected during first part of the interview (non-situated global questioning). She is a 30 years old sales person and is responsible for about 20 customer accounts in one region. The team in which she works is composed of 13 people who work about 12 hours a day, which makes her feel guilty because she works "short days" from 8:45 am to 7 pm. Her work consists of taking care of her clients' portfolio and in being "70% of [her] time at the client's". She said she was "objectified on one criterion [...]: that the revenue does not decrease". She is a fixed-price manager, she has no timetable, so the amplitude of her day is partly based on customers demand, "the customer can call us 200 times in a day, we are not going to say to him: 'you called me again, I'm not going to pick up anymore'".
She also reports that the workload is so heavy ("doing results, following up on orders, answering customers, going to appointments, etc.") that it is impossible to modulate her time as agreed in her contract. However, she explains that she knew what to expect when she took this job: "I knew the constraints, but I didn't think that it would increase so much over time." One of the reasons for this overload is the amount of time she spends driving. The area she covers is quite large and she can drive up to 5 hours for an appointment with a client. During these trips, she "phones the entire way" because she cannot afford to stop working for such a long period of time. She says, "I sometimes stop to answer emails, because I can't answer them when I'm driving."
A further reason for this overload is that she is constantly working in a multi-activity mode when she is at the office; she is solicited from all sides via instant messages (from her colleagues), calls, emails (from her clients) and videoconference meetings. This overload causes a feeling of discouragement and she talks about concentration and attention problems.
She is very involved in her work and this can be explained by two elements. The first is an attachment to the quality of the relationship with the clients: "*you commit yourself to them and they commit themselves to you*". She insists several times on the fact that she must "pamper" them. She also explains her involvement by a financial aspect: her salary is tied to her investment in the work and the clients pay large sums, so she must always be available. This commitment is reflected in her connection practices, the notion of constant availability is found in several of her activities; for example she is connected all the time, [she] has Skype on her personal phone, emails, a professional phone (a.k.a. "my baby") that she almost never leaves (not more than one day).
This constant connection and this wide and variable time span have consequences on the individuals around her. She tells us that it is extremely difficult for her spouse.

She also can no longer stand the solicitations of those around her via communication technologies: "*In the evening, I must not be called; my relatives never manage to reach me on the phone. [...] I realize that sometimes it takes me ten days to answer people*". She speaks of "saturation" linked to the telephone and the flood of information that she has to manage on a daily basis, which results in a loss of concentration: "*I can't be asked to think in the evening*". She talks about a desire to disconnect but does not know how to put it in place. However, following a particularly difficult situation, she tells us that she is going on leave and that she has planned to disconnect because the situation is becoming unsustainable; she is at a "*point of no return*".

In the *second phase of the interview,* Aline described, based on her schedule, a day that had taken place the day before the Explicitation Interview. The interviewer first sketched out with her a diagram with the different factual elements that marked the day, then she asked her to describe precisely her experience during that day, i.e. what she had done but also, what she had felt, thought (e.g. evaluations, judgments) and perceived over time. The chronicle of lived activity shown below corresponds to this first sketch of the facts and actions, enriched with some other elements of lived experience[12] specified later during the interview.

Figure 4: Chronicle of an over-connected saleswoman's activity



This chronicle highlights several elements described in the interviews. The high number of meetings, Aline attends 5 meetings over the day. The only meeting that directly concerns her main activity (customer relationship) is the one from 1.45 pm to 5 pm. During all the meetings, Aline continues to deal with emails (complaints), instant messages and calls, except during the customer meeting. There is an impact of this pressure on her wellbeing and her family and friends: she comes home at 7:30 p.m. and talks about her day for an hour to her spouse, then describes not being able to read, to watch a series or to contact her close family and friends. Finally, she mentions sleep disorders and a mental disconnect which is "impossible to achieve".
Moreover, it should be noted that this particular day was not quite a "hyper-calm" day; she could not work peacefully with clients because the pressures within the company were too intense. It is indeed a time of crisis, however according to another manager, this crisis-mode of day-to-day functioning has lasted, non-stop, for 2 years[13].

