Studies and Research Projects

Exploratory Study to Identify Workload Factors that Have an Impact on Health and Safety

A Case Study in the Service Sector

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ABSTRACT

Context

Organizations today are pursuing complex objectives that are often difficult to reconcile: those of becoming more competitive, more productive and more profitable. To attain these objectives, they must constantly evolve (change how they organize production and work; introduce technological innovations, new human resources management policies, and innovative forms of work organization, etc.) (De Coninck & Gollac, 2006). The speed at which changes are taking place in organizations is resulting in work intensification, with consequences for workers and organizations alike. For individuals, the increased workload has adverse effects on their health and safety at work, such as musculoskeletal disorders, psychological distress, fatigue and accidents (Du Tertre, 2006; Grumberg, 1986; Krause, Scherzer, & Rugulies, 2005; Sarazin, 2001). For organizations, the consequences mainly involve increased absenteeism, presenteeism, staff turnover and poorer quality (Beech-Hawley, Wells, & Cole, 2004; Rochefort, 2000).

While the concept of workload is not new, in the current context, it has become a subject of renewed interest for researchers and of concern for organizations. More specifically, organizations are looking for efficient ways to evaluate workload. While many instruments measure the intrinsic aspects of workload (e.g. mental workload), they offer only a fragmented understanding of the phenomenon (Theureau, 2002). The traditional concept of workload, which can be broken down into its physical and mental components, is now becoming obsolete. A broader approach encompassing the complexity of the work activity in a dynamic environment is now required. The concept of workload must be examined holistically, i.e. through activity analysis, which takes into account the overall work activity seen as the result of a combination of factors present in the work situation and possibly engendering a cost (psychological and physiological) for the individual. From this standpoint, making changes in the workload implies making changes in the working conditions (Theureau, 2002).

Purpose of the study

The purpose of this exploratory study was to further our understanding of workload by examining work activity within a dynamic context involving individuals, their occupational activities and their organizational environment. From this perspective, the study did not attempt to document either work overload or underload, but rather to understand the phenomenon on the basis of actual work situations. To achieve the overarching objective, three secondary objectives were pursued: 1) to define the components of workload; 2) to identify the factors that have either a direct or an indirect impact on workload; and 3) to ensure knowledge transfer to the workplace community. Given the exploratory nature of this research project, it involved a single case study. However, it fits into a broader process aimed at conceptualizing the workload phenomenon holistically and in all its complexity. Many more case studies will be required to achieve that end.

To help shed light on the complex reality of the workload phenomenon, a reference model was developed on the basis of a literature review. This model is designed to approach workload through the daily reality experienced by workers, and thus examines it in terms of three main components: prescribed workload (imposed constraints), actual workload (actual restraints) and perceived workload. This preliminary model provides a framework for reflection as well as a reference for analyzing actual workload.

Method

A case study was carried out to obtain a detailed description of the work context (Yin, 1994). This exploratory and descriptive study was conducted in an insurance company, and specifically involved their customer service representatives. The method used had four steps: 1) organizational analysis; 2) direct observation of the work activity; 3) individual interviews (auto-confrontation); and 4) a group interview.

Results

Our analysis of the actual workload of these customer service representatives yielded five main findings: 1) information was difficult for the representatives to find and/or inconsistent, 2) the requests received and work tasks to be done were varied and complex, 3) expectations were inconsistent, 4) tasks were often performed simultaneously (multi-tasking), and 5) minimum daily feedback was given about the work. Restraints inherent in the work and daily work organization were identified in relation to each of these findings, and took the form of organizational, social, technical and individual factors that had an impact on the customer service representatives' workload.

Conclusion

Our results showed that certain factors inherent in the way the work was organized constituted sources of constraint that required additional actions and coping strategies on the part of the workers, and in turn, had consequences for these individuals and their job efficiency. While several constraints appeared warranted from a management or control standpoint, they often took on a different dimension in the daily reality of the individuals whose job was to deliver customer service. The presence of these constraints in the performance of their daily work did not, however, necessarily mean a work overload or underload. Rather it would appear, depending on the situations encountered and their cumulative effect over time, that the workers found themselves in inefficient situations that became a source of exhaustion and frustration for them.

Our recommendations seek to tackle these obstacles in work organization by taking into account the daily reality experienced by customer service representatives. Other studies of the actual workload in other job sectors will be required before the results of this study can be generalized.

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1. INTRODUCTION

In today's world, organizations are pursuing complex objectives that are often difficult to reconcile: to become more competitive, more productive and more profitable. Three major forces are pushing them in this direction (Vinet, Bourbonnais, & Brisson, 2003): the liberalization of economies, which is accompanied by deregulation (globalization); advances in the information and communication technologies (ICT), which contribute to the reshaping of the traditional concepts of place, time and collective work (Durand & Girard, 2002); and the requirements of shareholders and managers (financialization).

In the early 1980s, the major transformations that took place in the organization of production, management and work in the industrialized countries were attributable initially to the decline in mass production in favour of demand-pull (just-in-time) production. Compounding the situation was the strong competition offered by quality products from Japan, and shortly thereafter, other Asian countries (Harrington, 1992). The model that emerged was therefore that of a shift to customer- and quality-driven production (the six sigma process). A transition occurred from a quantity production logic to a batch and quality production logic; the just-in-time concept was part of this shift (Oliver, 1991). Value-added production (VAP) then sought to eliminate waste internally and to add value at each stage of production. The offshoring and outsourcing of certain operations were often encouraged (Murray, Bélanger, Giles, & Lapointe, 2004). More recently, in the early 2000s, the "lean" production system improved on VAP concepts by seeking to eliminate waste in external (offshore and outsourced) operations and increase economies of scale, while personalizing products and improving response times (Womack & Jones, 2005). Work processes are constantly being revised (reengineered) and are leveraging the quality of the workforce. As a result, it should be possible to stop offshoring and outsourcing labour resources while still being able to reduce costs. These approaches are being, or have been, wholly or partially implemented in most economic sectors, including the service sector (Stevenson, Benedetti, & Bourenane, 2007).

Against such a backdrop, to attain the objectives of greater competitiveness, productivity and profitability, organizations are faced with having to constantly evolve, a process that in turn accelerates the pace of change in the workplace (De Coninck & Gollac, 2006). These changes vary considerably, and include changes in the organization of production and work, technological innovations and new human resources management policies.

At the same time, to put these numerous changes into effect, organizations are making use of innovative forms of work organization, thereby increasing the workload borne by individuals (Askenazy & Gianella, 2000). These changes can take different forms: the introduction of quality standards, job rotation, reassignments, flextime, work autonomy where value is placed on employees' capacities and real-time availability (Askenazy, 2004; Cadin, Guérin, & Pigeyre, 2002; St-Onge, Audet, Haines, & Petit, 2004). While generally seen as positive due to the economic spinoffs they generate, these changes also have many consequences for workers.

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2. THE PROBLEM

2.1 Organizations and their current reality

For workers, this new organizational reality translates into the intensification of the expectations placed upon them, as well as an increase in work intensity fuelled by information and communication technologies (ITCs) (De Coninck & Gollac, 2006). The work intensification process is reflected in the increased workload borne by individual workers, where workload is seen as the result of a combination of job or occupational characteristics that have consequences for individuals as well as organizations. Workers are required to be more versatile (multi-skilled), available and flexible. In this context, they may feel overwhelmed, and experience a sense of urgency and difficulty in carrying out their tasks within a limited timeframe (De Coninck & Gollac, 2006). The intensification of work leads to, among other things, the elimination of idle time, optimization of time worked, compression of production-related costs and adaptation to ITCs (Legault & Belarbi-Basbous, 2006), and to a greater number of emergency situations arising at work, the proliferation of related tasks and of sometimes-contradictory expectations, and reduced flexibility in daily task performance.

Above all, profound transformations have been seen in service organizations. In performing their functions, workers have to manage a two-sided interaction: technical, in that they use computerized tools; and human, in that they maintain a service relationship with customers (Bouzit, Négroni, & Vion, 2002). Since service organizations are customer-driven, handling customer requests involves not only providing technical or administrative solutions, but also taking into account each customer's particular narrative (Bouzit, et al., 2002). Workers are thus required to manage complex situations with emotional overtones (e.g. the hostility, arrogance or impatience of customers intent on achieving their goals). In fact, their task is more emotional than cognitive: regardless of the situation encountered with the customer, they are required to control their words, voice and attitude (Grosjean & Ribert-Van de Weerdt, 2005). Their actual work is not limited solely to the number of files or calls they handle: the interactive dimension must also be factored in when identifying the characteristics of their workload (Bouzit, et al., 2002).

Concurrently with this ongoing negotiation process, workers are required to perform a number of tasks simultaneously (multi-task) within a limited time frame (Bouzit, et al., 2002). They may be subjected to information and communication overload, given that they have to master and assimilate information from different sources in order to answer customers' questions accurately (Dubois & Bobillier-Chaumon, 2007). Yet employees are increasingly faced with work situations where their flexibility is considerably reduced (Bouzit et al., 2002). Under these circumstances, [unofficial translation] "*for reasons of economic efficiency, there is a tendency to transfer work, regardless of its purpose, from humans to specialized automatons (machines), which have a higher output than humans in specific repetitive tasks*" (Lahlou, 2002). This automation of work gives rise to a certain repetitiveness in the tasks to be performed, leaving workers little decision latitude in performing their tasks (Bakker, Demerouti, & Euwema, 2005; Bakker, Demerouti, & Schaufeli, 2003). Also, employees are left with the impression that they

are underusing their skills and capacities because their role is dictated by a machine (Bakker, et al., 2005; Bakker, et al., 2003).

Moreover, workers are subject to quantitative controls pertaining mainly to the number and length of calls made and to break times (Hechiche-Salah et al., 2009). Qualitative controls are also applied, and involve compliance with set standards regarding the quality of service to be provided to customers (Hechiche-Salah et al., 2009). First, this control threatens workers' autonomy on various levels (Van de Weerdt, 2009). Second, the requirement of offering quality service while having to work within a limited time frame can create a role conflict and a source of stress for workers (Brun, Biron, & St-Hilaire, 2009). It may even become impossible for them to meet these sometimes contradictory expectations, forcing them to choose between quality and productivity (Di Ruzza & Franciosi, 2003).

2.2   Consequences for individuals

Work intensification inevitably has consequences for workers by placing greater demand on their cognitive, psychological and physical abilities (Hamon-Cholet & Rougerie, 2000). Over the last decade, a return of certain work-related health and safety problems has been noted in various sectors of the working world (Askenazy & Gianella, 2000). Overall, a common denominator in the psychological and physical consequences observed in workers is undoubtedly workload, or more specifically, work overload. Work intensification and its consequences affect the internal and external resources available to workers and management for coping with work constraints. This can in turn generate a downward spiral in the workplace and in workers' health and safety.

In 2000, 34% of Canadian workers reported their main source of stress at work as being work overload, attributable largely to the excessive job demands and number of hours worked (Statistics Canada, 2001). Nearly one-quarter (23%) of Quebec workers consider their workload too heavy (CROP-Express, 2006). Work overload would appear to constitute one of the main risk factors leading to psychological distress at work (Brun, Biron, & Ivers, 2007; Brun, Biron, Martel, & Ivers, 2003).

