Digital collaboration tools and their impact on team building

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I, Clémence Fruchon, hereby declare that this research is my original work and that it has never been presented to any institution or university for the award of Degree or Diploma.

In addition, I have referenced correctly all literature and sources used in this work and this work is fully compliant with the Dublin Business School’s academic honesty policy.

Date: 27/08/17

Signature:
Acknowledgements

This dissertation is the final piece that completes the jigsaw in the adventure that was this Master’s that followed a Bachelor

I gathered invaluable knowledge and skills over the two years in Dublin Business School that, giving added value to teamwork, provided me with multiple opportunities of collaboration as well as research and reporting.

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Lastly, I would like to dedicate all my work to my Grandmother
Abstract

To respond efficiently to today's globalized world, companies had to create new structures and thus overcome barriers of culture, time, space, etc: The virtual teams needed solutions to collaborate. At the beginning, a lot of companies were seeing Information Systems (IS) like a threat or a due to avoid lagging in the competition. They adopted these digital tools to facilitate procedures, make data sharing easier and storage at the scale of the business but the individuals were often not the priority. They were strategic solutions that often were delaying the procedures at the operational level. These tools have evolved enough to facilitate collaboration.

But what if we had underestimated the power of digital tools? What if they could actually act on team building effectiveness, and could be a HR lever to enhance well-being at work and thus overall performance?

The literature focusing on the qualitative data (performance and management point of view) and the case of remote teams, we decided to integrate management and team members' insights to understand if the use of collaboration tools is correlated with the effectiveness of team building. We decided to extend the results to teams that were not completely virtual, considering that today's teams are sometimes principally relying on virtual communication and virtual tools to collaborate even if they have the possibility to work on only one site.

We chose to conduct the research using mixed methods: (1) two online questionnaires (representative sample), where the first one had to be filled by the manager and the second one by the members of the team to be able to cross the results. Through this method, we sought to understand what were the elements influencing the impacts of digital collaboration tools; and (2) interviews of experts (relevant sample). Both were available in French and English.

Over all, this research is trying to put into perspective an alignment between not only HR and strategy as the literature is used to refer to, but an alignment necessary between HR, IS and strategy. Hence the digital tools presented as the crucial element to resolve the historic conflict between strategic and operational/functional levels.
The results showed the tools could be a lever for HR if they were used optimally (i.e. in a framework considering Critical Success Factors. These conditions seem to be specific to a type of culture fostering innovation and employee well-being, because it could necessitate a huge change in individual organization (and thus training) as well as outstanding investments in IS. Research would need to conduct a large-scale experimentation observing the transition as well
Abbreviations

DCT: Digital collaboration tools

VT: Virtual teams

TT: Traditional Teams

HR: Human resources

IS: Information systems

IT: Information Technology

IRT: In Real Time

CSF: Critical success factor
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1. Introduction

1.1 Background

There are two phenomena that disrupted all industries: Globalization and the digitalization of technologies. The global challenges and the technological progress pushed companies to have digital business strategies (that almost replaced business strategy, according to Bharadwdaj et al, 2013) and ways to reduce geographical, temporal, cultural and organisational boundaries.

Most of the companies used a routine work processes and traditional consistency which are not adapted to face modern day challenges. Remote teams? Teleworking? Numerous are the solutions developed to efficiently respond to the external environments of companies.

Continually, they always needed to find more flexible, collaborative and adaptive structures, hence the apparition of first global (teams characterized by geographically dispersed workers) and then virtual teams (teams characterized by mostly or only virtual contact and digital cooperation), to be able to select and recruit the best talents worldwide (Ware, 2010). We define a virtual team as a professional group of people working together from different geographical places, with no physical headquarters. Virtual teams rarely meet face to face and this poses coordination challenges and a difficulty for managers to follow the work of their teams. Most of the authors insist on the downside of virtual teams for collaboration because making the challenges already existing for traditional teams even more crucial (the lack of face to face interactions would increase misunderstandings, difficulties for coordinating work and resolving conflicts, etc...).