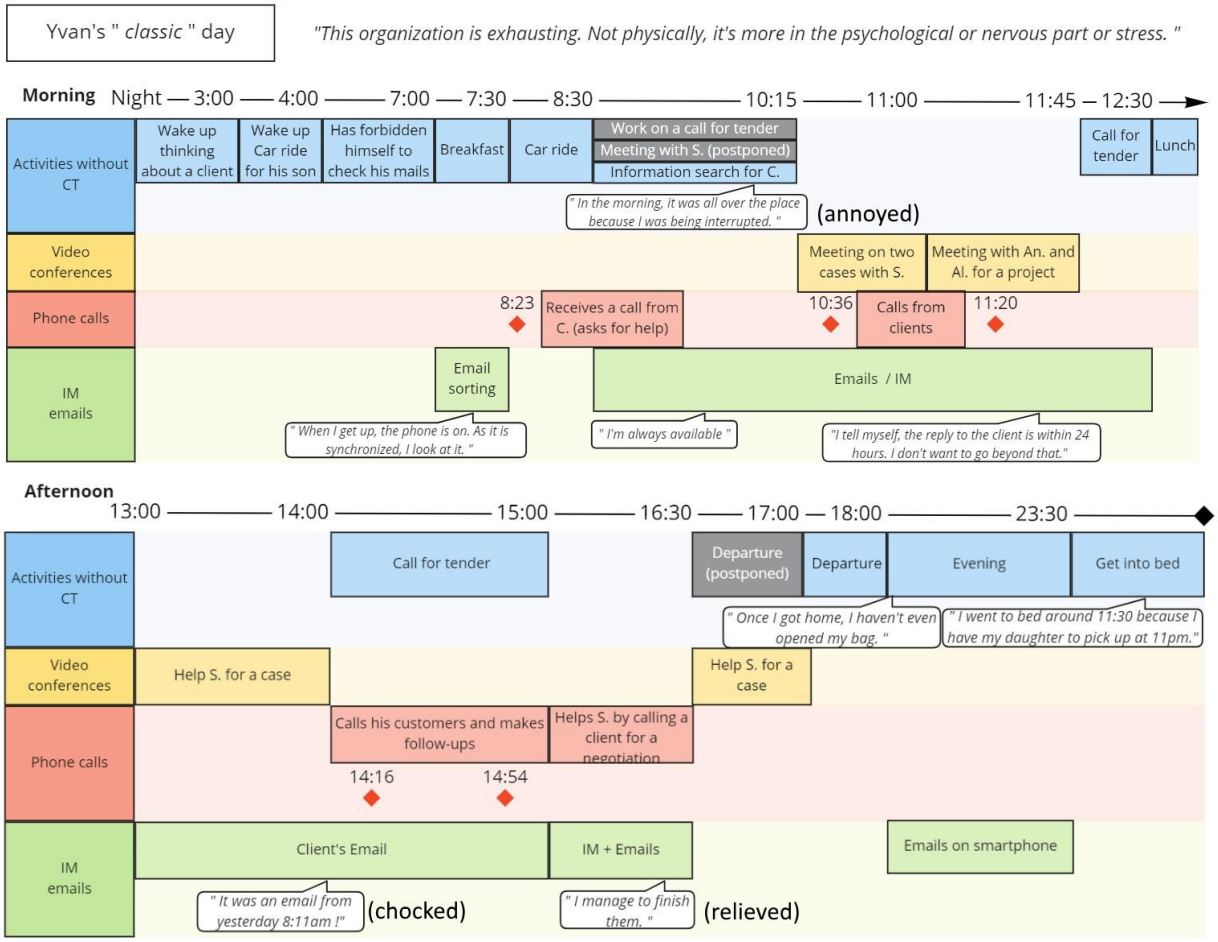
IV.3.B Yvan, an over-connected salesman in his fifties

