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Public Management in Search of Trust, Balance and Performance

This last issue of GMP review addresses the organizational and human issues that are at the center of the management of our French public and para-public services. Two research focuses on hospital organizations, with the issue of work-family life conflict and fulfilment studied by Dème, Dumas and Hikkerova, and the question of interpersonal trust, and its proximity dimensions (geographic, cognitive, institutional, organizational, social) analyzed by Meriade, Rochette and Talbot. In both cases, this work helps managers in better staff management, in a context of stress related to a reduction of resources. But this notion of trust, mobilized in the hospital sector, is also taken up in a different context by Leroux-Sostenes and Abdourazakou, in their analysis of the crowdfunding analysis initiated by the organizing committee of the Paris Olympics in 2024. Here, it is not the inter-individual trust that is analyzed, but it is the excess of trust that is identified as the main factor in the failure of the fundraising. Finally, the work of Luangsay-Catelin and Roybier deals with the case of the IUT of a university, with the attempt to measure the effects of the use of new information technologies on performance.

On a methodological level, we note a great diversity, with in the case of the Paris 2024 Olympics a qualitative analysis on secondary sources of press articles, and with a quantitative in the case of the hospital sector on work-family life conflict and in the case of the introduction of ICT technology of information and communication in an University Institute of Technology. Finally, the analysis of interpersonal trust is carried out again as part of a hospital case, but this time on the basis of semi-directive interviews.

Access to the field as part of this research is therefore very variable. The bias of analyzing the content of press articles to analyze the crowdfunding project for Paris Olympics 2024 is justified by the very nature of the project. The analysis made after the fact, on the lessons of a failure is an interesting contribution which is based on a great distance with the object of the research. It will certainly also be an opportunity for future discussions to test to what extent excess of confidence could actually be the real explanatory factor. It will undoubtedly nourish broader quantitative studies. In the case of the UIT, the researchers worked on their own organization. It is an interesting approach, which deserves to be more often

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developed, in order to generate input to the analysis of public administration management by the reflections of its own participants, teachers-researchers. Finally, it should be noted that the other two research concern hospital organizations, which have agreed to open their doors to the researchers. There is no doubt that the results of the research will help to develop the research in the hospitals by providing useful answers to the leaders of the organizations. The capacity of practitioners to integrate the results of academic research is, however, not fully acquired.

On theoretical and managerial perspectives, article references and uses appear with varying intensity. The crowdfunding analysis aimed at exploring a new field is based on a mainly inductive and empirical approach. Authors focusing their analysis on the impact of the use of information technologies on the performance of the UIT mobilized the theory of stakeholders and theory of resources to explore the management reality of public organizations. Theoretical references on labor-family conflict and enrichment are rich and numerous, whether it is the theory of scarcity and the theory of resource conservation or more broadly the theory of the enrichment associated with the current of positive psychology. Finally, as part of the research on interpersonal trust, the authors solicit well-known theories of agency and transaction costs, but also the regulation theory and more broadly organizational theory. They integrate their work in the school of thought known as organizational and institutional proximity.

All of this research shows that human actions, whether based on financial, educational or human logic, are called upon to rely on concepts and theoretical frameworks. The epistemological question, however, is that of the possible gap between the academic reading of the facts and the reading made by the actors of their management situation: are the theories used to analyze the cases integrated and mobilized by the actors?

The present research shows that the work to be done remains immense. The question of consolidating research and making it more accessible to public decision makers remains a building block for the future. The review GMP tries to contribute to its accessibility. For example, the article on the effect of the adoption of information and communication technologies raises the issue of value creation for an IUT. Surprisingly, this concept is little discussed in

practice, even though it is almost certain that universities have very little information to appreciate their creation of societal value, including environmental value. We hope that such a question will become a more collective and systematic reflection.

This issue reflects the spirit of the moment, a public management looking for trust, balance and performance that other research in the future will explore again.

In their article entitled “**Sources of work-family life conflict and fulfilment among healthcare professionals in the hospital sector**” Samba DÉME, Marc DUMAS and Lubica HIKKEROVA address the question of reconciliation between private and professional life. The quantitative study aims to assess the impact of certain organizational factors such as decision latitude, work demands, time and schedules in the occurrence of work-family conflict and the development of work-family enrichment.

The following article is entitled, “**Interpersonal trust in a hospital context: a proposed analysis of the effects of proximities**”. Laurent MÉRIADE, Corinne ROCHETTE and Damien TALBOT show how the proximities between the actors of a hospital establishment participate in the construction of interpersonal trust in its cognitive and emotional dimensions.

The following article, entitled “**Crowdfunding Paris bid for the 2024 Olympics, overconfidence?**” is proposed by Marie-Josèphe LEROUX-SOSTENES and Yann ABDOURAZAKOU. They analyze the causes of the failure of crowdfunding the project of organizing the Olympic Games in Paris for 2024.

Finally, Carine LUANGSAY-CATELIN and Rajaa ROYBIER-MTANIOS proposed an article entitled “**What’s about performance to University? Role and influence of Information Technology**”. They seek to understand through stakeholder theory and resource-based theory how information technology can influence the performance of a public organization.

Sources of work-family life conflict and fulfilment among healthcare professionals in the hospital sector

Les sources de conflit travail-famille et d'enrichissement chez les professionnels de soins dans le secteur hospitalier

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ABSTRACT

Hospital professionals, particularly healthcare providers, face an increase in their workload and other pressures in the current context of reduced recruitment due to budgetary restrictions. They are often subjected to high work demands and are exposed to a great deal of stress. These difficulties faced by healthcare providers in the workplace, the majority of whom are female, overflow into their private lives, making work-family life balance one of the main issues of quality of life for healthcare providers today. A quantitative study carried out among healthcare providers with family responsibilities (children) in a hospital located in Western France aimed to assess the impact of certain organizational factors such as decision-making flexibility, work demands, and workload and working hours, on the incidence of both work-family life conflict and developing

a fulfilling work and family life balance. The results of this research reveal the role played by work demands in the incidence of work-family life conflict and also in developing a fulfilling work-family life balance. It also highlights a new role for autonomy which, although reducing work-family life conflict, nevertheless does not contribute to the development of a fulfilling work-family life balance, leading us to question the nature of autonomy in healthcare providers. Moreover, the workload and working hours are no longer a factor in reducing the emergence of conflict but rather clearly promote the development of fulfilment between professional and private spheres of life.

Key-words

Work-family life conflict, fulfilment, autonomy, work demands, time

RÉSUMÉ

Les professionnels hospitaliers en particulier les soignants, doivent faire face à une augmentation de l'activité hospitalière et à d'autres pressions dans un contexte de baisse des recrutements consécutive aux restrictions budgétaires. Ils sont

souvent soumis à de fortes exigences de travail et fortement exposés au stress. Ces difficultés, que rencontrent les personnels soignants, majoritairement féminins, au travail, débordent dans la sphère privée faisant aujourd'hui de la conciliation vie privée-vie professionnelle l'un des principaux enjeux de la qualité de vie au travail

des soignants. L'étude quantitative menée auprès de professionnels de soins ayant une charge de famille (enfant à charge) d'un centre hospitalier de l'ouest de la France, vise à évaluer l'impact de certains facteurs organisationnels tels que la latitude décisionnelle, les exigences de travail, le temps et les horaires dans la survenance de conflit travail-famille et le développement de l'enrichissement travail-famille. Les résultats de cette recherche mettent en évidence le rôle que jouent les exigences de travail dans la survenance du conflit travail-famille mais également dans le développement de l'enrichissement travail-famille. Il apparaît également une nouvelle place de

l'autonomie qui prévient certes le conflit famille-travail mais ne contribue pas au développement de l'enrichissement travail-famille et famille-travail, ce qui pose la question de la nature de l'autonomie chez les soignants. Par ailleurs, le temps et les horaires ne préviennent plus le développement du conflit mais favorisent clairement le développement de l'enrichissement entre les sphères professionnelle et familiale.

Mots-clés

Conflit travail-famille, enrichissement, autonomie, exigences de travail, temps

INTRODUCTION

Working conditions, workload (both physical and psychological), pressure and reorganization are all subjects which feed the current debate on human resources management and quality of life in the workplace within healthcare establishments in France.

Several recent works have highlighted a sense of unhappiness among healthcare providers (Estryn-Behar, 2004; Belorgey N., 2010; Brami *et al.*, 2013; Haliday, 2018), which is attributed to both performance requirements induced by the most recent regulations (activity-based payment regulations of 2004, and the "HPST" (French Hospital, Patients, Health and Territories law of 2009) etc., as well as to the specific demands of care work itself. Indeed, healthcare providers are simultaneously valued and devalued (Edey-Gamassou, 2012). This dissonance, experienced daily, has demonstrable consequences on the quality of care provided¹.

Healthcare providers, particularly nurses, are required to be extremely flexible, especially in the hours they work (Michaud and Molière, 2014). These constraints

are recompensed with a reduction in time worked². Staff benefitting from these counterbalancing measures are the very same ones who are often required to work overtime hours, often not recovered with time in lieu. "Approximately 30% of hospital sector employees worked more hours than they were supposed to, every day and each week, in 2013, i.e. less than half the amount in 2003 (70%) or in 2006 (66%). Working overtime was nevertheless still a reality for more than half of nurses and midwives in 2013" (Drees, 2016³, p. 118). Finally, as the Laurent report indicates with regards to working hours in the public sector (2016), "addressing the social demand, by enabling organizations to give their staff more free time, initially came about to the detriment of working conditions, but also to the detriment of the logical organization of hospitals" (p. 29).

Conciliation between private and professional life thus emerges as *the* new issue concerning quality of life among hospital sector professionals. It is more widely a real preoccupation, particularly for employees who are parents. Grodent and Tremblay (2013) identify a link between the emergence of difficulties in conciliating one's professional and familial spheres and, on the one hand, a lack of time reported by the individuals needing to

¹ A report on ordinary maltreatment published by the French Health Authority (*la Haute Autorité de Santé - HAS*) in January 2010 [URL: <http://www.has-sante.fr>].

² As such, decree n°2002-9 dated 4 January 2002, relating to working hours and work organization in public hospital establishments, specifies variable time off for staff working more than 10 Sundays or bank holidays in a year, as well as 2 compensatory days off if they work 20 in the year...

³ Drees (2016) A Portrait of healthcare professionals. Working conditions in hospitals.

balance the two and, on the other hand, transformations in the family composition, labor and work organization.

Several French-language studies have highlighted the difficulties and interaction of work-family/private life balance among nurses in Quebec or in France (Lazzari Dodeler and Tremblay, 2016). As the work is required to be carried out over a 24-hour period, healthcare providers inevitably work atypical hours. “Working part-time hours remains the main choice for adapting work life to family constraints” (Michaux and Molière, 2014, p. 31). Also, the possibility of working 12 hours is relatively popular among nurses as it offers them the opportunity to take extra days off (Michaux and Molière, 2014; Vincent, 2014). Nevertheless, the reality in health organizations is changing due to the increasing necessity to manage restrained human resources, which leads to staff members being called in to replace absent colleagues.

This is the context in which the present authors investigate the sources of work-family life conflict and ensuing work-family life fulfilment, focusing mainly on the working environment of healthcare providers and on three main time variables: time required for work, adapted working hours, and time off and time in lieu.

The aim of the present article is to study, using quantitative methodology, the relationships between work demands on healthcare providers, the margins of autonomy available to them, the three variables pertaining to working hours, and both conflict and fulfilment in work-family life balance in healthcare professionals with children.

This paper first presents the two perspectives of the in-work/outside-work relationship which are not mutually exclusive: conflict and fulfilment. The working conditions of healthcare providers are analyzed using the model proposed by Karasek (1979). This leads us to investigate the effects of work demands and decision-making flexibility on conflict and fulfilment between their professional and private lives. The model is elaborated with the addition of certain time variables which are said to better conciliate work and family life. The methodology and measurement scales employed are then presented, followed by the results, which validate several hypotheses discussed herein. The paper concludes with a contextual perspective of the contributions, limits and avenues for further research of the study.

1. SCOPE OF ANALYSIS AND HYPOTHESES

1.1. *The risk of work-family life conflict among healthcare providers*

The task of defining the notion of ‘conflict of roles’ first raises the concept of an opposition of roles. Indeed, employees hold several roles simultaneously (employee, manager, subordinate, partner, parent, etc.). Each of these roles has its demands. An overload of roles arises when the total demands in terms of time and energy associated with the activities to be undertaken are too great for one person to adequately fulfil their obligations serenely. Various works (Kahn *et al.*, 1964; Greenhaus and Beutell, 1985; Commeiras, Loubès and Fournier, 2009) have studied the tensions which can arise between the roles and refer to the concepts of conflict and ambiguity across roles. Conflict across roles “*results from the simultaneous emergence of two or more incompatible demands in such a way that adapting to one makes it more difficult to adapt to others*”. The ambiguity of the role is relative to the “*degree of information lacking to occupy a position within an organization*”. The “*overload of roles*” occurs when “*the total demands in terms of time and energy associated with the activities to be completed are too high to fulfil one’s obligations adequately and serenely*” (Duxbury and Higgins, 2003).

Conflicts of roles occur on two levels: the ‘professional-personal type’, for which work (hours, trips, professional demands, etc.) interferes with aspects of one’s private life, and the ‘personal-professional type’, for which personal activities interfere with their occupation (Grant-Vallone and Ensher, 2001). The professional-personal type can also manifest work-family life conflict. Generally speaking, the conflict between family life and professional life reflect a “*mutual incompatibility between the demands of the professional and family roles*” (Grant-Vallone and Ensher, 2001). This is a form of conflict of roles in which the demands of family and work spheres are incompatible. As such, involvement in one role affects and makes difficult one’s involvement in the other role. Among all the dimensions of work-family conflict, Greenhaus and Beutell (1985) identified one conflict based on stress and one based on time. The

work of Karasek (1979) on stress highlighted how decision-making flexibility could provide protection against stress in a context of high work demands. Moreover, most research on work-family life interaction shows that work time and hours influence the occurrence of conflict (St-Onge *et al.*, 2002; Seiger C. and Wiese B.S., 2009). There is a plurality of sources of work-family conflict in hospital work. Work rhythm and deadlines have increased for healthcare professionals (PRESST- NEXT survey) (Estry-Béhar *et al.*, 2004). This pressure in terms of work time and rhythm is a fundamental source of work-family life conflict, because the stress generated within the professional sphere can impact one's family life.

1.2. Potential synergies between work and family life

In contrast, some studies have shown that simultaneous management of family and professional responsibilities can create mutual fulfilment of both spheres (Greenhaus and Powell, 2006; Dumas, 2008 b; Kreiner *et al.*, 2009). In other words, an individual's role in one sphere may be advantageous to their role in the other (Dumas, 2008 a). According to Greenhaus and Powell (2006), work-family life fulfilment is *"the measure in which the experiences in one role improve quality of life in the other role"*. St-Onge and Lourel (2012) define *"a paradigm of fulfilment between one's professional and personal lives, which designates the transfer of resources and investment from one role to another"*. This consideration of the aspects which facilitate the interface between work and family life is arguably the most important conceptual innovation to have been developed in the research on the work-family dynamic. Research on conflict has always taken precedence over research on fulfilment, which today constitutes a new dimension for studies on the interaction between work and family life.

In their literature review, St-Onge and Lourel (2012) place the spotlight on pioneering research on fulfilment conducted in the 1970s by Sieber (1974) and Marks (1977). Indeed, they first present Sieber's position, who *"does not deny that the cumulation of roles generates tension, but nevertheless considers that the benefits largely outweigh such tension"*.

The theory that *"cumulating roles creates energy"* proposed by Marks (1977) develops this perspective further. This theory *"does not postulate the intrinsic rarity of resources, but rather their potential expansion through implication"*. It is important to remember that Marks (1977), like Gannon and Nothern (1971) and Kirchmeyer (1992), works in contrast to the scarcity approach theory. According to Kirchmeyer (1992) *"Resources are abundant and increasing"*. So, the interaction between private and public roles is not always conflictual but can instead take the form of mutual fulfilment between the spheres. For Kirchmeyer (1992), *"the fact of spending time in a setting outside of work can increase skills which will be reusable and useful in the professional setting"*. According to Rothbard (2001) *"involvement in a given role generates emotions within that role, emotions which will then have an effect on the other role"*.

The theoretical approach to fulfilment is in-keeping with the teachings of positive psychology (Seligman, 2002; Csikszentmihalyi, 2004a; 2004b) and is based on the assumption of increasing resources. Carlson *et al.* (2006), Greenhaus and Powell (2006) present fulfilment as being a new dimension of work-family life interaction. Fulfilment thus defined assumes the existence of resources acquired upon taking up a role and deployed in the context of another role. Sources of fulfilment seem to find their roots in resources as defined by Hobfoll (1989). The conservation of resources theory proposed by Hobfoll (1989) is based on the idea wherein individuals seek to conserve, protect and reinforce their resources: resources sourced from work, family and within the person him/herself. The potential or real loss of these precious resources presents a threat. Based on the conservation of resources theory, Brotheridge and Lee (2005) explain work-family life fulfilment by supporting the idea that *"this model of fulfilment, which is identical to the social support model, could serve to regulate and protect individuals from the negative consequences of work-family life conflicts"* (p 192). For Greenhaus and Powell (2006), two types of variables, instrumental and emotional, can fulfil the work-family life relationship. Instrumental resources can be organizational in nature, such as flexible working hours, while emotional resources come rather from the family.

1.3. Decision-making flexibility, a potential protector against work-family life conflict in a context of high work demands

Tensions at work are the consequences of high work demands and low decision-making flexibility, according to Karasek (1979). Leplat and Cuny (1984) distinguish two meanings of the concept of workload: the workload as a characteristic of the task, thus the obligations and constraints it imposes on the worker, and the workload as a consequence for the worker of carrying out the task. To avoid any ambiguity on the matter, Leplat and Cuny (1984) suggest the term 'work demands' for the first case, reserving the term 'workload' for the second. Work demands are therefore what weigh on the worker and are sometimes a synonym for the mental or physical effort required to complete a task (Livian *et al.*, 2004). Regarding work demands, the PRESST-NEXT⁴ survey revealed the work of healthcare providers is very strenuous (Estryn-Béhar, 2007). Indeed, the standing position, nursing tasks (washing and bathing, dressing patients and helping them to eat), the unsuitability of the premises to the demands of the job, handling of heavy loads and so on, are the fundamental sources of difficulties at work experienced by healthcare providers, alongside physical hardships are mental difficulties. Indeed, for Manoukian (2009): *"we are fairly sure to be faced with significant psychological demand in most healthcare settings. And the teams work in such a way that the healthcare provider's autonomy is very limited"*. At hospital, physical demands are great: a standing posture, frequent movements, moving and carrying heavy loads, etc. Healthcare providers leaves exhausted from their night shift. All these elements show that healthcare providers experience high work demands.

High work demands are undeniably a source of stress (Karasek, 1979) which can affect the private life of an employee. According to Greenhaus and Beutell (1985), this stress transferred to the family sphere is the manifestation of a work-family

life conflict called "strain-based conflict". Among healthcare professionals, the question of work demands is at the heart of debates around working conditions. Reviewing working conditions in hospitals, Bonmati (1998) identifies general constraints inherent to hospital work: the ongoing nature of care, the multitude of roles (healthcare providers, technicians and logisticians, administrative staff, medical device professionals, etc.) and the difficulties in carrying out work functions (the hardship in dealing with heavy loads, mental and psychological loads, the particularly difficult working hours...). Bonmati (1998) describes the main characteristic of workload in hospitals as *"being variable in time, space, volume, intensity, and in the methods and means used to complete one's tasks and to adapt to the context"*.

The work demands on healthcare providers are inevitably quite varied. The role of healthcare provider is essentially based on the therapeutic relationship (Manoukian, 2009). For example, the position of assistant nurse consists of dispensing bodily care to patients: bathing, clothing, feeding them, etc. (Messing and Elabidi, 2002). According to Manoukian (2009), this therapeutic relationship with the patient is in itself a factor of stress, given the inherent confrontation with death, handicap and suffering (the psychological and emotional dimensions of a healthcare provider's work are underlined by Estryn-Béhar (1997)), notwithstanding situations wherein healthcare providers may be subjected to physical aggression and violence. Furthermore, administrative tasks are becoming an integral part of the work of healthcare providers. This situation means that in hospitals, reactions demonstrating intense fatigue and exhaustion are observed in some staff members, healthcare providers in particular (Barbier, 2004). These overly heavy work constraints can lead to the emergence of a certain kind of suffering. We can therefore observe that work demands among healthcare providers are rather high and the cause of real stress. Such demands contribute to the deterioration of quality of life in the workplace.

⁴ PRESST-NEXT (*Promouvoir en Europe Santé et Satisfaction des Soignants au Travail* – Promoting Health and Satisfaction among Healthcare providers in Europe) is a project financed by the European Commission, investigating the working conditions of healthcare providers (37161 respondents) across ten countries (Germany, Belgium, Finland, France, Italy, The Netherlands, the United Kingdom, Sweden, Norway, Poland and Slovakia).

In light of these studies on the factors of stress which demonstrate the positive and negative effects of work demands on stress, the present authors chose to study these elements as factors which positively or negatively influence work-family conflict and fulfilment, and define the following hypotheses:

- H1a1** Work demands positively influence work-family life conflict.
- H1a2** Work demands positively influence family-work life conflict.
- H1b1** Work demands negatively influence work-family life fulfilment.
- H1b2** Work demands negatively influence family-work life fulfilment.

With regards decision-making flexibility, otherwise called autonomy, this is defined by Stamps and Piedmonte (1986) as being the degree of dependence and freedom associated with the role which is required or authorized in order to carry out daily tasks in the role. Autonomy implies responsibilities in terms of results of work performance, such as increasing efficiency and motivation (Hackman and Oldham, 1976). As Chung (1977) established, autonomy has an effect on the work schedule, speed of work and the process of setting goals, as individuals with autonomy are free to control their speed of work and to determine the work to be done, as well as the assessment process thereof. According to Karasek (1979), decision-making latitude is the degree of autonomy available to the worker. Potential repercussions in terms of fulfilment experienced in completing tasks are also evoked, through the control one has over one's own work, and through participation in decisions and the possibilities to use and develop one's skills. According to Karasek, very low decision-making flexibility and little or no social support are work situations which are experienced as being difficult. Research conducted by Karasek (1979, 1990) showed that the situation wherein the individual has low decision-making flexibility and high work demands is a factor of stress. In other words, employees who are subjected to great psychological pressure and low decision-making flexibility are placed in a situation of "job strain". Indeed, psychological load is associated with completing tasks, and decision-making flexibility (decisional

autonomy) is linked to the use of skills and potential repercussions in terms of fulfilment experienced in completing tasks. In his study, Karasek (1979) demonstrates that stress results from a low degree of autonomy (thus lacking resources, according to Hobfoll (1989)) coexisting with high psychological demand (work demands). According to Barel *et al.* (2009) "*an employee who feels they cannot control their work is more at risk of depression, compromised work performance and/or disengagement from certain work-related tasks. In contrast, a sense of accomplishment or "self-determination", defined as the sense of being able to initiate and regulate one's own actions, is a source of fulfilment*". Among healthcare professionals, the works of Vandenberghe *et al.* (2009) on factors of stress in hospital working environments conducted in nursing units within a university hospital in Belgium, demonstrated how autonomy directly influences absenteeism among nurses who experience very high levels of pressure at work. The survey developed by Karasek (1979) can be used, as it has been by some authors such as Wallace (2005), to determine whether models of stress applied to depression in the literature can also apply to work-family life conflict. This is of great interest in the present study, which is based on the idea whereby work-family conflict, much as stress, is a consequence of a loss of resources, and that fulfilment is a gain of resources.

Focus is therefore placed on the protective role which autonomy may play against stress in a context of difficult working conditions and quality of life in the workplace, and the repercussions on family life. In other words, is autonomy at work a protective factor against conflict, and does it promote fulfilment? The response to this question leads us to formulate the following research hypotheses:

- H2a1** Work demands positively influence work-family life conflict.
- H2a2** Work demands positively influence family-work life conflict.
- H2b1** Work demands negatively influence work-family life fulfilment.
- H2b2** Work demands negatively influence family-work life fulfilment.

1.4. Working time and hours and work-family interaction

The importance of continuity of care and the intense nature of the tasks which constitute the work of healthcare providers, make the question of managing working time in hospitals a central issue. Nowadays, the length of work time and organization of hours in a context of difficulties, suffering and high levels of professional exhaustion are becoming a fundamental issue in the management of hospital staff (Manoukian, 2009). The question of the link between this strenuousness and the long working hours (either planned or overtime) is raised. In a study conducted within seven companies in different sectors (insurance, distribution center, industry, hospital, service provider...), Adkins and Premeaux (2012) identified a positive link between long working hours and work-family life conflict. They confirm the results of Hansez *et al.* (2008) who also found a positive correlation between working time and the emergence of a work-family life conflict. In this light, it is clear from these studies how the notion of length of work time could nurture a sense of work-family life conflict. Moreover, on the question of balancing private and professional lives, the lack of time needed to devote to one sphere has often been linked to stress (St-Amour *et al.*, 2005). This means that having enough time could be a protective factor against the experience of work-family conflict.

This study looks at the question of work time of healthcare providers with regards the potential to correctly carry out their work. Having enough time to complete one's tasks could improve the quality of one's work, quality of life in the workplace and work-private life balance. Furthermore, healthcare professionals often have to work irregular hours. They can be solicited to work at any time of day or night, when other employees have finished their day of work (Chenu, 2002). As such, analyzing the influence of variable daytime working hours on nurses' sleep patterns, Boittiaux and Pottier (1987), found evidence of negative consequences of these working hours on life outside of work. Gadbois (2004) argues that the difficulties reside "*in the existence of social rhythms which suppose that in family and social life, there is time set by for each*

thing: many activities of daily life are socially programmed in fixed timeframes. These social rhythms are regulated according to ordinary normative working hours during the day and evening or night shift workers who sleep during the day are therefore out of kilt. Hours of free time available to them are, to a large extent, at times during the day when many out-of-work activities cannot be practiced or can only be done in unsuitable conditions". This supports the incompatibility described by Greenhaus and Beutell (1985) on the emergence of the work-family conflict. Regarding the results of the PRESST-NEXT survey, Jasseron *et al.* (2006) revealed that the percentage of state-registered nurses intending to leave the healthcare profession was higher in the group of those who had changes made to their working hours or days within short time periods, i.e. changes more than twice per month. In a study on strategies for conciliating variable working hours and family responsibilities, Prévost and Messing (2001) concluded that the respondents experienced stress which was likely associated with working variable hours not of their choosing. "*They particularly reported stress about frequently having to change childcare arrangement according to their changing working hours*". This brings us back, in the context of hospital work, to the nagging issue of planning stable rosters which are communicated to employees sufficiently in advance. As hospitals have high rates of absenteeism, those managing rosters must take this into consideration. This in turn raises the issue of how care organization is perturbed (Brami *et al.*, 2013) when the absence has not been anticipated, where-in the workload, initially distributed according to planning needs, must be redistributed according to human resources available. Randon *et al.* (2011) state that "*these untimely changes to the roster engender frustration from healthcare providers solicited to work to cover the lack of staff, either by coming in on their day off or by accepting to do split shifts*" (shifts which are not continuous, for example, working from 7am until 1pm, then from 4pm until 7pm in one day). Constraints in drawing up a regular roster communicated with adequate notice can be a source of difficulty in balancing work and family life among healthcare providers. Hansez *et al.*, (2008) argues that working on weekends, nights and working compressed hours all cause work-family life conflicts.

Beyond working time and hours management in balancing private and professional lives, taking time off also plays a central role. Several studies have shown the importance of being able to easily take time off to fulfil the demands of family life and avoid the risk of work-family life conflict (Chrétien and Létourneau, 2010; Tremblay 2012; St-Amour and Bourque, 2013). “*The organizational measures for conciliating work and family lives falling in the categories “Time Off” and “Organization of working hours and location” are those which provide the most direct response to time conflicts by giving employees more control over their time management*” (Chrétien and Létourneau, 2010).

Finally, this literature review shows that all difficulties in conciliating work and family life are underpinned by a lack of time. Does having sufficient time to complete one’s tasks and hours which are adapted to one’s personal organization enable people to better conciliate work and family life, therefore reducing conflict and enabling them to develop fulfilment? The following hypotheses are proposed:

- H3a1** Having sufficient work time to complete one’s tasks negatively influences work-family life conflict.
- H3a2** Having sufficient work time to complete one’s tasks negatively influences family-work life conflict.
- H3b1** Having sufficient work time to complete one’s tasks positively influences work-family life fulfilment.
- H3b2** Having sufficient time to complete one’s tasks at work positively influences family-work life fulfilment.
- H4a1** Adapted working hours negatively influence family-work life conflict.
- H4a2** Adapted working hours negatively influence family-work life conflict.
- H4b1** Adapted working hours positively influence work-family life fulfilment.
- H4b2** Adapted working hours positively influence

family-work life fulfilment.

- H5a1** The possibility of taking time in lieu and time off negatively influences work-family life conflict.
- H5a2** The possibility of taking time in lieu and time off negatively influences family-work life conflict.
- H5b1** The possibility of taking time in lieu and time off positively influences work-family life fulfilment.
- H5b2** The possibility of taking time in lieu and time off positively influences family-work life fulfilment.