Besides, the digital revolution disrupted our habits as consumers, employees, businesses. In the 1990’s, Businesses started to develop new collaborative solutions in a world that was not ready for such a change. A lot of them faced failure for numerous reasons: inadequate tools, insufficient training, managers and workers not convinced...
The research at the time was underlying risks and difficulties to go digital. Most companies were using basic information systems (intranets and extranet as well as emails/newsletters) to share static content with no exchange or engagement attempts. Gradually, the strategic advantage that could bring the Digital became obvious, though the operational side was often failing to deliver the benefits expected back then. However, the literature revealed a change in perception for what regards the efficiency of these tools in the 2000's. The virtual practices became more common in professional and personal spheres. Team communication tools started to be used as well as Enterprise social networks or project management solutions to facilitate collaboration, yet it was hard to integrate these solutions at the company scale.

Despite the negative image the literature kept on the digital, businesses continued to believe in virtual teams and to support these new structures, e-HRM and digital collaboration tools were invented. Many collaborative solutions have flourished in recent years, especially since the banality of smartphones and tablets: it has never been simpler to download 'apps' (in SaaS - Software as a Service). the tools started to be adapted and to focus on users’ needs. There are a lot, quite recommendable tools (companies mostly use an external service provider) including for example time tracker and employee timesheet Softwares like Toggle for example, Digital Project management tools as Basecamp, communication and coordination tools and In-Real-Time professional messaging -like Slack or Chatter... We can also mention Evernote (to take notes and share ideas, images, web pages); Intellinote (Team Communication and Collaboration Platform that puts your Tasks, Files, Messages and Online Meetings in one place), InVision (Workflow & Collaboration tool that helps collaboratively designing product)... or even all-in-one team collaboration apps like Team-One. Most of them bring something fun to the work, being as easy to start as an instant messenger like Skype or Doodle, scheduling tool. They can be very basic or very specific, being focused on activity area, on metier or profession Companies are now mostly using external solutions to push "disruptive" changes in work methods/processes. It is a lever to motivate and empower employees, giving them more autonomy and helping to manage teamwork – this is especially important when they are geographically dispersed. We will imply all these tools when mentioning digital collaboration tools along the report.
Even though the existing literature is now “accepting” digital collaboration tools, it is focusing on the case of virtual teams and on the strategic value of these tools by looking at the final performance. Yet it was proved that the performance depends on collaboration effectiveness, which itself depends largely on team building effectiveness. But what are the real benefits of these new tools? Does it have a positive impact both on a strategic and operational level? Could it even become a lever of team members’ work well-being, satisfaction, engagement, motivation?

According to Cox (2001), The most important thing is to plan and implement organisational systems and practices for managing people minimising potential disadvantages of the diversity of members in a team while developing its potential advantages.

A different organisational system is needed to bridge the gap between strategy formulation and strategy implementation. It was proven that well-being in a team could considerably have an impact on performance. However to perform, the right teams need to have the right tools to implement the right strategy and reach optimal performance. To discover new possibilities of benefiting from modern collaboration tools could lead to an increased investment in them that would lead to the improvement of these tools, to help people organize, communicate, create through digital collaboration.

It’s about starting to do better what we already do by using tools to enhance our experience and performance.

1.2 Research question

Therefore, one research question seems essential:

**ARE DIGITAL COLLABORATION TOOLS A HUMAN RESOURCES LEVER FOR TEAM BUILDING EFFECTIVENESS?**

1.3 Research objectives
This research aims at understanding if these tools can benefit not only the strategic/management side of the businesses, but if it can also benefit the individuals and their perception of work. The second issue we are trying to explore is if there is a specific type of teams that can benefit from these digital collaboration tools.

The implications of this research are crucial and could reveal a lot of opportunities for businesses at a time where companies’ cultures and employee opinion and satisfaction determine their image and by extension their results. In other words, our research objectives are:

- To understand the nature of the Benefits and Challenges that can be triggered for companies in the context of virtual collaboration
- To determine if the DCT benefit more to a certain team profile than another by understanding what can make the impact vary
- To find out if digital collaboration tools’ benefits can go beyond business strategy and enhance performance and work experience for individuals themselves
- To understand if investment in Information Technologies can have Human Resource benefits
- To assess if the DCT can have positive effects on team building effectiveness or if instead it tends to isolate team members and create conflict

1.4 Research Sub-questions

To address this vast issue and reach these objectives, we decided to break it down into 3 sub-questions.