In the *first phase of the interview*, Yvan described that he spends from one third to half of his time on the road, to make customer appointments. The rest of the time, he does "a lot of administrative work, a lot of email management". He is member of a large team, but is alone in his job. Like many executives, Yvan works by objectives. He plans his week on Sunday. His main rule is to respond to the customer within 24 hours, whatever the request, which potentially increases the length of a working day. He wakes up extremely early (3am) and stays up from that point. In general, he then starts to think about his work "I start to prepare my day [...] I say to myself that I mustn't forget this, my mind is obviously caught up in it, it's not restful".
He describes himself as working under constant pressure, partly because of the 24-hour deadline for responding to customers that he has imposed on himself, but also because of his desire to succeed in meeting his daily objectives. He sees this way of working as a vicious circle; "I committed to doing it today, okay I'm doing it. It's all a vicious circle". He says us that he feels a kind of "useless and stupid" guilt when he thinks about not keeping his goals. This pressure is also felt in the way he invests himself in his work: "I want to go fast and well [...] so it stresses me out". He says he invests 100% of his time in his work, "I'm a professional but I'm always available all the time".
This has the consequence of putting some pressure on his colleagues as well, for example when he sends them an instant message: "I want it to be immediate when we answer", so sometimes when he writes on Skype, his colleagues change their status "that means basically, you don't want to answer me, and I say to myself 'that's not

[13] Since our interviews, a new and more extensive reorganization has taken place. However, it does not appear to have reduced the level of pressure substantially.

cool'". As far as connection is concerned, at work it is permanent, which "generates stress "; but for him, connection goes beyond the IC connection, it also means thinking about his work outside of working hours. For him, disconnection is not only a physical disconnection, but also a psychological one: "it's also a neuronal disconnection [...] to have a free, serene mind and to be able to eventually forget" which is much more difficult than technical disconnection.
He would define his personal limit of overconnection when the connection "eats away at freedom and encroaches on privacy", it is a "*drag or a ball and chain that is increasingly heavy*". He also explains that for him "under 14 hours [of connection], it's not overconnection". So, he does not think of himself in terms of overconnection.
In terms of regulations, Yvan tells us that he establishes a very clear boundary between his professional and private life: "*if I come home after 5 p.m., I don't connect anymore [...] I have imposed this to myself*", but we will see that this does not seem as simple as he claims at the beginning of the interview. On weekends, he reports that he disconnects by tending to his garden "*It takes my mind off things, it's physical*". He specifies that this contribute to his equilibrium because on Sunday evenings "I'm physically tired, not mentally and morally". However, he also reports that he has already received remarks from those around him about his connection practices, particularly from his wife who reproaches him for saying that he is going to disconnect for a long time without actually doing so. He then said, "*I thought I had disconnected quite a bit*".

Figure 4: Chronicle of an over-connected salesman's activity



At the end of the *second phase of the interview*, Yvan says that he became aware during the interview for this research (especially the chronicle) that his approach needs to be changed because he does not slow down enough and that it exhausts him: "*I tell myself that I have to stop or else I do too much [...] when you get to 14, 15 hours a day, you say that's enough*". He talks about mental consequences ("*I also need to be cooler, more zen for my mental health")* and physical consequences ("*sometimes I feel my body saying stop, maybe it's time to stop*"). He is also inspired by his colleagues who say they go home to see their children, he says "*it's not stupid [...] I'm stupid to keep working.»*

Yvan's discourse thus seems to include some inconsistencies regarding his connection and disconnection practices. For example, he says he disconnects but reports complaints from his wife because he does not do it.