2. METHODOLOGY, DATA PROCESSING AND RESULTS

2.1. Field of study and survey data collection

The research was undertaken in a regional hospital located in the West of France. The questionnaire was administered in two ways: on paper and online, in order to maximize responses submitted. The online questionnaire was administered via the “limesurvey” platform, which also guarantees the anonymity of respondents (online responses). The URL internet address of the questionnaire was made available to participants in an email sent via the hospital intranet server. A total of 860 paper questionnaires were submitted. The human resources department requested responses from staff. Indeed, the hospital management stated that they hoped for a large database in order to obtain general information relating to working time, hours, support, etc. Consequently, beyond those staff members with children, the questionnaires were also submitted to all staff members. It was therefore necessary later to filter responses in order to retain only those healthcare providers with at least one child). The sample comprises 209 participants (176 women and 33 men) and is quite representative of the population of healthcare providers with children. The average age of participants is 39 years old. 89% are in a couple and the average number of children is 2.17. The average age of the first child is

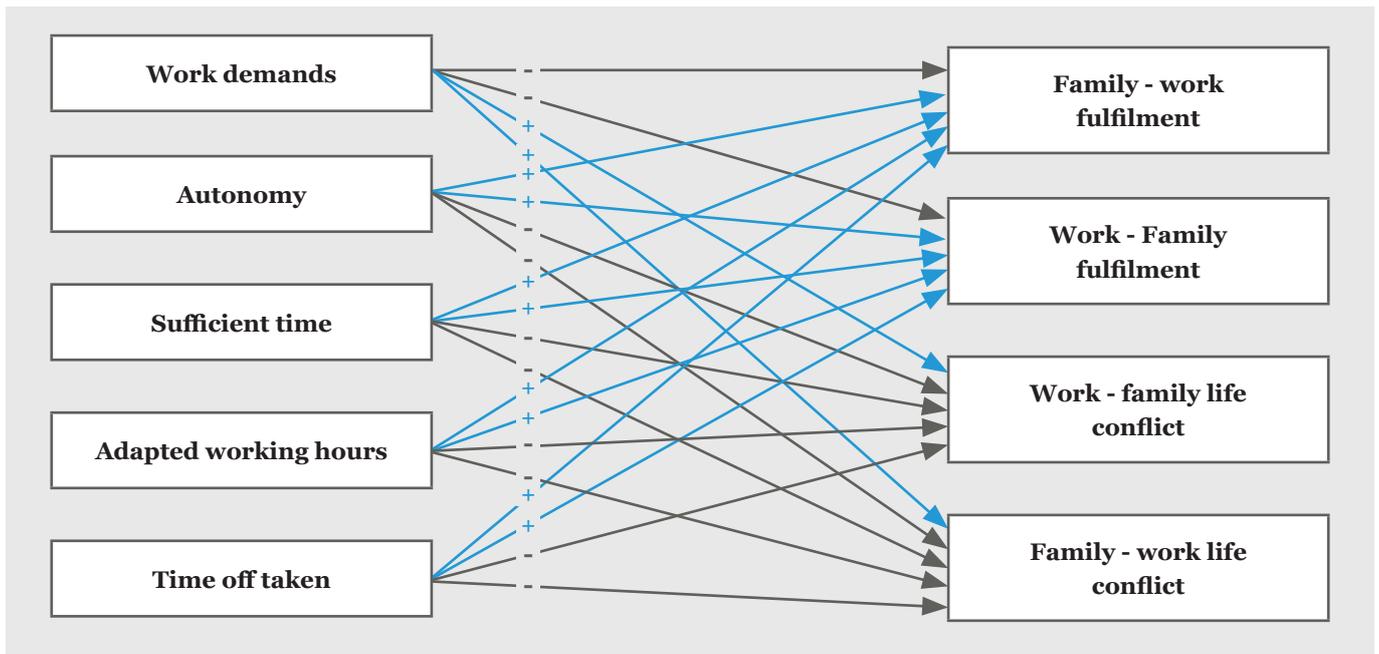


Figure 1 – Representation of the model and relationships between the variables
 — positive link — negative link

11.5 years old, that of the second child is 10.4 years old and the age of the third child is 10.2 years old.

2.2. Exploiting the data

Structural equation model methodology is employed, using AMOS 20 software. SPSS 20 software is used to calculate Cronbach's alpha and conduct the necessary factor analyses (particularly principal component analysis). To validate the goodness of fit of models to the empirical data, several indexes are retained: Chi squared/ddl, NFI (normed fit index), CFI (comparative fit index), TLI (Tucker-Lewis Coefficient), and RMSEA (root mean square error of approximation) (Roussel *et al.*, 2002).

2.2.1. Measurement scales used

Seven measurement scales are used pertaining to work demands, autonomy at work, work time, adapted working hours, possibility for taking time off and in lieu, work-family life conflict and work-family life fulfilment.

The “work demands” scale was developed according to the works of Karasek (1979), Johnson *et al.* (1989) and Karasek and Theorell (1990) and comprises five items:

1. *My work requires a high level of professional skill.*
2. *My work requires me to work fast.*
3. *My work is intense.*
4. *I am required to complete an excessive amount of work.*
5. *My tasks are often interrupted before being completed, meaning I must go back to them later on.*

The “autonomy at work” scale was developed according to the four items cited in the works of Karasek (1979), Johnson *et al.* (1989) and Karasek and Theorell (1990):

1. *My work often allows me to make decisions myself.*
2. *I have the opportunity to develop my skills at work.*
3. *I can influence how my work is carried out.*
4. *In my tasks, I have very little freedom to determine how I carry out my work.*

The “sufficient work time” scale was developed using two items drawn respectively from works by Johnson *et al.* (1989) and Karasek and Theorell (1990), and from the scale proposed by Dupret *et al.* (2012). It was important for the present study to distinguish this time scale from that of working hours adapted to one's personal and family organization.

This time scale aims solely to measure the influence of sufficient time given to an employee on the occurrence of work-family life conflict or fulfilment.

1. *I am provided with enough time to correctly carry out my work..*
2. *I have enough time to do my work.*

The “adapted hours” measurement scale was partly drawn from items identified in pre-test questionnaire responses, and partly from the scale proposed by Biétry and Creusier (2013) on wellbeing in the workplace. It comprises three items:

1. *My hours are adapted to my personal organization.*
2. *My hours are stable and communicated sufficiently in advance.*
3. *My partner’s work time and hours are compatible with mine and our family organization.*

The “possibility for taking time off and time in lieu” measurement scale used was validated by Biétry and Creusier (2013).

1. *I can take time in lieu when I want.*
2. *I can take time off when I want.*

The scales used to measure conflict and fulfilment were developed using items from the SWING (Survey Work-home Interference NijmeGen (SWING)), (Geurts, 2000

and Wagena and Geurts, 2000), adapted into French and validated by Lourel *et al.* (2005). The eight items for work-family life conflict (W-FC) and the four items for family-work conflict (F-WC) are presented. Similarly, the annex summarized the five items for work-family fulfilment (W-FF) and the five items for family-work fulfilment (F-WF).

2.2.2. Internal consistency

As Table 2 demonstrates, the measurement tools used meet academic requirements. All the scales present excellent psychometric qualities after purification of the data undertaken using principle component analysis.

2.2.3. Confirmatory factor analysis of the scales

The results of the PCA of the “work demands” and “autonomy at work” scales respectively reveal a scale of work demands comprising five items and an autonomy at work scale comprising four items. Furthermore, Jöreskog’s rho calculated for the work demands scale was 0.875 and for the autonomy at work scale 0.766. These are excellent coefficients for scales comprising five and four items. The structural equation model (SEM) was applied to the 22 items of the SWING to assess the work-family and family-work interfaces. All the items have a factor loading above 0.726.

FACTORS	Chi ² /ddl	RMSEA	GFI	AGFI	NFI	CFI	TLI
Threshold values	< 5	< 0.08	>0,9	>0,8	> 0.9	> 0.9	> 0.9
Work demands	5,107	0,141	0,950	0,851	0,934	0,846	
Work demands Autonomy at work	1,492	0,049	0,977	0,947	0,973	0,993	0,988
Adapted working hours Sufficient time Taking time off	1,167	0,028	0,983	0,956	0,978	0,997	0,994
Swing scale	1,005	0,005	0,963	0,941	0,964	1	1

Table 2 – Indexes of goodness of fit of confirmatory factor analyses

2.2.4. Verifying the reliability of scales

Reliability of the scales was tested using Cronbach's alpha, the most commonly used indicator for this type of study. Other indicators of validity have also been calculated using confirmatory factor analysis. The results of these analyses enable validity tests to be conducted, particularly characteristic or construct validity tests.

Convergent validity

This was monitored when the models were assessed. The Critical Ratio of each item was verified as being above 2. This was true for each model retained. Furthermore, the approach proposed by Fornell and Larcker (1981) was used to conduct the convergent validity analysis.

Discriminant validity

The discriminant validity of the causal model is verified as long as the variance shared across the constructs is less than that shared between the

constructs and their measurement variables. In the case of a multidimensional scale, the discriminant validity verifies that each construct is distinct from the others. The correlation between the constructs of a single scale must therefore be a value different to 1. The SWING multidimensional scale presents good discriminant validity.

2.3. Results

The choice was made to test the hypotheses using the structural equations method. The model which linked conflict and fulfilment as dependent variables and the four independent variables was tested. The main advantage of this method, compared to the ordinary least squares regression, is that it is not subjected to the two crucial problems of potential endogeneity and multicollinearity between explanatory variables due to the fact that the analysis draws on several blocks of variables (Tenenhaus and Hanafi, 2007).

Dimensions	Number of items retained	Internal consistency (Cronbach's alpha)	Variance explained	KMO Bartlett's test of significance
Work demands	5	0,832	60,33	0,819 0,000
Autonomy at work	4	0,732	78,980	0,500 0,000
Sufficient time	2	0,857	87,594	0,500 0,000
Adapted working hours	3	0,797	68,321	0,685 0,000
Taking time off	2	0,838	86,071	0,500 0,000
Swing	22	0,751	77,425	0,749 0,000
Family-work life fulfilment	5	0,872	80,135	0,680 0,000
Family-work life conflict	4	0,900	83,467	0,728 0,000
Work-family life conflict	8	0,838	75,682	0,710 0,000
Work-family life fulfilment	5	0,752	67,030	0,682 0,000

Table 3 – Characteristics of the measurement scales retained for processing

FACTORS	Chi ² /ddl	RMSEA	GFI	AGFI	NFI	CFI	TLI
Threshold values	< 5	< 0.08	>0,9	>0,8	> 0.9	> 0.9	> 0.9
Values	1,361	0,042	0,886	0,851	0,874	0,962	0,954

Table 4 – Goodness of fit indexes of confirmatory factor analyses

	COEFFICIENT	STANDARD	C.R.	PROBABILITY
FWF ← autonomy	-,416	,137	-3,033	,002
WFF ← autonomy	-,258	,104	-2,484	,013
FWF ← demands	,648	,210	3,094	,002
WFC ← demands	,586	,169	3,456	,000
WFF ← demands	,393	,158	2,485	,013
FWC ← autonomy	-,301	,118	-2,543	,011
WFF ← hours	,229	,097	2,349	,019
FWF ← time	,375	,166	2,258	,024
WFF ← time	,273	,126	2,174	,030

Table 5 – Significant relationships within the model

In the results generated by Amos, there are no negative variance nor standardized coefficients greater than 1, which indicates that minimal conditions are fulfilled. Regarding goodness of fit of the model tested, the Chi²/ddl (1.361) is good (threshold <5). The AIC is 530.826 and the CAIC is 891.240, which is less than the saturated model (2226.159). The RMSEA (0.042) being below 0.080 is excellent. The GFI (0.886) and NFI (0.874) almost reach the thresholds of acceptability. Overall, the present model is acceptable as it demonstrates adequate goodness of fit with the data.

The results demonstrate validation of the hypothesis regarding a positive correlation between work demands and work-family life conflict. One result which is interesting, despite being unexpected, is the positive correlation between work demands and family-work life and work-family life fulfilment, in other words, the higher the work demands

experienced by a person, the more likely they are to be able to mobilize resources from their family sphere to help them in their work.

The most surprising result was that of a negative relationship between autonomy at work and a sense of work-family life and family-work life fulfilment among healthcare providers.

Regarding time variables, the results show that having sufficient time to complete one's work maintains a positive relationship with work-family life fulfilment, and the variable working hours adapted to family organization relates positively to work-family life fulfilment. As such, a healthcare provider who has working hours which are adapted to their personal and family organization will feel that they have a job which enables them to have a better family life. It is observed that taking time off is not related to the dependent variables.

Hypothèses	Intitulé de l'hypothèse	Validée/Infirmée
H1b1	Negative correlation between work demands and work-family life fulfilment	Validated
H1b2	Negative correlation between work demands and family-work life fulfilment	Validated
H1a1	Positive correlation between work demands and work-family life conflict	Validated
H1a2	Positive correlation between work demands and family-work life conflict	<i>Invalidated</i>
H2b1	Positive correlation between autonomy at work and work-family fulfilment	Validated
H2b2	Positive correlation between autonomy at work and family-work fulfilment	Validated
H2a1	Negative correlation between autonomy at work and work-family life conflict	<i>Invalidated</i>
H2a2	Negative correlation between autonomy at work and family-work life conflict	Validated
H3b1	Positive correlation between sufficient time provided at work and work-family life fulfilment	Validated
H3b2	Positive correlation between sufficient time provided at work and family-work life fulfilment	Validated
H3a1	Negative correlation between sufficient time at work and work-family life conflict	<i>Invalidated</i>
H3a2	Negative correlation between sufficient time at work and family-work life conflict	<i>Invalidated</i>
H4b1	Positive correlation between working hours adapted to family organization and work-family life fulfilment	Validated
H4b2	Positive correlation between working hours adapted to family organization and family-work life fulfilment	<i>Invalidated</i>
H4a1	Negative correlation between working hours adapted to family organization and work-family life conflict	<i>Invalidated</i>
H4a2	Negative correlation between working hours adapted to family organization and family-work life conflict	<i>Invalidated</i>
H5b1	Positive correlation between taking time off and work-family life fulfilment	<i>Invalidated</i>
H5b2	Positive correlation between taking time off and family-work life fulfilment	<i>Invalidated</i>
H5a1	Negative correlation between taking time off and work-family life conflict	<i>Invalidated</i>
H5a2	Negative correlation between taking time off and family-work life conflict	<i>Infirmée</i>

Table 6 – Summary of the hypotheses of factors of work-family life and family-work life conflict and fulfilment

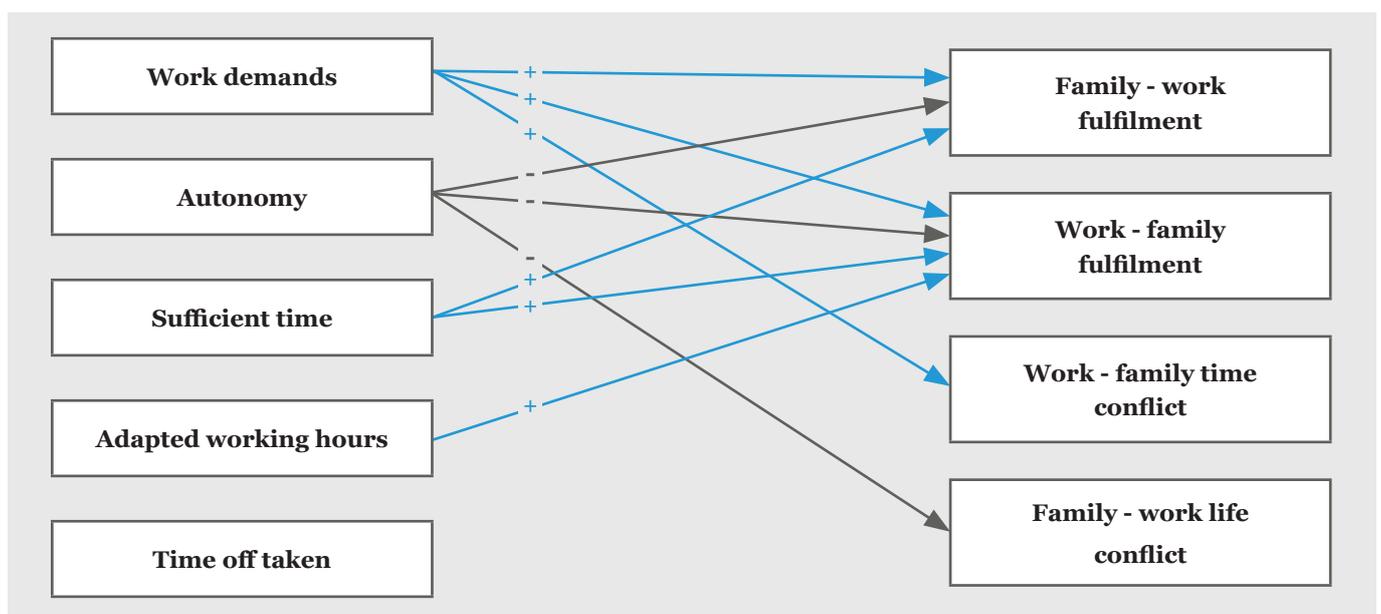


Figure 2 – Representation of the model and significant relationships

— positive link — negative link

3. DISCUSSION OF THE RESULTS AND RECOMMENDATIONS

The results of the quantitative study present a strong positive correlation between work demands and work-family conflict. Karasek (1979) established a link between low autonomy at work combined with high work demands and the occurrence of stress. In the hospital working environment, the increasingly intense nature of work, combined with high demands for quality of care provided, is the current reality. This can tend to increase work-family conflict. N.B. the statements which enable us to measure work demands were related to the existence of an excessive workload, tasks which are interrupted and returned to later, and a pressured working environment. The present results confirm those of Geurts, Rutte and Peeters (1999). In their work aiming to develop and test a model for understanding the work-family life interface among resident doctors, they established that a high volume of work was a precursor of work-family life conflict. In a study carried out among 949 nurses in Ontario, Zeytinoglu *et al.* (2007) found an increase in the intensity of work demands among these healthcare providers was reported after the reform of the health sector in the 1990s in the United States. Zeytinoglu *et al.* (2007) identified that an intensification of work demands brought about the development of increasing amounts of stress among nurses and dissatisfaction at work. In France, the advent of activity-based payment (T2A) brought about an increase in hospital activity. Difficult working conditions are inherent to work demands which are increasingly high in a context of great time pressure. Quality of life in the workplace is deteriorating and the difficulties people experience in conciliating their private and professional lives lead to conflict between these two spheres of their lives. The results confirm those of Ruppanner (2013). Ruppanner, who also used Karasek's (1979) "job demand control" in his research, found that work demands are positively correlated with work-family life conflict.

It is furthermore observed that work demands positively influence work-family life fulfilment in both directions. The busier and even the more difficult the work, the greater the fulfilment. We can assume that, despite high work demands, the inherent commitment

observed in healthcare professions and the relational dimension of the profession contribute to both work-family life and family-work life fulfilment. Studies on the factors of fulfilment highlight the fact that commitment to one sphere (work or family) enables individuals to draw on resources facilitating their commitment to the other (Grzywacz *et al.*, 2007). The results show, at most, that fulfilment can be born from imposed professional factors (work demands). The greater the work demands a person experiences, the more they will draw on family resources to cope with them. If the presence of high work demands manifests as commitment to one's work, then the present results confirm those of Chen and Powell (2012). This is a case of drawing on one sphere in order to be able to cope with another.

Regarding autonomy at work, this does not negatively influence work-family life conflict as supposed, but it is observed that autonomy does negatively influence family-work life conflict. The present authors decided from the offset to formulate the hypothesis that autonomy would negatively influence work-family life conflict, with reference to the study carried out by Wallace (2005) among married legal practitioners working full-time. Wallace concluded that "*the models which apply to depression in the research on stress (Karasek, 1979) can also apply in the study on work-family life conflict*". It was interesting also to verify whether Karasek's model of stress function could provide a better understanding of work-family conflict in hospitals. Greenhaus and Kopelman (1981) and Greenhaus and Parasuraman (1986) found that autonomy, in a context of high work demands, reduced work-family life conflict. The present results cannot confirm the findings of these studies. However, the most surprising result was the negative correlation between autonomy and fulfilment in both directions (work to family and family to work lives).

How can we explain the negative correlation between autonomy and work-family life and family-work life fulfilment? This result admittedly contrasts with the findings of Grzywacz and Butler (2005), who obtained a strong positive correlation between autonomy and work-family life fulfilment. They studied a representative sample of the population of the United States and respondents were not working in public institutions, which could explain the positive correlation between autonomy and fulfilment due to the flexibility to

organize their working hours reported by respondents, giving them time to devote to the family sphere and thus develop fulfilment between the different spheres of their lives. Cooklin *et al.* (2015) also found a positive correlation between autonomy and work-family life fulfilment. They also found a link between autonomy and controlling one's working hours. The sample of this study is entirely comprised of healthcare providers. However, what characterizes the work of healthcare providers is indeed fairly inflexible hours which are ill-adapted to family organization (working days, nights, weekends, bank holidays...). Here autonomy among healthcare providers does not concern flexibility to organize working hours but rather the possibility to take initiatives in their tasks. Indeed, several studies have demonstrated the role of autonomy, which is a dimension of the work of healthcare professionals, without apparently being a factor enabling them to cope with the difficulties inherent to difficult work situations. This is exactly what Loriol (2006) argued, supporting the argument that autonomy is an aspect of the work of healthcare providers and that it does not cause stress. Warchol (2007) argued that nurses' consultations, from a professional point of view, offer a certain degree of autonomy. Indeed, a nurse will take initiatives and decisions regarding their patients and assume responsibility for these. If they have any problems, they readily seek help from others. This practice requires a sound knowledge of both oneself and institutional regulations. It also requires advanced skills in their specialized field. The negative correlation identified between autonomy and forms of work-family life and family-work life fulfilment can be explained with regards the nature of the autonomy, which is not synonymous with deciding one's working hours. Moreover, in their conclusions of the PRESST-NEXT survey Estryn-Béhar *et al.* (2007) showed that despite the fact that healthcare professionals say they are autonomous, they are nevertheless not satisfied with their working conditions. However, empirical results have demonstrated a positive correlation between satisfaction and the perception of work-family life balance (Kilic, 2014).

Regarding working hours adapted to the employee's personal life, the results show that they strongly promote work-family life fulfilment. Anderson *et al.* (2002) argue that flexibility of working hours plays a role in increasing satisfaction at work and contribute to limiting work-family conflict. Those individuals who

benefit from flexible hours manage to better coordinate and balance their family and professional responsibilities compared to those who do not (Casper and Buffardi, 2004) and the results presented by Mauno *et al.* (2015) suggest that working hours correlate with low work-family life conflict and high work-family life fulfilment for all employees. Indeed, working hours adapted to one's family organization contribute to improving working conditions and therefore to the sense of improved work demands. However, the present results show that adapted working hours had no direct effect on work-family conflict (in both directions). Having sufficient time and adapted working hours both account for work-family fulfilment. Most studies in the existing literature pertaining to correlations between time and work-family conflict present time used as promoting conflict. In other words, the more time the individual uses to carry out their work, the more they will develop work-family life conflict, with the lack of time to devote to one of the spheres explaining such conflict (Major *et al.*, 2002). The present research investigates the hypothesis that someone with enough time to carry out their work will experience less work-family life conflict. This hypothesis was not validated. In other words, having sufficient time to complete one's work tasks is not significantly correlated with work-family life conflict.

The results herein partially confirm that work-family life conflict and fulfilment have different precursors (Kinnunen *et al.*, 2004; Greenhaus and Powell, 2006) and all experiences generally should be studied to develop a comprehensive image of the work-family life interface and these precursors across different working hour distributions.

The implications of this research are crucial for the management of hospital workers as the stress generated from work-family life conflict is the prominent factor in intending to leave the healthcare sector (Rhnima *et al.*, 2014). If a hospital wishes to offer quality healthcare, they must carefully consider the wellbeing of their professionals. However, hospitals are already understaffed and have difficulties finding qualified staff, particularly healthcare providers, who are the subject of the present study. They experience high levels of absenteeism, and with many staff members retiring, investing in quality of life in the workplace could be a factor in attracting staff to public hospitals. The results of this research concretely show the

role which the management can play in supporting professionals in terms of organization of work and hours (managing teams, drawing up rosters, managing absences, recognizing and rewarding efforts, etc.).

While many healthcare providers report working overtime (Michaux and Molière, 2014), practices monitoring performance and workload are useful and should be undertaken particularly when implementing reorganizational changes. Not knowing at what time one will be able to go home after work due to overtime, being called in during time off and then having no choice over the day on which this will be recuperated, are all common situations which complicate the balance between personal and professional lives, especially as part-time staff, which is mainly mothers, are most solicited, given that they have more time off, and this creates less disorganization for the roster.

Faced with the various constraints and lacking monitoring regulations, collective regulations are implemented among supportive healthcare providers who share tasks among themselves and help each other (Gonon, 2003). Indeed, to cope with spikes of workload and difficulties, mutual support within these teams is well-developed.

This research is particularly relevant given the importance of prevention of occupational psychosocial risks in hospitals. With the implementation of the framework agreement regarding occupational psychosocial risk prevention in state-run public services (22nd October 2013), a number of diagnostic indicators of occupational psychosocial risks were proposed, alongside traditional indicators including absenteeism due to health reasons, staff turnover, the number of requests submitted to see the occupational health doctor and the number of violent acts carried out on staff. Among the new indicators proposed we can distinguish work demands and intensity as well as emotional demands (Dickason, 2017). Healthcare staff are particularly concerned given that along with their work demands and the intensity of their work, they work atypical hours in a job in which they are under time pressure. Among emotional demands features contact with people in difficulty (physical and psychological) and the number of verbally or physically violent acts perpetrated by people outside of the unit (particularly service users).

CONCLUSION

Public hospitals are currently facing a real problem of degradation of quality of life in the workplace. The present literature review enables us to identify that the population of healthcare providers is one of the most affected by this. The research confirmed that work demands are indeed factors of work-family life conflict. It was furthermore observed that sufficient time, as well as having working hours adapted to one's personal organization, can promote fulfilment in both spheres. This information can help human resources managers in hospitals when making decisions, taking all these factors into account.

Although, in accordance with our hypothesis, work demands positively contribute to work-family life conflict, this autonomy in healthcare professionals contrasts with the conclusions of Karasek (1979) who argued that autonomy can attenuate stress in situations of high work demands. The present study investigates whether autonomy actually amplifies workload. Does being autonomous equate with having more responsibilities and therefore a greater workload? The results of our research show that, among healthcare professionals, autonomy at work does not facilitate work-family fulfilment.

Moreover, these results lead us to question managerial practices in hospitals (Lentile-Yalenios *et al.*, 2016) in terms of both working hours and autonomy at work. However, improving managerial skills among executive staff could make them actors of a policy of support in improving the quality of life in the workplace. Time and rhythm constraints do not always allow staff to take collective measures towards this goal. Haliday (2018) explains that certain managerial practices can turn out to be particularly relevant in the field of healthcare to guarantee good quality of life in the workplace among teams and executives: collective care, participative management, transformational leadership...

The limits of this study lie in the methodology. The sample size is rather small, although it is representative of the healthcare providers in the hospital concerned. It did not seem relevant to include the responses of staff without children, given that the focus of this study was work-family life balance. Despite a

small sample size, all public hospitals operate in the same way, the sample size does not exclude the fact that the results are aligned with the reality of hospitals. Moreover, the diversity of healthcare sectors means that professionals do not have the same work organization, nor even the same relationship with time or working times. We observe that the working day of a nurse is not the same as a healthcare executive or a doctor, for example.

It would be interesting for future research on healthcare professionals to adopt the same methodology as Rousseau *et al.* (2006) in order to investigate the nature of autonomy among healthcare providers at work, which does not seem to impact the hardship experienced at work.

Finally, despite the fact that autonomy at work does not enable them to draw positive resources from their working life into their family lives and vice-versa, the nature of autonomy among healthcare providers should nevertheless be explored. Is it simply autonomy with regards to undertaking one's tasks? In coping with work-family conflict and developing fulfilment, should autonomy in terms of organization of one's professional and personal time be encouraged, despite the fact that we know replacing absences often obliges people to work on planned time off? These are but a few of the many further avenues of research to be considered.