First of all, the oldest literature was alarming businesses on the challenges of virtual teams. However, the latest literature seems to indicate that the digital tools facilitate virtual teamwork.
Sub-question 1: ARE DIGITAL COLLABORATION TOOLS EFFICIENT ENOUGH TO OVERCOME HR CHALLENGES OF REMOTE TEAMS?

At that point, we believe this issue can have 3 outcomes:

1) Digital collaboration tools are creating stronger virtual teams by overcoming HR challenges identified by the literature (2.2.1): they are facilitating collaborative teamwork for remote teams

2) Digital collaboration tools are not helping to manage better the challenges identified by the literature (2.2.1): they tend to complicate team work by isolating people and are not helping to bond the team together

3) The digital collaboration tools’ effect cannot be clearly linked with team building challenges because it depends on other elements

Second, by focusing its research on virtual teams, the literature review seems to imply that digital collaboration tools are reserved to virtual teams. Knowing the advantages that can bring positive practices to organizational effectiveness, it is crucial to explore all opportunities that tools can create. This observation led us to our second sub-question:

Sub-question 2: CAN DCT BENEFIT OTHER TEAM STRUCTURES THAN VIRTUAL TEAMS (SEMI-VIRTUAL AND TRADITIONAL TEAMS) AND TRADITIONAL TEAMWORK?

In other words, we tried to understand through the use of questionnaires what and where we can variate the impact of these tools. Therefore the end objective of this sub-question if these tools can contribute to break negative cycles (permit to reduce conflicts, stress, high psychic distance, lack of trust, dissatisfaction, demotivation, poor performance, etc…) or if on the contrary it can isolate people and lead to negative cycles.
Sub-question 3: ARE DCT THE MISSING LINK BETWEEN MANAGEMENT AND OPERATIONS?

Which employee in the world was never annoyed by informatics processes that, even though facilitating data sharing at the end of a process (business purpose), was slowing down individual action? There is an history of conflicts between management and operations, that is often causing a mismatch between business strategy and HR strategy. If these digital collaboration tools could actually align business and individual goals, (performance and well-being at work), then it might mean that in a bigger picture, IT and more specifically the Information Systems can bridge the gap between strategy formulation and strategy implementation.

1.5 Research design

To reach these objectives and cover the whole subject matter, we divided the research into the answer of 3 sub-questions. To answer those sub-questions, we split the research into two phases. First, an observation phase of collaborative teams (representative sample) where we used questionnaires to assess the team building effectiveness of the teams and second, an interaction phase with a representative sample that was conducted through interviews.

In this paper we tried to combine both the management and the team members’ insight to understand if the use of collaboration tools is correlated with the effectiveness of team building. To understand team building effectiveness itself, we used different criteria like psychic distance between members, empowerment, knowledge sharing, trust, team spirit and cohesion, satisfaction and of course performance (through their own perception as well as the managers’ perception).

The research design will be detailed in the 3.2 section

Roadmap: This dissertation will start by an understanding of the topic itself, explaining the reasons why digital teams and tools started to appear, the evolution of opinions concerning these modern structures and practices both in the business and academic world. We will use both the strategic and human resources perspectives to
highlight the importance of a strong IT department aligned with them (2.1). We will
discover the challenges associated with these structures/tools while comparing with
traditional structures. We identified benefits and challenges in the use of these tools
(2.2.1, 2.2.2) Through these secondary data findings, an academic trend seemed to
appear that did not follow the business trends (i.e. the fact that companies
ceaselessly develop new tools to go beyond the simple facilitation of processes). We
will explain more in detail how we planned to reach our objectives and answer our
sub-questions (3.2) and how we actually collected the data (3.4). We will present our
findings for the questionnaires (Manager, Team and Team building results) as well as
the interviews, linking the data from the different collection methods used (4). We will
then proceed with a synthetisation of the data collected and the concepts mentioned
in the literature review as well as discuss the additional data (5), (as opposed to the
core data helping to answer the research questions) and explore alternative
outcomes, before concluding with learning outcomes and recommendations (6)

2. Literature Review

Introduction

In a new context of evolution, new methods, processes and solutions need to be
created to enhance business performance as well as well-being at work. Because it
is also important to have intuitive solutions that -more than facilitate the work and
benefit the company- make it enjoyable for the team (motivation, job satisfaction,
commitment).