The schematic activity timeline allows us to account for Yvan's actual practices on a specific day that he describes as a typical day. For this day, Yvan had planned several elements: working on a call for tender, a meeting with Sonia, a meeting on a project with Annie and Alain and dealing with his emails. The first thing is that he wakes up during the night thinking about a client. As he mentioned during the interview, for him the disconnection is also psychic and therefore, even while he is sleeping, work

is bursting into his life since it is a professional preoccupation that wakes him up. He checks his emails for the first time at 7am but specifies that he start thinking about work well before that. When he arrives at work at 8:30 a.m., he is interrupted almost immediately while handling his e-mails by a call from an assistant who transmits a request for help from a colleague. He then sets aside two objectives: an appointment with Sonia and work on a proposal to search for information and deal with the assistance request. He will then start his meeting with Sonia at 10:15 a.m. instead of 8:30 a.m. and will be interrupted by a call from a client. At 11:00 a.m., he attends a meeting with Alain and Annie as planned and is again interrupted by a call from a client. At 11:45, he starts working on his proposal and will also receive a call from a client at this time. Meanwhile, he keeps working on his emails and Skype messages all morning. He leaves for lunch at 12:30 and returns at 1:00 with Sonia to help her with a file. At 2pm, he goes back to one of his objectives for the day: to work on a proposal while continuing to attend to his emails; he tells us that, on Tuesday afternoon, he answered an email dated "Monday 8:11am", which broke his own "24-hour response time" rule and this appears to have upset him. He also reports having called clients. He then spends 1.5 hours helping 'S' to conduct a negotiation with a client and postpones his departure, initially scheduled for 4:30 p.m., to 5 p.m. because she asked him to stay "5 minutes". He then said that he checked his emails on his smartphone during the evening without specifying the quantity and went to bed at 11:30 pm.

In this case, the boundary between personal and professional life does not seem to be as clear-cut as he describes it. Clearly, he checks his e-mails from 7:00 a.m. onwards and in the evening. Moreover, his discourse evolves during the interview. At first, when we were on a general and non-stated register, he declared that he had set very clear boundaries between his professional and personal life, which is obviously not the case since he reports his wife's complaints. Then, when he explains the course of one day and is brought into a situated register, it becomes apparent that he thinks about his work as soon as he wakes up in the morning (thus hardly any mental disconnection) and reads his emails in the evening. Finally, he says at the end of the interview that he needs to change his way of working ("I have to stop, I do too much [...] I also need to be cooler, more zen for my mental health"). It was interesting to note that his discourse evolved during the interview, allowing him to become aware of the reality of his connection, which is not as fluid as he initially implied (and as he may have wanted to think).

This method of explicitating a day of work have several benefits:

- It helps the employee who contributes to the research to become aware of his own practices, for instance the constraints that they impose to themselves.
- It gives a more precise idea of the course of action, the multi-activity and the numerous parallel solicitations.

The case studies highlight several points for understanding the activity and potential sources of stress:
1) the unexpected that generates stress: in these two examples, we see that in the work days described (which we had specifically asked to be representative) there are four incidents that disrupt the course of the planned activity: a request for help and a network cut. These incidents profoundly modify the organization of the day by generating stress and consequences on the activity that result in the cancellation of meetings or the postponement of work. This stress is expressed by the participants verbally or non-verbally: Yvan explains that he did not answer an email before the 24-hour deadline he imposed on himself and says he is upset. 2) interruptions: The chronicles also allow us to account for the impact of interruptions, they consult Skype and their emails continuously while leading or attending meetings via video conferencing. As already mentioned, the number of meetings is very important and it seems difficult to deal with messages at any other time than during these meetings. These interruptions also lead to new tasks, as we see with Yvan who is looking for information for a colleague following a call.
3) Pressure on the customer relationship: it seems that for Yvan, the relationship is not impacted by the new Orange directives, whereas for Aline, the relationship is very degraded. For Yvan, it is a question of maintaining this quality of relationship and for Aline of safeguarding and re-establishing a good relationship. Indeed, for them, the customer is the most important, they want to answer within 24 hours for Yvan and they have to answer at any time. This relationship with the customer induces a self-imposed demand for an almost immediate reaction which is a source of stress.

III.8 REGULATION STRATEGIES OF THE CONNECTION

The data, both quantitative and quantitative, were finally analyzed to identify the modes of regulation of the connection, described essentially during the interviews by the participants, to avoid or limit digital overconnection. These regulations are of an individual and institutional nature, as the literature emphasizes, but also collective (team level).