BIBLIOGRAPHY

- ADKINS, C.; PREMEAUX, S. (2012). "Spending time: The impact of hours worked on work-family conflict". *Journal of Vocational Behavior*, Vol. 80, n° 2, pp. 380-389.
- ANDERSON, S.E.; COFFEY, B.S. & BYERLY, R.T. (2002). "Formal organizational initiatives and informal workplace practices: Links to work-family conflict and job-related outcomes". *Journal of Management*, 28(6), pp. 787-810
- BARBIER, D. (2004). "Le syndrome d'épuisement professionnel du soignant". *Presse Médicale*, Vol. 33, n° 6, pp. 394-398.
- BAREL, Y.; FRÉMEAUX, S.; SALLADARRE, F. (2009). "Autonomie du salarié et intention de départ". *La Revue des Sciences de Gestion*, mars, n° 237-238, pp. 27-34.
- BELORGEY, N. (2010). *L'hôpital sous pression: enquête sur le nouveau management public*. Paris: Éditions La Découverte, 330 p.
- BIÉTRY, F.; CREUSIER, J. (2013). "Proposition d'une échelle de mesure positive du bien-être au travail (EPBET)". *Revue de Gestion des Ressources Humaines*, n° 87, pp. 23-41.
- BOITTIAUX, G.; POTTIER, M. (1987). "Influence des horaires alternants de jour sur le sommeil des infirmières". *Le Travail Humain*, Vol. 50, n° 4, pp. 371-378.
- BONMATI, J.-M. (1998). *Les ressources humaines à l'hôpital. Un patrimoine à valoriser*. Berger-Levrault, 325 p.
- BRAMI, L.; DAMART, S.; KLETZ, F. (2013). "Santé au travail et travail en santé. La performance des établissements de santé face à l'absentéisme et au bien-être des personnels soignants". *Management & Avenir*, n° 61, pp. 168-189.
- BROTHERIDGE, C.M.; LEE, R.T. (2005). "Enrichissement et conciliation du lien entre travail et famille". *Comportement organisationnel*, Vol. 2, Bruxelles: De Boeck Université, 366 p.
- CARLSON, D.S.; KACMAR, K.M.; HOLLIDAY WAYNE, J.H.; GRZYWACZ, J.G. (2006). "Measuring the positive side of the work-family interface: Development and validation of a work-family enrichment scale". *Journal of Vocational Behavior*, Vol. 68, n° 1, pp. 131-164.
- CASPER, W.J.; BUFFARDI, L.C. (2004). "Work-life benefits and job pursuit intentions: The role of anticipated organizational support". *Journal of Vocational Behavior*, Vol. 65, n° 3, pp. 391-410.
- CHEN, Z.; POWELL, G.N. (2012). "No pain, no gain? a resource-based model of work-to-family enrichment and conflict". *Journal of Vocational Behavior*, Vol. 81, n° 1, pp. 89-98.
- CHENU, A. (2002). "Les horaires et l'organisation du temps de travail". *Économie et Statistique*, n° 352-353, pp. 151-167.
- CHRÉTIEN, L.; LÉTOURNEAU, I. (2010). "La conciliation travail-famille: au-delà des mesures à Offrir, une culture à mettre en place". *Gestion*, Vol. 35, n° 3, pp. 53-61.
- CHUNG, K.H. (1977). *Motivation theory and practices*. Columbus, Ohio. Grid, Inc., 324 p.
- COMMEIRAS, N.; LOUBÈS, A.; FOURNIER, C. (2009). "Les effets des tensions de rôle sur l'implication au travail: une étude auprès des managers de rayon". *Management international*, vol. 13, n° 4, pp. 73-89.
- COOKLIN, A.R.; GIALLO, R.; STRAZDINS, L.; MARTIN, A.; LEACH, L.S.; NICHOLSON, J.M. (2015). "What matters for working fathers? Job characteristics, work-family conflict and enrichment, and fathers' postpartum mental health in an Australian cohort". *Social Science & Medicine*, 146, pp. 214-222.
- CSIKSZENTMIHALYI, M. (2004a). "Stalking a New World Order". *New Literary History*, Vol. 35, n° 2, pp. 339-348.
- CSIKSZENTMIHALYI, M. (2004b). "What we must accomplish in the coming decades". *Zygon*, Vol. 39, n° 2, pp. 359-366
- DICKASON, R. (2017). "Le travail émotionnel des professionnels de santé: caractérisation et leviers d'action organisationnels". Thèse de l'Université de Rennes 1, le 13 décembre 2017.
- Direction de la recherche, des études, de l'évaluation et des statistiques (DREES) (2009). "L'organisation du travail à l'hôpital: évolutions récentes". *Études et résultats*, n° 709.
- DUMAS, M. (2008a). *Vie personnelle et vie professionnelle, vers un nouvel équilibre dans l'entreprise?* Paris: Édition EMS Management & société, 176 p.
- DUMAS, M. (2008b). "Conflit et enrichissement travail-famille et implication". *Revue de Gestion des Ressources Humaines*, n° 67, janvier-février-mars, pp. 23-37.
- DUPRET, E.; BOCÉRÉAN, C.; TEHERANI M.; FELTRIN, M. (2012). "Le COPSOQ: un nouveau questionnaire français d'évaluation des risques psychosociaux". *Santé Publique*, 3 - Vol. 24, pp. 189-207.
- DUXBURY, L.; HIGGINS, C. (2003). *Le conflit entre le travail et la vie personnelle au Canada durant le nouveau millénaire: État de la question*. Santé Canada.

- EDEY-GAMASSOU, C. (2012). "Le travail des professionnels de la relation d'aide: jongler avec des gratifications et des souffrances". *Gestion*, vol. 37, n° 2.
- ESTRYN-BÉHAR, M. (1997). *Stress et souffrance des soignants à l'hôpital. Reconnaissance, analyse et prévention*. Paris: Éditions ESTEM, 245 p.
- ESTRYN-BÉHAR, M.; BEN-BRIK, E.; LE NÉZET, O.; AFFRE, A.; ARBIEU, P.; BEDEL, M.; BONNET, N.; DERRIENIC, F.; FAYET, C.; GADIER, G.; LORIOL, M.; SALBREUX, R.; CAILLARD, J.-F.; le comité de suivi de l'étude PRESST-NEXT (2004). "La situation des soignants des établissements publics et privés en France en 2002. Analyse des résultats de la première partie de l'étude PRESST-NEXT". *Arch. mal. Prof.*, 65, n° 5, pp. 413-437.
- ESTRYN-BÉHAR, M.; DUVILLE, N.; MENINI, M.-L.; CAMERINO, D.; LE FOLL, S.; LE NÉZET, O.; BOCHER, R.; VAN DER HEIJDEN, B.; CONWAY, P.M.; HASSELHORN, H.-M.; Next-Study group (2007). "Facteurs liés aux épisodes violents dans les soins". Résultats de l'enquête européenne PRESST-NEXT. *Presse Médicale*, Vol. 36, n° 1, pp. 21-35.
- FORNELL, C.; LARCKER, D.F. (1981). "Structural equation models with unobservable variables and measurement error: Algebra and statistics". *Journal of Marketing Research*, Vol. 18, n° 3, pp. 382-388.
- GADBOIS, C. (2004). "Les discordances psychosociales des horaires postés: question en suspens". *Le travail humain*, Vol. 67, n° 1, pp. 63-85.
- GANNON, M.; NOTHERN, J. (1971). "A comparison of short-term and long-term part-time employees". *Personnel Psychology*, Vol. 24, n° 4, pp. 687-696.
- GEURTS, S.; RUTTE, C.; PEETERS, M. (1999). "Antecedents and consequences of work-home interference among medical residents". *Social Science and Medicine*, 48, pp. 1135-1148.
- GEURTS, S.A.E. (2000). *SWING: Survey Work-Home Interaction-Nijmegen (Internal Research Report)*. University of Nijmegen, Nijmegen, the Netherlands.
- GONON, O. (2003). "Des régulations en lien avec l'âge, la santé et les caractéristiques du travail: le cas des infirmières d'un centre hospitalier français". *PISTES*, vol. 5, n° 1.
- GRANT-VALLONE, E.J.; ENSHER E.A. (2001). "An examination of work and personal life conflict, organizational support, and employee health among international expatriates". *International Journal of Intercultural Relations*, 25, pp. 261-278.
- GREENHAUS, J.H.; KOPELMAN, R.E. (1981). "Conflict between work and nonwork roles: Implications for the career planning process". *Human Resource Planning*, Vol. 4, n° 1, pp. 1-10.
- GREENHAUS, J.H.; BEUTELL, N.J. (1985). "Sources of Conflict between Work and Family Roles". *Academy of Management Review*, Vol. 10, n° 1, pp. 76-88.
- GREENHAUS, J.H.; PARASURAMAN, S. (1986). "Vocational and organizational behavior, 1985: A review". *Journal of Vocational Behavior*, Vol. 29, n° 2, pp. 115-176.
- GREENHAUS, J.H.; POWELL, G.N. (2006). "When work and family are allies: a theory of work-family enrichment". *Academy of Management Review*, 31, pp. 72-92.
- GRODENT, F.; TREMBLAY D.-G. (2013). "La conciliation vie privée-vie professionnelle des gestionnaires hommes-femmes: le cas d'une société de transport québécoise". @ *GRH*, n° 6, pp. 117-147.
- GRZYWACZ, J.G.; BUTLER, A.B. (2005). "The Impact of job characteristics on work-to-family facilitation: testing a theory and distinguishing a construct". *Journal of Occupational Health Psychology*, Vol. 10, n° 2, pp. 97-109.
- GRZYWACZ, J.G.; CARLSON, S.D.; KACMAR, M.K.; WAYNE, J.H. (2007). "A multi-level perspective on the synergies between work and family". *Journal of Occupational and Organizational Psychology*, Vol. 80, n° 4, pp. 559-574.
- HACKMAN, J.R.; ODHAM, G.R. (1976). "Motivation through the design of work: test of a theory". *Organizational Behavior and Human Performance*, 16, pp. 250-279.
- HALIDAY, H. (2018). "Le management en santé au service de la qualité de vie au travail des professionnels". *Éthique et Santé*, Vol 15, n° 2, juin, pp. 118-124
- HANSEZ, I.; ÉTIENNE, A.-M.; BREUER, L. (2008). "Temps de travail et horaires atypiques: impact sur le conflit travail-famille et le bien-être". In "Analyse du travail, technologie et psychologie de la consommation", Actes du 14^e Congrès de Psychologie du Travail et des Organisations de Langue Française.
- HOBFOLL, S.E. (1989). "Conservation of resources: a new attempt at conceptualizing stress". *American Psychologist*, Vol. 44, n° 3, pp. 513-524.
- IENTILE-YALENIOS, J.; THIVANT, E.; ROGER, A. (2016). "Le Nouveau Management Public conduit-il à un rapprochement public-privé? Une analyse à partir des procédures d'évaluation du personnel". *Gestion et management Public*, vol. 4, n° 4, pp. 121-137.
- JASSERON, C.; ESTRYN-BÉHAR, M.; LE NEZET, O.; RAHHALI, I. (2006). "Les facteurs liés à l'abandon prématuré de la profession soignante. Confirmation de leur impact à un an d'intervalle analyse longitudinale des

soignants de l'enquête PRESST/NEXT". *Recherche en soins infirmiers*, n° 85, pp. 46-64.

JOHNSON, J.V.; HALL, E.M.; THEORELL, T. (1989). "Combined effects of job strain and social isolation on cardiovascular disease morbidity and mortality in a random sample of the Swedish male working population". *Scandinavian journal of work, environment and health*, vol. 15, pp. 271-279.

KAHN, R.; WOLFE, D.; QUINN, R.; SNOEK, J.; ROSENTBAL, R. (1964). *Organizational stress: Studies in role conflict and ambiguity*. New York: Wiley, 470 p.

KARASEK, R.A. (1979). "Job demands, job decision latitude and mental strain: implications for job redesign". *Administrative Science Quarterly*, Vol. 24, n° 2, pp. 285-308.

KARASEK, R.A.; THEORELL, T. (1990). *Healthy work: stress, productivity, and the reconstruction of working life*. New York, NY: Basic Books, 267 p.

KILIC, S. (2014). "Perception de l'équilibre travail-hors-travail et Satisfaction au travail". *Management & Avenir*, n° 69, pp. 89-105.

KINNUNEN, U.; GEURTS, S.; MAUNO, S. (2004). "Work-to-family conflict and its relationship with satisfaction and well-being: A one-year longitudinal study on gender difference". *Work & Stress*, January-March, Vol. 18, n° 1, pp. 2-22.

KIRCHMEYER, C. (1992). "Nonwork participation and work attitudes: A test of scarcity vs. expansion models of personal resources". *Human Relations*, Vol. 45, n° 8, pp. 775-795.

KREINER, G.E.; HOLLENSBE, E.C; SHEEP, M.L. (2009). "Balancing borders and bridges: negotiating the work-home interface via boundary work tactics". *Academy of Management Journal*, Vol. 52, No. 4, pp. 704-730.

LAZZARI DODELER, N.; TREMBLAY D.-G. (2016). "La conciliation emploi-famille/vie personnelle chez les infirmières en France et au Québec: une entrée par le groupe professionnel". *Revue Interventions Économiques*, 54.

LEFLOC'H, N.; CLARISSE, R.; TESTU, F.; KINDELBERGER, C. (2005). "La conciliation des rôles professionnels et parentaux, un facteur de stress professionnel: construction et première validation d'une échelle de mesure". *Revue européenne de psychologie appliquée*, 55, pp. 9-20.

LEPLAT, J.; CUNY, X. (1984). *Introduction à la psychologie du travail*. Paris: Ed. PUF, 240 p.

LETONTURIER, P. (2004). "Le syndrome d'épuisement professionnel du soignant, une nouvelle maladie professionnelle". *Presse Médicale*, Vol. 33, n° 6, pp. 39-399.

LIVIAN, Y.; BARET, C.H.; FALCOZ, C.H. (2004). "La gestion de la charge de travail dans les activités de services". *Revue française de Gestion*, vol. 3, n° 150, pp. 87-103.

LORIOU, M. (2006). "Autonomie, reconnaissance et stress". *Projet*, n° 291.

LOUREL, M.; GANA, K.; WAWRZYNIAK, S. (2005). "L'interface "vie privée-vie au travail": adaptation et validation française de l'échelle SWING (survey work-home interaction Nijmegen)". *Psychologie du travail et des organisations*, 11, pp. 227-239.

MAJOR, V.S.; KLEIN, K.J.; EHRHART, M.G. (2002). "Work time, work interference with family, and psychological distress". *Journal of Applied Psychology*, Vol. 87, n° 3, pp. 427-436.

MANOUKIAN, A. (2009). *La souffrance au travail: Les soignants face au burn-out*. Paris: Éditions Lamarre, 209 p.

MARKS, S.R. (1977). "Multiple roles and role strain some notes on human energy, time and commitment". *American Sociological Review*, Vol. 42, n° 6, pp. 921-936.

MAUNO, S.; DE CUYPER, N.; KINNUNEN, U.; RUOKOLAINEN, M.; RANTANEN, J.; MÄKIKANGAS, A. (2015). "The prospective effects of work-family conflict and enrichment on job exhaustion and turnover intentions: comparing long-term temporary vs. permanent workers across three waves". *Work & Stress*, Vol. 29, n° 1, pp. 75-94.

MESSING, K.; ELABIDI, D. (2002). "Aides-soignants et Aides-soignantes: la collaboration dans les tâches physiques lourdes", *Cahiers du Genre*, n° 32.

PRÉVOST, J.; MESSING, K. (2001). "Stratégies de conciliation d'un horaire de travail variable avec des responsabilités familiales". *Le travail humain*, 64, pp. 119-143.

RANDON, S.; BARET, C.; PRIOUL, C. (2011). "La prévention de l'absentéisme du personnel soignant en gériatrie: du savoir académique à l'action managériale". *Management & Avenir*, n° 49, pp. 133-149.

RHNIMA, A.; WILS, T.; POUSA, C.; FRIGON, M. (2014). "Conflits travail-famille et intention de quitter dans le domaine de la santé". *Relations Industrielles / Industrial Relations*, Vol. 69, n° 3, pp. 477-500.

MICHAUX, J.; OLIÈRE, E. (2014). "Étude qualitative sur le thème de l'emploi du temps des infirmières et infirmiers du secteur hospitalier". In Direction de la recherche, des études, de l'évaluation et des statistiques (DREES), *Série Études et recherches*, n° 132, 34 p.

ROTHBARD, N.P. (2001). "Enriching or depleting. The dynamics of engagement in work and family roles".

- Administrative Science Quarterly*, Vol. 46, n° 4, pp. 655-684.
- ROUSSEAU, V.; AUBÉ, C.; MORIN, E.M. (2006). "Le contrôle en milieu de travail et la détresse psychologique: le rôle de l'autonomie au travail et du lieu de contrôle". *Revue multidisciplinaire sur l'emploi, le syndicalisme et le travail*, Vol. 2, n° 1, pp. 18-37.
- ROUSSEL, P.; DURRIEU, F.; CAMPOY, E.; EL AKREMI, A. (2002). *Méthodes d'équations structurelles: Recherches et applications en gestion*. Paris: Economica: Paris, 274 p.
- RUPPANNER, L. (2013). "Conflict Between Work and Family: An Investigation of Four Policy Measures". *Social Indicators Research*, Vol. 110, n° 1, pp. 327-347.
- SELIGMAN, M.E.P. (2002). *Authentic Happiness: Using the New Positive Psychology to Realize Your Potential for Lasting Fulfillment*. New York: Free Press, 336 p.
- SIBÉ, M. (2012). "Hôpital magnétique": d'une mesure de l'attractivité des personnels infirmiers vers un modèle de performance des établissements de santé?". In Actes du xx-iii^e Congrès de l'AGRH (pp. 1948-1961), Les interfaces de la GRH, Nancy.
- SIEBER, S.D. (1974). "Toward a theory of role accumulation". *American Sociological Review*, Vol. 39, n° 4, pp. 567-578.
- SEIGER, C.; WIESE, B.S. (2009). "Social support from work and family domains as an antecedent". *Journal of Vocational Behavior*, Vol. 75, n° 1, pp. 26-37.
- ST-AMOUR, N.; BOURQUE, M. (2013). *Conciliation travail-famille et santé: Le Québec peut-il s'inspirer des politiques gouvernementales mises en place dans d'autres pays? – Avis scientifique*. Québec: Gouvernement du Québec, Institut national de santé publique du Québec.
- ST-AMOUR, N.; LAVERDURE, J.; DEVAULT, A.; MANSEAU, S. (2005). *La difficulté de concilier travail-famille: ses impacts sur la santé physique et mentale des familles québécoises*. Institut National de santé publique, Québec.
- STAMPS, P.L.; PIEDMONTE, E.B. (1986). *Nurses and Work Satisfaction: An Index for Measurement*. Ann Arbor, Michigan: Health Administration Press Perspectives, 125 p.
- ST-ONGE, S.; RENAUD, S.; GUÉRIN, G.; CAUSSIGNAC, E. (2002). "Vérification d'un modèle structurel à l'égard du conflit travail-famille". *Relations industrielles / Industrial Relations*, vol. 57, n° 3, pp. 491-516.
- ST-ONGE, S.; LOUREL, M. (2012). "Du conflit à l'enrichissement travail-famille: résultats et perspectives de recherche". *Psychologie du Travail et des Organisations*. Vol. 18, n° 2, pp. 100-103.
- TENENHAUS, M.; HANAFI, M. (2007). "A bridge between PLS path modelling and multi-block data analysis". In ESPOSITO VINZI, V.; HENSELER, J.; CHIN, W.; WANG, H. (eds). *Handbook of Partial Least Squares (PLS): Concepts, methods and applications*, Volume II in the series of the Handbooks of Computational Statistics.
- TREMBLAY, D.-G. (2012). *Conciliation emploi-famille et temps sociaux*. (3^e édition) Québec: Presses de l'Université du Québec. 406 p.
- VANDENBERGHE, C.; STORDEUR, S.; D'HOORE, W. (2009). "Une analyse des effets de la latitude de décision, de l'épuisement émotionnel et de la satisfaction au travail sur l'absentéisme au sein des unités de soins infirmiers". *Le travail humain*, vol. 72, n° 3, pp. 209-228.
- VINCENT, F. (2014). "Travailler pour son "temps de repos": usages et réappropriations du dispositif public du travail "en 12h" à l'hôpital public". *Trajectoires professionnelles et dispositifs publics en action*, Colloque international 12-13 juin, 17 p.
- WAGENA, E.; GEURTS, S.A.E. (2000). "SWING. Development and validation of the "Survey work home Interaction-Nijmegen". *Gedrag an Gezondheid*, 28, pp. 138-158 [SWING. Ontwikkeling en validering van de "Survey Werk-thuis Interferentie-Nijmegen"]].
- WALLACE, J.E. (2005). "Job Stress, Depression and Work-to-Family Conflict. A Test of the Strain and Buffer Hypotheses". *Relations industrielles / Industrial Relations*, Vol. 60, n° 3, pp. 510-539.
- WARCHOL, N. (2007). "La consultation infirmière: un pas vers l'autonomie professionnelle". *A.R.S.I. Recherche en soins infirmiers*, 4, n° 91, pp. 76-96.
- ZEYTINOGLU, I.U.; DENTON, M., DAVIES, S.; BAUMANN, A.; BLYTHE, J.; BOOS, L. (2007). "Associations between Work Intensification, Stress and Job Satisfaction: The Case of Nurses in Ontario". *Relations industrielles / Industrial Relations*, vol. 62, n° 2, pp. 201-225.

APPENDIX

Scale of work-family and family-work conflicts

- W-FC1** I am irritable at home because my job is demanding.
- W-FC2** I have difficulty fulfilling my family obligations because I am always thinking about my work.
- W-FC3** I have had to cancel outings with my partner/family/friends due to work commitments.
- W-FC4** I have difficulty fulfilling my family obligations because of my work timetable.
- W-FC5** I don't have enough energy to do leisure activities with my partner/family/friends because of my work.
- W-FC6** I have to work so hard that I don't have any time left for my hobbies.
- W-FC7** I have difficulty relaxing at home because of my professional obligations.
- W-FC8** My work takes up time which I would have liked to spend with my partner/family/friends.
- F-WC1** My family situation makes me so irritable that I transfer my frustration onto colleagues.
- F-WC2** I have difficulty concentrating on my work because I am preoccupied with family problems.
- F-WC3** The problems I have with my partner/family/friends negatively affect my performance at work.
- F-WC4** I don't want to work because of problems I am experiencing with my partner/family/friends.

Scale of work-family life and family-work life fulfilment

- W-FF1** After a pleasant day or week at work, I feel more like doing leisure activities with my partner/family/friends.
- W-FF2** I find it easier to fulfil my family obligations thanks to what I have learned at work.
- W-FF3** I find it easier to fulfil my commitments at home because my work also places importance on respecting commitments.
- W-FF4** I find it easier to efficiently manage my time at home thanks to the way in which I work.
- W-FF5** My relationships with my partner/family/friends are improved thanks to the skills I have acquired at work.
- F-WF1** After having spent an agreeable weekend with my partner/family/friends, I appreciate my work better.
- F-WF2** I take my responsibilities more seriously at work because I have to do the same at home.
- F-WF3** I find it easier to fulfil my commitments in my work because I have to do the same at home.
- F-WF4** I find it easier to fulfil my commitments in my work because I have to do the same at home.
- F-WF5** I have more confidence in myself because my family life is well organized.

Interpersonal trust in a hospital context: a proposed analysis of the effects of proximities

*La confiance interpersonnelle en milieu hospitalier :
une proposition de lecture par la Proximité*

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ABSTRACT

Interpersonal trust is defined as a social resource that facilitates cooperation by enabling better coordination of interaction. The "Proximity school" shows that the closer the players are on a spatial, cognitive, social, organizational or institutional dimension, the greater the likelihood that they forge a strong relationship. Through the case study of a French cancer diagnosis, treatment and research center - Centre de Lutte Contre le Cancer (CLCC)- our research objec-

tive is to analyse how the proximities between actors in a public hospital are involved in the construction of interpersonal trust. The notion of trust is characterized by its cognitive and affective dimensions according to a grid of proximity. We show how proximity affects trust in these two dimensions.

Key-words

Trust, proximity, public hospital, case study, interpersonal

RÉSUMÉ

La confiance interpersonnelle est définie comme une ressource sociale qui facilite la coopération en permettant une meilleure coordination des interactions entre des acteurs. L'École de la Proximité montre que plus ces acteurs sont proches sur un plan spatial, cognitif, social, organisationnel ou institutionnel, plus la probabilité qu'ils nouent une relation est forte. À partir de l'étude du cas d'un Centre de Lutte contre de le Cancer (CLCC), notre objectif de

recherche vise à analyser en quoi les proximités entre les acteurs d'un établissement hospitalier participent à la construction de la confiance interpersonnelle. La confiance est ainsi caractérisée dans ses dimensions cognitive et affective à partir de la grille de la proximité. Nous montrons quels sont les effets des proximités sur la confiance dans ses deux dimensions.

Mots-clés

Confiance, proximités, hôpital, public, interpersonnel

INTRODUCTION

Trust, a basic fact of life in society that brings people together, is a solution to the specific problems posed by risk (Luhman, 2001) and helps to reduce social complexity (Luhmann, 2006). By making it possible to go beyond approaches centred solely on the rational calculation of the actors, the notion of trust makes it possible to take another look at the coordination between economic agents (Morgan and Hunt, 1996). For economists and managers, it is first seen as an interpersonal phenomenon established between members of an organization (Lewicki and Bunker, 1995b; Ramonjavelo *et al.*, 2006; Rajaobelina, 2011) and forms the foundation of organizational relationships (Granovetter, 1985). Interpersonal trust is a social resource that facilitates cooperation by enabling better coordination of interaction (Mayer *et al.*, 1995; Mac Allister, 1995).

To study the construction of interpersonal trust, a lot of work has focused on studying the effect of diverse environmental variables, most often taken in isolation. Some authors have studied the effects of culture, power, social norms or economic factors on trust (Lewicki *et al.* 1998; Lorenz, 1992; Granovetter, 1985; Khlif and Zéghal, 2002). Others have proposed a more integrated approach by developing the notion of “climate”: they speak of a climate of trust (Donada and Nogatchewsky, 2007), a working climate (Clot, 2016), an ethical climate (Chouaib and Zaddem, 2012), and, more broadly, an organizational climate (Wimbush and Shepard, 1994; Savoie and Brunet, 2000) without specifying their respective contents. While it seems certain that the environment acts on trust, a more integrated analytical framework still needs to be built in order to understand its mechanisms. This work aims to fill this gap by seeking to characterize the nature of the climate of trust and its effects on the construction of interpersonal trust.

For this, we propose to mobilize the work of the “Proximity school”. This School studies the conditions for the emergence, the maintenance and even the destruction of economic relations (Bellet *et al.*, 1993; Torre and Gilly, 2000; Pecqueur and Zimmermann, 2004; Boschma, 2005; Torre and Rallet, 2005; Knoblen and Oerlemans, 2006; Rychen and Zimmermann, 2008; Carrincazeaux, Grossetti

and Talbot, 2008; Balland *et al.*, 2015). It shows that the closer the actors are, the deeper the relationship they will develop (Cassi and Plunket, 2014). In general, this approach has been used to address inter-individual relationships (Grossetti, 2008) and, in particular, how interpersonal trust is built in organizations (Dupuy and Torre, 2004). More specifically, work on the spatiality of organizations (Dale and Burrell, 2008; Taylor and Spicer, 2007) suggests that, taken in isolation, geographic space (the “empty space” according to Lefebvre, 1974) cannot guarantee the exchange of knowledge and information. Space must also be understood as the product of social practices (Dale, 2005; Torre and Rallet, 2005).

The social characteristics of space in the diversity of non-spatial forms of proximity have been established through the literature (Bellet *et al.*, 1993; Torre and Gilly, 2000; Broekel and Boschma, 2012; Hansen, 2014), and now identified in management science work (Amin and Cohendet, 2004; Grillitsch and Nilsson, 2015; Knoblen and Oerlemans, 2006; 2012; Wilson *et al.*, 2008). These forms of proximity naturally weave the bonds of interpersonal trust constituting a grid of analysis that deserves to be explored. We propose to apply this approach to the case of a French cancer diagnosis, treatment and research center - “Centre de Lutte Contre le Cancer”- (now CLCC). The hospital governance is characterized by, at the least, a tripartite relationship (administrators, doctors, managers) that impacts the overall functioning and the relationships within this organization. Indeed, it gives rise to the numerous tensions of public governance (Bartoli *et al.*, 2012) and to organizational deviances (Carassus *et al.*, 2012) that a descriptive analysis of the interpersonal relations can identify or even manage, by establishing mutual trust.

Today, the hospital practitioners are highly involved in administrative tasks, compelling them to communicate and negotiate, more than before, with the administrators and managers of their institutions. While role tensions are identified and experienced by these actors to which they are obliged to adapt (Pierru, 2012), a certain interest in management seems to characterize them gradually, which is not without incidence on their way of understanding their relations of trust with the administrators and the doctors (Georgescu and Naro, 2012). This is the case with the CLCC ‘Jean Perrin’, located in Clermont

Ferrand. In 2013, the Center showed a substantial economic deficit, prompting a supervisory authority to impose a plan in order to reestablish economic balance. This plan included significant cuts in expenditure and reductions in staff. Numerous conflicts associated with a relative instability in the management have emerged, including the forced departure of the Deputy Director General in 2014. To explain these tensions, the actors evoke a climate that is not conducive to the development of interpersonal trust relationships. Therefore, our research objective aims to analyse how the proximity of the actors of the CLCC Jean Perrin participates in the building of interpersonal trust. To do this, we seek to construct a reading grid capable of describing the effects of these proximities on interpersonal trust.

This work is organized as follows: in the first and second parts, we return successively to the definitions of interpersonal trust and proximity, then we present our theoretical framework. We explain the chosen methodology and the nature of our data in a third part, then we present and discuss our results in a fourth part before concluding.

1. INTERPERSONAL TRUST

According to Offe (1999), trust is first and foremost a person-to-person relationship. It is not possible to talk about trust at the level of an organization since one can only trust its members and the relationships that are established between them. This is called interpersonal trust.