Therefore this literature review seeks to discover the dynamics behind digital
collaboration tools:

First, literature acknowledges us on the nature of the benefits digital collaboration
tools can bring to the companies at a business level (2.1) as well as who can benefit
from them at a functional level (2.2). Finally, the literature presents best practices for
using digital collaboration tools at their full potential at the operational level (team
level), section 2.2.2 in the literature review. This literature is therefore helping us to
draw a “profile” of effective team building and effective use of digital collaboration tools.

2.1 Literature theme one: HR, IS and business strategy

Business level

2.1.1 HR and strategy

As we explained in the introduction, the global challenges have forced companies to develop new flexible structures. In an economy where the biggest asset of most of companies is its employees’ knowledge, HR acquired an always growing importance from the apparition of International HRM. HR evolved from personal management to HRM (Beer et al, 1984) to strategic HRM.

The management of Human Resources is influenced by the strategy and the company’s context (history, organisational structure and culture as well as external environment because the financial performance can dictate the budgets and efforts towards the employee).

Before the 2010’s and before virtual teams became a more common practice, the literature showed that one of the critical success factors of teams in which interpersonal interactions relied principally on digital was to be managed differently and have different tools, HR policies and systems than the ones that were sharing face-to-face interactions for example. But to understand this, we need to go back to the origins of HRM.

In terms of HRM, most of today's’ organizations follow the Harvard Business model (Beer et al, 1984). HR professionals use the same terminology within the model and a common set of practices such as recruitment and selection, employee training and development, performance management, and staff retention. Even if the companies’ understanding of the framework diverge, the work of the HR function is the same: HR managers are going to appraise, motivate, reward, etc… and to target HR objectives
namely work motivation and empowerment (Hertel et al, 2015), Job satisfaction, Employee Commitment and Performance. In other terms, the objective of HR and strategy is to build shared meaning to create a vision and gather everyone towards the achievement of business goals.

2.1.1.1 HR and performance

The authors are still discussing opinions today but almost all the recent articles agree on the fact that HRM bundle outcomes can be directly linked to organizational performance. Subramony (2009) suggests that HRM bundles are complementary and should be used together to benefit from a synergy between them (and that the results are greater than what can be expected when they operate in isolation). Subramony (2009) also explains that HR bundles of high performing work practices are likely to influence business outcomes by simultaneously providing employees with the opportunity to “contribute to business success, motivating them to perform, and increasing workforce Knowledges, Skills, Abilities, Opportunities levels.”

In addition, in his research, Lockwood (2007) showed evidence that employee engagement could be a source of competitive advantage. This proves that companies need to invest in systems or tools that can improve employee engagement. Collaboration tools, if they are combined into empowerment-enhancing bundles can also boost employee autonomy and responsibility level because augmenting the knowledge and skill levels of the workforce (Subramony, 2009).

To get back to the rationale of this part and to conclude, one observe that from the time the link was proved with performance, HR started to acquire more and more importance until becoming a business partner and being considered when formulating strategy for most of the companies, while before, the HR was a hierarchical subordinate that had to follow the strategy while now HR has a voice and helps deciding of the strategy). Obviously, some companies working in environments where the principal asset of companies is not employees' knowledge and where the
profile researched is specific to different tasks (easily replaceable and with predictable personalities) prefer to invest in activities susceptible of creating a competitive advantage…

2.1.1.2 HR and strategy:
The link between strategy and HR was always uncertain. Is the strategy determining HR policies or is the culture of the company determining strategic choices: Best Fit or Best Practices?

Making key decisions that create strategic implications for an organization while developing competitive advantages is an important aspect of any firm. In the past, many firms have focused on what decisions must be made instead of understanding how they will make and implement those decisions (Moutinho, Rita & Li, 2006). There is most of the time a (too) big contrast between strategy formulation and strategy implementation and the front-line manager/supervisor is the link, key element between both. Communication between all levels (organizational, business and functional level) is a critical success factor to guarantee coordination and variation of the strategy until the individual.