IV.4.A. Some individual regulations but only partial ones

In the questionnaire, like the other groups, people in the high connection group report that they often disconnect outside of conventional working hours, which is a bit surprising [14] ($F(2,433)=93,61$ $p < .01.$). Interestingly, they report that they are sometimes surprised to check their e-mails when they had the will to disconnect, whereas this is rare in the other groups ($F(2,433)=77,94$ $p <.01$). Moreover, the interviews revealed a difference between the hyperconnected and the overconnected in terms of

[14] Q11: Outside of work time, do you ever "disconnect" from the professional sphere (by turning off notifications, not answering or turning off your phone)?

disconnection: the hyperconnected use preservation and filtration strategies; they disconnect completely on vacations or weekends. The filtering strategy is found in minimal actions of daily life such as putting their phone on airplane mode at night, turning off sound alerts or disabling the push function. Half of the over-connected sometimes disconnect on weekends, during sports but not during vacations, and the other half report never disconnecting. Despite a tendency of overconnected to remain permanently connected, this category of workers gathers people who express the most desire to disconnect. The interviews also allowed several people to question their practices and to express a desire to disconnect more systematically in the future, as it is the case of an employee who told us about his emails while on vacation "I think that next time I'll disconnect them, while we're talking, next time I'll cut the connections".

IV.4.B Institutional regulations: some change in the organizational culture?

The company Orange has put in place agreements on "digital transformation" and on the work-life balance as well as digital tools training. Concerning the agreement on work-life balance, only 4 people on the 20 interviewed (one over-connected sales person, two hyper-connected and one less connected) think that it is possible to respect the described emailing hours (8am-6pm) and for 2 of them, it is on the condition that a technical solution is implemented (forced shutdown of the email box at 6pm). One person (cross-functional manager) thinks that these hours are generally respected at Orange. The 16 other participants believe that it is impossible or useless to respect these hours for the following reasons: 7 individuals think that it is not possible because of the workload; the limit of 6pm seems too early ("because already after 6pm, some people are still working" (technical manager); "it's a bit restrictive, in the evening after 8pm we'll see" (sales manager). Some argue that this is simply not useful or desirable, that regulating the connection by forcing a restriction at 6pm will not solve the connection problems, which are elsewhere.

However, based on the interviews, an evolution in the perception of the connection has been noted, possibly linked to the publication of agreements. Indeed, the executives we interviewed stated that receiving e-mails on weekends from their managers or colleagues is rather badly perceived. This change in perception, although not consciously linked by the participants to the company agreements, seems to be in line with them. It is no longer "normal" to be permanently connected, so the corporate culture seems to have evolved.

Orange has set up training sessions on appropriate use of the various tools (SharePoint, plazza) but only one person amongst the less connected, reported being able to attend them. The rest of the participants, in contrast, told us that they did not have the time to attend, although some of them thought it would be useful for them,

especially concerning the use of Plazza[15]. Moreover, as said earlier, there is a strong desire to disconnect for the over-connected, mainly on weekends. They mention work to be done on themselves to disconnect, not because of organizational pressure but because of a restriction, they wish to impose on themselves, ("we should all have the courage to turn off the cell phone on weekends").

IV.4.C The benefits of collective, team-based regulation

According to the interviewees, strategies for regulating connection at the team level focus on reducing the information load of employees by modulating information sharing more effectively through team meetings, and by collectively allowing real disconnection, mainly during vacations. The information overload is regulated in some teams by setting up weekly meetings ("for project follow-up [with] a single place where we all come together to edit statutes in a collaborative manner") or fortnightly meetings ("this allows us to share, to come together as a team"). This has the effect of limiting mediated communications within the team, better inter-comprehension within the team and a reduction in the flow of communications. Several teams have set up a back-up system during vacations; one person in the team is designated to answer urgent emails for a given period with a rotation of this responsibility. This allows other employees to go on vacation with the peace of mind that service continuity is assured.