1.1. A belief of individuals about other individuals

We return to the concept of interpersonal trust, generally defined by its cognitive and affective dimensions, noting that the role of the relational environment is hardly taken into account. The first empirical work on intra-organizational trust emerged in the 1990s. A significant part of this work used either the Agency Theory (Jensen and Meckling 1976) or the Transaction Cost Theory (Williamson 1985) to characterize the interpersonal relationships between two agents.

Trust allows these agents to take risks: “*where there is trust there is a feeling that others are not taking advantage of me*” (Porter *et al.*, 1975: 497). Trust is based on the fact that we will find what we expect rather than uncertainty (Deutsch, 1973). For Mac Allister (1995), it expresses a feeling of security about the future behaviour of a third person and the willingness to act on the basis of the other person’s words, actions and decisions. Mayer *et al.* (1995) then define interpersonal trust as the willingness of one party to be vulnerable to the actions of another party based on positive expectations, without any form of control being necessary. It becomes an acceptance of one’s own vulnerability to others (Lorenz, 1988; Rousseau *et al.*, 1998) and, generally, a belief of individuals about other individuals. Interpersonal trust is generally understood through its cognitive and emotional dimensions (Lewis and Weigert 1985; Mac Allister 1995; Jeffries and Reed 2000).

The cognitive dimension of trust is based on the individual beliefs and information about the reliability and the seriousness of the other. The individual chooses whom to trust, but also why and when, on the basis of what they consider to be “good reasons”. These “good reasons” refer to a partial knowledge of the other (McKnight, Cummings and Chervany, 1998). Trust is therefore based on some knowledge of the other’s integrity, honesty, reliability and competence (Johnson-George and Swap, 1982; Rempel *et al.*, 1985; Kumar *et al.*, 1995; Ganesan and Hess, 1997).

Emotional trust is a very specific relationship, emotionally attached, which makes it more difficult to build (Jeffries and Reed, 2000). It is often associated with an investment of time and feelings (Mac Allister, 1995). The emotional dimension is not necessarily based on a rational choice to trust, as emotions can create a kind of temporary irrationality in the decision to trust (Mayer *et al.* 1995; Schoorman *et al.*, 2007). Morrow *et al.* (2004) evoke intuition, feelings and instincts as being at the origin of emotional trust in an professional environment. The emotional investment in a relationship of trust is explained by the certainty of those involved that the feelings they are investing are reciprocal. In professional relationships between superiors and managers or between peers, emotional trust translates into behavioural

patterns of mutual aid, interest in others, support and open communication (Sherwood and DePaolo, 2005). All of these factors would reduce the anxiety associated with the sense of vulnerability inherent in the trust relationships.

In summary, the distinction between cognitive and affective trust suggests that these two forms of trust develop according to different psychological processes. Cognitive trust implies a computational approach; affective trust refers more to a process of empathy. Chua *et al.* (2008) show that cognitive trust develops in members who control the economic resources as well as that individuals develop emotional trust in those with whom they have deep positive ties, including bonds of friendship, counselling or mentoring. Of course, these two dimensions are linked. According to Mac Allister (1995), emotional trust would explain the willingness to use knowledge about people (cognitive trust) as a basis for action. It is the emotional bonds between the actors that will allow trust to progress because they will encourage the repetition of interaction that will, in themselves, build a stronger more resistant trust and thus overcome minor offences (Droege *et al.*, 2003; Zaheer, Albert and Zaheer, 1999).

1.2. The role of the relational environment is still unclear

The relational environment is recognised as playing an essential role in the building of trust (Nilsson and Mattes, 2015). Various factors are generally referred to as a history of trust:

- a cognitive factor based on the sharing of technical or professional knowledge (McKnight and Chervany, 2006; Williams, 2001);
- a social factor founded in common personal relationships (Hardin, 1992; Rotter, 1971);
- an organizational factor by sharing a workplace or joint venture (Gargiulo and Gokhan, 2006);
- an ideological factor characterized by similar values or ideologies (Bachmann and Inkpen, 2011; Möllering, 2006; Shapiro, 1987; Zucker, 1986).

As we underlined in the introduction, the literature sometimes addresses the question of the role of the relational environment *via* the notion of “climate”. Since the 1950s, the concept of organizational climate has been the subject of work that has established its importance in connection with employee behaviour (Frederiksen, Jensen and Beaton 1972; Schneider 1975; Wimbush and Shepard 1994). Trust is sometimes seen as a positive organizational climate largely initiated by the management’s leaders (Dirks and Ferrin, 2002) who encourage accountability. It becomes a facilitator of relational exchange and interprofessional collaboration. For Baier (1994), trust is considered to be the source of a presumption of reliability (*trustworthiness*) in the other.

This presumption is not necessarily conscious. Further, when the climate of trust exists, each member of the group has confidence in the others without this resulting from an individual decision. A climate of trust would exist if several conditions are met (Karsenty, 2015):

- a form of familiarity (normality) perceived by the actor; each occupies his rightful place, thus demonstrating his commitment to his function;
- a trust in the institution. This trust is independent of the people themselves because it is impersonal trust (Shapiro, 1987). It is essential to give meaning to roles and behaviours;
- when several actors are acting together, they recognize common values in each other, an essential condition for establishing a climate of trust (Hartmann, 2007). The climate of trust proves to be a particularly critical element at difficult moments, or at times of crises, in the functioning of an organization marked by the loss of shared values.

According to the sociological work on organizations, the climate of trust is the result of conditions that favour informal interchanges. In this regard, the actors must be able to have a space of communication, i.e. the time and the physical possibilities to communicate. These works on the climate of trust offer a very detailed illustration of favourable conditions for formal and informal exchanges within an

organization. These works perceive in rules, norms, values (Karsently, 2015), elements of the relational environment which, in contact with the actors, permit the exchanges favourable to a climate of trust. If these conditions are widely accepted and discussed in the literature, the ways in which they come into play with the actors of organizations remain relatively unexplored. This represents a conceptual weakness in the concept of a climate of trust because, in essence, to best reflect the role of these conditions in trade, it must also be analysed in its dynamic dimensions in order.

The zones and moments of contact between the actors make it possible to document the ways in which the climate of trust is built by both the interaction between actors and, at the same time, their systems of representation by applying the work of the “Proximity school”. This can describe a relational environment; a mixture of organization, actors and representations, the articulations of which have scarcely been analysed to date. Interpersonal trust may broaden the description of these articulations. In turn, this would allow a better understanding of the frame of the relational environment involved, or not, in the building of the climate of trust.

We propose to deepen the understanding of the role of the relational environment in the building of interpersonal trust, and thus, go beyond the notion of “climate” which remains vague, by applying the work of the “Proximity school”.

2. THE “ PROXIMITY SCHOOL ”

This school assumes that the proximities shared by the actors in a professional environment have a paramount effect on their interaction.

2.1. *Actors located in a relational space*

The research on proximity does not define proximity independently but through its dimensions. The proximity approach is a reading grid that draws on various theoretical currents (institutionalism, interactionism, evolutionism, regulatory theory, organizational theory, etc.). This grid is comprised of questions asked to determine the influence of the location on the actors’ interaction. Two types of locations are traditionally envisaged: location in a geographical space and location in a social space. Even if the number of distinguished dimensions varies according to the authors (cf. for an example of a synthesis Carrincazeaux, Lung and Vicente, 2008), all of them propose an analysis grid based on at least two types of proximity, geographical (2.1.1) and non-geographical (2.1.2) in which the articulations (2.1.3) produce in turn new proximities.

2.1.1. Geographical proximity

The position in the geographical space of actors, whether individuals or organizations, is questioned by the geographical proximity (Torre and Gilly, 2000; Pecqueur and Zimmermann, 2004). It is simply defined as the metric and/or temporal distance that separates the actors. We are close geographically for objective reasons: time, communication and costs because of the structure of the space. We are close geographically for subjective reasons: each one makes a judgment on the distance that separates him from the other. This judgement depends on the ability of each person to measure distances, to imagine a route or to cross obstacles (such as borders) (Lussault, 2007). Proximity cannot be approached solely on the basis of its geographical dimension because that would ignore the weight of human relations and the dynamics with which they are associated.

2.1.2. Non-geographical proximity

There is little consensus in the literature on the definition of this dimension of proximity. Organized proximity is defined by Torre and Rallet (2005) as the ability of an organization to connect and interact with its members. This capacity results from a similarity between the representations, beliefs and knowledge shared by these same members. This capacity is also the consequence of belonging to an organization, expressing the fact that the members of an organization interact effectively through and within the same framework of rules and behavioural routines according to their shared interpretations. These aspects have been highlighted in the management research which addresses the issue of the co-constructed or collective project that requires the stakeholders to have a common vision, shared values and a personal involvement. These elements refer to the logics of belonging and similarity and are necessary to strengthen the relationships and interaction (Ingham *et al.*, 2011; Arnaud, 2012).

Boschma (2005) suggests dividing the non-geographic proximity into four dimensions (organizational, cognitive, social, institution).

First of all, belonging to the same organization (firm, public authority, research laboratory, university, hospital, but also network, value chain, industry, etc.) qualifies as organizational proximity. It “ [...] binds agents involved in a finalised activity within a particular structure. [It] is deployed within organizations - firms, establishments, etc. - and, where appropriate, between organizations linked by a relationship of dependence or economic or financial interdependence - between companies belonging to an industrial or financial group, within a network, etc.” (Kirat and Lung, 1995: p.213). Its existence makes it possible to reduce the uncertainty inherent in any relationship and to control the opportunism of individuals. Secondly, cognitive proximity refers to the sharing by individuals of the same base of similar and/or complementary knowledge. It opens the way to mutual understanding. Its existence finds its origins in learning relationships (Cassi and Plunket, 2014). Thirdly, as economic relations are embedded in a social network (Granovetter, 1985), it is necessary to take into account the membership

of individuals in the same network. The bonds of friendship and kinship, which animate the latter, facilitates interaction and reduces conflicts as well as being constitutive of social proximity. Finally, and fourthly, the sharing of formal and informal institutions such as laws, rules, customs, values, etc. conditions interaction by providing it with a stable framework (Kirat and Lung, 1999): this is called institutional proximity.

2.1.3. Articulated proximities

These proximities are articulated. They can be strengthened in so far as a geographical proximity between two individuals plays positively on their social proximity, since the friendship is nourished by close encounters over time. The proximities can also compensate each other: an intense organizational proximity compensates for the spatial dispersion of organizations involved in the same value chain. Finally, they can be destroyed, since a geographical proximity can generate neighbourhood conflicts (pollution) or land use conflicts that put an end to the social proximity.

The proximities between individuals open the way to relationships, but without guaranteeing them. Thus, some individuals can be co-located and have no relationship. We can be related without interacting. The formation of a relationship is only more likely. Once activated, the relationships will in turn modify the existing proximities. For example, a professional relationship may develop into a friendly relationship that creates a social proximity. We treat them here as conditions since the objective of this work is to question the effects of proximities on interpersonal trust; the proximities are therefore both conditions and the result of the trust relationships.

2.2. Proximity and interpersonal trust building

We propose to update the effects of proximity on the interpersonal trust building processes. To do this, we use the typologies proposed by Boschma (2005) concerning the different forms of proximity as well as the one proposed by Mac Allister (1995) concerning the

cognitive and affective dimensions of interpersonal trust. These typologies offer precise definitions, which makes their operationalization easier.

Let us specify that the process of confidence creation by proximity is intrinsically combinatorial. This means that, most often, it is the articulated proximities that will create trust (Mattes, 2012; Nilsson, 2008). In other words, from an analytical point of view, we describe, separately, the effects of each dimension of proximity on trust. Empirically, the proximities play on trust simultaneously and can reinforce their effects: for example, if individuals bound by a friendship or a kinship can meet face-to-face frequently, the trust between them will then be strengthened by both the social and geographical proximities.

2.2.1. Geographical proximity: a confidence accelerator

According to Nilsson and Mattes (2015), geographical proximity is a confidence builder. Indeed, while the sharing of the same geographical space accentuates the possibility of face-to-face interaction, it also constitutes a cognitive referent. Furthermore, the physical structuring of geographical space by the transportation infrastructures allows the circulation of information, physical goods and individuals. Sharing the same geographic space allows the individuals to interact more frequently face-to-face (Bellet *et al.*, 1993; Kirat and Lung, 1999; Knoblen and Oerlemans, 2006). The latter is understood as the reciprocal influence of individuals on their actions in the immediate physical presence (Giddens, 1987). It provides a direct access to information (Cassi and Plunket, 2014), makes discussions more interactive and reduces the risks of opportunism (Boschma, 2005). Face-to-face interaction therefore plays an essential role in building trust in its emotional dimension, requiring very frequent interaction between the individuals (Lewis and Weigert, 1985), by facilitating the exchange of emotions and feelings. It also plays a positive role in the building of cognitive trust through the transfer of tacit knowledge that it allows (Nilsson and Mattes, 2015). Tacit knowledge is indeed exchanged in the course of daily social interaction and is only accessible face-to-face (Nonaka, 1994).

Let us add that the geographical space is not a neutral receptacle for face-to-face interaction. All of the actors associate values, representations, customs, lifestyles, history, names, physical and administrative boundaries - in short, institutions - to a geographical area. The members of a territory therefore share articulated geographical and institutional proximities. Space then plays a role in the typification process, which consists of identifying people, objects and actions with generalizable “types” (Lagroye *et al.*, 2006) according to their location. To claim to be in a place is, therefore, to claim by association, a social group; the whole provides a feeling of loyalty (Alvesson and Lindkvist, 1993) of empathy (Giddens, 1987) and, ultimately, of trust (emotional dimension).

2.2.2. Institutional proximity: building the cognitive and affective dimensions of trust

This aspect of proximity is based on a sharing of individuals beliefs, values and traditions (Turner and Makhija, 2006). First of all, it allows the development of the cognitive dimension of trust. Indeed, “institutions” encode information and thus supplement the limits of rationality. In this sense, they reduce the uncertainty associated with any interaction. They also regulate conflicts during the selection phases, because, as categories, they function as filters allowing only the processing of information considered acceptable by the individuals, that is, that does not or only slightly contradicts with their values. The passage of various compromises then becomes possible between the members of one or more organizations. These compromises include the understanding of existing problems and how to solve them in order to achieve a common goal. Common interests and objectives then develop and, finally, each member directs his behaviour towards the interests of the group and in accordance with the common values and rules (Kirsch, 1996; Eckel and Grossman, 2005). Affective trust, which implies a sharing of values (Chowdhury, 2005) and an interest in others (Sherwood and DePaolo, 2005), is thus strengthened.

2.2.3. Organizational proximity: generates the cognitive dimension of trust

According to Dupuy and Torre (2004), organizational proximity generates trust because, when one belongs to an organization, one applies its rules understood as responses to previously defined situations. These rules relate to the internal hierarchy, production standards, social dialogue procedures, etc. Sharing an organizational proximity implies a double commitment: on the one hand, an explicit commitment to respect the internal rules and, on the other hand, an implicit commitment because it is not necessary to make a prior declaration of compliance with a procedure. In the latter case, trust involves *self-control* (Ouchi, 1979; Langfield-Smith and Smith, 2003; Dekker, 2004): the individual who is trusted tends to conform to the expectations of the other. Finally, this dual commitment, by accentuating the reliability of behaviour, reinforces the cognitive dimension of trust, which is empathetic and more calculating (Lewicki *et al.*, 2006; Bachmann and Inkpen, 2011; Nilsson and Mattes, 2015).

2.2.4. Cognitive proximity: building the cognitive dimension of trust

Some similarity in knowledge bases is needed to develop the cognitive dimension of trust so that everyone can verify the codified knowledge held by the partners (Kumar *et al.*, 1995; Ganesan and Hess, 1997). This knowledge is formalized by patents, scientific publications, explicit knowledge, databases, etc. Storable because it is written on a durable medium, it is accessible without a face-to-face interaction.

This same cognitive proximity is also useful for exchanging the tacit knowledge held. The latter is difficult to formulate into a formal language. It is personal knowledge, embedded in individual experience. This knowledge is therefore subjective, carried by individuals (Nonaka and Takeuchi, 1995). As noted above, face-to-face interaction greatly facilitates this transfer (Nonaka, 1994). The geographical and cognitive proximities are in this case articulated to develop the cognitive dimension of trust.

PROXIMITIES	INTERPERSONAL TRUST	
	EMOTIONAL DIMENSION	COGNITIVE DIMENSION
GEOGRAPHICAL PROXIMITY	Face-to-face: exchange of emotions; typification	Face-to-face: tacit knowledge exchange
COGNITIVE PROXIMITY		Codified and tacit knowledge exchange
INSTITUTIONAL PROXIMITY	Sharing values Interest in others	Reducing uncertainty
ORGANIZATIONAL PROXIMITY		Reliability of behaviour
SOCIAL PROXIMITY	Kinship, friendship	

Table 1 – The effects of the proximities on interpersonal trust
(Source : authors)

2.2.5. Social proximity: building the emotional dimension of trust

Social proximity between two individuals through kinship and friendship promotes the building of trust (Granovetter, 1985) based on affection (Bigley and Pearce, 1998; Droege *et al.*, 2003) and attachment (Jeffries and Reed, 2000). Mac Allister (1995) stresses the importance of the effects of interpersonal trust on organizational and individual effectiveness. It refers to a sense of security in connection with the future behaviour of a third person and the willingness to act on the basis of the other person's decisions. This trust is not something that pre-existed the social relationship, nor stored information or a resource from which actors can draw (contrary to the reputation, for example). Time plays a decisive role here: trust emerges through repeated and successful interaction. Each interaction is an opportunity to respect the commitments given to the other to justify their trust. There is a commitment to the transparency and reciprocity (Larson, 1992). Participation in the interaction becomes sufficient if one is determined to respect the constraints. Trust then feeds on physical encounters, with the positive effects of the social and geographic proximities being increased further (Howells, 2002). Table 1 summarizes the effects of proximities on the creation of interpersonal trust.

3. METHODOLOGY AND DATA

The purpose of this descriptive and comprehensive research is to evaluate the relevance of an analytical framework based on the forms of proximity to characterize used to trust and thus to understand its effects on interpersonal trust. The aim of our project is to validate the interest of this approach, centred on proximities, with a view to proposing a reading grid of interpersonal trust.

3.1. Methodology: the case study

The very nature of the topic in question, interpersonal trust, requires the use of qualitative methods to understand the interaction between actors and

the explanatory potential of a “proximity-interpersonal trust” model. To do this, we use a unique case study. A unique case is particularly relevant when the problems and circumstances studied are complex (Wacheux, 1996), highly contextualised and when the study is part of a relatively new field (Evrard *et al.*, 2009). This is the case with hospitals and the ensuing management issues that arise. *“The case study makes it possible to study whether knowledge is or is not compatible with the researcher’s experience of the practical situation in question, and whether the actors consider that it provides useful points of reference for them to think and act in this situation towards their goals”* (Avenier and Gavard-Perret, 2012).

This work constitutes the first phase of a research program on the management of health organizations, here, developed within a CLCC. It brings together a group of management researchers, managers (general management and services) and staff representatives (doctors, practitioners, logisticians). As a first step in this research, our attention focus on the CLCC Jean Perrin in Clermont Ferrand. It allows us privileged access to materials (quantitative data, free and semi-directive interviews) and to participate in all of the meetings relating to the projects and strategy of the CLCC. Our objective here is to test and evaluate the explanatory power of the proximity grid on trust. In fact, we rely specifically on primary data; the reports of four meetings and a series of seven semi-directive interviews (lasting an average of 44 minutes) conduct with the CLCC staff (Table 2) divided into four categories; managers, doctors, nursing staff and support staff. The interviews were recorded, transcribed and analysed for content.

Specifically, these primary data enabled us to identify the contributions of proximity to trust. The interviews took place in 2016 and 2017. They were structured around two main themes:

- the climate of trust,
- the place of proximity and its possible effects on the climate of trust.

FUNCTION OF THE PERSON INTERVIEWED	CATEGORY	RESPONDENT CODE	DURATION OF THE INTERVIEW
Deputy Director of the institution	Manager	E1	1 hour 15
Imaging department Health Executive (former nurse)	Nursing staff	E2	51 Minutes
Director of Financial Affairs	Support function	E3	39 minutes
Chief Medical Officer in charge of quality	Doctor	E4	48 minutes
Doctor in charge of the unplanned entry unit	Doctor	E5	54 Minutes
Medical Secretary	Support function	E6	37 Minutes
Resuscitation Department Executive (former nurse)	Nursing staff	E7	58 Minutes

Table 2 – Characteristics of Respondents
(Source : authors)

3.2. Presentation of the case

The CLCCs are private non-profit health establishments that participate in the public hospital service in France. They belong to the field of Private Health Establishments of Collective Interests (ESPIC). Created in October 1945, they are financed by the public health insurance scheme and are controlled by the Ministry of Health, under the same conditions as the public hospitals. They carry out prevention, research, teaching and care missions. The particularity of the CLCCs lies in their comprehensive and multi-disciplinary model of care for people with cancer. Even more than elsewhere, this requires interaction and communication between actors with very diverse professional profiles. The management of these establishments is ensured by a director who is a doctor, assisted by a secretary general and a management team which calls upon a diversity of professional

cultures (manager, medical, nursing, etc.) and which involves the doctors in management responsibilities.

Until 1996, the CLCCs had a particularly protected status (Mériade *et al.*, 2017). On the one hand, the institutions were able to take advantage of the logic of the welfare state and, on the other, of their status as private non-profit actors. It is on this basis that they built and justified their own mission. In the CLCCs, militant discourse, servant discourse of the state or even innovative organizational discourse were mixed with a relative harmony while, at the same time, generating two pitfalls; a real lack of concern on the part of the management (the effects being concealed by the overall funding) and a weak capacity for strategic monitoring in the face of changes in their environments. Since the 1980s, there have been many signs of the hospital's financial development (Angelé-Halgand and Garrot, 2015): the Juppé Plan (1996)

implemented to control health expenditure has introduced a quasi-market, the T2A financing system (activity-based pricing), the HPST law (2009), and the creation of GHTs (territorial hospital groups) in 2016, which are emblematic of this “evolution of powers to the detriment of the medical profession” (Angelé-Halgand and Garrot, 2015, p. 50). The evolution of the context is reflected in the spread of a logic of competition which is expressed in the massive groupings of private clinics, a restructuring into territorial hospital groupings (GHTs) and questions on the positioning of CLCCs. Two threats are perceived by the CLCCs. On the one hand, the loss of certain activities, notably the most profitable ones which would be recovered by the private for-profit sector, and, on the other, the risk of a merger imposed in the long term with the University Hospital Centres (CHUs). It is clear that the status of the trust that has prevailed until now is being questioned. The relations between hospitals and the regional health agency (ARS), which is responsible for ensuring the distribution of resources, as well as the interpersonal relations between the medical, nursing and management teams, or between doctors and their patients, are calling into question the place of trust in the changing contexts.

The CLCC Jean PERRIN, founded in 1973, is one of 18 CLCCs grouped under the aegis of Unicancer, a national federation. Recognized as a center of excellence in its specialty, since its opening, it has maintained an ambivalent relationship with the city’s University Hospital with which it shares the same site. It has also been recognized as a center of excellence in its specialty as a regional hospital. Since its inception, a certain co-operation has been maintained with the CHU, particularly due to their geographical proximity, however, the two institutions have never developed a joint institutional or medical project. At the beginning of the summer of 2015, the Unicancer federation designed and distributed the Unicancer Group Strategy project, whose ambition was to adapt the CLCCs to changes in the context of the Regions’ reforms and the financial constraints of the institutions. The project proposed the strengthening of the national management of the CLCCs by Unicancer as well as the merger, in the very short term (12 months), of several centres in order to increase their capacities. Notably, the CLCC Jean Perrin de Clermont-Ferrand and the CLCC Léon BERARD de Lyon were registered in this merger logic for January 2017.

This strategy, of which little is understood at the CLCC level, finally reveals a certain cognitive distance between the Unicancer federation and the institutions. It is contested by a report in July 2016 from the French public financial supervisor (Cour des comptes) which is the subject of two levels of discussions. Firstly, internally, where the principle of strengthening management and the merger with another CLCC is assimilated to the movements of the private hospital sector (search for economies of scale, productivity gains) and also such perceived as being in opposition with the social and institutional project based on the public service mission, the disinterested action and the local action on a territory. This illustrates a form of stressing of the organizational proximity. Moving on to the external issues, the Unicancer project faces two paradoxical objectives: on the one hand, by strengthening the centres through merger, they would gain in power and autonomy. On the other hand, there is an incompatibility with the recommendations of the central authorities, in particular the HPST law. This law encourages, on the contrary, the need to overcome the logic of the institutions in favour of the logic of the territory and patient path (Mériade, 2019). The patient path imposes close co-operation and synergy of means with the CHU and other local health actors, and thus, ultimately, reinforces the institutional and organizational proximities. In this context, we can assume that the question of the climate of trust is a particularly critical element when carrying out the necessary transformations as outlined above, just as the question of the link between proximity and trust between the actors and the individuals responsible for the daily implementation of the public service mission proves to be central.

4. RESULTS

The comparison of our analytical framework with the data collected shows that there is a strong link between the climate of trust, proximity and interpersonal trust. The climate of trust proves to be a key and particularly critical point having a strong impact on the functioning of the hospital. It is a major concern in the hospital world because of the current alterations. As our first discussions showed, in these organizations the trend is moving towards

a weakening of the climate of trust¹ because of the tensions generated by the evolving context and the new practices being spread. The first phase of analysis consisted in examining the content of the meetings and the preliminary interviews with the deputy director of the CLCC which enabled us to identify four categories of actors on whom to focus our attention in order to identify the mechanisms of trust: managers (administrative decision-makers such as the financial director and the director of human resources), doctors, nurses and support staff (accounting services, logistics, information system, etc.). The results of our analysis make it possible to identify the nature of the cognitive and affective dimensions of interpersonal trust and to update the way in which proximity is expressed in a context of marked transformations and their effects on the relationship of trust.

This first comparison, between the proposal for a theoretical framework of analysis and the knowledge of the field, highlights the central role of trust “*Our organization can only function because there is trust*” (E2) and makes it possible to identify its cognitive and emotional dimensions.

4.1. The affective and social dimensions

The affective dimension of interpersonal trust, although present, appears relatively attenuated in the discourse of the interviewees. It is essentially associated with friendships; “*If you are friends and get along, you have a natural cooperation that goes beyond work and it has a direct impact on trust*” (E4). The empathy that is a marker of the affective dimension of interpersonal trust is mostly absent in the respondents’ description of relations between the categories of staff. It stands out in speeches almost exclusively from the perspective of the patient/caregiver relationship. Moreover, we can identify a disconnection between interpersonal trust and “human proximity” (seen by respondents in its affective dimension): “*We can place trust in someone with whom we do not have*

any human proximity” (E6). This is probably explained by the particularity of the context studied (the hospital universe) where the cognitive dimension of trust seems to take precedence over the affective one. However, at the same time, some respondents naturally refer to the need for social proximity in order to build trusting relationships; “*The link between human proximity and trust is almost natural*” (E7), “*If you share a friendly human proximity with someone you do not have to create trust*” (E5). Moreover, they emphasize the role of the geographical proximity in building trust; “*With the management, trust comes through physical presence*”; “*how can you trust people you never see?*” (E6).

However, the geographical proximity plays an ambivalent role in the affective trust. While it brings individuals closer together and promotes their social interaction, the *verbatim* analysis also reveals the ambiguity of a very close geographical proximity, which can lead to a weakening of trust between individuals who are too close “*the most suspicious people are the closest to the hierarchy*” (E2); “*working in the same block all day does not necessarily bring people closer together*” (E7).

From another angle, the cognitive, social and institutional proximities are interviewed again with the multiplication and the reinforcement of staff skills. Some categories that have received more training, such as nurses or health managers are emancipating themselves from the medical staff (doctors) and are demanding autonomy: “*we no longer call the health managers supervisors, because we no longer monitor what the staff do, they are professionals, they are responsible for their actions*” (E2). The social proximity that once existed, for example, between doctors, health care professionals and carers, is withering. The hierarchical link of subordination, or even devotion, of managers and staff to the doctor is transformed, modifying social relations. Thus, the relationship between the different “corporations” has changed, the norm has replaced the trust; “*Cancerology is a small world, everyone knows everyone else*” (E4). “*The doctors are first and foremost colleagues. Even in*

¹ Our interview guide focused on trust and proximity. It was not intended to explore the notion of mistrust that is generally regarded as the opposite of trust, or mistrust, that refers to a background of doubt towards others and lies halfway between trust and mistrust. we will talk about the weakening of trust rather than mistrust or distrust as distrust, mistrust and trust seem to be different mechanisms and our work is about trust. For more details on the conceptual nuances associated with these terms, see: Marzano M. (2010) “Le contrat de défiance”, Editions Grasset and Algan Y., Cahuc P. and Zylberberg A. (2012) “la fabrique de la défiance”, Albin Michel.

difficulty, they will know how to look after each other” (E2). These developments are probably fuelled by the certification processes. It would seem that these have contributed to reducing trust by substituting mutual adjustment modes (for example between a nurse and the doctor for the mode of administering a treatment) with a more formal adjustment mode based on rules and procedures and generating a certain distance, the individuals finally having less need to interact because of the codification of each other’s roles.