HRM is emphasizing individual performance and the unitarist relationship management-individual (for performance management and rewards). But is it possible to create a strong relationship online? The latest literature seems suggesting that it does. We will explain this point later on in the paper (2.2).

To go back to the point (contrast strategy formulation and strategy implementation). At the team level and considering that the manager is the HR practitioner (as well as strategy representative) for a small structure, it means that strategic decisions have to be taken while considering all aspects of the team. Moreover, these strategic decisions must reflect the strategic vision (be coherent with the strategic statement).
It is also true for HR policies: if a company states “Respect, Integrity, Communication and Excellence” in its values, the HR system shouldn’t promote people whose actions promote disrespect and come against ethics to take advantage of customers, for example. A company needs Homogeneity in the behaviours and a clear definition of its identity to gather people around a vision and hence reach optimum performance. This mismatch between values/vision and HR policies caused and will cause businesses to fail.

The link was established between HR and performance, so HR became strategic hence the necessity to invest in adapted digital tools (and more widely IS) to that support both the strategy and the corporate culture and permit to work better together.

2.1.2 IS and strategy

IT became an enabler for business processes and the digital has now a huge place in formulating business strategy. However, for several years, some companies have begun to create digital tools to facilitate those new behaviours and hence enhance employee work life.

In a general sense, the digital business strategies and digital tools can be used for simplifying operations (internal purpose), suppressing boundaries of time, distance, and function (Sambamurthy et al. 2003; Straub and Watson 2001; Wheeler 2002 as cited in the work of Pagani, 2013). Also, the digital can create more value providing transparency with an immediate reactivity of performance, impacting production, innovation and experimentation with fast results. (Lambrou, 2016) They permit to clarify goals and the role of everyone in implementing the strategy.

Facilitating exchanges and communication, the digital solutions are seen by Pelser (2014) as the Key to coordination across global operations and improves the
cooperation between different functions of the company. Information technology is said to help better deliver strategy for a better performance (Drnevich, P & Croson, 2013).

For these reasons that make work life and easier, leaders have turned to customized processes and technological systems to improve strategic decision making by using all information that the team is creating. It is about knowing more about the team and its routines, behaviours, processes in order to make adapted strategic choices for a better performance.

Nevertheless, leveraging technology can eventually modify the corporate culture and structure, which can improve organizational effectiveness (Amurgis, 2007) and an adapted culture can be prerequired for successfully using technology.

- Help make objective decisions
- Use the data available in the company but that was not recorded so far

In 2002 Ross was already alarming us on the necessity for IT and strategy to work closely together. They were encouraging companies to invest in IT and technologic R&D. However the purpose of these investments was still to facilitate processes

2.1.3 HR and IS (e-HRM)

Moving on, as the business strategies evolved to create digital business strategies, the HR evolved to create electronic HRM. Parry (2011) suggests that e-HRM is improving efficiency, and better delivering strategy than traditional HRM.

Indeed, digital tools are bringing HR from transactional work to more strategic and value added processes, strengthening the link between HRM and Strategy. (Bondarouk and Ruël, 2013)

In some cases, all these collaboration tools the management make available for employees permit to work easier together (Project management tools, communication tools, coordination tools) as well as more visibility on employees
(Ward, 2016; as for time trackers for example). We thus consider them to be HR bundles (under e-HRM) to improve productivity because improving team building.

In a small structure, the manager is the HR expert responsible of creating a positive climate of interaction in a team. It means he needs to master the tools more than anyone else because these tools will create his perceptions of the team (and vice-versa). Collaboration/teamwork, innovative capacity and creativity are the success factors and desired outcomes by most of the companies using e-HRM.

In the 2.2, the literature enabled us to explore (1) how e-HRM and the information systems chosen by the companies can influence relationships between members by facilitating collaboration and team building and thus (2) why it is important to invest in information systems and to have an internal digital business strategy more than an “external digital business strategy” (for commercial purposes, clients and communication).

2.2 Literature theme two - Virtual teams

Operational level

Morley et al, (2015) identified Virtual teams as characterized by the use of information and communication Technologies (ICTs). As teams are linked together via computer & communication technology, and thus only by online interactions, the teams come across specific challenges that risk hindering effective coordination and collaboration. We will clarify this point in the part 2.2.1.