More specifically, the consequences of work intensification are associated with numerous psychological problems such as chronic stress, anxiety, depression, psychosomatic disorders, psychological decompensation mechanisms, work addiction (workaholism) and burnout (Legault & Belarbi-Basbous, 2006). This phenomenon has its own indirect impact by increasing worker consumption of psychotropic medications as they try to cope with their psychological problems (Vinet, 2004). It also appears that individuals exposed to long work hours are more likely to have unhealthy lifestyle habits (e.g. weight gain, smoking or alcohol consumption) (Kemeny, 2002; Shields, 2000; Vézina, 2002).

From a physical standpoint, the consequences of the workload include overuse pathologies such as musculoskeletal disorders (MSDs) (Du Tertre, 2006; Krause, et al., 2005). Workers who experience stressful situations at work over prolonged periods of time are also at higher risk of

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suffering from cardiovascular problems (Bourbonnais, Malenfant, Vézina, Jauvin, & Brisson, 2005; Vézina, Bourbonnais, Brisson, & Trudel, 2004). Regarding job safety, a cause-effect relationship appears to exist between intensification of work pace and accident rates, especially accidents involving falls or burns (Grumberg, 1986; Sarazin, 2001).

As in other sectors, workers in service organizations feel the negative impacts of work overload on their psychological and physical health. They have to reconcile their employer's demands regarding the quantity of work to be performed under time pressure, the emotional demands associated with managing their interaction with customers, and the little decision-making flexibility available to them in their daily tasks. They may thus end up suffering from burnout and job dissatisfaction (Bakker, et al., 2005; Bakker, et al., 2003; Bakker, Demerouti, & Verbeke, 2004; Dwyer & Fox, 2006). In addition, the work overload, absence of decision-making autonomy and psychological pressure faced on a daily basis are indirectly responsible for MSDs, particularly those involving the back and arms (Sprigg, Stride, Smith, Wall, & Holman, 2007).

2.3   Consequences for organizations and society

It is not only individuals who bear the consequences of the workload, but organizations as well. They must absorb the costs of absenteeism, presenteeism and staff turnover associated with difficult and demanding working conditions. In Quebec, the costs associated with mental health problems arising indirectly from workload issues are estimated at $4 billion annually (Vinet, 2004). And over the longer term, organizations risk seeing a decline in the quantity and quality of their products (Beech-Hawley, et al., 2004; Rochefort, 2000) and services (Du Tertre, 2006; Rousseau & Sarazin, 2006) because an increased workload curbs employee initiative and creativity.

2.4   Evolution in the workload concept

Given the major consequences for worker health and safety and the sustainability of organizations, it is highly relevant that we develop a deeper understanding of workload. The concept of workload is not new. It began surfacing in the early 20th century, notably in Jules Amar's research on the physiology of work (Laville, 2004). In the fields of psychology and ergonomics, interest was also shown in the concept in terms of evaluating complex interfaces such as aircraft cockpits or control rooms at nuclear power plants (Weiner, 1982). These researchers also investigated the effort expended by workers to meet their job demands and the intensity of this effort. Other studies focused on work intensity and the pace and repetitiveness of tasks to determine the impact of these components on worker health (Teiger, Laville, & Duraffourg, 1973). The concept of workload was generally defined as the intensity of the effort made by workers to meet the demands of their jobs under defined physical conditions, taking

into account their own condition and the various mechanisms at play in their jobs (Teiger, et al., 1973; Tort, 1974).

Researchers showed greater interest in measuring workload than in its theoretical definition (Hancock & Meshkati, 1988). Traditionally, the study of workload met very pragmatic needs and focused specifically on the limitations of individuals' physical and information-processing capacities (Leplat, 1977). Workload was therefore essentially approached from two distinct angles: physical workload and mental or psychological workload.

The scientific literature abounds in studies on physical workload, which approach the concept mainly in terms of physical task performance thresholds that can have impacts on workers' health and safety (Clarke, Carswell, & Seales, 2005; Krause, et al., 2005). In experimental psychology, mental workload refers to the identification of the cognitive or mental limitations that affect human performances in the area of information processing (Leplat, 2000; Morris & Leung, 2006). Added to these physical and mental components of workload are factors such as responsibility, uncertainty, time pressure and work interruptions, which serve to increase mental and physical workload (Estryn-Behar & Fouillot, 1990; Martin & Gadbois, 2004).

Numerous assessment tools, such as physiological and subjective measures (Hancock & Meshkati, 1988), derive from these views of workload. Physiological measures focus on activation in response to stress by evaluating parameters like heart rate and blood pressure. Subjective measures evaluate workload as perceived by workers. These measures provide data more readily, are deemed less intrusive and less costly, and appear to have greater validity than do physiological measures (Young, Zavelina, & Hooper, 2008). This method is also the one most often used to assess workload (Hart & Staveland, 1988). The following are among the most widely used tools:

- The *National Aeronautics and Space Administration – Task Load Index* (NASA-TLX). This is a multi-dimensional tool for assessing subjective perception of workload. It is regarded as the benchmark tool for subjective measures (Hart & Staveland, 1988; Young, et al., 2008).

- The *Subjective Workload Assessment Technique* (SWAT) evaluates three dimensions (time load, mental effort load and psychological stress load) at three levels (low, medium, high) (Rubio, Diaz, Martin, & Puente, 2004).

- The *Workload Profile* is an instrument that attempts to combine the advantages of secondary task performance-based procedures with subjective techniques. The respondents carry out a set of tasks, which they then rate according to eight workload dimensions (Rubio, et al., 2004).

- The *Borg CR10 Scale* (Borg, 1982) is used to subjectively assess physical workload (DiDomenico & Nussbaum, 2008).

- The *Multivariate Workload Index* is used to measure physiological parameters (heart rate variability, finger plethysmogram amplitude and perspiration) simultaneously with subjective perception (Miyake, 2001).

- Lastly, certain other tools have been designed to assess highly specific types of work. For example, the *Cooper-Harper Scale* (Cooper & Harper, 1969) and the *Bedford Scale* (Roscoe & Ellis, 1990) are used specifically in the aviation field.

In summary, the term *workload* generally refers to the quantity of physical and cognitive work that workers can perform without endangering their own health and safety or that of others, yet still remain efficient (Bouzit, et al., 2002).

Given the constant, fast-paced changes taking place within organizations and their consequences, the issue of workload has once again become a subject of interest for researchers and a source of concern for organizations. However, the traditional approach, which seeks to measure mental workload quantitatively, remains simplistic (Theureau, 2002). While scientific studies investigate the intrinsic facets of workload, they remain fragmented, thus reducing the complexity of the phenomenon. In particular, the concept of mental workload usually refers to a quantity of information to be processed in a given time and overlooks the fact that it is the worker as a whole (not parts) who performs his or her job (Montmollin, 1986). These approaches neglect the context, the cognitive processes involved and the operators' skills in coping with the context (Montmollin, 1986). Moreover, the way in which workload is approached remains ambiguous (Jamet, 2006; Tricot & Chanquoy, 1996); sometimes it is referred to in terms of job demands (working conditions) and at other times, in terms of consequences (impact of the work) (Falzon & Sauvagnac, 2004).

In this context, the traditional concept of workload, which can be broken down into physical and mental components, becomes obsolete, and a broader approach encompassing the complexity of the work activity performed in a dynamic environment is needed. Workload must be approached holistically, i.e. through activity analysis that takes into account the overall activity seen as the result of a combination of factors inherent in the work situation that lead to a cost (psychological and physiological) for the individual. From this perspective, making changes in the workload means making changes in the working conditions (Theureau, 2002). Thus, not only must the individual's overall situation and work activity be taken into account, but also the organizational environment in which he or she works daily.

2.5   Purpose of the study

Workload constitutes a major risk factor for workers' well-being (Champoux & Brun, 2000; Cloutier, et al., 2005; Gauthier & Bourbonnais, 2006) while also affecting organizations' profitability. Researchers and practitioners are often hampered by the limitations associated with the conceptual aspect of this phenomenon. Accordingly, the purpose of this study is to

understand workload through the work activity performed within a dynamic context involving individuals, their occupational activities and their organizational environment. It does not attempt to document work overload or underload, but rather to understand the phenomenon in light of actual work situations. Exploratory in nature, this research project involved a single case study. However, it fits into a broader process aimed at conceptualizing the workload phenomenon holistically and in all its complexity. Many more case studies will be required to achieve that goal. The main objective was broken down into three secondary objectives.

1. To define the components of workload;

2. To identify the factors that have either a direct or an indirect impact on workload;

3. To ensure knowledge transfer to the workplace community[1].

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[1]This last objective is intended to address the requests made by organizations that are expressing a need to understand the phenomenon in order to develop appropriate prevention and intervention tools.

3. REFERENCE FRAMEWORK

To develop the reference framework needed to achieve our objective, we first conducted a survey of the various workload characteristics documented in other studies that focus on the same issue. We then examined the main models that help us to understand and analyze workload.

3.1   Studies on workload

Studies investigating workload from a more holistic perspective have clearly identified a number of determining organizational factors. Several of them underscore the impact on workload of control (Hockey, Robert, & Earle, 2006; Shirom, Melamed, Rogowski, Shapira, & Berliner, 2009; Toulouse, St-Arnaud, Bourbonnais, & Delisle, 2009), social support (Shirom, et al., 2009; Toulouse, et al., 2009), time pressure (Beech-Hawley, et al., 2004) and recognition (Ballet & Kelchtermans, 2009; Toulouse, et al., 2009).

In day-to-day work realities, these organizational factors appear to take different forms and to impact the workload in different ways. Changes in workstation design, particularly in how work is organized, appear to have an impact on workload (Sprigg & Jackson, 2006). The new forms of work organization are leading to an expansion of tasks, which translates into an increased workload, especially given the lack of sufficient resources to perform the tasks (Bartlett, 2004). Moreover, Ballet and Kelchtermans (2009) have observed a growing gap between, on the one hand, the tasks and expectations set by individuals who are outside the work reality and, on the other hand, the skills actually needed to perform the work. This phenomenon is evidenced in, among other things, the reduced impact that workers have on their own job definitions and the increased number of tasks to be performed due to the lack of adequate resources (Ballet & Kelchtermans, 2009). For example, in a private school in Belgium, teachers are required to use a log as a tool supposedly to help them identify solutions to problems they encounter. The quality of the log becomes an informal criterion for qualifying as a good teacher. In fact, the teachers perceive the log as an insignificant administrative tool with no added value that simply intensifies their work. They also see the procedure as devaluing their professional experience and judgment, resulting in a form of "disqualification" of their knowledge (Ballet & Kelchtermans, 2009). This external transformation of work would appear to be causing a devaluation of individuals' expertise and contribution at work (Siegrist, 1996). Their sense of personal satisfaction is therefore being eroded, as they can no longer identify with their work (Ballet & Kelchtermans, 2008; Yves Clot, 2008).