While this form of institutional proximity generates a certain amount of interpersonal trust of a cognitive nature (complying with the rules), it limits the possibility of developing a more affective trust by limiting the interaction and thus the opportunities for meetings conducive to the development of social proximity. The lack of shared values between the young recruits and the older staff is regularly put forward to justify the development of a certain institutional distance *“The relationship with the young people is more difficult because they do not have the same values. Values are less important to them»* (E7). *“The young people, what they do, they do very well, they are immediately effective, the word value means nothing to them”* (E2). On the other hand, the increase in staff competence has effects that are not immediately visible. This results in a change in the social homogeneity and thus a reduction in the social proximity. Indeed, until recently, the recruitment of personnel for positions that did not require long studies or extensive training was carried out in the local area. The result was a marked link between the geographical and social proximities anchored in the territory. This was a unifying element between people from the same geographical area who shared common history and reference points (local culture). The development of competence is reflected in the recruitment of people from other regions, so the geographical distance is reflected by a form of diminishing of the social proximity which then requires reconstruction.

4.2. The cognitive dimension: languages, values and trust

The cognitive dimension is a strong marker of the respondents’ discourse. It refers to the need to understand each other in order to be able to rely on the

actions of others and thus trust them: *“We have the same common knowledge base as the doctors, for whom I am a reliable interlocutor and this generates trust, because I do what I say and I say what I do”*. (E7), *“With the managers, speaking the same language is proof of trust”*(E7). This cognitive dimension includes a very marked behavioural component (*“As soon as people know how you function, the trust relationships are established”* (E7)), which is itself part of a temporal dimension; *“We create trust like this, little by little, as we go along”* (E5), *“trust takes time to build but it can be destroyed in 2 minutes”* (E7). Interpersonal trust is intimately linked to the evaluation of the other’s behaviour *“Knowing how the other works, how he will react to other situations are elements that help build trust”* (E6), *“trust for me is built more on the relationship than on the behaviour”* (E6), *“Trust in each other is based on our experiences of past exchanges”* (E5). The relationship between the individuals, the history and the density of this relationship is an important basis for the cognitive dimension of trust. Thus, the doctors interviewed frequently refer to the relationship with their colleagues marked by their joint studies at the faculty and then maintained in the exercise of their activity. They stress the importance of the expertise and the reliability of their colleagues in building interpersonal trust: *“One can have confidence because one knows that he will manage things well, not only professionally but also humanly, one knows that he is a good guy who has values and that he will behave well, but he is not necessarily a friend”* (E5).

Cognitive trust is also based on strong institutional values: the healthcare values infuse the whole organization (*“We manage in discussions on the healthcare values, which makes it possible to break many deadlocks, this strengthens trust between healthcare providers and doctors having the same discourse”* (E7); *“The financial and healthcare values succeed in harmonizing well, because there are no symptoms of discomfort”* (E7)). Some respondents note, however, that these values have been reduced or even questioned to some extent: *“The economic and financial values have taken precedence over the old values”* (E2). Thus, the interpersonal trust of a cognitive nature, based on original values, must be nuanced. Managers are led to pursue objectives of a more economic nature that alter the trust that has prevailed until now between the various categories of staff and

managers. Even if the CLCCs have the particularity of being directed by a doctor, the imperatives of economic balance that guide the strategy and the actions generate a certain tension on the nursing values and contribute to alter the interpersonal trust but also to gradually transform the rules of evaluation of reliability and the seriousness of the other.

4.2.1. An evolution of values: alteration of the cognitive and institutional proximities

The transformation of the context in which hospitals are evolving results in an alteration of the cognitive proximity due to an evolution of values (institutional proximity). *“The values that existed came from the staff”* (E2), now these historical values seem less present, yielding to more economic values imposed by an authority guided by the concern for economic balance. Since 2004, the introduction of activity-based pricing (T2A) has developed a logic of competition (Angelé-Halgand and Garrot, 2014), between the CLCC’s own services (in particular between services that treat various pathologies). *“In a hospital, there is a coexistence of services that we no longer hesitate to describe as profitable or unprofitable”* (E1). Within the institution, trust is deteriorating, on the one hand, towards those who carry out profitable activities, and, on the other hand, towards those who carry out unprofitable or less profitable activities. In the first case, the business owners are suspected of dealing with certain strong traditional values that exclude any economic approach. In the second case, the practitioners and their teams feel that they alone can support efforts to address unprofitable services. *“This internal competition in the capture of the resource, if it creates emulation, also induces a form of distance from the values”* (E1). The distance that sets in from hitherto shared values breaks down social proximity and alters the cognitive dimension of trust. The foundation of common values which constitutes the necessary cement for ambition and collective projects is weakened. To compensate for this reduction in the institutional proximity, a genuine process of institutionalisation around values is developing. Indeed, many initiatives to write value charters in the different departments give rise to a multiplication of value frameworks that are not homogeneous. Thus, they contribute to creating an institutional distance between the different

categories of services even though, traditionally, the purpose of charters is to unite through shared values and commitments.

This distance linked to the presence of objectives that are not as unifying nor shared collectively is amplified by the uncertainty of developments, in particular with regard to the possible convergence between actors working in the same area (CHU, CLCC) and the rationalisation of the healthcare provision in the territory (disappearance of services, outsourcing). This uncertainty leads each category of personnel to develop defensive strategies that feed a social and organizational distance. For example, doctors highlight their ability to adapt professionally, an attitude that illustrates the reckoning of the cognitive dimension of trust, while for the support staff, the future is more uncertain. The closure of certain services is now an option being considering. In order to be heard, doctors are turning to a stronger trade union commitment, which is synonymous with a particular form of institutional proximity. Thus, the doctor is no longer seen as the one who guarantees the future of the institution. We can identify deterioration in the trust between the medical and management personnel.

4.2.2. An evolution of languages: alteration of cognitive trust

The introduction of new languages, such as management control, alters trust by modifying the cognitive reference points on which it is built. This gives a new power to the managers that the other categories perceive as a form of interference in their action. It appears that the introduction of new languages results in the creation of a certain cognitive, but also social, distance. The coordination of procedures are experienced by the healthcare staff in particular as administrative constraints that reduce their presence with patients *“The quality has taken over a huge place in hospitals, it can create distance between people”* (E2); *“The logistics of quality and the administrative procedures reduce our presence at the foot of the bed”* (E2).

In terms of organizational proximity, the manager has the power to decide on cost reductions which in some cases lead to the decision to outsource a financially unbalanced service. The support services are the most affected by this new approach to business.

This situation creates a cognitive distance between the management and the support services. Until 2004, the director was an administrator, he was there to enforce the rules, and today, the director of a hospital is accountable to a supervisory authority. The management adopts new standards, new tools (performance indicators, reporting, etc.) poorly understood by the medical world. These have not yet necessarily been integrated by the support services or the other internal groups. More broadly, this evolution is part of the generalization of the principle of “accountability” (Facal and Mazouz, 2013). The structures in charge of public service missions are led to account for the use made of public money, amplifying the attention paid to the financial dimension. Thus, governance tensions are developing (Mériade, 2013) generating a reduction in trust towards the managers on the part of other internal groups (doctors, carers, health executives, support services). Moreover, this rationalizing approach (Angelé-Halgand and Garrot, 2015) leads to the regrouping of functions hitherto attached to user services (entities); “*The GHTs must reconfigure the functioning with the other establishments in the region*” (E1); “*In any case, the supervisory authorities ask us to cooperate*” (E3). Thus, a geographical distance can be created between users and service providers. However, geographical proximity seems essential for co-operation and knowledge sharing. “*Relocation is being experienced as a constraint by many staff*” (E4); “*We have a natural cooperation with the CHU because we are on the same site*” (E1)). By not being as close geographically, the user staff and the supplier services are less likely to meet physically and, thus, not as likely to develop interaction conducive to informal interchanges and mutual adjustment. This limits the development of the social and cognitive proximities.

These elements allow us to affirm that the climate of trust constitutes a central point in the development of the quality of interpersonal relationships. It is expressed in terms of proximity as well as geographical, cognitive, institutional, organizational or social distances. It is in this sense that our framework of analysis is particularly relevant because it also allows us to analyse the absent proximities that cause a relative lack of trust. Subsequently, this allows more precise discussions of the elements of proximity which, in the establishment studied, can impact the affective and cognitive dimensions of trust (Table 3).

5. DISCUSSION

These initial results allow us to determine an analytical grid designed to explore the relationships between proximity and trust among the personnel (Table 3). To this end, four categories of staff were highlighted: management leaders (decision-makers who have all the information), doctors, healthcare staff and support staff (accounting, logistics services, information system). In order to understand these relationships between proximity and trust, we propose an analysis grid that measures proximity based on the responses of the personnel belonging to these four categories (Table 3). Through this grid, we seek to measure the effects of the existence or absence of proximity on the affective and cognitive dimensions of trust.

A vertical and horizontal reading of the grid allows us to formulate certain conjectures relative to the significant impact that the proximities have on the affective and cognitive dimensions of the interpersonal trust in this establishment.

5.1. A low affective trust

In our case, it appears that affective trust is low and ultimately not very present in the institution. The work organization and the human resource management contribute very little to building trust of an affective nature. As a general rule, this is built on personal characteristics (open-mindedness, benevolence, availability, justice). Certain of these seem to take second place in the upper hierarchy of the establishment studied, in particular, availability. In this establishment, three forms of proximity, by their presence (geographical proximity) or by their absence (institutional proximity) and to a lesser degree, social proximity), impact affective trust. These results make it possible to highlight the key role in managing the geographical proximity between personnel. These directives, while bringing staff closer together, should nevertheless maintain a certain distance between the colleagues. At the same time, the organizing of the geographical proximity should also limit any form of spatial crowding. This would allow the construction of proximity with beneficial effects and reduces the risks inherent a lack of privacy and its more harmful effects.

On the theoretical level, with regard to geographical proximity, we had assumed that face-to-face interaction between individuals made it possible to foster the various proximities conducive to the development of a climate of trust. However, our results highlight that face-to-face interaction actually weakens the climate of trust. This is an innovative finding of which the 'Proximity School', for whom geographical proximity is the major vector of trust, makes little or no mention. This reveals the ambivalence that can be associated with geographic proximity in its impact on affective trust (Table 3).

Institutional proximity is the second most important element in the building of affective trust. In the institution studied, it is experienced as a distance that is created as a result of the disappearance, or perceived alteration, of common values. As highlighted in our results, the institution's staff describe a disappearance of values that they associate with intergenerational conflicts. Thus, it appears that an institutional distance is gradually being established between the generations which, combined with a certain compartmentalisation of services, significantly reduces the importance of trust in its emotional dimension.

Finally, our results show that social proximity is indeed a relevant element in building the affective dimension of trust. Here again, the staff interviewed note a weakening of this social proximity (Table 3) in favour of the development of work rules and standards that limit human interaction and extra-professional exchanges.

In the end, our study reveals that these three forms of proximity (geographical, institutional and social), which can be expressed in various ways, remain nevertheless the main levers for building affective trust in an organization.

5.2. Cognitive trust, prescribed rather than built

At the same time, our analyses clearly show the importance of the cognitive dimension of trust fed by the five forms of proximity in our conceptual framework. However, cognitive trust is more a matter of prescription than construction. The respondents report the existence of a sense of cognitive trust often prescribed by the organization and its procedures

(see Table 3). Unlike affective trust, the trust based on the cognitive dimension is a point of particular attention because it seems to be taken into account by the management of the establishment and its staff. On the other hand, it seems more imposed on employees than really built around the existing proximities between staff. Indeed, the need to speak the same language and to understand each other seems fundamental.

While considering the affective domain, unduly close geographical proximity that is too close is sometimes perceived as deteriorating interpersonal trust, in terms of cognitive trust. This geographical proximity is claimed more so to share knowledge or common interpersonal or inter-institutional projects. Geographical proximity, by bringing staff closer together, enables them to check and validate the elements justifying their cognitive trust, particularly those relating to the skills and good professional attitudes of their colleagues.

More naturally, cognitive proximity also seems to be an important element in the building of cognitive trust. Thus, the development of skills, the professionalization of staff and a managerial culture allows respondents to have and to share common languages which, even if they are often prescribed, create trust between staff. Thus, in the CLCC studied, the quality is regularly defined, by the staff interviewed, as a central concept common to the whole centre, which necessarily brings them closer together because it creates obligations to monitor procedures or standards for the entire staff. On the other hand, if they bring the rules of work, such as quality, closer together, they can also, by their prescribed and peremptory character, generate frustrations among certain personnel by taking away their margin of freedom. The same is true for the development of the managerial culture of the staff, particularly doctors, who acknowledge that they have become closer to the managers through the deployment of service management, but insist on the limits of their skills in understanding all the speeches and management indicators that are transmitted to them. Although these two categories of staff gradually understand each other better, they do not yet speak exactly the same language.

In terms of cognitive trust, in the same way as the affective dimension, institutional proximity is

translated more by a distance between personnel, particularly concerning a reduction, an absence or a loss of common values. At the same time, a certain degree of social proximity exists and can therefore strengthen cognitive trust in some cases. It is fairly representative of the compartmentalization of services or professions within the establishment. This limits the effects of this proximity on the trust and therefore does not build cognitive trust between all the staff.

In the same way, cognitive trust has developed in this establishment from an organizational proximity between the staff but also in a rather imposed way by the management and the supervisory authorities which strongly encourage the services and their staff to come closer together.

Finally, while social proximity contributes significantly to the development of cognitive trust, we note that it is deployed more within departments or categories of staff (in the case of the doctor corps logic, for example) and much less between the departments or between the different categories of staff.

Thus, in the case studied here, the grid of proximity (Boschma, *op. cit.*) describes the five forms of proximity as significant levers for the deployment of cognitive trust. Nevertheless, this cognitive trust, in our case study, seems to have developed more by prescription of the establishment and its management than by a real research of proximity voluntarily built by the personnel.

	INTERPERSONAL TRUST	
PROXIMITIES	EMOTIONAL DIMENSION (openness, justice, availability, caring)	COGNITIVE DIMENSION (competence, coherence, respect of promises)
GEOGRAPHICAL PROXIMITY	<i>Ambivalent geographic proximity</i>	<i>Geographic Proximity = trusted source</i>
COGNITIVE PROXIMITY		<i>Prescribed cognitive proximity = professionalization of the personnel, Development of a managerial culture, of a common language</i>
INSTITUTIONAL PROXIMITY	<i>Institutional distance = loss of common values, intergenerational tensions</i>	<i>Institutional distance = value conflicts between categories of staff, little shared managerial values</i>
ORGANIZATIONAL PROXIMITY		<i>Organizational proximity imposed = closer links between institutions</i>
SOCIAL PROXIMITY	<i>Social proximity = essential but being reduced in favour of norms and rules</i>	<i>Community social proximity = corps logic, intra-service proximity</i>

Table 3 – Impacts of proximity on interpersonal trust
(Source : authors)

CONCLUSION

This work aims to validate the interest of mobilizing a grid produced through the work of the “Proximity school” to understand how the proximities between the different categories of staff of a CLCC are expressed. Therefore, it helps to explore the role of proximity in building interpersonal trust. We focused on the analysis of interpersonal trust by studying both the strong and weak proximities that reinforce or weaken this trust.

The contributions of this research are twofold. They are first situated in the multidimensional approach of proximities respecting the five dimensions of Boschma (2005) to qualify the climate of trust and interpersonal relations. The preliminary results validate the interest of this model of analysis because they highlight, for this institution, the proximities that impact the interpersonal trust both in its affective and cognitive dimensions. In terms of managerial implications, this result specifies the levers of action that proximal analysis defines for managing the interpersonal trust within hospital organizations.

The second contribution comes from the analytical ability of our grid to explore the three-dimensional relationships between proximity, interpersonal relationships and trust. This makes it possible to characterize, in hospital establishments, both the constructed dimensions of affective trust and the more prescribed dimensions of cognitive trust.

The limitations of this work are inherent to its exploratory nature and to a strong concentration of data processed on a limited number of sources. Indeed, this first stage led to the proposal of a valid reading grid but will have to be applied in various contexts to test its robustness. Furthermore, our analyses did not explore the differences in the perception of the affective and cognitive dimensions of trust according to the categories of personnel. However, we were able to perceive significant nuances in the responses between healthcare staff or support functions and doctors or managers. In the future, a socio-demographic analysis of these data could allow more in-depth testing of the reading grid proposed here.

Moreover, a natural extension of this study, but a work in its own right, will consist in analysing the distrust from these proximities and distances. The notion of distrust is another very rich problem, but it requires a specific methodology and interview guide.

Finally, this work opens up research perspectives in the field of public management. It feeds the current studying the effects of NPM (New Public Management) on the working context of public organizations and the reification phenomena that can be observed (Angelé-Halgand and Garrot, 2015). The transformations in the contexts in which public organizations are evolving, and more particularly health organizations, are still little studied from the perspective of interpersonal relations, whereas the latter are often defined as essential to public performance in both its intra- and interorganizational dimensions.

BIBLIOGRAPHY

- AMIN, A.; COHENDET, P. (2014). *Architectures of knowledge: Firms, capabilities, and communities*. Oxford University Press on Demand.
- ANGELÉ-HALGAND, N.; GARROT, T. (2015). "Discipliner par le chiffre: l'hôpital financiarisé au risque de la réification?". *Entreprise et Histoire*, 79, Juin, pp. 41-58.
- ARNAUD, C. (2012). *Approche fonctionnelle et dynamique du portefeuille territorial d'évènements culturels: manager la proximité pour une attractivité durable du territoire* (Doctoral dissertation, Aix-Marseille).
- AVENIER, M.J.; GAVARD-PERRET, M. L. (2012). *Inscrire son projet de recherche dans un cadre épistémologique*. HAL.
- BACHMANN, R.; INKPEN, A.C. (2011). "Understanding institutional-based trust building processes in inter-organizational relationships". *Organization Studies*, 32(2), pp. 281-301.
- BAIER, A. (1995). *Moral prejudices: Essays on ethics*. Harvard University Press.
- BALLAND, P.A.; BOSCHMA, R.; FRENKEN, K. (2015). "Proximity and Innovation: From Statics to Dynamics". *Regional Studies*, 49, 6, pp. 907-920.
- BARTOLI, A.; MAZOUZ, B.; KÉRAMIDAS, O.; LARAT, F. (2012). "Éthique et performance en management public". *Revue française d'administration publique*, 140.
- BELLET, M.; COLLETIS, G.; LUN, Y. (1993). "Économie de proximités". *Revue d'Économie Régionale et Urbaine*, Numéro spécial, n° 3.
- BIGLEY, G.A.; PEARCE, J.L. (1998). "Straining for shared meaning in organization science: Problems of trust and distrust". *Academy of Management Review*, 23(3), pp. 405-421.
- BOSCHMA, R.A. (2005). "Proximity and innovation. A critical assessment". *Regional Studies*, 39, 1, pp. 61-74.
- BOWLER, W.M.; DROEGE, S.B.; ANDERSON, J.R. (2003). "Social network ties and strategic renewal: Promotion of strategic initiatives by middle-level actors". *Journal of Behavioral and Applied Management*, 5, pp. 31-44.
- BROEKEL, T.; BOSCHMA, R. (2012). "Knowledge networks in the Dutch aviation industry: the proximity paradox". *Journal of Economic Geography*.
- CARRINCAZEAUX, C.; LUNG, Y.; VICENTE, J. (2008). "The scientific trajectory of the french school of proximity: interaction- and institution- based approaches to Regional System of Innovation". *European Planning Studies*, 16, 5, pp. 617-628.
- CARRINCAZEAUX, C.; GROSSETTI, M.; TALBOT, D. (eds) (2008). "Clusters, proximities and networks". *European Planning Studies*, Special Issue, 16, 5, pp. 613-621.
- CASSI, L.; PLUNKET, A. (2014). "Proximity, network formation and inventive performance: in search of the proximity paradox". *The Annals of Regional Science*, 53, 2, pp. 395-422.
- CHOUAIB, A.; ZADDEM, F. (2012). "Le climat éthique au travail: pour promouvoir des relations interpersonnelles de confiance". *RIMHE: Revue Interdisciplinaire Management, Homme & Entreprise*, 1, pp. 53-70.
- CHUA, R.Y.; MORRIS, M.W.; INGRAM, P. (2009). "Guanxi vs networking: Distinctive configurations of affect-and cognition-based trust in the networks of Chinese vs American managers". *Journal of International Business Studies*, 40(3), pp. 490-508.
- CHOWDHURY, S. (2005). "The role of affect-and cognition-based trust in complex knowledge sharing". *Journal of Managerial issues*, pp. 10-326
- CLOT, Y. (2016). *Le travail sans l'homme?: Pour une psychologie des milieux de travail et de vie*. La Découverte, Paris.
- DALE, R. (2005). "Globalisation, knowledge economy and comparative education". *Comparative Education*, 41(2), pp. 117-149.
- DALE, K.; BURRELL, G. (2007). *The spaces of organisation and the organisation of space: Power, identity and materiality at work*. Macmillan International Higher Education.
- DEKKER, H.C. (2004). "Control of inter-organizational relationships: evidence on appropriation concerns and coordination requirements". *Accounting, Organizations and Society*, 29, 1, pp. 27-49.
- DEUTSCH, M. (1973). *The Resolution of Conflict: Constructive and Destructive Processes*. Yale University Press, New Haven, CN.
- DIRKS, K.T.; FERRIN, D.L. (2002). "Trust in leadership: Meta-analytic findings and implications for research and practice". *Journal of Applied Psychology*, 87(4), p. 611.
- DONADA, C.; NOGATCHEWSKY, G. (2007). "La confiance dans les relations interentreprises". *Revue française de gestion*, 6, pp. 111-124.
- DROEGE, S.B.; ANDERSON, J.R.; BOWLER, M. (2003). "Trust and organizational information flow". *Journal of Business and Management*, 9(1), p. 45.
- DUPUY, C.; TORRE, A. (2004). "Confiance et proximité". In PECQUEUR, B. et ZIMMERMANN, J.B. (eds), *Économie de Proximités*, Hermès, Lavoisier, Paris.
- ECKEL, C.C.; GROSSMAN, P.J. (2005). "Managing diversity by creating team identity". *Journal of Economic Behavior & Organization*, 58(3), pp. 371-392.
- EVARD, Y. et al. (2009). *Market: fondements et méthodes des recherches en marketing*. 4^e édition, Dunod.

- FACAL, J.; MAZOUZ, B. (2013). "L'imputabilité des dirigeants publics". *Revue française de gestion*, 8, pp. 117-132.
- FREDERIKSEN, N.; JENSEN, O.; BEATON, A.E.; BLOXOM, B. (1972). *Prediction of Organizational Behavior*.
- GANESAN, S.; HESS, R. (1997). "Dimensions and levels of trust: implications for commitment to a relationship". *Marketing Letters*, 8(4), pp. 439-448.
- GARGIULO, M.; GOKHAN E. (2006). "The Dark Side of Trust". In BACHMANN, R. (ed.); ZAHEER, A. (ed.), *Handbook of Trust Research*, pp. 165-86. Cheltenham: Edward Elgar
- GIDDENS, A. (1987). *La constitution de la société*. Presses Universitaires de France, Paris.
- GEORGESCU, I.; NARO, G. (2012). "Pressions budgétaires à l'hôpital: Une étude qualitative du concept de "rapm" auprès de praticiens hospitaliers". *Comptabilité, Contrôle, Audit*, 18, 3, pp. 67-95.
- GRANOVETTER, M. (1985). "Economic Action and Social Structure: The Problem of Embeddedness". *American Journal of Sociology*, 91, 3, novembre, pp. 481-510.
- GRILLITSCH, M.; NILSSON, M. (2015). "Innovation in peripheral regions: Do collaborations compensate for a lack of local knowledge spillovers?". *The Annals of Regional Science*, 54(1), pp. 299-321.
- GROSSETTI, M. (2008). "Proximities and embedding effects". *European Planning Studies*, 16, 5, pp. 629-642.
- HANSEN, T. (2014). "Juggling with proximity and distance: collaborative innovation projects in the Danish cleantech industry". *Economic Geography*, 90(4), pp. 375-402.
- HARDIN, R. (1992). "The street-level epistemology of trust". *Analyse & Kritik*, 14(2), pp. 152-176.
- HARTMANN, M. (2007). "What is a climate of trust". *Communication présentée au séminaire sur les modes d'existence des collectifs*, Lausanne.
- HOWELLS, J.R. (2002). "Tacit knowledge, innovation and economic geography". *Urban Studies*, 39(5-6), pp. 871-884.
- INGHAM, M.; DE VIRON, F.; TIHON, A. (2011). "Proximité entre parties prenantes et alignement stratégique". *Revue française de gestion*, 4, pp. 125-140.
- JEFFRIES, F.L.; REED, R. (2000). "Trust and adaptation in relational contracting". *Academy of Management Review*, 25(4), pp. 873-882.
- JENSEN, M.C.; MECKLING, W.H. (1976). "Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure". *Journal of Financial Economics*, 3, 4, pp. 305-36.
- KARSENTY, L. (2015). "Comment maintenir des relations de confiance et construire du sens face à une crise?". *Le travail humain*, 78(2), pp. 141-164.
- KHLIF, W.; ZÉGHAL, D.M. (2002). "La Complémentarité Confiance-Contrôle: L'Analyse du degré de confiance reflétée par la Lettre annuelle du président de l'entreprise 1". *NTIC et Comptabilité, Contrôle, Audit*, pp. 1-18.
- KIRAT, T.; LUNG, Y. (1995). "Innovations et proximités: le territoire, lieu de déploiement des processus d'apprentissage". In LAZARIC, N. et MONNIER, J.M. (eds.), *Coordination économique et apprentissage des firmes*, Economica, Paris.
- KIRAT, T.; LUNG, Y. (1999). "Innovation and proximity. Territories as loci of collective learning processes". *European Urban and Regional Studies*, 6, 1, pp. 27-38.
- KNOBEN, J.; OERLEMANS, L. (2006). "Proximity and inter-organizational collaboration: a literature review". *International Journal of Management Reviews*, 8, 2, pp. 71-89.
- KUMAR, N.; SCHEER, L.K.; STEENKAMP, J.B.E. (1995). "The effects of perceived interdependence on dealer attitudes". *Journal of Marketing Research*, 32(3), pp. 348-356
- LAGROYE, J.; FRANÇOIS, B.; SAWICKI, F. (2006). *Sociologie Politique*, 5^e édition, Presses de Sciences Po et Dalloz, Paris.
- LANGFIELD-SMITH, K.; SMITH, D. (2003). "Management control systems and trust in outsourcing relationships". *Management Accounting Research*, 14, 3, pp. 281-307.
- LARSON, A. (1992). "Network dyads in entrepreneurial settings: A study of the governance of exchange relationships". *Administrative Science Quarterly*, 37(1).
- LEFEBVRE H., (1974). *La production de l'espace*, Paris, Anthropos.
- LEWICKI, R.; BUNKER, B. (1996). "Developing and Maintaining Trust in Work Relationships". In KRAMER, R. et TYLER, T. (eds.), *Trust in Organizations: Frontiers of Theory and Research*, Sage Publications, pp. 114-139.
- LEWICKI, R.; MC ALLISTER, D.; BIES, R. (1998). "Trust and Distrust: New Relationships and Realities". *Academy of Management Review*, vol. 23, n° 3, pp. 438-458.
- LEWIS, J.D.; WEIGERT, A. (1985). "Trust as a social reality". *Social Forces*, 63(4), pp. 967-985.
- MORGAN, R.M.; HUNT, S.D. (1994). "The commitment-trust theory of relationship marketing". *Journal of Marketing*, 58(3), pp. 20-38.
- LORENZ, E. (1992). "Trust, community and cooperation: toward a theory of industrial district". In STORPER, M.; SCOTT, A. (eds), *Pathways to and regional develop*, Routledge, London.
- LORENZ, E. H. (1988). "Neither friends nor strangers: informal networks of subcontracting in French industry". In

- GAMBETTA, D. (ed.), *Trust: making and breaking cooperative relations*, London: Basil Blackwell, pp. 194-210.
- LUHMANN, N. (2001). "Confiance et familiarité. Problèmes et alternatives". *Réseaux*, 108, pp. 15-35.
- LUHMANN, N. (2006). *La confiance un mécanisme de réduction de la complexité sociale*. Economica, Paris.
- LUSSAULT, M. (2007). *L'homme spatial*. Seuil, Paris.
- MARZANO, M. (2010). *Le contrat de défiance*. Grasset.
- MATTES, J. (2012). "Dimensions of proximity and knowledge bases: Innovation between spatial and non-spatial factors". *Regional Studies*, 46(8), pp. 1085-1099.
- MAYER, R.C.; DAVIS, J.H.; SCHOORMAN, F.D. (1995). "An integrative model of organizational trust". *Academy of Management Review*, 20(3), pp. 709-734.
- MCALLISTER, D.J. (1995). "Affect-and cognition-based trust as foundations for interpersonal cooperation in organizations". *Academy of Management Journal*, 38(1), pp. 24-59.
- MCKNIGHT, D.H.; CHERVANY, N.L. (2006). "Reflections on an initial trust-building model". *Handbook of Trust Research*, 29.
- MÉRIADE, L. (2013). "L'appropriation par simplification des logiques d'évaluation du NPM dans les universités françaises". *@GRH, revue de l'AGRH*, 9, pp. 67-96.
- MÉRIADE, L.; NAUTRE, B.; ROCHETTE, C.; TALBOT, D. (2017). "Les effets de la Proximité sur l'exécution des politiques publiques: L'exemple d'un Centre de Lutte contre le Cancer". *Politiques et Management Public*, 34/1, janvier-juin 2017, pp. 143-162.
- MÉRIADE, L. (2019). "Financement des établissements de santé et territoires". *Revue d'Économie Financière*, Numéro spécial *Le financement des territoires*, n° 132.
- MÖLLERING, G. (2006). *Trust: Reason, routine, reflexivity*. Emerald Group Publishing.
- MORROW Jr, J.L.; HANSEN, M.H.; PEARSON, A.W. (2004). "The cognitive and affective antecedents of general trust within cooperative organizations". *Journal of Managerial Issues*, pp. 48-64.
- NONAKA, I. (1994). "A dynamic theory of organizational knowledge creation". *Organization Science*, 5(1), pp. 14-37.
- NONAKA, I.; TAKEUCHI, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. Oxford university press.
- NILSSON, M. (2008). *A tale of two clusters: Sharing resources to compete*. Lund University.
- NILSSON, M.; MATTES, J. (2015). "The spatiality of trust: Factors influencing the creation of trust and the role of face-to-face contacts". *European Management Journal*, 33, 4, pp. 230-244.
- OFFE, K. (1999). "How can we trust our fellow citizens?". In WARREN, M. (ed.), *Democracy and Trust*, Cambridge, Cambridge University Press, pp. 42-87.
- OUCHI, W.G. (1979). "A conceptual framework for the design of organizational control mechanisms". *Management Science*, 25, 9, pp. 833-848.
- PECQUEUR, B.; ZIMMERMANN, J.B. (eds) (2004). *Économie de Proximités*. Hermès, Lavoisier: Paris.
- PIERRU, F. (2012). "Le mandarin, le gestionnaire et le consultant". *Actes de la recherche en sciences sociales*, 194, 4, pp. 32-51.
- PORTER, L.W.; STEERS, R.M.; MOWDAY, R.T.; BOULIN, P.V. (1974). "Organizational commitment, job satisfaction and turnover among psychiatric technicians". *Journal of Applied Psychology*, 59, pp. 603-609.
- RAJAABELINA, L. (2011). *Les antécédents et les conséquences de la confiance en ligne: le cas du secteur financier*, Thèse de Doctorat, Université du Québec à Montréal.
- RAMONJAVELO, V. et al. (2006). "Une assise au développement des PPP: La confiance institutionnelle, interorganisationnelle et interpersonnelle". *Administration publique du Canada*, 49, 3, pp. 350-374.
- ROTTER, J.B. (1971). "Generalized expectancies for interpersonal trust". *American psychologist*, 26(5), p. 443.
- RYCHEN, F.; ZIMMERMANN, J.B. (eds) (2008). "Clusters in the Global Knowledge-based Economy: Knowledge Gatekeepers and Temporary Proximity". *Regional Studies*, Special Issue, 42, 6, pp. 767-776.
- SAVOIE, A.; BRUNET, L. (2000). "Climat organisationnel et culture organisationnelle: apports distincts ou redondance?". *Revue québécoise de psychologie*, 21, 3, pp. 179-200.
- SHAPIRO, S.B. (1987). "The instructional values of humanistic educators: An expanded, empirical analysis". *Journal of Humanistic Counseling, Education & Development*.
- SHERWOOD, A.L.; DEPAOLO, C.A. (2005). "Task and relationship-oriented trust in leaders". *Journal of Leadership & Organizational Studies*, 12(2), pp. 65-81.
- SCHNEIDER, B. (1975). "Organizational climates: An essay 1". *Personnel Psychology*, 28.4, pp. 447-479.
- SCHOORMAN, F.D.; MAYER, R.C.; DAVIS, J.H. (2007). *An integrative model of organizational trust: Past, present, and future*.
- TAYLOR, S.; SPICER, A. (2007). "Time for space: A narrative review of research on organizational spaces". *International*

Journal of Management Reviews, 9(4), pp. 325-346.