To illustrate the beneficial effect of collective regulation, consider the example of two salespeople that we interviewed, working in similar departments but in different teams. They are confronted with the same problem but report a different experience. As a result of two reorganizations, some departments (which sell technical solutions to companies) are severely disrupted. Indeed their old ways of working became obsolete overnight following a court decision that took effect in July 2017. Salespeople were no longer allowed to contact their company's technicians directly by phone; they now have to go through an app to seek help from an anonymous technician. The fact that there was no transition between the two modes of operation and that the delays are multiplied (from two weeks to 6 weeks) causes discontent among customers but also among salespeople who no longer feel able to perform quality work in these deteriorated conditions. The experience of this situation is different according to the support in the team and the managerial support.

In two sales departments, comparable in every way, we have in department A, a highly facilitating manager who takes over in emergency situations and who helps when things get too difficult ("he's on the front line a little bit") and in department B, a manager who seems exhausted and can no longer cope with the situation ("I think he's at the end of his rope", "my manager isn't here today, he's taken a day off because we've all reached our limits"). This situation does not help to strengthen a weakened team (department B) with "frequent material breakages" due to excessive pressure;

[15] Internal company social network.

the saleswoman of department B speaks of a team "facing a wall". Service A tries to face this crisis by sharing "tips [...] we talk about it a lot". In terms of feelings, this translates for a person in department A into "we share the feeling of not being alone in the world" and for a person in department B "we are all in the s*** here so we can't talk about it with colleagues ". For a similar situation, in department A, shared difficulties between colleagues made it possible to deal with the situation, to break the isolation and to reduce the pressure, that resulted in absences and broken equipment in department B.
This comparison shows the value of support in a team, communication and sharing, as well as the contribution of a supportive manager. This confirms the importance of social support in the use of digital tools. However, this collective approach of performance and difficulties in teams is rare in the literature on digital connection that we have consulted.

There are three types of regulations in the company, individual (partial disconnection), organizational (charters, agreements) and collective (at the team level). We can see that individual regulations vary between the hyperconnected who disconnect on vacations or weekends, and the overconnected who wish to disconnect but check their emails outside of work time. We note that company agreements stipulating a limit on connecting after 6pm are sometimes considered useless and unrelated to the reality of the activity, but have led to an evolution in the perception of connecting after the specified time. Finally, we found that the most effective regulation was at the team level. When the connection is discussed and organized within a team, each member can disconnect without feeling guilty.

IV DISCUSSION

This section discusses the most innovative results of the study about the aforementioned research objects. These concern the distinction between hyperconnected and overconnected people, the categories of population who are more concerned by overconnection in this large company, psycho-social risks, the main elements that cause a feeling of discomfort linked to connections, the most relevant regulations of connections, and finally a methodological discussion.

IV.1 THE NOTION OF "OVERCONNECTION" AND PROFESSIONAL CATEGORIES CONCERNED

Hyperconnection (a high volume of digital connections) does not have negative consequences for everyone. For this reason, we propose to distinguish the two concepts: hyperconnection, which refers to a high observable frequency of digital connection, and overconnection, which indicates that this hyperconnection is subjectively painful. The commercial function has emerged as a particularly

overconnected category of employees in this company, and this result is probably generalizable. Indeed, salespeople match the image of the executive that we mentioned before: they must be fast, efficient, and always available for their clients, so they assimilate the fact of remaining permanently on-line as a necessity of their job. The communication technologies amplify the phenomenon of hyperconnection and generate more extensive availability by multiplying the channels of interaction; they put sales representatives under constant pressure and solicitations that force them to remain constantly connected to their work. We also found a significant difference in the level of connection by hierarchical level. The higher the hierarchical level, the greater the connection. The majority of 'expert managers' are in the low-connected group and senior managers in the high-connected group. One reason for this is that the expert managers in our sample do not supervise any colleague, unlike the other levels (proximity, intermediate, executive managers). Some authors describe communication technologies as tools privileged by management to carry out supervision (e-mails, calls, and instant messages) and to remain in contact with their teams, specifically when they work remotely.