Compounding this phenomenon is the increasingly confirmed disappearance of the boundary between personal life and work life, brought about by allowing individuals to work from home (telework or telecommuting) and at all hours (Legault & Belarbi-Basbous, 2006). This situation has its own impacts on both work life and family life (Ilies, et al., 2007). As a result of this new reality, the workload continues to grow, even in the worker's absence. Organizations also expect a bigger commitment from their employees. They count on their workers accepting the constraints they face as organizations, by imposing quality, time and service demands on them

that are sometimes hard to reconcile (Legault & Belarbi-Basbous, 2006). Subject to constant change, this organizational environment requires a daily reconfiguring of work organization, but also of how this change is managed.

In summary, these studies point to components and factors that are essential to understanding workload. Above all, they show the impact of work organization on day-to-day work realities. They also confirm the need for further investigation of the dynamic context comprised of individuals, their occupational activities and their organizational environment if we are to understand workload as manifested in actual work situations.

3.2   Main theoretical models

Based on the studies surveyed, three models warrant our attention for the purpose of analyzing workload: the demand-control-social support model, the effort-reward model and the activity-analysis model.

3.2.1   Demand-control-social support model

The demand-control-social support model contends that a work situation characterized by high psychological demands and low decision latitude generates consequences for individuals in the form of stress and various physical and psychological health problems (Theorell & Karasek, 1996). The social support concept is another factor in the equation (Johnson & Hall, 1988). The three dimensions of this model can be summarized as follows:

- psychological demand: refers to the intensity, speed and quantity of work, time constraints, interruptions and contradictory requirements;

- decision latitude: depends on both the decision-making autonomy available and the opportunity available to utilize one's existing skills and develop new ones;

- social support at work: refers to the recognition given to their work by the hierarchy and to support from co-workers.

Karasek and Theorell's model (1990) is probably the one that has received the most international attention and been the most frequently assessed, often positively. Criticisms are levelled, however, at the fact that it underestimates the individual factors and that the concept of decision latitude confuses two heterogeneous dimensions (ability to cope with the work environment and personal development). Moreover, as this model was developed using very large population samples for epidemiological purposes, it is difficult to apply in the context of a microanalysis of work situations. That said, given the scientific support for this model, its component dimensions must be taken into account.

3.2.2   Effort-reward model

In keeping with the concept of social support, Siegrist (1996) proposed the idea that an imbalance between efforts and rewards acts as a source of stress at work. Efforts may be extrinsic in origin: they concern time constraints, interruptions, task-related requirements, number of responsibilities and physical restraints. They correspond somewhat to the definition of psychological demands proposed by Karasek and Theorell (1990). Intrinsic efforts are made when workers overcommit themselves to their tasks, reacting as to a challenge, or out of a desire to control or a sense of duty. Rewards may involve, for example, recognition from management or co-workers, or satisfactory remuneration.

According to Siegrist (1996), three symptoms may appear when efforts are high but rewards are low:

- burnout: workers feel they have exhausted their emotional resources;

- dehumanization or withdrawal from relationships: workers detach themselves from the people they are supposed to help, for whom they have developed negative feelings;

- lower sense of personal accomplishment at work: workers evaluate their own job performance negatively, regarding it as a failure.

In light of these studies and models, we can identify a number of constraints in the work situation that appear to have an impact on workload:

- task requirements (physical and cognitive);

- contradictions in the expectations set;

- opportunity available to use one's skills (or devaluing of experience and judgment);

- decision-making autonomy;

- reduction in resources available to carry out the work;

- time constraints;

- frequent interruptions;

- number of responsibilities;

- recognition and rewards;

- social support.

3.2.3   Activity-analysis model

An ergonomics model, in particular, an activity-analysis model, was put forward in an attempt to position the concept of workload from the perspective of the actual work activity. The actual work activity is seen as the context where constraints and resources take concrete form in a given situation (Guérin, Daniellou, Duraffourg, & Rouilleault, 2006). This means that in order to properly understand work constraints, it is essential to analyze the forms they take in daily work.

Work activity is described as being constructed gradually by the worker (who has life experience) in interaction with dynamic situations (Fernande Lamonde, 1992). During this process of gradual construction and depending on both individual and collective actions, the compromises possible and the situations encountered, the work activity thus has impacts on the individuals involved as well as on the work.

Again, to help further understanding of the complex reality of the workload phenomenon, the Guérin et al. proposed an empirical model based on the principle of the actual work activity (Guérin, et al., 2006). This model approaches the concept of workload in terms of three main components: prescribed workload (constraints), actual workload (restraints) and perceived workload (Falzon & Sauvagnac, 2004). This preliminary model provides a framework for reflection and a reference framework for better understanding the workload concept.

The following figure shows the reference model used as the basis for understanding workload. The model portrays workload as the dynamic result of a combination of factors in the work situation that in turn generate psychological and physiological consequences for the individual.

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Figure 1. Workload model

The **prescribed workload** designates the tools to be used to perform the work and their reactions (e.g. breakdown, wear-and-tear), the performances required and the procedures prescribed (Montmollin, 1986). It is regarded as a constraint and corresponds to the organization's demands. These constraints encompass the performance objectives to be reached both quantitatively (e.g. quantity, duration, and scope) and qualitatively (e.g. quality, lateness, and satisfaction), but also the various procedures applicable to a given job. The prescribed workload is not, therefore, definitively spelled out and does not correspond to the task or job description; rather, it evolves over time and is transformed through the daily work dynamics (Falzon & Sauvagnac, 2004), affecting the overall working conditions.

The prescribed workload also includes the means made available to workers to perform their jobs and reach the objectives set. These means refer to the resources (e.g. financial, human, expertise, and time), work tools (e.g. software, equipment, and machines) and management tools (e.g. directives and standards) actually available within the organization to perform the work at hand (Guérin, et al., 2006). Hence, if the necessary resources are not within workers' reach, it is difficult, if not impossible, for them to achieve the expected results (constraint). The means provided are therefore strategic and have an impact on the workload.

The constraints identified in the aforementioned literature include the task requirements (physical and cognitive), contradictions in the expectations set, the opportunities available to use one's skills (or the devaluing of experience and judgment), decision-making autonomy, physical resources and guidance available for carrying out the work, time constraints, frequent interruptions, responsibilities, social support and recognition and rewards.

Resources refers to [unofficial translation] "*the worker's characteristics (as a human being with a given way of cognitive, physiological, social and psychological functioning) and as an individual with experiential knowledge (i.e. experience, training, and age) and a spontaneous condition (i.e. fatigue and biological rhythm)*" (F. Lamonde & Montreuil, 1995). This component refers to the individual's physical and psychological capacity to carry out a specific workload in a given context.

The **actual workload** is considered to be a restraint and is defined in reference to the work activity. [unofficial translation] "*It is determined by the operator's degree of involvement (physical, cognitive and psychological)*" (Falzon & Sauvagnac, 2004). It thus refers to the efforts made by individuals to come as close as possible to attaining the prescribed objectives

(prescribed workload), but takes into account the conditions under which the work is performed, namely, the workers' own resources, the characteristics of the organization and the real means provided to them to attain the objectives (Guérin, et al., 2006). The actual workload includes operating procedures and the compromises and strategies used to overcome work-related and organizational constraints (F. Lamonde & Montreuil, 1995), but also the work that is not carried out, that is on hold or late, or that workers cannot perform to their full capacity due to the constraints and controls in place (Y. Clot, 1999). It takes into account the various events affecting the activity and the judgments made by workers in light of the limitations of and contradictions in the directives given. The actual workload is everything that individuals and groups of workers do to attain their work objectives.

The **perceived workload** is what individuals feel about their own workload in relation to the prescribed workload, their personal resources and those of the organization, and a specific organizational environment that may or may not offer recognition and support. The individuals involved may interpret this experience as being occupationally satisfying or dissatisfying.

Organizational processes are the result of the many contemporary changes (e.g. involving technology or work organization) that take place in succession and profoundly modify the nature of the work and work activity. Many researchers have endeavoured to conceptualize new management models for coping with the challenges arising from social and organizational transformations. They note how important it is for organizations and managers to develop a transformational culture that will enhance capacity and receptiveness to the complexity of these contemporary changes (B. M. Bass, 1999; M. B. Bass, 1985).

Consequences are the result or outcome of an individual's activity at work (restraints), with the person having to adjust to constraints in view of the resources available. Consequences occur at two levels: one, they transform the individual and his or her resources either positively or negatively; and two, they have an impact on the organization and its expectations.

The studies surveyed and models examined clearly show the importance of the organizational factors associated with workload. We also observe that the workload is a dynamic process shaped through an individual's daily activities in interaction with work situations, where the activity is the context in which constraints and resources take concrete form. In this project, we will use the activity-analysis model to try to understand the factors involved in workload.

4. METHOD

A case study was conducted in order to document the actual workload in a specific context. The purpose of the case study was to provide a detailed description of the context in which the work events took place. This research method is particularly apt for investigating practical questions where the stakeholders have considerable experience and where it is essential to know the context of this experience, given how it interacts with the worker (Yin, 1994).

4.1   Population

The research project was carried out in close collaboration with an insurance company in the Quebec City area. This organization was chosen on the basis of certain characteristics: it was a large, structured company committed to a human resources management plan and concerned about the challenges posed by the workload. It was also open to participating actively in the study and supporting the research team in its data collection efforts in the field. In fact, the company management took active part in planning the recruitment, data collection and knowledge transfer procedures. The project spanned a period of nine months, from January to September 2009.

Participants were recruited from among the company personnel. For the purpose of our study, only one job class was involved: 54 customer service representatives. The decision to choose this particular cohort was made in conjunction with the participating company based on the observation that the cohort was not affected by any particularly problematic situation that would risk biasing the results. A total of six workers (four women and two men) participated voluntarily in the various steps of the study. They were recruited at a regular work team meeting where management asked anyone interested in participating to volunteer. From the ten or so volunteers, the research team selected participants by applying variability criteria pertaining to age, sex and years of experience as a customer service representative and with the company. The recruits participated during their regular working hours and were remunerated by the company in accordance with their usual working conditions.

The participants were between 24 and 45 years of age (average = 37 years) and had worked for the company for anywhere from six months to 14 years (average = 10 years). Only one had worked as a customer service representative for less than one year, while the others had been doing so for nearly eight years (average = 7 years).

4.2   Data collection

The customer service representatives' work mainly involved answering customer inquiries by telephone. According to Trognon (1999), conversation constitutes a matrix for the production of social relations and cognitions. The content of the calls represents not only a cognitive but also

an emotional workload (Grosjean & Ribert-Van de Weerdt, 2005). The methods of analysis used must therefore focus on cognitive processes and affective processes (Cahour, Brassac, Vermersch, Bouraoui, Pachoud, & Salembier, 2007). Analysis of the content of conversations provides a better assessment of the workload associated with the conversational process, and makes it possible to identify the strategies used to cope with the different situations encountered (depending on the nature of the request and the customer profile) and to highlight the characteristics of the conversations that could influence the quality of the service provided. However, in our study, it was impossible to perform such analyses due to ethical considerations. Also, the objective set was to evaluate the workload more holistically by taking into account all the activities carried out by the representatives (taking telephone calls, performing clerical tasks), as well as their impacts on the perceived workload. Thus, while the content of the conversations was considered, content analysis as such was not a specific objective of the study.

Different data collection methods and data sources were used to evaluate the various components of the conceptual model proposed by the research team. Taken as a whole, this information will help to develop a systematic understanding of workload. Table 1 shows the four steps involved and the data compiled.