TORRE, A.; GILLY, J.P. (2000). "On the analytical dimension of proximity dynamics". *Regional Studies*, 34, 2, pp. 169-180.

TORRE, A.; RALLET, A. (2005). "Proximity and localization". *Regional Studies*, 39, 1, pp. 47- 60.

TORRE, A.; ZUINDEAU, B. (2009). "Proximity economics and environment: assessment and prospects". *Journal of Environmental Planning and Management*, 52, 1, pp. 1-24.

TURNER, K.L.; MAKHIJA, M.V. (2006). "The role of organizational controls in managing knowledge". *Academy of Management Review*, 31(1), pp. 197-217.

WACHEUX, F. (1996). *Méthodes qualitatives et recherche en gestion*. Economica gestion, Paris.

WILLIAMS, M. (2001). "In whom we trust: Group membership as an affective context for trust development". *Academy of Management Review*, 26(3), pp. 377-396.

WILLIAMSON, O. (1985). *The Economic Institutions of Capitalism*. New York, The Free Press.

WILSON, J.M.; BOYER O'LEARY, M.; METIU, A.; JETT, Q.R. (2008). "Perceived proximity in virtual work: Explaining the paradox of far-but-close". *Organization Studies*, 29, 7, pp. 979-1002.

WIMBUSH, J.C.; SHEPARD, J.M. (1994). "Toward an understanding of ethical climate: Its relationship to ethical behavior and supervisory influence". *Journal of Business Ethics*, 13, 8, pp. 637-647.

ZAHEER, S.; ALBERT, S.; ZAHEER, A. (1999). "Time scales and organizational theory". *Academy of Management Review*, 24(4), pp.725-741.

ZUCKER, L.G. (1986). "Production of trust: Institutional sources of economic structure, 1840-1920". *Research In Organizational Behavior*, 8, pp. 53-111.

Crowdfunding Paris bid for the 2024 Olympics, overconfidence?

Le crowdfunding pour la candidature aux JO Paris 2024, un excès de confiance ?

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ABSTRACT

This article analyzes the failure of the crowdfunding campaign of Paris for the 2024 Olympic Games. After studying the concept of trust from a crowdfunding standpoint, key factors for a successful campaign are examined with the case of « Paris

2024 ». The campaign was over confident in people's trust for the project which they didn't support.

Key-words

Trust, crowdfunding, press articles, Paris 2024 bid for the Olympics

RÉSUMÉ

L'article analyse les causes de l'échec du financement participatif du projet d'organisation des Jeux Olympiques à Paris en 2024. Après avoir étudié le concept de confiance, dans l'optique du *crowdfunding*, les conditions de réussite d'un projet sont définies pour considérer « Paris

2024 » dans ce cadre théorique. Son échec est dû à un excès de confiance.

Mots-clés

Confiance, crowdfunding, articles de presse, dossier de candidature JO Paris 2024

INTRODUCTION

The crowdfunding platforms are based on the complicity that the project developers are able to develop with an audience eager to financially support their project. Crowdfunding acts as a filter for selecting the best ideas. From this point of view, building trust at both the individual and the collective level is crucial to success. More recently, the multiplication of platforms has led to disintermediation of project funding. In this context, the candidate cities for the organization of the Olympic Games are trying to generate excitement among their population. Thus, the candidacy of Paris 2024 offers an excellent case study. The article is organized in the following way: in the first part, we will define the confidence then the concept of crowdfunding and its various components. In the second part, we will see what the criteria are for the success of a project. Finally, in the third part, we will focus on the reasons for the failure of Paris 2024 by identifying its explanatory factors.

1. THE TRUST

Trust is a notion that has evolved while keeping an important place in the relations between economic agents, whether the transaction is direct or virtual.

1.1. Trust in Management

Despite much research, trust remains a difficult concept to define (Simon-2007). It has been studied, in particular by Zucker (1986) according to its mode of production, the relations between the stakeholders: individuals, organizations (Delerue and Bénard - 2007) or institutions (Mangematin - 2009), or, from an economic perspective (Williamson - 1993, Koenig -1994). All authors agree on the idea that trust facilitates business relationships. Chouk and Perrien (2003) define trust as an emotionally charged expectation that includes a cognitive (credibility) and affective (benevolence) component. The term trust is always associated with positive expressions. Thus, Bornarel (2007) analyzes the definitions of trust, whose first axis emphasizes the moral dimension, then optimistic and honest of this concept. For this author, trust is a mechanism facilitating the

establishment of collaborative relationships (Hosmer -1995), or the desire to attribute good intentions to other individuals (Cook and Wall -1980). Delerue and Bénard (2007) speak of an *“optimistic attitude of the individual regarding the results of an event”*.

Trust intervenes, facilitating exchange relations. Some authors have focused on trust between individuals, between organizations and between institutions (Zucker -1986, Mangematin - 2009, Simon 2007). As an extension of the work of Thuderoz, Mangematin, Harrisson (1999), Joffre (2007) *“distinguishes between three forms of trust depending on their mode of production: relational trust is based on the past or expected exchanges based on reputation or a gift / donation. Institutional trust is attached to a formal structure that guarantees the specific attributes of an individual or organization; finally, trust intuitu personae is attached to a person according to specific characteristics such as belonging to a given family, ethnicity or group”*. This last form of trust can therefore appear within communities. Joffre (2007) concludes his research with *“trust is not generated only within the company: it is an issue that abolishes the boundaries of the organization”*. Thus, the notion of trust can be a determining element of relations between individuals of the same community, but also between individuals and institutions.

1.2. Trust in the digital era

While the Internet has taken a growing place in relations both interpersonal and inter-organizational, trust seems essential to understand transactions on the web (Issac and Volle -2008). Following from this idea, Chouk and Perrien (2003) argue that trust *“seems to be the cornerstone of any exchange relationship”*. These authors define trust in a commercial site as *“the consumer’s expectation that the e-merchant will not exploit its vulnerability and that it will honor its commitments promised on the site”*.

The arrival of the internet has led to a switch from real transactions to virtual transactions. But, the web has allowed other economic areas to develop. Currently, the banking sector is shaken by the arrival of new electronic economic agents: crowdfunding platforms. Trust plays a vital role in the exchange relationships that occur on the platforms.

2. THE CONCEPT OF CROWDFUNDING

In this context, crowdfunding is a form of financing that is increasingly successful. Electronic platforms allow project owners to use social networks to communicate with as many potential contributors as possible. Trust is indispensable at many levels to ensure success.

2.1. A Web based financing method

Whether they are startups or various projects, creators have to face financing difficulties. Banks, communities, or sponsors may not provide sufficient funding to allow projects to proceed. To address this problem, crowdfunding platforms have emerged on the Internet. Thus, project promoters, through these platforms, appeal to the greatest number to benefit from financing.

Crowdfunding is a buoyant topic (use of social networks, internet, community spirit ...). If the phenomenon is not recent, some do not hesitate to mention the funding of the base of the Statue of Liberty as the first significant financial participant (Hemer - 2011, Maalaoui and Conreaux - 2014), the development of the Internet has given a new breath to this concept.

2.2. Crowdfunding, a process

Despite crowdfunding being new in its current form, many authors have already been interested. Crowdfunding is defined by Belleflamme, Lambert and Schvienbacher (2011) as an open call, mostly made via the internet, to obtain financial resources in exchange for donation, future product, other forms of rewards and / or rights of voting, with the aim of supporting an initiative for the realization of projects. Thus, crowdfunding “*refers to the effort of individual entrepreneurs and groups - cultural, social, merchant - to finance their activities by appealing to relatively small contributions from a large number of individuals via the Internet and without no conventional financial intermediaries*” (Mollick, 2014).

The platform is the main intermediary of this method of financing. On the one hand, it welcomes the

porters' projects, making the latter visible, and on the other hand, it allows contributors to learn about existing projects and contribute to them.

2.3. From “love money” activation to a community of values

The role of the project leader does not end with the presentation of his project. Indeed, he must make his project known to the greatest number, starting with his own community. Bessière and Stéphany, (2014) define a community as “*a group of individuals who share common goals and values*”.

The development of the Internet has enabled virtual communities to create themselves. For Rheingold (1993) a virtual community is a group of individuals who share ideas via social networks. Thus, we will remember that a virtual community is a community (group that shares the same values) whose exchanges, links, contacts, relationships are spread through the net.

With a view to crowdfunding, the community of the project promoter starts from their friendly and family relations, to reach their personal relationships, to reach the general public (Onne and Renault, 2013, Ricordeau, 2013). Thus, the virtual community can be schematized into three concentric circles. The first being “love money”, integrated into the second circle of the virtual community, to extend to the community of values (Diagram 1).

The project leader has the responsibility of activating his community, that is to say to inform about his project and then to encourage him to participate financially. This must be progressive, first of all to activate the “love money” community, which is the easiest to convince because it knows the project leader, then members of this first circle will become ambassadors of the project. In parallel, when this process is engaged, the wearer activates his virtual community. The latter will realize that people have already contributed to the financing of the project, which gives them confidence and will affect the entire “virtual community”. Finally, a contagion effect is desirable in order to reach the “community of values”. Confidence plays a considerable role in the process of orders between circles.

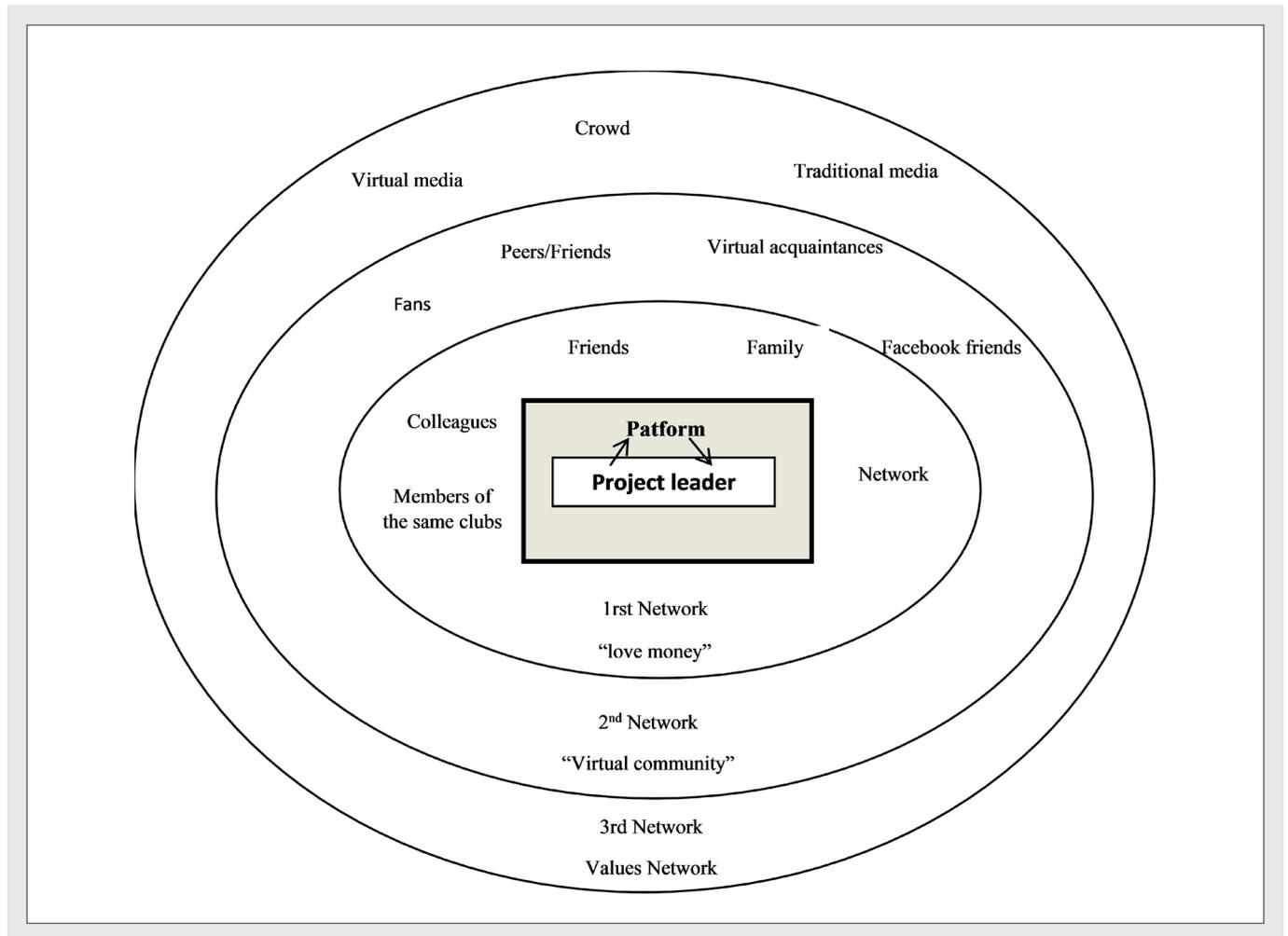


Diagram 1 – Circles shaping the community (real and virtual) in the crowdfunding process
(Source: Abdourazakou and Leroux-Sostenes - 2016)

2.4. Trust in the crowdfunding process

Contributors participate in the process by financially supporting a project. This act is comparable to a purchase on the Internet the contributor, unlike the e-consumer, does not order an article, but contributes to a project in exchange for which he will receive a reward. The latter varies according to the project and the amount committed, the contributor always knows the counterparties before proceeding with the transaction (Onnée and Renault, 2013).

In every transaction, trust comes to the seller, the company and the brand (Chouk and Perrien, 2003). But for these authors, *“the advent of e-commerce has created a new entity that an e-consumer can trust: the company’s website”*. Transposing this idea to the crowdfunding context suggests that a

contributor must have confidence in the platform. In an online purchase, e-consumers are interested in the opinions of users of the site, in the case of crowdfunding, contributors must have confidence in the community that is committed to supporting the project.

Trust in the process is present at many levels (Diagram 2). First, it is essential that the project leader has trust in himself and his project. Indeed, if he fears being rejected by a platform, the skepticism of his own community, or publicly exposing his project, the process will stop by itself (Gerber and Hui, 2013). Mitra and Gilbert (2014) show that in the presentation of the project, the words relating to the reciprocity, optimism and trust of the creator favor the success of the project. Then, trust must be reciprocal between the project leader and the platform. Indeed, the latter is the cornerstone of the process.

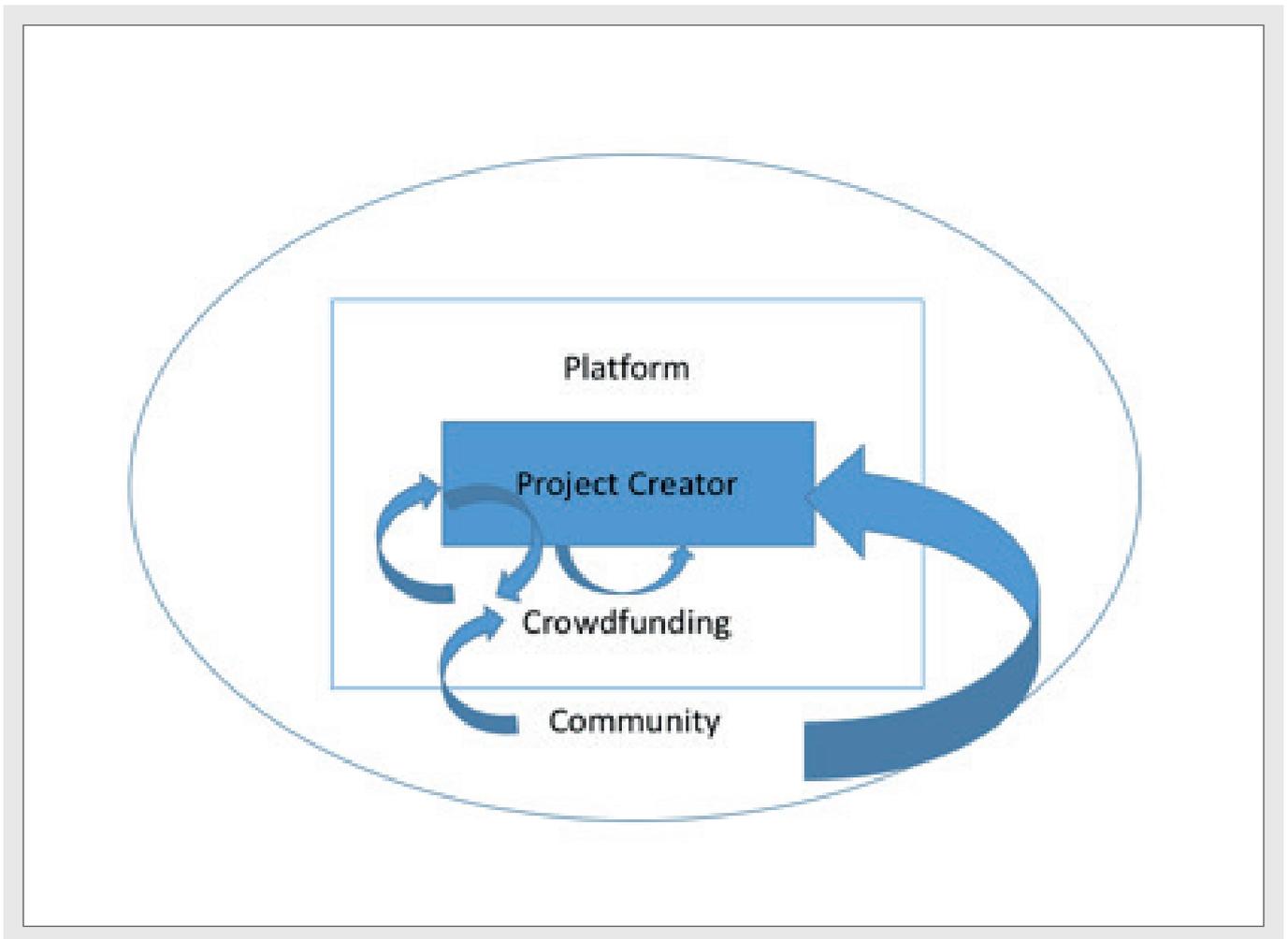


Diagram 2 – The different relationships of trust in the crowdfunding process

It is she who decides, from her own criteria to accept or reject a project. In addition, it is a relay of information to a wider crowd of individuals. Finally, contributors will only act if they have trust in the platform, the project leader and their community. Indeed, the quality of the project, the personality of the project leader, the reliability of the platform, the sums collected at the beginning of the collection, as well as the first donors (Mollick, 2014, Tarteret, 2014) are decisive elements in the spread of trust to the virtual community.

3. CROWDFUNDING PROJECT SUCCESS' CONDITIONS

The conditions for success of a crowdfunding project are multiple and can partly offset each other. Consistency between the project, the carrier and its community is the first condition, the choice of the platform and the favorable circumstances of the environment are two more.

3.1. Project - carrier - community coherence

The project leader must be perceived as legitimate in relation to his project. Indeed, his personality, his skills, his potential must justify his ability to succeed. For Ricordeau (2013): *“There are two main reasons*

for the failure of crowdfunders. The first is that very often, the creator of the project is not legitimate vis-à-vis his community and by the force of things, he can not mobilize[...]”¹.

In addition, the amount to be financed must be consistent with the project, even if it represents only a part of it and with the power of the bearer community. For Belleflamme *et al.* (2011), the project leader must set a price by making a compromise between the amount of capital requested (the objective) and the number of contributors needed to reach this amount. Hardy’s research (2013) leads him to write that high-income contributors participate more than others.

Since the communication of the project propagates from the first circle to the third so-called “community of values”, it is necessary that a part of the persons belonging to each of the circles be ambassadors of the project. Thus, in a pragmatic way, the Coesia site², putting itself in the wearer’s shoes, writes: “I must therefore evaluate my ability to mobilize my various networks to turn them into a support community”.

According to the definition of Onnée and Renault (2013), the project leader can be an individual, a market organization or a non-market organization. Thus, whatever its status, the project leader must be clearly identified by the platform as by his community. This is an essential condition to activate the first circle “love money”. For these same authors, “the support is at heart to know the project leader, including its imperfections”.

The project should allow to write a story telling to move the managers of a platform, then the potential contributors, in order to create buzz. The project must be easy and quick to understand, it must be presentable, uses a positive vocabulary and be a reflection of the trust of the wearer in his project.

The amount requested must therefore be realistic. In the sports sector in France, the average amount of projects is € 2,000 on the Sponsored Me platform and € 6,000 on the Fosburit platform. In the “Fundamental Principles” section, the “Sponsored Me” website advises the holder of reasonable amounts because if the amount requested is not reached, contributors are fully reimbursed (“all or nothing” principle). As for the Coesia site³, it makes the link between the amount requested and the duration of the collection. Thus, he advises the project leader to “properly calibrate” the collection, warning: “the shorter the duration of my fundraising, the more my community is mobilized”.

The largest fundraising event in France in the sports sector is, to our knowledge, the “Avenue of Legends” project, supported by the “Sponsor Me” platform, which raised € 245,522, while the objective was only € 100,000”⁴. In the US, according to the French web site, “This is the idea of Ryan Grepper who holds the record of funds collected via a crowdfunding platform with \$ 13,285,226”⁵. Despite these examples, the higher the amount of capital requested and the duration of the collection, the greater the risk of failure (Tarteret, 2014).

The scale of counterparties offered to contributors must be “consistent and attractive” (Onnée and Renault, 2013). These authors advise to retain the “rule of three levels”. The first level, in exchange for a small sum, the contributor is offered an often symbolic reward. In a second level, we talk about “main counterparts” (e.g. in the case of a crowdfunding aiming to create a product, a service... receive a preview of this product, receive a place for a show that the we helped finance ...). Finally, in the third level, “a part of the dream is offered”, so that the “contributor has the feeling of privilege”. The platform Sponsor Me called “money can not buy”, that is to say to offer a unique reward, which can not be bought...

1 [URL: <http://rue89.nouvelobs.com/2015/01/28/grand-cimetiere-projets-crowdfunding-avortes-257374>], consulted the April 7, 2016.

2 [URL: <http://www.coesia.fr/blog/5d33sveu/10-conseils-pour-reussir-le-financement-participatif-par-recompense>].

3 [URL: <http://www.coesia.fr>], *op. cit.*

4 [URL: <https://fr.sponsorise.me/fr/projet-rect>], [URL: <http://www.rctoulon.com/news/article/reservez-votre-pave-sur-lavenue-des-legendes/>].

5 [URL: <http://www.frenchweb.fr/quels-sont-les-plus-gros-montants-collectes-sur-les-plateformes-de-crowdfunding/202399>], consulted the April 7, 2016.

3.2. Platform choice

The market for crowdfunding platforms is not yet stabilized. A first distinction is emerging between generalist platforms (hosting all types of projects) and specialized platforms (cultural, ecological, sports projects, etc.). In addition, platforms to promote the success of projects use their press relations or sponsor companies (Abdourazakou and Leroux-Sostenes, 2016) with whom they work.

These must give confidence to both the project leader and the contributors. Thus, the perception of site security, respect for privacy and ease of use have an impact on online trust. These criteria presented by Toufaily *et al.* (2010) in a search concerning the commercial sites, are transposable to crowdfunding platforms.

Thus, all platforms have their own characteristics and the carrier must retain the platform that best meets its objectives and that will not be a drag on contributors.

3.3. The influence of the environment

Tarteret (2014) considers that three dimensions related to the external environment are likely to influence the success of the project: the geographical, informational and the economic context.

The creator is the starting point of the project. Thus, geographic and informational dimensions are important during the launch phase. Because it is about touching the first “love money” circle, the circle closest to the wearer, as well from a geographical point of view (friends, people met daily...) that is informational. Indeed, this circle will be sensitized first. On the other hand, when the second circle is informed, the geographical dimension loses its power. With the Internet, borders are abolished (Rheingold, 1993). As for the economic context, if it plays a role for business start-up projects, in which fundraising is important and the contributors are companies, it has little influence when the contributors are essentially individuals and that the amounts requested do not exceed a few thousand euros.

A project leader must take into account different variables in order to propose a quality and coherent project between: the presentation, the amount, the duration, the scale of the counterparties, and his community. The choice of the platform concerns its reputation, and its mechanism of operation. The bearer community must be sufficiently important and active throughout the project. But the responsibility for success remains with the bearer, it is up to him to impel from the acceptance of the project, and over all its duration the energy necessary to persuade his various communities to support his project.

4. THE CROWDFUNDING FOR THE NOMINATION OF THE PARIS 2024 OLYMPICS

After having recalled the conditions of success of a crowdfunding project, integrating the confidence variable, the “Paris 2024” case will be presented. Then, the various explanatory factors of the failure of this crowdfunding campaign will be analyzed, to conclude on a failure ultimately without consequences on the realization of the project. But initially the methodology chosen for this research will be presented.