In fact, the experience of the connection is intimately linked to the profession, to the activity carried out by the participants, and more generally to the system of activity to which they belong (Engeström, 1999). An activity system assumes that any object-oriented activity passes through artefacts and is socially inscribed in a universe of rules, in a community made up of all the actors involved in the activity, which is itself related to a division of work. It is therefore possible to propose a multiscale analysis of this system of activity the "micro" analysis of the activity in the work situation, the "meso" analysis of the collective dynamics at work and the "macro" analysis of organizational and managerial strategies. This framework makes it possible to determine the conditions, resources, and requirements of the socio-organizational context in which these mediated activities take place.

At the micro level, we have observed that the hyperconnected participants use the connection and solicitations as organizers of their activity, without this being experienced as a problem. This is the case for cross-functional positions, such as lawyers. For this category of employees, the experience of connection is different from that of other categories for whom connection is more problematic as we saw (overconnection of salespeople and high-level managers). This shows the importance of taking into account a technology in its work context, as described in the Situated Acceptance Theory (Bobillier-Chaumon, 2016) in order to obtain an effective regulation of the connection. Beyond the determinants related to the profession, a different relationship to the connection seems to be experienced by those who do not live well with their connection, who seem not to allow themselves any time off-line and who say they aspire to it.

At the meso level, we have observed that some work groups and teams now provide new connections (e.g. WhatsApp groups), and that these professional connections can strongly interfere with employees' personal lives. We also observe an evolution in the

perception of connection from colleagues and hierarchy. While the literature review indicates that managers were expected to be connected all the time, in our sample, we found that there was a strong desire to disconnect from work on weekends: half of our participants did disconnect, and the connection was rather badly perceived. Similarly, if we rely on what is said in the literature, it was expected that participants would feel a relatively high level of stress when forced to disconnect, however, this was not the case. Therefore, it seems that there has been a recent shift in the executives' positioning towards more effective disconnection, or at least a desire for more disconnection.

At the macro level, this desire of disconnection can probably be described as related to the formal agreements that authorize this disconnection at the institutional level. Even if these rules are sometimes too general and not adapted to some professions, we show how they participate in transforming the organizational culture and authorize people to respond to some excesses.

IV.2 Overconnection and psychosocial risks: a complex issue

Our study shows that overconnection appears in a multifactorial context that can influence the lived experience (requirement of permanent availability, compulsive nature of the connection, impeded/disrupted activity, negative interactions conveyed by the CT) and is not frozen in time. Those who are overconnected mention problems related to connection that resonate with psychosocial risk factors: fatigue, anxiety and stress induced by connection, sleep disorders, cognitive problems (concentration) and even violence (breaking material). As previously mentioned, because the mediated activity is part of a larger system of activity, the connection can sometimes be the vector of negative interactions and overloading, yet other socio-organizational, professional and individual factors can participate in these psychosocial risks. For instance, the changes in work processes and the reorganization of team activities observed during the study have destabilized professional references and weakened employees.

IV.3 The value of collective connection regulation

The observation of a multifactorial origin influencing the experience of connection leads us to suggest that the approach to overconnection in prevention should be oriented in terms of collective dialogues in the company about the problems experienced, rather than through imposed regulations without taking into account the different professions and contexts of implementation (in terms of activity, but also of particular events such as reorganization, a change of process, a change of tools, etc.). In the literature, we find two main types of strategies for regulating the digital connection: individual (micro level) and institutional (macro level). Collective regulations in the teams (meso level) were rarely discussed, to our knowledge; they are diluted in the institutional regulations or are formulated as "good practices" that

should be generalized. The findings of the study show that these collective regulations exist in some teams, particularly during vacation periods. These collective arrangements make it possible to improve the experience of being connected, by giving the colleagues the possibility of disconnecting more serenely. In addition, some managers have set up in-person meetings to limit virtual exchanges within their teams, reducing feelings of infobesity and overconnection. These two aspects, the overflow of professional life into private life and information overload, soon appeared to be two key issues for the managers we interviewed.