Table 1. Overview of steps carried out, based on proposed model

	Prescribed workload	Resources	Perceived workload	Actual workload	Conse-quences	Organiza-tional processes
Organizational analysis	✓	✓			✓	✓
Direct observation				✓		
Individual interviews		✓	✓		✓	
Group interview		✓	✓		✓	

4.2.1   Organizational analysis

The purpose of the organizational analysis was to document the organizational environment in which the representatives worked daily. It focused mainly on identifying the organizational and technological changes and the mission of the department studied, as well as on analyzing the workforce, skill sets and jobs involved. This information was gleaned from official documents,

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minutes/reports of meetings and other documents available within the organization. Available statistical data on the workload (e.g. number of requests processed) were also collected.

Individual interviews of an executive assistant, a trainer and an information technology resource person were conducted. These three interviews took a total of 3.5 hours. They provided a clearer understanding of the representatives' primary work tool, i.e. the call management system. They were also needed in order to improve our understanding of the company's internal workings and of the actual work activity.

The research protocol provided for the study of organizational data such as absenteeism rates, turnover rates and other data likely to shed light on the representatives' work situation. However, as these data proved to be unavailable, we had to resign ourselves to not conducting our organizational analysis as systematically as planned. However, the data collected (standards, procedures, evaluation methods, etc.) gave us a relatively good grasp of how the work was organized and of its impact on the individuals concerned.

4.2.2   Direct observation of the work activity

The goal of this step was to document the work activity of the customer service representatives in detail. Six representatives were therefore observed during a work day (duration of each observation session = 5.25 to 6.5 hours), each on two occasions, giving a total of nearly 80 hours of observation. During these observation sessions, the methodological principle associated with a multiple case study was followed (Eisenhardt, 1989). The number of participants was determined on the basis of the theoretical saturation principle, i.e. the research team stopped adding new participants when the observations made no longer contributed any new, noteworthy elements to the understanding of the problem.

An initial period of free observation was organized to familiarize us with the representatives' work. One representative was observed three times rather than two, giving a total of 13 days of observation. The same person carried out all the observations, and apart from the free observation day, the same method was used for all the observation sessions. It consisted of documenting the representative's observable behaviours and verbalizations during the work process. To analyze the work activity, the observer recorded notes on the work situations in a notebook and filmed the representative using a portable video camera. The camera was set up on a tripod so that the representative could be filmed during his or her activity process and the observer could view the entire workstation, including the computer monitor. The videotape content facilitated our analysis of the work situations and allowed us to go over the work situations with the representative (auto-confrontation) during an individual interview held subsequently to the observation day. Using a headset, the observer was also able to listen to the telephone conversations without either intervening or recording them. Moreover, in accordance with the ethical rules agreed to, no information was compiled on the customers. The observations, which were non-intrusive and did not interfere with the employees' work, and

every possible effort was made, in accordance with the Research Ethics Committee, to ensure participant confidentiality.

Beginning on the fifth day of observation, the research team started to have a good grasp of the main characteristics of the work activity. The team was able to pre-program the main work actions into the Actogram software. Used with a Palm handheld computer, this software can be used to document the different action sequences performed over time so as to document the hard-to-quantify, more subtle aspects of the work activity. For example, the software data enabled us to calculate the time spent on various activities performed simultaneously. The data compiled in this way was used to develop graphics depicting the actual course of the activity over time. The software program was used for a total of eight days of observation.

4.2.3 Individual interviews

Each observation day was followed by an individual 90-minute interview with the representative observed. Twelve interviews were carried out, for a total of 18 hours. They were conducted using the auto-confrontation method (Theureau & Jeffroy, 1994), enabling us to go back over the activity periods observed and filmed in order to ask the representative involved very specific questions about the situations encountered and actions taken. These interviews provided extremely detailed insight into the work activity of the customer service representatives and their experience during a work day. The interviews were recorded using a tape recorder but were not systematically retranscribed. We opted instead to listen to the sequences associated with each particular situation analyzed.

4.2.4 Group interview

After the observations and individual interviews were completed, we organized a three-hour group interview with the six representative/volunteer participants. This gave the participants a chance to validate the information collected during the previous steps and to comment on the profile obtained from the scientific literature.

4.3 Follow-up committees

At the outset of the project, two follow-up committees were formed to ensure the project was grounded in the workplace community, encourage the collaboration and commitment of the stakeholders concerned by the issue of workload, validate the results, and enhance the reflection process and discussions with a view to transferring the knowledge gained.

First, an internal parity committee comprising six employees of the company studied (one customer service representative, one union representative, one executive assistant, one person responsible for occupational health and safety, and two professional researchers) met on two occasions. Its role was to assist the research team in its reflection process, facilitate the carrying out of the study in the company (mainly in terms of the recruitment of volunteer participants),

validate the process and results, and conduct follow-up in the company with the persons concerned.

In addition, an external follow-up committee (or advisory committee), made up of 10 members representing sector-based associations and employer and union representatives, met three times during the project. This committee was formed to support the research team in all its work, discuss the results and their usefulness to the workplace community, and support the knowledge transfer process through a collaborative initiative. For example, two public lectures on the results of this study were organized and presented by the members of the research team, one of them in connection with a joint sector-based association from the social affairs sector (ASSTSAS) during the CSST's Grand Rendez-Vous event. Not only did this activity provide a forum for results dissemination, but it also promoted assimilation of the results by the Association and prompted feedback to members of the research team.

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5. RESULTS

5.1 Data analysis plan

The model for analyzing the work activity data collected in the actual workload context involved identifying *typical situations* that occur in the customer service representatives' daily work. These situations shared similar characteristics that had an impact on the workload, despite the great variability in the work contexts. For example, one typical situation consisted of having to understand the request made by the customer on the telephone. It required different actions, such as listening to the customer, encouraging the person to talk and asking for specific information.

The typical situations identified were then analyzed. This analysis provided a description of the characteristics of the actual workload in light of the components of the reference model developed (resources, prescribed workload, and actual workload, including aspects of the perceived workload). Again based on the typical situations, some of the strategies used by the representatives to manage certain aspects of their workload were also identified. Strategies are defined as the actions a person takes to adapt to a difficult situation in order to maintain the quality of his or her work. Montmollin (1986) talks about the modification of an activity as an intelligent adaptation made by the operator to avoid poor quality production. Our results were presented in the form of five findings regarding the workload of the customer services representatives:

- information was difficult to find or inconsistent;

- the requests were variable;

- expectations were inconsistent;

- tasks were performed simultaneously;

- minimum daily feedback was received about work.

Based on these five findings, we were able to identify the actual workload restraints. They involved organizational, social, technical or individual factors that are present in the work situations and appear to have an impact on the employees' workload.

The following diagram shows the process used to analyze the workload.

Figure 2. Workload analysis process
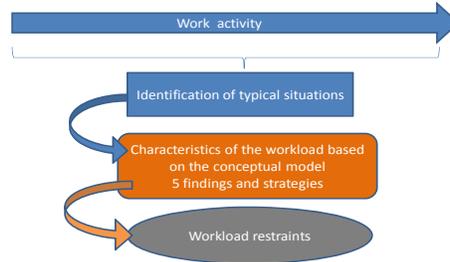
The results of the analysis are presented in four parts. The first presents the characteristics of the organization studied. The second discusses the main characteristics of the work performed by the customer service representatives. This is followed by a description of the five findings regarding the workload and of the strategies and restraints documented. The last part summarizes the strategies observed and the workload restraints.

5.2   Organizational characteristics of the company

5.2.1   Overview of the company

The company studied has nearly 1,300 unionized workers who average 42 years of age. Women make up 71% of the workforce. The department under study has 54 customer service representatives serving group insurance customers. The average age of these representatives is close to that of all the organization's employees, and 82% are women. The company's mission focuses on high-quality accessible services, worker competence and social commitment. Like many companies in the insurance industry, the one under study is proactive in the area of workplace well-being and occupational health and safety.

The customer service department studied has undergone numerous changes in the last seven years, particularly technological changes. These have greatly changed the work, making the information provided more comprehensive but also more complex. It appears that other organizational changes are expected in the short and medium terms.

5.2.2   Performance standards

Performance standards are in place to ensure the productivity of the telephone service and that customers receive answers within a minimum wait time. The calls must therefore average more than 2.5 minutes in length to ensure quality but less than 4 minutes to meet productivity standards. The following company standards were taken into account in the context of this study:

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- number of calls per day: based on the group average on a given day;

- average call length: more than 2.5 minutes but less than 4 minutes;

- request follow-up and clerical tasks: fixed time slot of 30 minutes a day and possibly 30 additional minutes before 8:30 a.m. and after 4:30 p.m.

5.2.3   Quality policies and charter

The organization has policies regarding quality and a quality charter aimed at differentiating the company from its competitors by ensuring superior quality products and services. In terms of customer service, the quality charter is intended to enhance communications (e.g. the information given to customers over the phone) and employees' attitude toward customers.

The quality policies and charter are also intended to standardize internal operations. For example, the representatives must adhere to a five-step communication protocol. When they take a call, they must: 1) understand the customer's request, 2) access the customer's file in the computer system, 3) look for information on the intranet as well as printed documentation to assist the customer, 4) pitch various services offered by the company, and 5) end the conversation by checking that they have answered all the customer's questions.

5.2.4   Client base

The company's client base includes employees of public, parapublic and private enterprises. The customer service representatives therefore have to respond to the customers' requests and sometimes to those of their family members or close friends, but also to requests from other individuals who are in some way connected to the customers. For example, professionals who offer services to insureds (pharmacists, accountants, physicians, etc.) may need to contact the company for various reasons.

5.3   Description of the job of customer service representative

5.3.1   Skills and aptitudes required

No experience is required to work as a customer service representative, but a Quebec *diplôme d'études collégiales* (DEC, or Diploma of College Studies) is officially required. However, the fact that an applicant may have taken insurance-related courses is considered a plus by the company. Consequently, applicants who have a *diplôme d'études secondaires* (DES, or secondary school diploma) and an insurance certificate or courses in administration may also be considered. In addition, an aptitude for customer service and a sound knowledge of both spoken and written French are required. According to the trainers, candidates must also demonstrate a strong ability to adapt and have several interpersonal skills to do the job well. In the words of one trainer, "I would say that perhaps more personal flexibility than skill [is needed]. Are you

flexible enough to handle an angry customer? Can you adjust? You need to be able to interact with the system and to recapitulate and sum up the answers. You have to have a good memory and remain polite at all times."

5.3.2   Training provided by the company

New employees receive three months of theoretical training. During that time, they attend classroom training sessions and listen to telephone conversations. Then for another three months, they do practical training: the new employees carry out the duties of a representative, but are assisted by a trainer or experienced co-worker two hours a day. Evaluation criteria are applied to assess their learning, such as number of errors made and calls handled and how they follow up requests. The training appears to be intensive and difficult. For example, in 2008, only three new employees out of 11 stayed after completing the training: four left of their own accord, while the other four failed to measure up to the company's expectations.

The representatives already on the job may receive training on specific aspects of the work if such needs are identified by the manager. This training may be offered internally or at a recognized educational institution. However, the company offers staff no training to qualify for other jobs in the organization.