4.1. Methodology

The chosen methodology is first of all that of the case study. This method is particularly adapted to this work because it is an empirical method to explain a contemporary phenomenon (Yin - 2003). The crowdfunding project for the bid for the Paris 2024 Olympic Games meets this criterion, since it took place from September 15 to December 31, 2015. In addition, the realization of a crowdfunding project for the candidacy of a city at the Olympic Games is a unique phenomenon⁶, so the unique case study method has become essential in this work. Indeed, for Yin (1990), quoted by Gavard-Perret *et al.* (2012), three situations lead the researchers to retain the unique case method, “*the willingness of the researcher to test a theory; the uniqueness of the case which ensures the rarity of the phenomenon*

⁶ [URL: <http://www.20minutes.fr>], the 1/09/2015, [URL: <http://www.lequipe.fr>], the 24/09/2015.

observed; highlighting an un-studied case». The study of this case “*candidature file for the Paris 2024 Olympics*” was used to test the key success factors of a crowdfunding project on an extraordinary project. Indeed, the various research projects that make it possible to define the criteria for success, or to analyze the causes of failure of this type of project, mainly concern business creation projects (Belleflamme *et al.* - 2011, Bessière et Stéphany -2014), sports projects (Abdourazakou and Leroux-Sostenes - 2016) or platform studies (Onnée and Renault - 2013). In addition, this case to our knowledge has not yet been researched.

To study this unique case, a collection of information from a documentary study of 43 articles published from November 9, 2014 to December 14, 2015, on French newspaper web media (l’Equipe, Le Figaro, 20 minutes, Opinion, Point, Echoes, Paris), radio and television (RMC, BFM TV), sites specialized in sports information (Sport and Society, Sport Buzz Business, sports RV) and the site “I dream of the Games”. Since the project in this study is aimed at all French people and has been highly publicized, researchers have been interested in the evolution of the content of press articles, accessible to all, so the “crowd”, is the target of everything in the crowdfunding project.

Based on the information collected, a thematic analysis was conducted. Each success criterion of a crowdfunding project identified in the first part of this article is a theme, the “failure” and “confidence” variables completed this approach. This work focuses only on facts and opinions published in the press, so secondary information.

The information collected on these different medias is convergent, proof of the impartiality of the journalists, therefore of relevant information for this research, even if the collection of the information was not exhaustive. Three periods stand out, the preliminary draft from November 2014 to

August 2015, the launch of the project (September - October 2015) and the interim balance sheet period (November - December 2015).

4.2. Project display

The Paris City Hall, the Sport Movement and all the elected representatives of the Region are the stakeholders of the Paris bid for the 2024 Olympic Games (Patrick Kanner, Minister of the City, Youth and Sports)⁷. The budget needed to complete the application file is €60 million⁸.

Bernard Lapasset, rapporteur of the study on the projected budget, wants “*funding at three levels: the state will have its share, the business world must have its own [...] and at the same time with a third third, the Sport Movement itself*”⁹. The latter, chaired by Denis Masegla (President of the French National Olympic and Sports Committee (CNOSF), has put forward several possible ways of financing, notably the realization of an “Olympic Telethon” organized by France Télévision¹⁰, an increase of the amount of the license of all French practitioners¹¹, but it is the crowdfunding that has finally been retained. This allows the use of a new mode of financing, participative and collaborative, “*In the age of Web 2.0 it would have been a shame to deprive oneself of the news fundraising methods*”¹².

This decision was taken in particular on the basis of an opinion poll conducted on 10 November 2014 by the marketing and communication agency Uniteamsport¹³. The latter concludes that “68% of Ile-de-France residents are in favor of a Paris bid for the organization of the 2024 Summer Olympics”, that “60% of French people aged 18 and over are in favor of applying to Paris”. Les Echos website states that the survey was conducted with a national sample of 1,000 people, representative of the French population.

⁷ [URL: <http://sportetsociete.org>], February 13, 2015.

⁸ Bernard Lapasset, President of the French Committee of International Sport, [URL: <http://sportetsociete.org>] February 13, 2015.

⁹ [URL: <http://sportetsociete.org>], *op. cit.*

¹⁰ [URL: <http://www.lopinion.fr/9-novembre-2014>], [URL: <http://sportetsociete.org>], May 3, 2015.

¹¹ [URL: <http://www.lopinion.fr>], *op. cit.*

¹² [URL: <http://www.2ominutes.fr>], the 1/09/2015.

¹³ [URL: <http://www.lesechos.fr>], November 14, 2014, [URL: <http://www.2ominutes.fr>], du September 1, 2015.

The choice to carry out a crowdfunding project, has two objectives, as stated on the site Rendez-Vous Sportif, “*The objective of this campaign is simple: to mobilize all players in the sport and encourage the general public to participate in different ways to finance and obtain these Olympic Games*”¹⁴. Thus, on the one hand it is a question of financing part of the 60 million € necessary to the file of candidature and on the other hand, to show the craze of the Parisians and more generally the French for the organization of the Olympic Games in France. This second argument has gained importance in recent decades. Indeed, “*the adhesion to the Olympic projects of the populations concerned is [...] become, with the wire of the editions, one of the priorities of the choice of the International Olympic Committee (CIO), elector of the cities hosting the Olympics*”¹⁵. This last argument is advanced by Denis Masegla, who told the press: “*Show that the dream of the Games is shared*”¹⁶. Moreover, the city of Boston has renounced his candidacy for these two reasons¹⁷.

A contributor can participate in the crowdfunding project “I dream of the Games” in different ways¹⁸: sending SMS, buying a bracelet, participating in the “wall of contributors” and the sporting goods auction, being a part 2024 first contributors, or participate in a Gala dinner.

4.3. The explanatory factors

The “crowd” did not respond to the many solicitations offered by the “I dream of the Games” platform. The causes of this rejection are multiple and will be analyzed by looking first at the project leader, at the project itself, at the communication that was made, to end with the choice made at the platform level. A comparison with the conditions of success of a project is made for each of the characteristics of this case.

4.3.1. A singular and plural project leader

Denis Masegla, the President of the French National Olympic Sports Committee, presents the crowdfunding project he has been carrying out since the start¹⁹. However, when the press takes hold of the subject, the bearer seems less clearly identified, and more represented by a group of people, directly involved in the project (ex: “*all the actors of the French sport, whose professional Leagues like the pointed out Frédéric Thiriez (President of the LFP)*”²⁰, “*the bearers of the Parisian candidacy*”²¹, “*several big names in tricolor sports - including Tony Parker*”²², “*supporters of Paris for the JO-2024*”²³...). Thus, it seems difficult for “the crowd” to identify the project leader, to make sense of it, even with its defects (Onnée and Renault-2013). The bearer is therefore represented by a set of organizations. The identification becomes much more opaque, which represents the first difficulty to create a bond of trust with potential contributors.

4.3.2. An extraordinary project

A crowdfunding project is defined by its quality, the amount requested, the duration of the campaign, and the scale of the proposed counterparties. The project must allow to write beautiful stories, to move both the leaders of the support platform and the crowd. Thus, if the project “Paris 2024” had been perceived by Parisians and more broadly by the French, as the first step on the way to the organization of the Olympic and Paralympic Games in Paris, then it would have allowed to have a strategy of “story telling”, to make live strong emotions. On the other hand, a project perceived as a request for financing for the constitution of a file of candidature, is administrative, and is not a carrier of emotion. Thus, in the case of this campaign

¹⁴ [URL: <http://lerdvsporitif.fr>], September 2015.

¹⁵ [URL: <http://www.lepoint.fr>], the 2/09/2015.

¹⁶ [URL: <http://www.lesechos.fr>], 14/11/2014.

¹⁷ Sabbah C. (2015), “JO 224: Paris sort le grand jeu”, *Les Échos*, November 9, 2015.

¹⁸ [URL: <http://www.sportbuzzbusiness.fr>], du 2/09/2015, [URL: www.jerevedesjeux.com/].

¹⁹ [URL: <http://www.lequipe.fr>], the 24/09/2015.

²⁰ [URL: <http://www.20minutes.fr>], the 1/09/2015.

²¹ [URL: <http://sportetsociete.org>], the 3/05/2015.

²² [URL: <http://sportetsociete.org>], the 3/05/2015.

²³ [URL: <http://www.lepoint.fr>], the 2/09/2015.

“Paris 2024”, “*Vincent Ricordeau, co-founder of KissKissbankbank, insists on the question of the ‘legitimacy’ of the project. In other words, there is no question of the donor having the impression of having to pay an ‘indirect digital tax’*”²⁴. Thus, the fact of having involved “the crowd” from the outset of the project in the case of “Paris 2024” was not perceived positively by the latter.

This raises the question of the choice of the financial amount requested for this project. Indeed, “*the bid committee Paris 2024 will use crowdfunding to find part of the 60 million euros needed to successfully complete the candidacy of Paris for the 2024 Olympics*”²⁵. Several journalists estimated the expected amount of this crowdfunding, “*the CNOSF would reap 10 to 12 million euros to finance his application*”²⁶. On the other hand, neither Denis Masegla nor Loïc Yviquel, (co-founder of Sponsorise.me, crowdfunding platform specialized in sport and chosen by the CNOSF), have specified a quantified objective. The latter explains: “*Never has a crowdfunding campaign been attempted to finance a candidature for the Olympic Games. It is therefore difficult to anticipate the amounts that will be collected*”²⁷. Similarly, when Marc Ventouillac, a journalist with the team, asked the CNOSF president about the amount, he said: “*What we are doing has never been done, so we can not give figures. We feel that there is a potential based on the investigations that have been done. There will be 1.5 million bracelets for sale in supermarkets and one million buffer stock. But for SMS, I can not give figures*”²⁸.

However, in crowdfunding, a budget is always defined. Indeed, platforms operate on the principle of “all or nothing”. Thus, not to fix an amount is

implicitly to announce that whatever the reception of the public for the project, this one will be realized. What makes Ricordeau say: “*my fear is that people feel that their participation is not vital to the project*”²⁹. In the “Paris 2024” case, the “all or nothing” method is not respected. The RMC Sport site³⁰ specifies: “*In fact, the donors will not be refunded if the candidacy of Paris is not retained but they will be entitled to a counterpart for their donations (bracelet ‘I dream of the Games’ drawn by Luc Abalo...)*”.

Thus, voluntarily or not, in fine, the general public will finance the project. Indeed, Loïc Yviquel confit to the site 20minutes.fr: “*whatever the amount collected, it will be all the less money to go to the taxpayers, via taxes or taxes*”³¹. Thus, for Ricordeau, “*The question of the budget is also a stumbling block*”³².

The crowdfunding campaign ran from September 25 to December 31, 2015³³. A little over three months of collection is a long time but remains in the standards. The donations were not regular, which is usual. At the beginning of the campaign the sums collected were important. On Friday, October 23, the platform “I dream of the Games” reached the symbolic mark of € 500,000³⁴, while the month of November has raised only € 100,000. “*This breathlessness can no doubt be explained by the repercussions of the recent events in Paris, and by the lack of communication of Paris 2024’s candidature during the last days*”³⁵. This observation joins the work of Tarteret (2014) who writes that the longer a collection is, the higher the risk of failure.

The counterparty scale (Table 1) respects the principles developed by Onnée and Renault (2013). Indeed, it is on the one hand “coherent and seductive” and

²⁴ [URL: <http://www.lepoint.fr>], the 2/09/2015.

²⁵ Roberto Schmidt / AFP: [URL: <http://www.20minutes.fr>], the 1/09/2015.

²⁶ [URL: <http://rmcsport.bfmtv.com>], the 25/09/2015.

²⁷ [URL: <http://www.20minutes.fr>], the 1/09/2015.

²⁸ [URL: <http://www.lequipe.fr>], the 24/09/2015.

²⁹ [URL: <http://www.lepoint.fr>], the 2/09/2015.

³⁰ [URL: <http://rmcsport.bfmtv.com>], the 25/09/2015.

³¹ [URL: <http://www.sportbuzzbusiness.fr>], the 2/09/2015.

³² [URL: <http://www.lopinion.fr>], the 9/11/2014.

³³ The campaign was finally extended until 17 February 2016 ([URL: <http://www.sportetsociete.org>], 05/01/2016) without significant consequences..

³⁴ [URL: <http://sportetsociete.org>], the 24/11/2014.

³⁵ [URL: <http://sportetsociete.org>], the 24/11/2014.

Contribution	Cost of the contribution	Counterpart
Envoi de SMS	0,65 €	Thank you message
Bracelet "I Dream Games"	2 €	Bracelet
Digital wall of contributors	20,24 €	Diploma; Names / names included in the "Wall of contributors" on the CNOSF website.
2024 supporters	6072 € (over 3 years)	Medal specially edited; Access to privileged information on the news of the bid; Invitations for special events; (It is expected each year the publication of a double page in the newspaper L'Equipe with the list of 2024 contributors)
Exceptional Gala Dinner	Not communicated on the website	Invitation for an exceptional gala dinner organized in 2016 in a prestigious venue; Opportunity to meet champions and personalities Special auction
Auction	Principle of the auction	Sporting objects belonging to prominent athletes donors; Donors name making the headlines of the newspaper L'Equipe.

Table 1 – Scale of the counterparties of the "Paris 2024" crowdfunding project, created from the site "Je rêve des Jeux"

conforms to the rule of the three levels. Thus, the sending of SMS, which is a symbolic contribution, makes it possible to receive a counterpart which presents the same characteristic, while the three contributions: "2024 contributors", "Exceptional gala dinner" and "Auction" allow to access to "money can not buy" counterparties. These counterparties grant visibility to contributors such as your first names / names will integrate the "contributors' wall" on the CNOSF website, or the headlines of the newspaper L'Equipe, which is specifically named. But is this visibility sought by contributors or do they prefer to remain anonymous? The question needs to be asked. This element could slow down the movement.

The sale of the bracelet has been opened to other circuits than the "all Internet" ("For Paris 2024, many partners have already made their network available: supermarkets, sports shops, banks, the

points of sale of the French Games, the Medef, but also the Federations"³⁶...). This multiplication of outlets would have made it possible to broaden the target of potential donors, especially those with a low level of familiarity with crowdfunding platforms. However, in crowdfunding, the platform is a central element that informs potential contributors, which allows to create a virtual community. The sale in supermarkets, beside the boxes, does not refer to these notions. On the other hand, these channels of distribution make it possible to reach all the French, objective of the project.

4.3.3. Communication issues

The communication for the success of crowdfunding is based on the strategy of the three circles and on a regular update of information about the project

36 [URL: <http://www.lesechos.fr>], the 23/06/2015.

in order to make it live. The launch phase “with great fanfare”³⁷ showed the strong mobilization of the French Sports Movement: “*More than 150 athletes are expected Friday night at the French Olympic Committee to participate at 20:24 in the launch of the operation ‘I dream of the Games’*”³⁸. Until the symbol of the hour, 20:24, this operation was intended grandiose. Thus, Gilles Festor du Figaro continued: “*The IOC had however seen things in large on September 25th at the launch of the campaign. Teddy Riner, eight-time world judo champion and Tony Parker, basketball player for the San Antonio Spurs, had supported a party bringing together in Paris a host of great names in French sports and personalities of all kinds. A successful event, perfectly relayed by the media with direct in the newspapers of 20 hours on TF1 and France 2*”³⁹.

Other French sports organizations wanted to join the communication campaign of the project. Thus, “*the LFP will join this campaign with a mobilization of professional clubs on the occasion of the 7th day of Ligue 1 (22-23-24-30 September) and the 8th day of Ligue 2 (21-22 September). On this occasion, all players will evolve on the field with a cuff ‘I Dream Games’ and the messages will be relayed on giant screens, LED panels and announcements by speakers to encourage viewers to send support SMS and to pay a sum on a platform of crowdfunding*” ensures Frédéric Thiriez, President of the League of Professional Football⁴⁰. Thus, if traditionally project holders seek to reach the media, that is to say the third circle, so as to reach people they do not know, a campaign always begins with the circle “love money”, to spread in the second circle, the “virtual community”. However, in the case of the application file, only the third circle seems to have been activated. Thus, this communication did not respect the theory of the circles, the communication then turned into cacophony. Denis Masegla, himself saying: “*we want to ensure that all social networks can relay information...*”, Relies on ambassadors of the project and not on its circle “love money” and the first donors, a key factor for success.

In a crowdfunding operation (other than a start-up), the target of the communication is the crowd that constitutes the potential contributors. However, in the case of the financing of “Paris 2024”, this does not seem to be the case. Indeed, Denis Masegla, declared on October 27, 2015, “*our initial target of departure, it was the clubs and the communes*”⁴¹. While the launching effort of the campaign was very important, the regular updating of the information was not enough. Thus, for the site Sport and Society⁴², “*this breathlessness (observed in November) can no doubt be explained by [...] the lack of communication of the candidacy of Paris 2024 during the last days*”. Regular communication could be conducted on social networks, but not relegated to the press.

4.3.4. An had oc platform

At the level of the crowdfunding platform, this fundraising shows two characteristics. On the one hand the platform is not exclusive. As we have already pointed out, SMS can finance the project, relying on telephone operators. In the same way, traditional distribution channels or clubs made it possible to contribute to the project.

On the other hand, a dedicated platform “jerevedes-jeux.com” has been created. This project was thus deprived of the notoriety of the platform Sponsor Me which nevertheless participated in the elaboration of the project. But, this choice is justified by the type of project. Indeed, an exclusive platform enhances the unique facet of the project.

4.4. A failure without consequence

“I dream of the Games” was an opportunity to support the Olympic bid of Paris. However, the crowdfunding Paris 2024 has never managed to obtain effective public support. With twenty times fewer

37 [URL: <http://www.20minutes.fr>], the 01/09/2015.

38 [URL: <http://www.lequipe.fr>], the 24/09/2015.

39 [URL: <http://sport24.lefigaro.fr>], the 14/12/2015.

40 [URL: <http://www.sportbuzzbusiness.fr>], the 2/09/2015.

41 [URL: <http://www.leparisien.fr>], the 27/10/2015.

42 [URL: <http://www.sportbuzzbusiness.fr>], the 24/11/2015.

donations than those targeted, the CNOSF still maintains its candidacy.

4.4.1. Failure reasons

Even if Denis Masegla or Loïc Yviquel have always been extremely cautious in refusing to give quantified collection targets, we can only note the small amount obtained, particularly with regard to the means of communication mobilized. The “grand-mass” launch will not have been enough to make join the “crowd” to the project.

The press does not hesitate to titrate: “OG 2024: the call for donations for the candidacy of Paris makes a flop”⁴³, or “everyone does not dream of the Games yet”⁴⁴. While for RTL, “The campaign for donations to finance the bid for Paris for the Summer Olympics in 2024 has not found its audience”⁴⁵. Already, mid - November, the Sport and Society site wrote: “It is clear that the progress report is half-hearted”⁴⁶.

Little communication has been made about the results of each level of contributions. On the other hand, news articles give a range of between 1.5⁴⁷ and 1.7 million⁴⁸ #JeReveDesJeux bracelets. These bracelets were on sale in many networks, including clubs, one of the priority targets for Denis Masegla. “But out of 180,000 clubs in France, ten have bought boxes of bracelets...”⁴⁹

At two euros per unit, the turnover should have been three million euros, to which must be subtracted from the margin of the distributors. The Le Figaro site, which details the results of the various counterparties, notes that: “For a sum of 20.24 euros, each ‘benefactor’ could receive a diploma and see his name added to the virtual wall on the official website jerevedesjeux.com. But Monday, the wall

had only 330 participants ... This crowdfunding operation had additional relays, such as including the auction of objects belonging to sports. The auctions have almost never taken off”⁵⁰.

Thus, the overall amount obtained is disappointing. “On Monday, RTL announced that the French Olympic Committee (CIO) has raised only 629,000 euros since September 25, launch date of the mobilization in France”⁵¹. And the journalist continues: “The 629,000 euros in revenue seem very meager”. “This is a serious problem that I will take care of early January”, said the Minister of Sports Patrick Kanner on RTL⁵².

4.4.2. Overconfidence?

The optimism shown for this campaign was one of the key conditions for success. In fact, the leader has to believe in his project and ability to carry out its development. In the case of the Paris 2024 bid, the anticipated French contribution was based on an already quoted opinion poll. The Echos website states that the survey was conducted with a national sample of 1000 people, which was representative of the French population. In order to provide more reliable information, this poll should have used a minimum of 4000 people (3942 to be exact), considering a margin of error of 5%. In addition to this, this survey gathered the opinion of people however moving from words to deeds is an important gap, underestimated by the French Sport Mouvement.

Finally, the expected effect and assumption that one will answer what is most predictable, has also been overlooked. These different limits do not seem to have given rise to reflection and the results of the study have been taken up by many personalities. “The Dream Games campaign, however, has the

43 [URL: <http://sport24.lefigaro.fr>], the 14/12/2015.

44 [URL: <http://www.leparisien.fr>], the 27/10/2015.

45 [URL: <http://sport24.lefigaro.fr>], op. cit.

46 [URL: <http://sportetsociete.org>], the 24/11/2015.

47 [URL: <http://www.lopinion.fr>], the 9/11/2014.

48 [URL: <http://www.sportbuzzbusiness.fr>], the 2/09/2015.

49 [URL: <http://www.leparisien.fr>], the 27/10/2015.

50 [URL: <http://sport24.lefigaro.fr>], op. cit.

51 [URL: <http://sport24.lefigaro.fr>], op. cit.

52 [URL: <http://sport24.lefigaro.fr>], op. cit.

potential to beat those records. Denis Masseglia believes and relies in particular on a CNOSF study, published in May, according to which ‘40% of the French would be ready to give one euro for the candidacy of Paris in the 2024’⁵³. Even optimism on the side of Sponsor Me: “We appeal to the French to mobilize the largest number, engage them somewhere, because to say 80% of French wish to have the Olympics in 2024 is good”, says Marconnet, leader of the company Sponsorise.me, which is responsible for raising the funds⁵⁴. In the ministry, the French membership for the Olympics appears as a certainty, Patrick Kanner, Minister of the city, said in an interview: “[...] So even if the French are very favorable - everyone understood - at submission of this application [...]”⁵⁵. We can therefore speak of overconfidence, especially since other studies, the conclusions of which were more mixed, probably less attracted the attention of decision-makers. Thus, “Questioned at the beginning of the year by the daily *L’Equipe*, they (the French) said they were in favor, with a very narrow majority (51.9%), that France organizes the Olympic Games, while considering at 55% that it was “a luxury that France can not afford in these times of crisis”⁵⁶.

CONCLUSION

The main research contribution is to have identified the importance of the trust variable between all the actors in the crowdfunding process. After having identified the criteria for the success of a project, the authors confronted a project that was in every way exceptional to the latter. This research makes it possible to conclude that even in the case of an extraordinary project, trust must be present and the success criteria identified respected.

“I dream of the Games” should have been the flagship crowdfunding project of 2015 in France, and thus, be a great sounding board for the crowdfunding market. Our research has shown that even for an exceptional project and benefiting from an unparalleled media exposure, the crowd needs to identify the wearer, to understand the interest of the project, to have confidence in it, in the first donors and in the platform. Conversely, the wearer must trust the crowd and listen to his opinion, and not expect a purely financial gesture. The fact that regardless of the amount obtained, the application file would be filed could be perceived as a disregard of the advice of the crowd, generally valuable to the holders and an important motivation to go through this mode of complementary financing. The fact of not having contributed, does not necessarily mean a lack of interest, but a feeling that the financial contribution was not essential. Indeed, a crowdfunding strategy is also aimed at exchanging information through its participative side which ultimately transforms a project into a collective adventure. But a real dialogue was difficult considering the number of people invited to participate in the project.

The main limitation of this research is to have made the choice to work from a unique case and information published in the press. This was not exhaustive, but the information gathered was convergent. However, this research did not analyze the information exchanged on social networks. In addition, we were confronted with the limited information available after December 31, 2015. Thus,

⁵³ [URL: <http://www.20minutes.fr>], the 1/09/2015.

⁵⁴ [URL: <http://rmcsport.bfmtv.com>], the 25/09/2015.

⁵⁵ [URL: <http://sportetsociete.org>], the 13/02/2015.

⁵⁶ [URL: <http://www.lopinion.fr>], the 9/11/2014.

a qualitative study based on interviews of contributors and non-contributors (volunteers) would have enriched this work, by diversifying the points from stakeholders.

This research work does not call into question the interest of launching such a campaign for projects of national scope and requiring significant financial amounts. The study shows, however, that it is essential to respect the fundamentals of crowdfunding. In the case of the “I dream of the Games” campaign, we can finally ask ourselves if it was a crowdfunding project or rather a “voluntary tax”.

BIBLIOGRAPHY

- ABDOURAZAKOU, Y.; LEROUX-SOSTENES, M.J. (2016). "Crowd Funding: the New Frontier of Sports Sponsorship?". *International Journal of Kinesiology & Sports Science*, 4, 2, April, pp. 18-26.
- BELLEFLAMME, P.; LAMBERT, T.; SCHWIENBACHER, A. (2011). "Crowdfunding: Tapping the right crowd". *Journal of Business Venturing*, 20, pp. 11-32.
- BESSIÈRE, V.; STÉPHANY, E. (2014). "Le financement par crowdfunding". *Revue Française de Gestion*, 242, 5, pp. 149-161.
- BORNAREL, F. (2007). "La confiance comme instrument d'analyse de l'organisation". *Revue Française de Gestion*, 6, 175, pp. 95-109.
- CHELET, J. (2015). "Le nombre de financeurs a doublé en 2014 sur les plateformes de crowdfunding". *Capital.fr* [URL: <http://www.capital.fr/finances-perso/crowdfunding/le-nombre-de-financeurs-a-double-en-2014-sur-les-plateformes-de-crowdfunding-1013937>].
- CHOUK, I.; PERRIEN, J. (2003). "Les déterminants de la confiance du consommateur lors d'un achat sur un site marchand: proposition d'un cadre conceptuel préliminaire". *Centre de Recherche DMSP, Cahier n° 318*, 19 p.
- COOK, J.; WALL, T. (1980). "New word attitude measure of trust, organisational and personal need non-fulfilment". *Journal of Occupational Psychology*, n° 53, pp. 39-52.
- DELERUE, H.; BÉNARD, C. (2007). "Les dynamiques de la confiance dans les relations interorganisationnelles". *Revue Française de Gestion*, 6, 175, pp. 125-138.
- GAVARD-PERRET, M.L.; GOTTELAND, D.; HAON, C.; JOLIBERT, A. (2012). *Méthodologie de la recherche en sciences de gestion*, Pearson, France.
- GERBER, E.; HUI, J. (2013). "Crowdfunding: Motivations and deterrents for participation". *ACM Transactions on Computer-Human Interaction (TOCHI)*, TOCHI Homepage archive, 20, 6, 34.
- HARDY, W. (2013). "How to perfectly discriminate in a crowd? A theoretical model of crowdfunding". *Working of papers*, 16, 101, University of Warsaw, 28 p.
- HLADY RISPAL, M. (2002). *La méthode des cas*, De Boeck Université.
- HOSMER, L. (1995). "Trust: the connecting Link Between Organizational Theory and Philosophical Ethics". *Academy of Management Review*, 20, 2, pp. 379-403.
- ISSAC, H.; VOLLE, P. (2008). *E-commerce: de la stratégie à la mise en œuvre opérationnelle*, Pearson Éducation, France.
- JOFFRE, O. (2007). "Confiance et réussite dans les fusions « entre égaux ». *Revue Française de Gestion*, 6, 175, pp. 171-193.
- KOENIG, G. (1994). "Apprentissage organisationnel: pratiques et théories". *Revue Française de Gestion*, 97, p. 78.
- LEDERER, E. (2015). "Les promesses de la finance participative attirent de nouveaux acteurs". *Les Échos*, 7 décembre.
- MAALAOUI, A.; CONREAUX, P. (2014). *Crowdfunding – Les clés du financement participatif*, Ellipse, France.
- MANGEMATIN, V. (2009). "La confiance: Un mode de coordination dont l'utilisation dépend de ses conditions de production". [URL: <http://hal.grenoble-em.com/hal-00424495>].
- MITRA, T.; GILBERT, E. (2014). "The language that gets people to give: phrases that predict success on kickstarter". *ACM Press*, pp. 49-61, [URL: <https://comp.social.gatech.edu/papers/csew14.crowdfunding.mitra.pdf>].
- MOLLICK, E. (2014). "The dynamics of crowdfunding: An exploratory study". *Journal of Business Venturing*, 29, pp. 1-16.
- MUCCHIELLI, A. (1994). *La psychologie sociale*, Hachette, Paris.
- ONNÉE, S.; RENAULT, S. (2013). "Le financement participatif: Atouts, risques et conditions de succès". *HEC Montréal, Gestion*, 38, 4, pp. 54-65.
- RHEINGOLD, H. (1993). "The Virtual Community: Homesteading on the Electronic Frontier". *Addison-Wesley Publishing Company*, 282 p. [URL: https://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/18/The_Virtual_Community.pdf?sequence=1].
- RICORDEAU, V. (2013). *Crowdfunding Le financement participatif bouscule l'économie!*, Stimulo, Paris.
- SIMON, E. (2007). "La confiance dans tous ses états". *Revue Française de Gestion*, 6, 175, pp. 95-109.
- SRINIVASAN, S.; ANDERSON, R.; PONNAVOLU, K. (2002). "Customer Loyalty in E-commerce: An Exploration of its Antecedents and Consequences". *Journal of Retailing*, 78, pp. 41-50.
- TARTERET, O. (2014). "La dynamique du crowdfunding: Revue critique de la littérature et facteurs du succès d'une collecte". *Economies and finances*, pp. 1-61.

TOUFAILY, E.; RAJAABELINA, L.; FALLU, J.-M.; RICARD, L.; GRAF, R. (2010). "Les caractéristiques relationnelles du site web ont-elles un impact sur la confiance des clients en ligne?". *Management & Avenir*, 2, 32, pp. 192- 209.