IV.4 METHODOLOGICAL CONCLUSION: BENEFITS OF A SITUATED APPROACH

The situated part of the interviews (the activity chronicle) allowed some employees to become aware of some problematic connection practices, and even to plan some changes after the interview. This also brought to light, not only for them but also for us, contradictions in comparison with their general discourse. The methodology that we used, the Explicitation Interview, aims to bring out an awareness of elements that exist in a pre-reflected way in the individuals. The objective is to make visible the implicit norms, personal or collective, which control the activity and which are not usually discussed. Explicitation techniques on lived experience seem particularly relevant for a problem, such as overconnection, which is perceived as "essentially without solution". It seems necessary to raise awareness of problematic practices or implicit norms before starting a transformation process (cf figure 1 §2.5). As mentioned in the literature, it is not easy for employees and in particular managers to express negative emotions in the context of work. During the semi-structured interviews, some managers tend to rationalize and normalize their hyperconnection practices; but the deepening of particular moments during the chronicle with the explicitation interview allowed negative feelings and evaluations to emerge relatively to specific practices; the interviewees remembered a specific situation more in detail. By allowing themselves to express these emotions, the managers are able to reflect on their practices in a way that was not yet reached by the questionnaire or the semi-structured interview. The explicitation can bring out this awareness through non-inductive questions that push the subject to deepen elements that are present in the background, by exploring the experiential dimensions and by making the situations recalled in all their complexity.

CONCLUSION

The choice of a two-stage methodology allowed us to investigate the issue of connection and overconnection from different, complementary angles. The quantitative study by questionnaire gave us a global view of connection practices in companies and provided us with clues about the populations most concerned by these overconnection practices (intermediate managers or executives, sales people) without,

however, allowing us to specify the activities and experiences in context. The qualitative study by interviews allowed us to deepen the sources of discomfort related to the connection and the way in which they are inscribed in the course of the activity and possibly managed. The combination of questionnaires and interviews allows for a more global vision and understanding of the processes and dynamics at the origin of overconnection. The questionnaire provides quantitative information about the connection (e.g. the impact on health) and the interviews refine the categories, deepen the analysis of the topics and allow some employees to become aware of their real practices.

This work, which focuses on employees' relationships with their connections, seems to us to offer a particular insight as regards the issue of psychosocial risks. As we pointed out in the first table, a parallel can be drawn between a classic categorization of psychosocial risk factors and the types of problems mentioned in the literature on the difficulties caused by overconnection. The study conducted here allows us to show the extent to which these psychosocial risk issues can be addressed through the relationship with digital technology. In particular, the interviews revealed the determinants of psychosocial difficulties arising from work organization choices such as the difficulties of supporting a major organizational change by local management, which has a strong impact on the perceived quality of work, the workload linked to the increase in meetings, and the overflow of work into family life. We can also see that the approach can help the people primarily concerned to take a certain reflexive distance by tracing their psychological dynamics that leads them to experience tensions or a relative loss of control. The reflective posture is accompanied by the researcher and highlights the causal interplay of several types of factors: the norms adopted by the workers, the work culture common to the profession or the company's collective culture.

In terms of limitations, we can mention the absence of an explicit command from the company and we were therefore not able to analyze the demand that could have been made with the different interlocutors. Although we clearly shared a common concern about overconnection with the physicians and psychologists of the company who were very motivated and involved in the study, there was no team or department expressing a particular difficulty with this subject. An explicit request could have given more legitimacy to the intervention, the research actions. After this cartography of the overconnection problems in the company, we developed a phase of ergonomic intervention, bringing together different actors of the company to find solutions to the difficulties, using an original methodology, the theater-forum (Grosjean, Morand, Cahour, & Bobillier-Chaumon, 2021).

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