5.3.3   Tasks performed

The 54 representatives work in an open area separated into cubicles by dividers. The number of representatives present at any given time varies depending on the number of customer requests and the time of year (e.g. vacation season). The environment can be noisy, depending on the number of representatives working at any given time. In addition, cleaning of the work spaces, which is done after office hours, can sometimes be disruptive for the many representatives who stay at work to finish up calls that have been put on hold or to do request follow-up.

The representatives are unionized and report to an assistant director. Their work consists of doing the research needed to answers questions asked by group insurance customers, by phone and occasionally in person. In fact, the representatives answer an extremely wide range of requests: "We deal with everything, from billing, enrolment, forms, and procedures, to information on the insurance policy. We answer all questions except those about dental care. That's the most intense, complex and comprehensive department. We generally answer from 70 to 90 calls a day." One day a week, certain representatives are also responsible for following up requests received by email. Others have to spend 30 minutes a day answering questions left in their voicemail boxes by customers, in addition to performing their regular tasks. In this particular study, these two types of activities were not documented.

The representatives' main activity is providing customers with proper answers to their questions over the telephone. More specifically, they carry out the following tasks:

- interacting with customers;

- doing research using the computer system or written documentation;

- updating files in the system;

- using internal communication codes to transmit information;

- taking notes (personal reminders);

- doing calculations (e.g. to estimate insurance premiums);

- informing customers of the terms and conditions of the group insurance policies;

- encouraging customers to visit the company's website or helping them to find information there.

Obviously, the representatives must be able to answer any customer questions about company mailings sent out, for example, as part of advertising campaigns or about changes made to insurance policies. They must also be capable of giving clear explanations regarding contradictory information that may appear in the various customer guides or on the company's website.

The representatives' secondary activity involves performing administrative tasks related to customer requests and to requests received from other departments. The representatives must spend a pre-determined 30 minutes a day doing these secondary tasks. Over and above this fixed time slot, they may also spend up to 30 additional minutes following up requests before 8:30 a.m. or after 4:30 p.m. They may therefore perform secondary tasks as much as 60 minutes a day. For example, they may have to follow up on mail received from customers. Or when they cannot answer a question immediately, they may use this time to do more in-depth research and call the customer back to pass on the requested information.

5.3.4 Work schedules

Full-time representatives work 35 hours a week, averaging seven hours a day, Monday to Friday, on a flextime basis. Employees are required to be present at the workplace during a given period but are allowed some flexibility for the remaining work time. To ensure continual phone service from 8:30 a.m. to 4:30 p.m., there are five types of work schedule divided up weekly among the representatives. All workers, except those with a 32-hour work week, have a pre-determined 30 minutes during the day to do request follow-up, with the rest of their time being spent on telephone calls (occasionally, a representative may meet a customer during the work day). All representatives have two breaks, totalling 30 minutes a day, while their lunch break ranges from 30 to 90 minutes, depending on their preferences. By way of example, here are three types of work schedule:

- Schedule A stipulates 5 hours of work between 8:30 a.m. and 3:30 p.m.;

- Schedule B stipulates 5.5 hours of work between 9:00 a.m. and 4:00 p.m.;

- Schedule C stipulates a 32-hour workweek, i.e. 8 hours a day, four days a week. It requires that 6 hours of actual work be carried out between 8:30 a.m. and 4:30 p.m.

Table 2. Example of prescribed Type A work schedule (35 hours/week)

Description	Working hours	Length of work day
Hours of the day when presence required, including 30 min. between 2:30 and 3:00 p.m. spent on request follow-up	8:30 a.m. to 3:30 p.m.	7 h
Lunch break (from 30 to 90 min., as determined by the worker)	11:00 a.m. to 12:30 p.m.	- 90 min
Rest breaks	Variable	- 30 min
Total prescribed work time		**5 h**

Table 3. Example of prescribed Type B work schedule (35 hours/week)

Description	Working hours	Length of work day
Hours of the day when presence required, including 30 min. between 2:30 and 3:00 p.m. spent on request follow-up	9:00 a.m. to 4:00 p.m.	7 h
Lunch break (from 30 to 90 min., as determined by the worker)	11:30 a.m. to 12:30 p.m.	- 60 min
Rest breaks	Variable	- 30 min
Total prescribed work time		**5 h 30 min**

Table 4. Example of prescribed Type C work schedule (32 hours/week)

Description	Working hours	Length of work day
Hours of the day when presence required	8:30 a.m. to 4:30 p.m.	8 h
Lunch break (from 30 to 90 min., as determined by the worker)	11:30 a.m. to 1:00 p.m.	- 90 min
Rest breaks	Variable	- 30 min
Total prescribed work time		**6 h**

Representatives working 35 hours a week (an average of 7 hours a day) have to work the remaining hours outside the time when their presence is officially required. Between 8:30 a.m. and 4:30 p.m., employees on the job must respond to customers (except during the 30-minute period allotted for request follow-up). When they are obliged to do more request follow-up, they must do it either before 8:30 a.m. or after 4:30 p.m. In this case, they can:

- begin earlier (e.g. start their work day at 8:00 a.m.);

- shorten their lunch break (e.g. take only 30 minutes for lunch);

- stay longer at the end of the work day (e.g. leave at 5:00 p.m.).

However, they may not spend more than 60 minutes a day on request follow-up. By imposing this limitation, the company ensures that a maximum amount of time is spent on telephone calls.

Based on schedules A, B, and C, three possible scenarios of the actual work schedule of the customer service representatives are presented below. These scenarios may vary from individual to individual and from day to day. They illustrate the considerable differences that exist between the number of hours worked under the prescribed work schedules and those worked under the actual work schedules. For example, during a day involving difficult calls, a representative may decide to do only the prescribed hours of work and then to do longer work days during the rest of the week. Moreover, the representatives are allowed to accumulate up to 40 hours of overtime a year.

Table 5. Example of actual Type A work schedule (35 hours/week)

Description	Working hours	Length of workday
Required hours, including 30 min. between 2:30 and 3:00 p.m. spent on request follow-up	8:30 a.m. to 4:30 p.m.	8 h
Lunch break (from 30 to 90 min., as determined by the worker)	11:00 a.m. to 11:30 a.m.	- 30 min
Rest breaks	Variable	- 30 min
Total actual work time (telephone calls = 6.5 h; request follow-up = 0.5 h)		**7 h**

Table 6. Example of actual Type B work schedule (35 hours/week)

Description	Working hours	Length of workday
Required hours, including 30 min. between 2:30 and 3:00 p.m. spent on request follow-up	8:30 a.m. to 5:00 p.m.	8 h 30 min
Lunch break (from 30 to 90 min., as determined by the worker)	11:30 a.m. to 12:30 p.m.	- 60 min
Rest breaks	Variable	- 30 min
Total actual work time (telephone calls = 6 h; request follow-up = 1 h)		**7 h**

Table 7. Example of actual Type C work schedule (32 hours/week)

Description	Working hours	Length of workday
Required hours	8:00 a.m. to 5:00 p.m.	9 h
Lunch break (from 30 to 90 min., as determined by the worker)	12:00 p.m. to 12:30 p.m.	- 30 min
Rest breaks	Variable	- 30 min
Total actual work time (telephone calls = 7 h; request follow-up = 1 h)		**8 h**

Lastly, the computer system allows managers to check that the work schedule is complied with. Each representative enters codes into the telephone that allow information to be generated about the time spent on the different activities (telephone calls, request follow-up, rest breaks, lunch, etc.).

5.3.5 Human resources

The executive assistant is a manager who plans, oversees and coordinates the work of a team of customer service representatives, by monitoring the data generated by the computer system. He or she evaluates performances and skills, is responsible for choosing personnel, and interacts with the representatives to ensure the smooth delivery and quality of customer service.

Lead representatives and the trainer are customer service representatives with special status who act as resource persons. When the customer service representatives are unable to answer a question, they must submit a request to a lead representative, who has 48 hours to come back with the required information. The trainer is in contact with the other departments and informs the representatives of any changes in the insurance policies or in documentation that has been mailed out to customers. The trainer communicates this information by email or the intranet.

5.3.6   Work tools

The customer service representatives are required to master several applications in the main computer system, which includes 71 insurance policy scenarios. They must be able to navigate the intranet with ease, including the home page with its nearly 100 links. They are also called upon to use the computerized system linked to pharmacies and other sources of information.

Nearly 100 different codes are used for internal communication purposes. For example, the code "51" posted in a file means that fulfilling the request is pending the receipt of correspondence. Messages may also be added to a customer's file to facilitate request follow-up. The representatives can communicate with the other departments through a lead representative or the trainer. Most of the time, the employees do not communicate directly with each other and have little direct contact with management, as such interaction usually takes place via the information systems.

The representatives also use paper documentation when performing their work, mainly brochures and various marketing materials sent out to the general public or to customers. They have several memory aids, such as a resource directory for assisting customers or lists to help them navigate through the main system and the intranet.

5.4   Findings and restraints pertaining to the actual workload

The findings pertaining to the actual workload were validated with members of the internal parity committee and the external follow-up committee, as well as with the six representatives who took part in the project. These findings can be summarized as follows: 1) information difficult to find/inconsistent, 2) variability of requests, 3) inconsistency in expectations, 4) tasks performed simultaneously (multi-tasking), and 5) minimum daily feedback received about work. Restraints were identified for each finding, and consisted of organizational, social, technical and individuals factors found to have an impact on the representatives' workload.

5.4.1   Information difficult to find/inconsistent

Using the information system accounts for a large part of the representatives' job: they spend 85% of their work time using it, with the rest of their time spent consulting printed matter. The information technologies offer certain advantages. Above all, they allow several pieces of information to be grouped together and thus permit quick searches. For example, thanks to digitization, the system gives access to documents that have been included as attachments, such as letters received from or sent to customers; this simplifies the representatives' job. Flashing messages (e.g. "alerts") inserted into customers' files also make information searches more efficient. Furthermore, the representatives have access to a search engine that enables them to find certain information quickly, although it would appear this tool is not always effective.

Despite the many advantages of using the computer system, there are also disadvantages. For instance, during one observation session, a representative was unable to update a customer's file because it had already been modified that day, and the system was not designed to enter new information in a given file more than once a day. To remedy the situation, the representative had to take notes and then enter the changes in the customer's file in the following days, which entailed additional work operations. At other times, the system is slow or not yet adapted to the variety of requests received. Also, the information available in the system is not always

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sufficiently clear, which causes errors on the part of the representatives when they pass information on to customers.

Another disadvantage noted in the system is the prolific and constantly changing information it contains, which complicates searches. As a result, representatives can unwittingly make errors, or be unable to respond quickly to customer queries. In some cases, they have to do more in-depth research and call the customer back with the answer.

To keep up-to-date on key points, the representatives have to consult several sources of information. They read brochures, consult the intranet, take personal notes and print documents in order to have information on hand when they take calls. It is important for them to keep up, on a regular basis, with the changes that take place. For example, the trainer enters new information in the "Important" section of the intranet. After a certain time, this information is deleted and moved to the "Archives" section. In addition, other pertinent information regarding, for example, a problem situation that generates many requests, is sent by email. The representatives must also be familiar with letters sent to customers and with the company's advertising campaigns so that they can respond appropriately to customers' questions. They tend to help each other by sharing any new information among themselves.