We saw in the first part that virtual teams had a lot advantages at the business level (cost savings, productivity improvements, leverage of the best talents worldwide, better enabling strategy, improving the reaction time, removing barriers of time, etc..) Though, the literature focuses on disadvantages of the virtual team including a delayed feedback, reduced conflict identification for managers, misunderstandings due to an increased diversity (linguistic, cultural, national backgrounds). Stahl and al
(2010) acknowledges that cultural diversity on team processes can lead to an increased conflict and reduced social integration of the member in a team.

However, the digital collaboration tools (we here include time tracker and employee timesheet software like Toggle for example, Digital tools Project management tools as Basecamp, or communication tools -like Slack, etc., Skype and video messaging) also create transparency for the manager over his team (Ward 2016). Some authors insist on the fact that transparency can sometimes lead to a lack of trust in teams. Indeed, virtual teams can lead to increased efficiency and better business results, but only if they are managed proactively to maximize the potential benefits while minimizing the disadvantages (Siebdrat et al. 2009). We will now examine the HR challenges modern teams come across when trying to collaborate.

2.2.1 Team building - HR challenges

We suggested earlier that teams had to come across HR challenges when trying to reach effective team building. Of course, there are also managerial challenges linked to the virtual workplace. However, we decided to emphasize the collaboration point of view instead of focusing on the manager end.

These collaboration challenges took even more importance with the creation of virtual teams due to the use of communication technologies as principal communication mean, triggering a lack of physical opportunities to bond with other members (could cause a lack of informal interactions, facial expression, team gathering). The literature therefore minimized these challenges in the case of traditional teams, but they are still present and managing them badly still call lead to conflicts, stress,

Indeed, the traditional literature suggests that Virtual team collaboration and knowledge sharing are not always successful due to “numerous complex challenges such as difficulties with communication (Connaughton & Shuffler, 2007); problems using technology (Ardichvili, 2008); lack of face-to-face interaction (Ju et al., 2009); low levels of trust (Coppola et al., 2004); reluctance to share information with other
members (Lin et al., 2009); and lack of supporting facilitative structures such as training support (Klein & Kozlowski, 2008)” as cited in the work of Wright (2015).

Yet, other authors who studied virtual teams more recently observed that the use of adapted Information/Communication technologies can actually enhance team collaboration when they are managed correctly. “Communication in a knowledge-driven economy, talk is real work”, said Sarker et al, (2011). They recommend discarding the traditional management principle of “stop talking and get to work” to begin an era of “start talking.” Indeed, the real challenges of tomorrow’s world will be to use the data available in companies to better link the different functions/departments together. What was before the challenge of virtual teams is becoming a competitive advantage for all companies to reach optimum performance.

Overall, the literature identifies HR challenges for Virtual teams, being team building, empowerment, coordination and trust.

### 2.2.1.1 Team building

If the responsibility of HR is to maximise the potential of employees, the role of the manager in a team is to build a strong team where employees are committed and willing to cooperate with other team members to perform optimally. Wright (2015) argues that there are 5 dimensions of team building effectiveness: knowledge sharing, trust, cohesion, performance, and satisfaction. The effectiveness of a team also depends on its relationship with the manager as well as its capacity to reach objectives and meet deadlines.

The research also suggests that for team members, the main success factors of team effectiveness are not only Knowledge sharing, Employee empowerment, Trust, but also Soft Skills (attitude, commitment, conflict management, and communication of team members) as well as a leadership from the manager. Morgan (2014) agrees and observes that the literature treating of Leadership and Team Research has highlighted communication (and thus virtual tools) as the key of Virtual teams’ success, enabling relationships, trust and cohesion: a varied range of communication
methods is necessary to get better results (Jarvenpaa and Leidner 1999). We will go further on the best practices for the use of these tools in the 2.2.2.1.4. These psychological traits are known to be associated within higher performing and effective teams (Maznevski 2008; Sarker et al, 2011)

As explained in the 2.1.1 part, Bjorn (2009) defines a shared meaning context and common language for making sense of each other’s actions. Creating shared meaning normally develops over time and by means of face-to-face interaction (Chudoba et al., 2005). As it is most of the time impossible in the case of virtual teams, companies need to have adapted tools (2.2.1.4 of this literature review).