THUDEROZ, C.; MANGEMATIN, V.; HARRISSON, D. (1999). *La confiance: approches économiques et sociologiques*, Gaëtan Morin Éditeur, Paris.

WILLIAMSON, O. (1993). "Transactions Costs Economics Organization Theory". *Industrial and Corporate Change*, 2, 2, pp. 107-156.

YIN, R.K. (2003). *Case Study Research: Design and methods*, Thousand Oaks, Sage Publications, 312 p.

ZUCKER, L. (1986). "Production of trust: institutional sources of economic structure: 1840-1920". *Research in Organization Behaviour*, 8, pp. 53-111.



What's about performance to University? Role and influence of Information Technology

*Peut-on parler de performance à l'Université ?
Rôle et influence des technologies d'information*

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ABSTRACT

Information technology (IT) is a real strategic issue. It can improve the performance of an organization. This paper draws on stakeholder theory and the resource-based view to explain how IT can appear as one of the determinants of performance in public

organizations such as France's university institutes of technology.

Key-words

Stakeholder value, performance, resources, information technology, university

RÉSUMÉ

Les technologies de l'information sont au cœur de notre problématique et elles revêtent une importance stratégique. En effet, celles-ci permettent d'améliorer la performance d'une organisation. L'objectif de cet article est par conséquent de chercher à comprendre et à expliquer comment, à travers la théorie des parties prenantes et la théorie

basée sur les ressources, les TI peuvent apparaître comme l'un des déterminants de la performance au sein d'une organisation publique telle qu'une composante universitaire.

Mots-clés

Création de valeur partenariale, performance, ressources, technologies de l'information, université

INTRODUCTION

In France, recent legislation on university governance (*loi libertés et responsabilités des universités*), the revised status of teaching and research staff, and budget cuts are all current concerns calling for reflection on performance and its determinants in universities and more specifically in university institutes of technology. The legislation provides for changes in university governance involving the introduction of a supposedly comprehensive and coherent information system and a greater role for information technology (IT). While it is commonly accepted that IT contributes to improving organizational performance, we look to go beyond the classical conception based solely on financial criteria in for-profit organizations.

To what extent, then, can one really speak of performance within universities? And in what ways does the introduction and operation of IT impact that performance?

This paper examines the issue of performance in universities, and more specifically at the *Institut Universitaire de Technologie Dijon-Auxerre* (France) and analyses the role of IT as one of the determinants of performance. We begin by reviewing the concept of performances and its dimensions, in particular through the idea of stakeholder value. Then we examine IT as a set of resources owned and used by the IUT. Finally we attempt to identify links between the use of IT and performance at the IUT via a dual qualitative and quantitative method.

1. PERFORMANCE AND STAKEHOLDER VALUE

Under the legislation on university governance, IUTs, as component entities of universities, are required to sign an undertaking on objectives and resources with their parent university. This sets out objectives for them to achieve over a period of at least one year and requires them to improve their performance, that is, to create value. The idea of performance is very much an issue then. But who does the IUT create value for? And how can such value be measured?

1.1. *Measuring value created by the IUT by means of stakeholder value*

Khouatra (2005) argues that an organization's system of governance determines the type of value it creates. In other words, if the value created is meant for the shareholders then the organization must opt to maximize shareholder value. This is an oversimplified vision of performance given that it takes account of the shareholder/management relationship only. This limitation leads us to use another conception of value that encompasses the various stakeholders. In this case, the creation of value results not just from the input of capital but also from the combined efforts of all stakeholders. Charreaux (2003) shows that stakeholder value, based on stakeholder theory, is "fertile ground" for measuring the efficiency of universities and for constructing criteria for their governance.

The stakeholder conception of value measurement rests directly upon the representation of the organization as a nexus of contracts. Through its educational activity, the IUT manages various contracts with its stakeholders (companies, teachers, teaching-research staff, administrative staff, students) to create value. Value can be created by the two activities (missions) of establishments of this kind, namely teaching and research. These two endeavours entail different problems with respect to how they can be evaluated¹. They do not share one and the

¹ The tools and indicators used in evaluating research and research projects are more bibliometric tools concerning the scientific production of knowledge (or patents filed in science and technology fields).

same purpose, since they are addressed at different actors with diverging expectations. Accordingly, to simplify the research, we shall consider teaching alone.

Moreover, Charreaux (2003) also claims that the teaching side of things may be represented by two competing models. The first of these models views the IUT as a service provider in terms of education purchased by students. The second considers that the IUT turns out students in order to satisfy demand from firms or other organizations, whether it be with an objective of fitting them for a particular vocation or of making them employable more generally.

In this paper, we go with the first of these conceptions because one of the criteria for evaluating performance within the IUT that we adopt is the valuation of the diplomas awarded (two-year DUT, vocational degree, sandwich courses). In this case, the IUT is a provider of educational services purchased by students as customers or users. The IUT will therefore attempt to improve its performance (we might speak of its academic performance) by way of its various stakeholders with respect to the “end consumers”, the students. The stakeholder value thus created is meant to enhance the value of the diploma awarded and consequently the worth of graduates in terms of their vocational training and inclusion in the world of work. Students are both actors and stakeholders in their own career paths and in their own success.

1.2. *The stakeholder concept applied to the IUT*

Freeman (1984) states that “a stakeholder is any group or individual that can affect or be affected by the realization of an organization’s purpose” (p. 26). Many typologies can be constructed to identify the various stakeholders of the IUT (Freeman, 1984; Mercier, 1999; Friedmann and Miles, 2002; Pesqueux, 2002). We have opted to identify two categories of stakeholders in terms of their action with respect to IT:

- first order stakeholders²: who use and have access rights to modify and update the component parts of IT,
- ordinary users³: who have a simple right of consultation.

After defining performance at the IUT through the creation of stakeholder value, we shall attempt to show that the creation and appropriation of value by the various stakeholders involve the use of IT.

2. IT AS ONE OF THE DETERMINANTS OF PERFORMANCE

We shall begin by returning to the definition of IT via resource-based theory. Then we shall show how IT can prove a determinant of actual performance.

2.1. *IT through resource-based theory (RBV)*

Resort to the resource-based view (Penrose, 1959; Wernerfelt, 1984) makes it possible to consider the internal organization of the IUT directly and to justify the possibility of the organization performing well on the basis of the specificity of its resources and therefore on the specificity of its IT. IT is defined as a tangible resource because it refers to everything falling within the realm of the techniques used in processing and transmitting information. It covers all the organization’s areas of activity, from monitoring teaching to the various domains of management (human resources, finances, accounting, promotional work, etc.). IT cannot of itself influence the value of the organization, it is the way individuals use it that creates value.

The IUT is therefore an organization that mobilizes a set of resources, in particular IT, it has at its disposal. It uses them, combines them as specific skills through organizational processes that are specific

² Administrative staff, “directors of study” or “heads of teaching”.

³ Students and teachers with no administrative responsibilities.

to it and make it possible to make decisions and to control processes in order to create value. This value creation specifically involves the enhanced value of the diploma awarded and consequently the enhanced value of the graduates themselves. Hence hypothesis H1:

H1: A positive connection arises between IT use and Dijon-Auxerre IUT performance.

The effects of the use of IT are of different orders. We shall characterize them as being more potential effects than sure and certain effects as there are numerous factors that influence organizational processes.

2.2. The potential effects of IT at the IUT

This question has been the subject of several studies with various and mixed results (Jomaa, 2004; Missaoui, 2009). The framework that seems best adapted to our research is that which examines the effect of IT on organizational processes and its impact on individuals and on the workforce as a whole in order to evaluate performance and consequently the organization's creation of value. To understand the role of IT at the IUT, we refer to the comprehensive framework of analysis proposed by researchers in IT management in which account is taken of the organization's structure, its activity, and its strategy.

As Zuboff (1988) points out, IT is characterized by a basic duality: automation and information. The use of IT has made possible smoother and faster communication at lower cost and better data exploitation thereby facilitating decision-making that creates greater value added. This is concomitant with improved coordination that involves the formalization and standardization of procedures (Bharadwaj, 2000; DeLone and McLean, 2003). Moreover, by modifying the conditions of access to information, IT impacts the definition of roles in the organization. The use of IT goes along with an enhancement of tasks with an aspect of self-regulation.

Even so, as Caseau (2007) indicates, the use of IT also has its negative points. IT users may find themselves confronted with difficulties with respect to hardware, software, security, and so on. Moreover, IT operation may be slowed by mandatory controls such as the introduction of access rights to applications. The purpose of these is to enforce compliance with a legal framework involving various rules and regulations.

Furthermore, these developments induce changes in the dynamics, the content, and the meaning of work and such changes may be decisive for the end result, namely performance in the present study (Elie-Dit-Cosaque, 2011). This may frustrate end users, who are no longer sought out as people with knowledge and skills and who practise a craft but as users who must integrate the technology into their practices in ready-determined ways (Lamb and Kling, 2003). This might be referred to as dis-possession of knowledge. In this event, the structuring of tasks using IT is experienced as a threat; it limits autonomy and contributes to the depletion of work. These difficulties may be the source of a fall in productivity and therefore negatively influence performance. This leads us to propose hypothesis H2:

H2 : A positive connection arises between IT performance and Dijon-Auxerre IUT performance.

IT is therefore no longer a mere medium for activity but a basic instrument in strategy. Higher educational establishments and consequently IUTs are looking increasingly to be part of an approach involving continuous improvement (from the missions of teaching to research, from education to inclusion in the world of work, from students' living and studying conditions to relations with the socio-economic world). Consequently for IUTs, the use of IT has as its purpose more to structure the activities of the establishment, to make it more attractive, to improve the quality of service in particular to students, to better control costs, to redefine the positions and missions of staff, to facilitate the sharing and circulation of information, and so on. In other words, it is about

local exploitation associated with internal integration within the meaning of Reix *et al.* (2011).

Having developed the foundations of our conceptual framework, we now turn to the methodological approach.

3. IT AS A LEVER FOR IUT PERFORMANCE

First we shall present and expound the method employed. Then we shall set out the results and the discussions arising from the analyses.

3.1. The research protocol

As the purpose of this study is primarily to better understand and explain performance and its determinants within an organization like the IUT, we look to test our theoretical framework through a hypothetical-deductive approach based on a two-part methodology.

Given the diversity of results in various domains (Jomaa, 2004) and since no study has yet been made of the impact of the use of IT on performance at the IUT, we chose first to make a qualitative analysis based on focus groups for several reasons:

- the difficulty in measuring concepts such as performance,
- the fact that IT undergoes constant change,
- and consequently the complexity of relations between IT and performance.

This analysis has made it possible to generate the dimensions of our different variables, namely IT and performance, so that our hypotheses can

subsequently be tested⁴. Let us look at the roll-out and the results from the qualitative analysis.

3.2. Group interviews: roll-out and results

We conducted two interviews⁵ based on guidelines structured around four topics: IT, performance, IUT objectives, and the identity of the respondents. The responses were processed⁶ by content analysis (Giannelloni and Vernet, 2001). This was done using a grid divided into three topics (perception of IT, dimensions of organizational performance, and IUT objectives). The most significant anonymous verbatims were used to support our argument (Cf. Appendix 1).

Results were similar between the two groups (whether our respondents were information producers or ordinary users). Participants considered that IT generally provided both advantages and drawbacks. Even so, the positive points were more numerous. This assessment did not change when the idea of the use of IT at work was introduced. The negative aspects were curbs on proper operation and consequently on efficiency.

There is indeed a notion of performance, even if the term itself is not always used as such. Several criteria were advanced (speed, time saving, user-friendliness, productivity, and so on) and all respondents agreed on the concepts of effectiveness and efficiency by drawing a distinction between IT performance and IUT performance. The two dimensions proved besides to be interdependent.

The objectives of the IUT are primarily to train students and provide them with a university level education. They will then be able to join the world of work or to continue their education with greater intellectual maturity and professional skills. There is more talk therefore of objectives, general policy, and public service than of overall strategy. The concept of strategy at the IUT is not perceived in quite

⁴ The two analyses prove complementary therefore because, as Thiéart (1999) emphasizes, if “a qualitative approach is often a prerequisite to any quantitative study”, sample analysis via a questionnaire is designed to improve the validity of our findings.

⁵ Each interview was with uniform groups, “information creators” on the one side (department heads, secretaries, directors of study, heads of teaching, administrative personnel) and ordinary users on the other (teachers, students). They lasted 2 hours for the former and 90 minutes for the latter. The groups comprised seven and six members respectively.

⁶ All exchanges were recorded and transcribed in full.

the same way as the strategy of a private company. What takes precedence is the notion of assigned objectives, which leads to a common rationale and a common line of conduct: that of transmitting knowledge.

To conclude, the analysis produced a list of several variables for identifying the dimensions of IT and of performance (cf. Appendix 2). These variables were used in drawing up a questionnaire for testing our hypotheses in a quantitative phase.

3.3. The quantitative phase

The aim of the statistical study is not just to confirm and bolster the plausibility of our conceptual framework but also to palliate the limitations arising from the conduct of group interviews (such as respondents' subjectivity). Accordingly the use of the questionnaire enabled us to interview all of the actors in the value creation process (students and personnel of Dijon-Auxerre IUT).

We were able to collect 450 questionnaires, representing a response rate of approximately 20%. The data from the questionnaires required operationalizing in order to be processed (cf. Appendix 3).

Descriptive statistics show that the sample is made up of students for close to 80% of respondents. The remaining 20% fall into three categories: teachers with administrative responsibilities (9%), teachers without administrative responsibilities (6%), and administrative personnel (5%). Our sample therefore appears to be representative as this distribution reflects the population of Dijon-Auxerre IUT 2010–2011.

Moreover, in light of the findings from the questionnaires, it appears that our study is meaningful because 69% of respondents think it possible to speak of performance at the IUT. This performance has three aspects: performance of graduates (61%), performance of teachers (58%), and economic performance (28%).

The use of IT no longer needs to be demonstrated. It is virtually an everyday occurrence both at the place of work or study and at home for all respondents. The tools most commonly used are the Internet and e-mail, timetable software (consultation), and various software items such as Microsoft Word and Acrobat/pdf. Such use proves to involve few constraints and is straightforward, user-friendly, and necessary as well as compulsory despite the difficulties encountered by 23% of respondents. These respondents refer essentially to two types of difficulty: difficulties with software (unfamiliarity with software and changes to software for 42% and 14% respectively, differences in operating systems for 15%) and technical difficulties (slow equipment for 32%). Other reasons more of an organizational kind are cited such as the shortage of equipment and unavailability of workstations. Respondents experiencing difficulties wish to put in place a number of actions: training (60%), better dissemination of information and better communication among actors (approximately 30%). There is virtually no reluctance about using new software since 90% of respondents accept to do so.

Consequently IT is used ubiquitously. This brings us to evoke the performance of IT which, for 97% of respondents, must comply with all the following criteria: time saving, respond to a need without creating other needs, crash-free, user-friendly, easy to use, essential, provide fast access to information, and economical (save waste).

As for the objectives of the IUT, it seems that providing a "public service" is far from unanimous, which is unexpected. Only 14% of respondents see the IUT's role in this way. The study reveals that the IUT's primary objective is to teach vocational skills (52%), then to provide higher education (24%), and lastly to prepare students for further study (14%).

After setting out the results of the qualitative phase, we looked to test our hypotheses. Our variables were processed essentially by constructing a measurement scale⁷. Consequently, to structure the information obtained we conducted principal component

⁷ We made the assumption that points are equidistant from each other, in other words that the scales used are equivalent to metric scales.

analyses (PCAs)⁸ using SPSS software (version 17), so as to reduce the number of variables.

The results, set out in Appendix 4, lead us to extract two new factors for the variable “Use of IT”: the positive perception and the negative perception of the use of IT. The variable “IT performance” is apprehended through two factors: efficiency and technical effectiveness. Finally, the variable “Overall performance at the IUT” is defined through social performance and economic performance.

After assessing the reliability of our initial variables, we tested the relations between:

- IT use (explanatory variable) and IUT performance (response variable)
- IT performance (explanatory variable) and IUT performance (response variable) using two canonical analyses⁹.

The computations (cf. Appendix 4) did not yield any significant canonical pair for either of our two hypotheses. It turns out that performance of Dijon-Auxerre IUT does not seem to be related, at least in a linear way, either to IT use (H1) or to IT performance (H2). Hypotheses H1 and H2 cannot be validated therefore.

3.4. Discussion

Several reasons may account for this absence of significant results. Even if the concept of performance is indeed found within the IUT, the organization remains a public-sector one above all in the way it operates and in the mindset found there. Its primary objective, as the qualitative analysis reveals, is to disseminate knowledge. Nevertheless, its traditional mission is broadening since IUTs must increasingly “meet requirements as to training and integration in

the world of work via a reactive network across administrative regions” (AG ADIUT, 2015), a response that is formalized by the provision of education and training that is constructed as blocks of skills, especially for an audience involved in in-service training.

There is an ambition to “promote the IUT system”. And it is “important that IUTs remain centres of budgetary responsibility” (AG ADIUT, 2015). Financial and profitability constraints are therefore very much present with “the introduction of costing of training and of quality audits”.

Moreover, concepts such as those of performance and IT are of a dynamic nature and continually changing. For IT, dematerialization is accelerating (applications, registration, creation of templates for circulating and sharing procedures, etc.), as are e-learning and the development of numerous applications (e.g. enabling the joint management of students’ marks, absences, timetables) designed to optimize resource management. Accordingly, the IUT should be considered rather through a systemic vision. This means therefore that it is not possible to clearly isolate the impact of IT use and IT performance on the organization’s performance.

Moreover, as the IUT increasingly finds itself in an uncertain and shifting universe, the conduct of this study over a single year fails to capture the changes in practices in the use of IT over time.

Finally, the non-validation of our hypotheses may be related to the very nature of IT which is perceived as essential while generating additional needs and constraints (e.g. learning time).

⁸ We used the Kaiser-Meyer-Olkin criterion, for which the extracted factor-item correlation is at least greater than 0.5, and the Bartlett sphericity test, which must be significant. As Kaiser recommends, we performed PCA with Varimax rotation. This method of orthogonal rotation minimizes the number of variables strongly projected on each factor. It simplifies their interpretation and generates uncorrelated factors.

We also tested the internal reliability of each of the dimensions selected by calculating Cronbach’s alpha. We consider that α is insufficient below 0.5 and becomes acceptable above 0.7.

⁹ Canonical analysis is used to determine whether two groups of variables are dependent on one another and if so to measure the importance of the relations between the two groups using the canonical correlation coefficient. The square of this coefficient (R^2) represents the percentage variance common to both vectors.

CONCLUSION

We have sought in this paper to better understand and explain the concept of performance and to analyse how IT can contribute to the organizational performance of establishments like the IUT.

This topic is innovative, complex, and central to research on IT management and leads to mixed results.

Although findings from the qualitative phase suggest IT use might be one of the determinants of organizational performance, proving such a connection is a more intricate matter. Empirical studies do not necessarily show significant relations between the use of IT and the performance of the IUT.

These results may be explained initially by a problem with measuring the variables. There is no single agreed definition of performance. The dynamic character of IT but also the changing context of the IUT appear to be factors that can justify the absence of significant results. IT is not an independent variable and cannot be thought of as the sole factor in explaining performance.

Accordingly several points to think about are raised. If organizational performance does not arise from IT alone, might it not also depend on the users themselves, on their skills and their motivation? Might not poorer performance be explained by the absence of skills and the presence of curbs associated with the use of IT and related above all to its continuous development that overthrows established mindsets? Should we not examine the connection between these two factors and performance, and consequently the means to be implemented to remedy them?

To end, as evoked at the beginning of this paper, the research aspect has been voluntarily set aside so as to restrict and simplify the study. Even so, performance at the IUT (especially with the readiness to develop and sustain the IUT National Research Congress, for example) also rests upon the work of teaching-research staff, which we will be able to explore in future work.

BIBLIOGRAPHY

- ASSEMBLÉE GÉNÉRALE ADIUT (Assemblée des Directeurs d'IUT), Compte rendu, Septembre 2015.
- BHARADWAJ, A. (2000). "A resource-based perspective on information technology capability and firm performance: an empirical investigation". *MIS Quarterly*, vol. 24, n° 1, pp. 169-196.
- CASEAU, Y. (2007). *Performance du système d'information*, Édition Dunod, 246 pages.
- CHARREAUX, G. (2003). "La création de valeur par l'université: une perspective partenariale". *Cahier du FARGO*, N° 1030301.
- CHARREAUX, G.; DESBRIERES, P. (1998). "Gouvernance des entreprises: valeur partenariale contre valeur actionnariale". *Revue Finance-Contrôle-Stratégie*, n° 2, juin, pp. 57-88.
- DELONE, W.; MCLEAN, E. (1992). "Information Systems Success: The Quest for the Dependent Variable". *Information Systems Research*, vol. 3, n° 1, pp. 60-95.
- DELONE, W.; MCLEAN, E. (2003). "The DeLone and McLean model of information systems success: A ten-year update". *Journal of Management Information Systems*, vol. 19, n° 4, pp. 9-30.
- ELIE-DIT-COSAQUE, C. (2011). "Les technologies de l'information et de la communication (TIC) et le contenu du travail". *Annales des Mines – Réalités industrielles*, 2011/1, pp. 35-39.
- FREEMAN, R.E. (1984). *Strategic Management: A stakeholder approach*, Pitman, Ballinger, Boston.
- GIANNELLONI, J.-L.; VERNETTE, E. (2001). *Études de marché*, Éditions Vuibert.
- JOMAA, H. (2004). "Valorisation de l'usage des TIC: démarche d'évaluation de la contribution des TIC à la création de valeur pour l'entreprise". *La recherche au Cigref*, Cahier n° 1, pp. 39-60.
- KHOUATRA, D. (2005). "Gouvernance de l'entreprise et création de valeur entrepreneuriale". 16^e Conférence de l'AGRH Paris Dauphine.
- LAMB, R.; KLING, R. (2003). "Reconceptualizing Users as Social Actors in Information Systems Research". *MIS Quarterly Executive*, vol. 27, n° 2, pp. 197-235.
- MASON, R.O.; MITROFF, J.-L. (1973). "A Program for Research on Management Information Systems". *Management Science*, vol. 19, n° 5, janvier, pp. 475-487.
- MERCIER, S. (1999). *L'éthique dans les entreprises*, La Découverte.
- MISSAOUI, I. (2009). "Valeur et performance des systèmes d'information". *La recherche au Cigref*, Cahier n° 5.
- PENROSE, E.T. (1959). *The theory of the growth of the firm*, New York, John Wiley.
- PESQUEUX, Y. (2002). *Organisations: Modèles et représentations*, PUF.
- REIX, R.; FALLERY, B.; KALIKA, M.; ROWE, F. (2011). *Systèmes d'information et management des organisations*, Éditions Vuibert, 6^e édition, 472 pages.
- SCOTT MORTON, M.S. (1991). *The Corporation of the 1990s; Information Technology and Organizational Transformation*, Oxford University Press.
- THIETART, R.-A. et coll. (1999). *Méthodes de recherches en management*, Dunod.
- WERNERFELT, B. (1984). "A resource-based view of the firm". *Strategic Management Journal*, vol. 5, n° 2, pp. 171-180.
- YIN, R.K. (1994). *Case study research, sign and methods*, Sage publications, London.
- ZUBOFF, S. (1988). *In the Age of the Smart Machine*, Basic Books, New York.

APPENDIX 1 A FEW CHARACTERISTIC EXAMPLES OF VERBATIMS

Topics		Verbatim	Interviewees' initials
PERCEPTION OF IT	IT use	Its crucial, there are many things I couldn't do without IT	LB
		<i>It's everywhere, it's a step forward</i>	SR
		<i>It's a tool, or even a whole host of tools, above all and not an end in itself, for doing things better and faster</i>	CG
		<i>It can make things simpler but more complex, it is something that requires learning</i>	RB
		<i>It means new tasks can be created</i>	AG
	Difficulties in using IT	<i>There a problems with it being slow</i>	LB
		<i>Yes, of course, but haven't we become more demanding?</i>	J-L B
IT performance	<i>High-performing IT must meet a need, without creating others, and repeatedly each time and quickly</i>	AG	
ORGANIZATIONAL PERFORMANCE	Economic performance	Performance means a very good response to an expectation	CG
		<i>Performance is measured in the pairing effectiveness/efficiency because it rests on the capacity to achieve an objective while limiting waste and so by streamlining resources</i>	JV
	Graduate performance	<i>Yes, we can speak of performance at the IUT because young graduates are able to get on in the world of work and in their further studies</i>	CG et LB
		<i>Our students contribute to and improve corporate procedures especially in their placements and especially through the use of computing tools</i>	LB
	Teacher performance	<i>IUT performance is related to the performance of teachers that can be measured through their involvement because the IUT is a small organization, their close relations with students and among teaching staff</i>	SS
IUT'S OBJECTIVES	To prepare competent young people	LB	
	<i>To provide university-level higher education so they attain a high level of performance</i>	AG	
	<i>We don't speak of an overall strategy</i>	LP	
	<i>We can speak more of a general policy to fulfil our mission: making students successful in the sense of finding employment</i>	AG	
	<i>The director's objective is to open up new courses because it's a performance indicator for him. It's true in the sense that it makes the site more attractive</i>	JV	

APPENDIX 2 OPERATIONALIZATION OF VARIABLES

Initial variables	Measures/indicators	Variable characteristics	Processing
IT use at the IUT	Three modalities for evaluating IT use: <ul style="list-style-type: none"> • Frequency (3 dimensions): daily, several times per week, weekly • Location (3 dimensions): IUT, home, public places • Perception of use (8 dimensions) : constraining, user-friendly, straightforward, essential, difficult, compulsory, necessary, against your will 	Nominal variable Nominal variable Likert scale	Descriptive statistics Descriptive statistics PCA
IT Performance	One modality: <ul style="list-style-type: none"> • Performance criteria (8 dimensions): time saving, respond to a need without creating others, crash-free, user-friendly, easy to use, essential, provide easy and fast access to information, economical (avoid waste) 	Likert scale	PCA
Difficulties in using IT	Two modalities: <ul style="list-style-type: none"> • Difficulties experienced (3 dimensions): difference between operating systems, slow equipment, changing software, unfamiliarity with software • Reluctance (1 dimension): use of new tool 	Ordinal variable	Descriptive statistics
Actions reducing difficulties	One modality: <ul style="list-style-type: none"> • Actions wished for (8 dimensions): training, better circulation of information, better communication among actors 	Ordinal variable	Descriptive statistics
IUT's missions	One modality: <ul style="list-style-type: none"> • IUT's objectives (4 dimensions): Provide public service, teach vocational skills, prepare for further study, provide higher university level of study 	Likert scale	Descriptive statistics
Overall performance at the IUT	Three modalities: <ul style="list-style-type: none"> • Performance of our graduates (2 dimensions): success rate, further study rate • Teacher performance (2 dimensions): supervision, involvement • Economic performance (2 dimensions): creation of new vocational degrees, make organization attractive 	Likert scale	Descriptive statistics

APPENDIX 3 PCA RESULTS

PCA	Initial variables	Extracted factors	R	KMO	Bartlett	Vp	Rotation	σ	
1	IT use at IUT	Factor 1: Positive perception		0,645	0,000	2,339	<i>Varimax</i>	0,689	
		User-friendly	0,499						
		Straightforward	0,422						
		Essential	0,784						
		Compulsory	0,666						
		Necessary	0,833						
		Factor 2: Negative perception					1,698		0,557
Constraining	0,704								
Difficult	0,765								
2	IT Performance	Factor 1: Efficiency		0,757	0,000	2,692	<i>Varimax</i>	0,652	
		Easy to use	0,682						
		Essential	0,672						
		Quick access to information	0,715						
		Economical	0,679						
		Factor 2: Technical effectiveness					1,088		0,640
		Time saving	0,770						
Respond to need without creating others	0,840								
Crash-free	0,625								
3	Overall performance at IUT	Factor 1: Social performance		0,721	0,000	4,035	<i>Varimax</i>	0,937	
		Students' success rate	0,893						
		Rate of students continuing	0,885						
		Involvement, presence of teachers	0,893						
		Supervision, monitoring by teachers	0,892						
		Factor 2: Economic performance					1,270		0,966
		Creation of new vocational degrees	0,953						
Attractiveness	0,957								

r = correlation coefficient of each item with extracted factor; KMO = Kaiser-Meyer-Olkin criterion; Vp = eigenvalue; σ = Cronbach's alpha

APPENDIX 4
HYPOTHESES AND RESULTS OF CANONICAL ANALYSES

Explanatory variables – dimensions	Response variables – dimensions	Canonical axis pairings	Canonical R	R ²	Chi ²
H1: A positive connection arises between IT use and Dijon-Auxerre IUT performance					
One variable: IT use	One variable: IUT performance	1	0.084	0.007	3.808
2 Factors: Positive perception and Negative perception	2 Factors: Social performance and Economic performance	2	0.038	0.001	0.643
H2: A positive connection arises between difficulties in using IT understood as IT non-performance and Dijon-Auxerre IUT performance					
One variable: IT Performance	One variable: IUT Performance	1	0.144	0.020	10.806
2 Factors: Efficiency and Technical effectiveness	2 Factors: Social performance and Economic performance	2	0.057	0.003	1.448