Not only is the information available to the representatives vast, but it can sometimes be contradictory, depending on the sources consulted. As a case in point, during one observation session, a customer complained about having received three different answers to the same question. To counter this problem, the representatives develop strategies for validating their answers, such as consulting more than one source of information. For instance, the information contained in brochures is often lacking in detail and sometimes difficult for customers to interpret. To clarify things for a customer, the representative may read the brochure in question, consult his or her personal notes and do research in the system. Other strategies consist of printing documents that contain specific information or that detail tasks to be performed. The representatives make frequent use of their personal notes to avoid making errors. One of the strategies developed, which is tolerated though not officially permitted by the company, involves social support: the representatives ask for the opinion or help of a co-worker when they feel uncertain; this enables them to provide the customer with an immediate answer. This strategy is all the more effective because a generally positive atmosphere prevails within the department. The customer service representatives also have the option of submitting a request for information to a lead representative, but this procedure leads to additional request follow-up and hence a heavier workload and a longer wait time for the customer.

If the information given differs according to the source consulted, customers will obviously contact the customer service department more often and are more likely to be unhappy when they call. For example, the marketing department had drafted and sent out a document which said *"Pour l'assurance individuelle"* (for individual insurance) when it should have said *"Pour l'assurance aux particuliers"* (for personal insurance). Not understanding what was meant, many customers contacted the customer service department for clarification. This situation generated a significant increase in the number of calls and additional efforts were required to handle several dissatisfied customers. The work of other departments can thus have a direct impact on that of

the customer service department. The tools in place, changing procedures, or the fact of underestimating the importance of properly informing staff of the changes envisaged or implemented may explain some of the inconsistency in the information given.

In summary, these situations can have negative consequences for organizations and individuals alike. For one thing, the abundance of and inconsistency in certain information add to the representatives' workload, which in turn reduces their productivity. Moreover, customers are more likely to be unhappy with the service they receive, and the representatives may feel greater dissatisfaction with their work and performance.

Restraints associated with the work situation can be identified from this description of the actual workload of customer service representatives. The adequacy of the tools available for the activity to be carried out and the variability in the actions required stand out as major factors. Similarly, the frequent changes in procedures and work directives requires the representatives to constantly adjust their actions, which in turn means having to frequently verify the reliability of the information available. In this context, the very nature of the work, i.e. constant interaction with customers, requires additional work.

Moreover, depending on the situations, the characteristics of the work tool (the information system) may affect the representatives' control over how they perform their task, thereby imposing time pressure and requiring multi-tasking. Given the tool's limited efficiency for dealing with the complex situations that arise, the person's experience, skills and qualifications appear to have an impact on the perceived workload. Likewise, the possibility of obtaining help and support from co-workers or a supervisor would appear to have an impact on the workload.

5.4.2   Variability of requests

The work performed by the customer service representatives in our study involves highly variable tasks. When they take a call, the representatives must be able to adjust to each customer's particular characteristics. Obviously the customer's profile and attitude, which are virtually uncontrollable by the representative, have a significant impact on the complexity and duration of the telephone call.

To begin with, the representatives have to interact with a diverse clientele. Sometimes the customers have difficulty expressing themselves clearly in French, or they may have hearing problems. Others have a hard time explaining their requests or providing clear information that would guide the representatives in their research. Depending on the customer profile, it may be easier or harder for the representative to ascertain the nature of the request, and thus to offer fast, quality service.

In addition, the mood of the caller may vary from one person to the next. Customers can be highly emotional due to an illness, the death of a loved one, or simply because they are going through a hard time. Other customers may be angry and express it harshly. Based on our observations, the customers' emotivity appears to have a real impact on the representatives.

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Some representatives even expressed their desire for training that would teach them to manage these types of calls more effectively. One representative said he felt much more exhausted after having worked with a particularly emotional customer, while others said that in the past they had cried after receiving such a call.

These emotionally charged situations are bound to affect the representatives, despite all their best efforts. In terms of the workload, emotivity implies a different work approach and requires the use of additional strategies to reduce its impact. To cope with this great variability in the situations encountered and yet maintain quality service, the representatives develop complex communication skills. These skills enable them to adopt strategies such as encouraging a customer who is facing a difficult situation to express his or her emotions, before addressing the questions raised. When a customer is particularly emotional, the representatives may put the call on hold so they can concentrate on looking for the necessary information. Sometimes they speak with a co-worker after finishing the call, which again shows the importance of having social support. Others take a break after a difficult call, making up the time in the following days, as reflected in the following comment: "I've already had the experience of feeling totally exhausted after a call, and I had to take time out to let go. Or sometimes I go to see my supervisor to say that I need to chill out a bit."

The representatives also respond to a very wide range of requests, obliging them to be very autonomous. Their first task is to thoroughly understand the customer's question, which is not always expressed clearly. They must then be able to find the answer, using the various work tools available. As there are reams of sometimes contradictory information, their work becomes even more complex. If they are unable to answer a customer's question, a lead representative may help them, but only within 48 hours.

Moreover, during any given call, a customer may make different requests. Internal policies require ending calls by asking whether all the caller's questions have been answered. However, this formula is not always optimal as it invites the customer to ask other questions. As one representative commented, "This wording has to be changed so that the customer realizes the question has been covered, without offending him or her." In this context, one strategy for reducing the workload is to avoid asking this question. Given that this strategy reduces the length of the calls, it becomes easier to meet the productivity standards.

In summary, while the representatives appreciate that their work is non-repetitive, the fact that it is highly variable has its own consequences. It means that the representatives must be very adaptable in order to interact with the different types of customer and know how to handle more emotional calls appropriately. Also, they sometimes have to deal with two hard-to-reconcile realities: their mandate to properly respond to a wide variety of requests within a set timeframe and the fact that the work tools are not adapted to the more complex requests.

The complexity of the work, stemming from the relationship that the representative must maintain with the customer, and the underestimation of the scope of certain tasks constitute workload restraints. Along with this underestimation of the tasks involved is a time pressure factor and management's perception that the work activity is a solitary endeavour, where peer

assistance and social support are discouraged. This in turn necessitates often costly compensation strategies for the individual. Other restraints associated with multi-tasking and with the representative's individual characteristics (experience, skills, and qualifications) also emerge from this finding.

5.4.3   Inconsistency in expectations

As mentioned earlier, the company strives to deliver quality and accessible products and services. It insists that each customer be answered within a set time that allows for personalized service but also requires that the average call be between 2.5 and 4 minutes long. Given that approximately 70 calls are answered by each representative every day, the calls average 3.5 minutes in length. Moreover, a little over one-tenth of this time (12%) must be spent on following up requests, which corresponds to a total of 30 minutes a day ($3.5 \times 12\% = 0.42$ min. $\times$ 70 calls = 29.4 min.).

During a telephone call, the representatives must perform various actions (e.g. thoroughly understand the request, look for and find the required information, follow the five-step telephone conversation procedure) to carry out their mandate, while maintaining a professional, respectful attitude at all times. In actual fact, the calls can last longer than anticipated. For example, during the observation sessions, the representatives sometimes had to deal with dissatisfied or unhappy customers. They then had to take anywhere from 30 seconds to five minutes to manage the customer's emotivity before being able to even get a sense of—let alone answer—the request made. On other occasions, they have to deal with customers who are unable to quickly provide the necessary details that would facilitate the representatives' research task. Or again, they may have to take several minutes to properly inform the customer, especially given the abundance of available information, the information's inconsistency and the slowness of the information system. As pointed out earlier, under such circumstances, the representatives tend to ask a co-worker rather than the lead representative for help so that they can give the customer an immediate answer and thus reduce the workload involved in request follow-up.

During the observation sessions, some calls were seen to last between ten and 30 minutes. The longest conversations tended to be about using the company's website. In fact, some customers who are unfamiliar with the site want to know how to find information. Others want to change their user name or password. The following table shows the duration of the longest calls and the nature of the request involved, as noted during the different observation days.

Table 8. Length of call per type of request

Day	Length of call (in min.)	Customer's request
A	15	Internet
B	29	Internet
C	30	Internet
D	22	Internet
E	24	Insurance premiums
F	10	Insurance premiums
G	22	Internet

The representatives constantly face the dilemma of productivity versus quality service. They may find themselves obliged to carry out tasks simultaneously so as to achieve better productivity. The fact that productivity standards exert pressure on the individual is likely to have negative consequences for both the organization and the employees. During the busiest periods, the average call length of 3.5 minutes constitutes an added stress factor for the representatives. "Even the top customer service representative won't meet the standards during peak periods." Not only does this undermine customer satisfaction, but it may also cause the representatives to lose interest in their work, and ultimately to perform more poorly. In fact, taking the time necessary to properly answer their customers' questions remains an important aspect for the representatives, whereas meeting productivity standards sometimes means having to sacrifice quality in terms of the service offered.

The adequacy of the tools and procedures applicable to the work to be performed, control over the work performance, and time pressure stand out clearly among the restraints arising from the work situation. Recognition of the complexity and variability of the work situations, stemming from the nature of the work itself, also represent key factors.

5.4.4   *Tasks performed simultaneously (multi-tasking)*

As the following figure illustrates, the portion of the work day allotted for telephone calls is 72.9%[2], while the time prescribed for request follow-up is 6.7%, or nearly 30 minutes.

Figure 3. Breakdown (in %) of prescribed work time
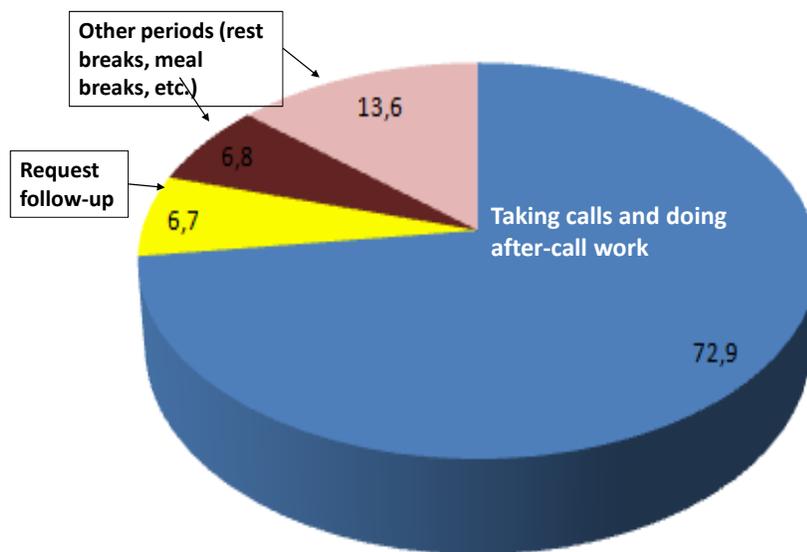
However, this breakdown does not entirely correspond to the employees' actual workload. During a call, the representatives actually have to perform several activities at the same time. For example, they have to interact with the customer while looking for information in the system. During our observation sessions, the time spent on telephone calls corresponded to 72.9% of the time worked during the day. However, the actual time spent on request follow-up corresponded to 33.6%, meaning that the representatives performed activities simultaneously 26.9% of the time. In other words, they answered the telephone while doing follow-up on other customers' requests, or they carried out clerical tasks between two calls. The following figure clearly illustrates this reality. In the course of a day, request follow-up is done during 180 minutes, whereas the company officially allots a maximum of 60 minutes for this task.

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[2]These percentages may vary slightly, depending on the call volume and the representative's work schedule.

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Figure 4. Breakdown (in %) of actual work time
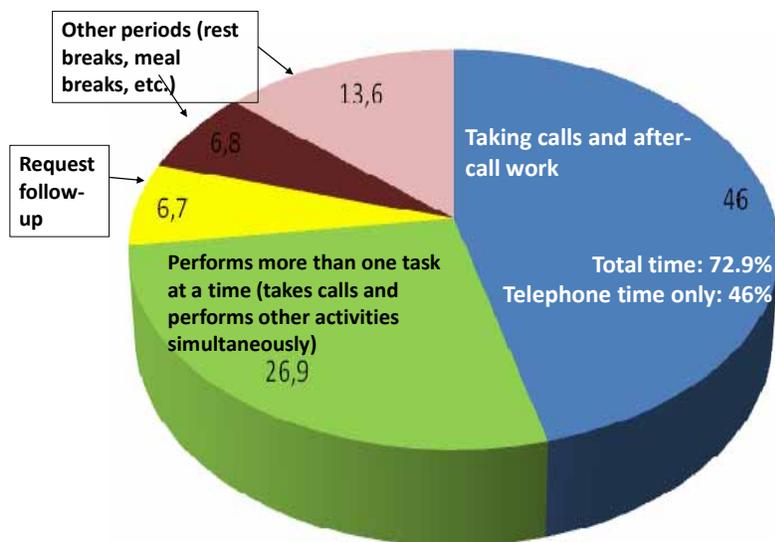
The gap observed between the prescribed workload and the actual workload can probably be explained by the presence of strict time slots for doing request follow-up (a 30-minute prescribed time slot during the day and a maximum of 30 minutes before 8:30 a.m. or after 4:30 p.m.). In reality, this activity requires much more time and energy than that. For example, on days when a representative receives more than 55 calls, the prescribed period for request follow-up is clearly insufficient. The actual amount of time needed to ensure request follow-up varies, depending on the complexity of the request, the research time required and the time limits on internal procedures. During our observations, following up a single file could take as much as 30 minutes. When the representatives take many calls, they have to postpone some follow-up to the next day, thereby creating a backlog of requests that are on hold. Yet, since quality service remains a top priority and the representatives know that the official time available is insufficient to answer all their customers who are waiting for follow-up, they perform tasks between calls. Sometimes they do the follow-up for one customer while answering the questions of another, thus handling two distinct requests simultaneously.

Furthermore, as determined by the possible work schedules, the representatives have to perform administrative tasks between 8:00 and 8:30 a.m. Yet during this period, some activities may be difficult to perform because it is too early to call customers or because a piece of information needed for the follow-up may not yet have reached the representatives. For instance, the material needed to complete request follow-up (such as specific documents having to be mailed to a customer) is not usually available until after 10:00 a.m. and a full 24 hours after the representative has made the request to the department concerned. This situation creates time

pressure that forces the representatives to carry out more than one activity at a time during much of the work day.

Performing activities simultaneously leads to frequent interruptions and therefore shorter work periods. For example, during one observation session, a representative took 9.47 minutes to write a letter; while he was trying to perform this task, he was interrupted 16 times, for periods ranging from 5 to 120 seconds.

For information purposes, the following table shows the average amount of time spent on each work activity performed simultaneously by a representative during a single observation day. We identified, for example, an average of 43 work episodes where the representative was performing a task related to request follow-up while answering a telephone call. The average length of an episode was a little over two minutes, accounting for a total of 1 hour 12 minutes of the representative's day.

Table 9. Average time per work activity

Activity	No. of times per day	Total time spent per day	Average time spent per activity
Request follow-up during a telephone call	43	1 h 12 min	2 min 7 s
Talking/Using the information system	113	2 h 22 min	1 min 26 s
Talking/Taking notes	67	31 min	46 s
Talking/Doing calculations	8	6 min	1 min 15 s
Talking/Looking for information	32	45 min	1 min 41 s

During the busiest periods, notably advertising campaigns, more activities than usual are performed simultaneously and there are more and longer interruptions. As the representatives constantly have to draw on their cognitive resources, they experience greater fatigue, especially when there are several demanding days in a row. However, it seems that the 30 minutes allotted for request follow-up give the representatives some mental rest as they do not have to multi-task then. The representatives who work four days a week appear to feel more fatigued than the

others. They work eight hours a day, which means that they have to deliver telephone service for 7.5 hours and do request follow-up only at the beginning or end of the day. We observed that, compared to the representatives working seven hours a day, they would answer fewer calls and perform more activities simultaneously in order to finish their request follow-up since certain requests had to be answered before 4:30 p.m. As one representative remarked, "Yesterday, I stayed until 5:30 p.m. and still did not have time to deal with all my files. I didn't have time to work on Mr. XX's complex request, or even to read the email message I received about it."

Aware that multi-tasking and the many interruptions this causes can increase the risk of error, the representatives develop various strategies to optimize their work. For example, some of them change the colour of the computer screen window of their main activity to avoid making errors. Another strategy they use is extending the period between calls (*after-call work*: period scheduled for noting information down in customers' files) in order to complete their follow-up of other requests. Lastly, still other representatives print documents in order to reduce the need to switch back and forth between different windows, which tends to increase the number of manipulations, work time and risk of errors.

The underestimation of the scope of certain tasks as well as the time pressure and adequacy of the tools available for performing the required work are among the restraints associated with multi-tasking. Frequent interruptions and work that is put on hold also appear to be aspects inherent to the very nature of the work with customers, aspects which increase the representatives' workload.

5.4.5 Minimum daily feedback received about work

The organization has performance indicators that are made available to the representatives on a daily basis. The system in place tallies the number and average length of the calls taken by each employee during the course of a day. The representatives are obliged to enter a code at the beginning and end of their work day to ensure compilation of the hours worked, as well as other codes documenting the nature of their activities. Depending on their performance, the system automatically generates comments that are formulated in terms of deviations from the standards. These comments constitute the main feedback that the representatives receive about their work. As can be seen from the following table, the representatives may wonder how their performance compares to that of their co-workers, but they receive no specific information about their co-workers' performance. One representative commented as follows: "I would like to have a clearer idea. I mean, is my performance really different from the group's, or am I just one call off?"

Table 10. Examples of comments generated by the system

Activity	Result	Comment generated by the system
Number of calls per day	55	Fewer than average
Average length of call	5 min 20 s	Longer than maximum allowable of 4 min

The computer system used is designed for and sold to different types of call centres. A few changes can be made to it by qualified persons, and the remarks generated comply with the organization's standards. However, the system has limitations in that it measures quantitative data only: it does not take into account the variability or complexity of the work. Also, employee comparisons do not factor in the length of time devoted to telephone service. For example, the performance of representatives who answer calls over a 6.5-hour period is compared with that of their co-workers who perform the same task over 7.5 hours.

The system also has shortcomings in terms of the call data it compiles. Notably, when a representative transfers a call to a co-worker, the transfer is not accounted for at all in the system. Our observations also revealed a discrepancy between the number of calls answered based on the information in the system and the number of calls counted by the research team, a finding that was confirmed by the representatives.

Even though the system underestimates the actual workload, it is still the main tool used to quantitatively evaluate a representative's work. As the manager has little access to more qualitative aspects of the work performed, it is difficult for him to provide feedback other than that generated by the system. Comments on the non-quantitative aspects of the work would appear to come instead from co-workers or customers. The manager is obliged to find other strategies to properly assess the representatives' productivity, as the system is not really capable of providing a clear profile of all the tasks performed. As the manager said, "We aren't really able to evaluate. It's very dicey, because we have no overview."

The management staff devote a major part of their time to managing this system. "The system in place takes up a lot of work time. We spend a lot of time interacting with the system to analyze the representatives' work instead of being on the ground with them." Since the system covers several scenarios, a manager has to look for information in different places. He also spends considerable time correcting the data entered due to computer errors or to representatives having entered the wrong codes. In addition, he generates tables and additional reports every day using the data in the system, a task that takes time as well.

Management is aware that the system used does not portray the workers' actual workload and that it is therefore not an efficient tool for properly evaluating their performance. They would like to have access to a more suitable tool that would better meet the organization's needs, or as

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they put it, "to have reports that would give us more information that could guide us in our evaluations, based on parameters that we set."

Various restraints were identified in connection with this finding. The tools used to give the workers feedback provide only a partial picture of the work reality. Recognition is thus given in negative terms in light of quantitative standards, with no heed paid to the more qualitative aspects of the work. For example, the system treats the time separating two calls as time not worked when in actual fact, these time periods are often spent on request follow-up.

Fortunately, despite their limited knowledge of the reality and complexity of the work, the supervisors weight their different evaluation interventions. In addition, the representatives appear to benefit from positive feedback received from co-workers and customers, which has a favourable impact on their job satisfaction. However, management's perception that the work activity is a solitary endeavour is not conducive to peer assistance and social support.

5.5   Summary of work strategies and workload restraints

In this study of the actual workload of customer service representatives, our activity analysis revealed certain strategies developed by the workers to overcome or reduce the impacts of their workload. Though not exhaustive, the following table presents some of the strategies observed.

Table 11. Examples of strategies used by the representatives

Finding	Examples of strategies used
Information difficult to find/inconsistent	Seeking social support (e.g. confirming information with a co-worker or sharing information with other representatives) Printing documentation Doing more in-depth research
Variability of requests	Seeking social support (e.g. talking with a co-worker after taking a difficult call or doing activities with other representatives during the lunch break) Putting a call on hold to develop a strategy for handling a customer's difficult mood Encouraging a customer whose request is unclear or hard to understand to talk Taking a break or doing a shorter work day

Inconsistency in expectations	Seeking social support (e.g. confirming information with a co-worker) Not asking customers if they have any further questions at the end of the call Multi-tasking
Tasks performed simultaneously (multi-tasking)	Changing the colour of the computer screen for the different windows Extending the time between calls Printing documentation to avoid having to switch between several windows on the computer screen
Minimum daily feedback received about work	Seeking social support (recognition from co-workers and customers)

The activity analysis also revealed restraints associated with the work situation and that appear to have an impact on the workload of the customer service representatives. The following table shows the restraints observed for each finding regarding the actual workload.

Table 12. Activity-related restraints associated with each finding

	Information difficult to find/inconsistent	Variability of requests	Inconsistency in expectations	Tasks performed simultaneously (multi-tasking)	Minimum daily feedback received about work
Actual nature of the work (having contact with customers)	√	√	√	√	√
Time pressure	√	√	√	√	
Simultaneous performance of tasks (multi-tasking)	√	√		√	
Social support/peer assistance	√	√			√

Skills/qualifications/ experience	√	√			
Adequacy of tools for work to be performed	√		√	√	√
Worker control over how work is performed	√		√		
Frequent changes in procedures	√				
Underestimation of the scope of certain tasks		√		√	
Management's perception of the work activity as a solitary endeavour		√			√
Feedback/recognition			√		√
Supervisors' aware-ness of the reality and complexity of the work			√		√
Frequent interruptions				√	
Work put on hold				√	
Performance evaluation (against artificial standards) vs. work reality					√

6. DISCUSSION AND CONCLUSION

Workload has numerous impacts on workers' psychological and physical health and generates major costs for organizations, mainly in terms of absenteeism and staff turnover. Workplaces are increasingly aware of the negative consequences of work intensification and are expressing a need to understand the phenomenon in order to evaluate the workload effectively and develop suitable prevention and intervention tools. Yet currently, the way workload is viewed is influenced by the existing workload assessment measures, which provide only a fragmented assessment while overlooking the impact of and interaction among key factors.

The purpose of this exploratory study was therefore to understand workload through the work activity as seen within a dynamic context involving individuals, their occupational activity and their organizational environment. Given the exploratory nature of the study, it involved a single case study. However, it fits into a broader process aimed at conceptualizing the workload phenomenon holistically and in all its complexity.

6.1   Understanding workload

To help enhance understanding of workload, a reference model with three components was used for this study: prescribed workload (constraints), actual workload (restraints) and perceived workload. The model also takes into account different factors having an impact on the workload: the workers' resources, the consequences of the work activity and the organizational processes. The workers' "resources," which refers to their physical and psychological condition when they are carrying out a certain workload, will influence their perception of the workload. The consequences of the activity transform the individuals and their resources, either positively or negatively, as well as the organization and its expectations. Lastly, organizational processes are the result of contemporary changes (e.g. new technologies and work organization) that considerably change the nature of the work and work activities.

Using this reference model, we carried out a case study involving six customer service representatives. The four-step method (organizational analysis, direct observation of the work activity, individual interviews and a group interview) provided a useful understanding of the daily reality of these representatives. It also offered a holistic view of the workload borne by customer service representatives, contrary to that portrayed by traditional measures. The work activity analysis allowed us to document the dynamic work situations in which the representatives act and manage the restraints encountered, thus enhancing understanding of the impact of and interactions among the various components of the conceptual model.

The following figure adds to the reference model by detailing the different components observed in the workload of customer service representatives.

Figure 5. Detailed workload model

Based on Falzon and Sauvagnac, 2004
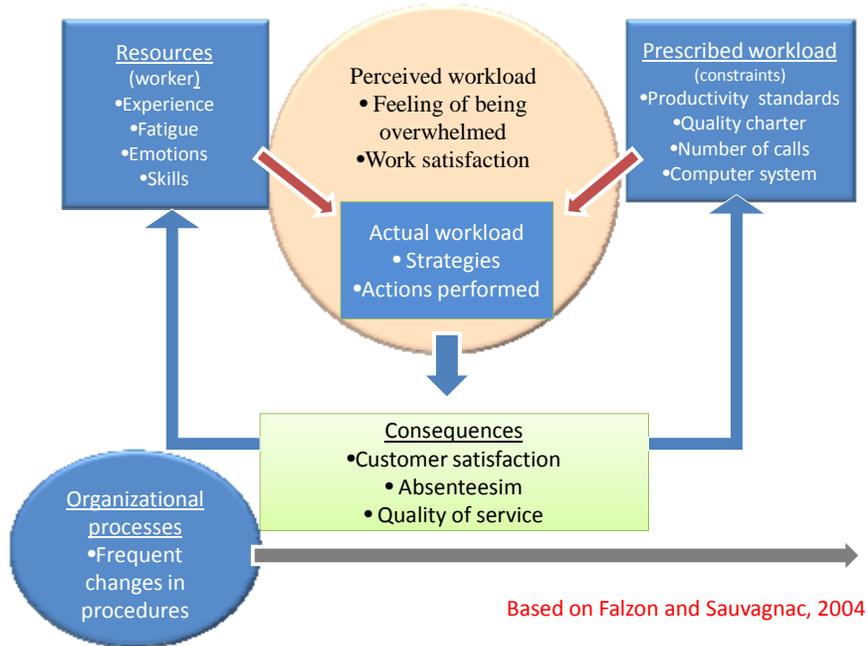
Overall, the concept of workload does not refer solely to the quantity of work, but more importantly to the conditions under which the work is carried out. Certain factors inherent in the way the work is organized thus constitute sources of restraint that require additional actions and coping strategies, which in turn have consequences for both the individuals and their effectiveness at work. These results are consistent with the findings of Montmollin (1986) who, in an activity analysis context, highlighted the complexity of work situations characterized by complex tasks involving a multitude of changing and interacting variables. These situations involve the simultaneous occurrence of often unforeseeable events, which require workers to anticipate and make decisions amidst uncertainty (Montmollin, 1986). In the context of the work activity, it is no longer solely the quantitative production objectives that come into play, but also the resulting conditions and events, which affect the individual's capacity to do an effective, quality job at the lowest cost (physical and psychological).

In summary, using the conceptual model retained, five factors having a significant impact on the workload were identified in the typical situations observed: 1) information difficult to find/inconsistent, 2) variability of requests, 3) inconsistency in expectations, 4) tasks performed simultaneously, and 5) minimum daily feedback received about work. Based on these findings, we were able to document the restraints associated with the actual workload, specifically, the organizational, social, technical and individual factors inherent in the very way the work was organized. We also identified different strategies developed by the workers to cope with certain intense or escalating work situations.

In point of fact, the representatives have to manage their use of the work tools available while offering their customers quality service. Yet these tools and the organizational processes sometimes increase their workload. For example, by virtue of its design, the information system increases the request processing time for the representatives as well as their customers. Using the system also results in demanding administrative tasks for the managers, which in turn diminishes their ability to carry out their other functions.

In addition, the representatives are required to cope with a wide range of situations due to the different types of customers served and the variability of their requests. Their actual work cannot therefore be equated to the number of calls or files handled since the interactional dimension constitutes a not-insignificant aspect of their workload (Bouzit, et al., 2002). The quality and productivity standards set by the organization are also difficult to reconcile. In trying to meet the productivity requirements, the representatives carry out several tasks simultaneously within the same limited time frame (De Coninck & Gollac, 2006), which places an added burden on their cognitive, psychological and physical capacities (Hamon-Cholet & Rougerie, 2000). They are then faced with having to manage frequent work interruptions and with dividing their attention among parallel tasks, all under time pressure.

The representatives' feeling of personal accomplishment at work appears to be closely related to their ability to provide quality service to customers, who express their complete satisfaction in return. However, the productivity standards may jeopardize the quality of service provided. The organizational demands made in terms of quality and productivity as well as the emotional demands stemming from the interactions with customers can also have various negative impacts on the representatives, mainly their psychological well-being (Dantzer 1996; Davezies, 2002, 2003). In the longer term, this situation is also likely to generate costs for the organization related, for example, to absenteeism or staff turnover (Bakker, et al., 2005; Bakker, et al., 2003; Bakker, et al., 2004; Dwyer & Fox, 2006). This type of work context may also lead to a decline in the quality of services and ultimately erode the client base (Du Tertre, 2006; Rousseau & Sarazin, 2006).

The representatives thus have considerable demands placed on them, particularly in terms of the intensity and quantity of work, time constraints, interruptions and organizational requirements. The system used to evaluate their performance significantly underestimates the actual activity involved in their work. The feedback given by the organization does not recognize the scope of the work performed on a daily basis, which could undermine the satisfaction the representatives feel with their job performance.

The representatives often resort to seeking support from their co-workers, a strategy that appears beneficial in that it lessens the effects of certain stressors inherent in their work (Karasek & Theorell, 1990; Siegrist, 1996). In fact, although this practice is not officially tolerated during working hours (e.g. to confirm or find information), the peer assistance that occurs among the representatives appears to enhance their productivity while reducing their workload. Their co-workers' support also would seem to be a beneficial solution that helps them cope personally with difficult work situations (e.g. talking with a co-worker following a difficult call).

While a number of constraints appear warranted from a management or control standpoint, they often take on another colour in the daily reality of the individuals whose job is to offer customer service. The presence of these constraints in the performance of the daily work does not, however, mean that there is either a work overload or underload. Rather it would appear that, depending on the situations encountered and their cumulative impact over time, the individuals concerned find themselves in an inefficient situation that is a source of exhaustion and frustration. It is not so much the presence of these factors that creates a problem, but their cumulative combination in dynamic situations. Through experience and peer assistance, the representatives develop coping strategies in response to these organizational conditions.

6.2   Possible solutions

A number of possible solutions can already be proposed in light of the results obtained in this study, although the data observed will have to be replicated on a broader scale. In particular, the question of taking into account the employees' actual activity in order to provide a form of work organization adapted to the users' reality would appear to be of paramount importance. Two strategies look particularly promising in this regard: 1) improving supervisors' understanding of the representatives' work, and 2) integrating the work reality into the design of the prescribed workload (standards, information system, procedures, etc.).

Despite management's good intentions, the activity analysis brought to light a number of shortcomings at the management level in terms of their understanding of the daily reality of customer service representatives. The increased presence of managers on the floor could certainly help to address this problem. Formal or informal meetings between managers and employees regarding workload could also be held to facilitate dialogue. We believe that the reference model proposed in this paper could serve as an aid to the discussion and dialogue.

The results of the activity analysis clearly highlight the inadequacy of certain standards and procedures, among other things. In a context of frequent and constant changes in the work organization, one possible solution would be to integrate the work and users' reality more effectively into the workstation design. Our study showed, among other things, that the data compiled by the system was not very accurate in terms of reflecting the work reality. For example, the data on time not worked does not take into account all the work done between two calls. The algorithms used must therefore be adjusted to correspond to the work reality. This recommendation does not mean rejecting all standards and procedures, but rather adjusting them so as to reduce the problem situations.

Our results also show that workload is not simply a matter of quantity of work, but of the conditions under which the work is performed. We therefore recommend moving beyond a strictly quantitative or subjective understanding of the phenomenon. We believe that the latter approach allows only the symptoms associated with the workload to be addressed rather than the irritants present in the way the work is organized.

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6.3 Limitations of the study

This study has certain limitations. First, it is based on a single case study and focuses on only one type of job in a single company operating in the insurance sector. While it provides a clear understanding of the characteristics of the workload in this particular context, it fits into a broader process that will involve many more case studies in different sectors and different types of jobs. Thus, other case studies in other situations will be required before its results can be generalized or before attempting to conceptualize the workload phenomenon.

Second, as this study was exploratory in nature, it sought to approach the work activity as a dynamic whole that has an impact on the workload. A more detailed study would have enabled us to analyze certain components of the work at a more granular level. For example, the results of our study highlight the great variety in customer requests. Various other studies on customer service representatives cite different strategies and communication skills that the representatives develop on the job to manage the complexity of the relationship with the customer. Even though the strategies used by the representatives in our study were not one of our study objectives, it would have been interesting to document them further in order to refine our understanding of the actual workload. However, given the ethical constraints and terms and conditions of our agreement with the participating company, it was not possible to record the telephone conversations with the customers. Also, certain data regarding the department under study were unavailable (e.g. absenteeism and staff turnover rates) for the organizational analysis.

Despite its limitations, the study method used was highly effective for gaining a holistic understanding of the workload phenomenon in all its complexity. It confirmed the relevance of conducting further studies of other, more diversified populations. Additional research would pave the way to developing an efficient work tool and interventions designed to target factors that have an impact on the workload, and ultimately generate benefits for workers and organizations alike.

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