2.2.1.2 Empowerment

The research has shown that Empowerment could critically enhance employee motivation and thus employee commitment. (Bryant 2009, Morley 2015)

Empowerment practices are aimed at delegating decision-making authority and responsibility down the hierarchy through the use of self-managing or autonomous teams (Mathieu, Gilson, & Ruddy, 2006), being the virtual teams and facilitating employee participation and voice using upward feedback mechanisms (Wood & Wall, 2007). As mentioned in the 2.1.1 as link between multiple HRM bundles and performance, the combination of multiple empowerment-enhancing practices (collaboration tools), including autonomous work teams, employee participation, and upward feedback systems, is likely to be synergistic because of the potential complementarities among these practices.

Moreover, several authors (Thomas Buchner, 2007; Alice Snell, 2009) recommend employees empowering because it gives them the opportunity to make decisions, giving them an emphasized feeling of control, hence more self-determination intrinsic motivation and more creativity, being HR desired outcomes (2.2.4). However, it is also mentioned that virtual teams still need to have face-to-face interactions sometimes.
2.2.1.3 Psychic distance

Intensive research has been done on diversity management and more accurately the psychic distance between members (Siebdrat, 2014; Peter Magnusson, 2014) initiated by the work of Geert Hofstede on national culture dimensions. It treats of a relative distance between members that, if too important, hinders cooperation in team. This literature differentiates two types of psychic distance. The psychic distance paradox explained by O'grady and Lane (1996) states that the objective distance (measured in kilometres) is not always converted into subjective distance (or psychic distance in the relationship). It depends on the team's’ individual perceptions, experiences, personality types; the subjective perception of distance is affected rather by team members’ national diversity than their physical distance (Siebdrat, 2014). Further, Magnusson et al (2014) demonstrate that high psychic distance can have a negative effect on trust and satisfaction (Blomkvist and Drogenijk 2013).

Magnusson et al (2014) also observed that interpersonal linking and attraction between members is facilitated between individuals featuring similar attributes because it facilitates communication and improves coordination effort as well as the willingness to cooperate.

The HR challenge related to the psychic distance concerns recruitment of teams to create a team where employees are open-minded and willing to cooperate, but the digital collaboration tools come to enhance the effectiveness of virtual teams reducing the demographic similarities between members (Gaan, 2012), as well as enhancing trust (see later on in the review, 2.2.1.5).

2.2.1.4 Coordination

As specified along the literature, communication is significant factor within a team (Hardin, 2007). Morgan (2014) reports that a consistent, regular communication and a clarification of goals and objectives exercised by both the leader and members of the team enhance its effectiveness. Communication is the key of coordination in online teams (Bjørn, 2008); (Bardhan et al, 2013)
Petković (2014) reminds us that there is a relative need of Homogeneity/ despite Heterogeneity and diversity in the team and it can take several shapes. We can also call it cohesiveness (Boule, 2008). Scarnati (2000) suggests that inadequate communications may “hinder” performance and insists on the frequency of check-ins and exchanges (2.2.3 in the paper). Digital collaborative tools are enabling an almost instant possibility of clarifying misunderstandings and communication breakdowns.

As mentioned earlier, a lack of shared meaning at the lifeworld level often becomes more salient when the participants are co-located than when geographically distributed. Therefore, creating translucence in communication structures is essential for building shared meanings at all levels. (Bjorn 2009)

### 2.2.1.5 Trust

Trust is both seen as a requirement and a challenge for virtual teams. Although the work of Breuer and Hüffmeier (2016) revealed a positive relationship between trust and team effectiveness, it proved that trust is more essential in virtual than traditional teams.

On his side, Sarker (et al, 2011) insist on the relationship trust-communication-performance. It has been established that trust, power and cohesion are communicated through the non-verbal interactions that are often found within face-to-face communication (Guirdham 2002), and it has even been suggested that face-to-face communication is irreplaceable (Jarvenpaa and Leidner 1999).

Yet, for other authors like Gaan (2012) or Morgan (2014), the digital collaboration tools can boost understanding and effectiveness: Petković (2014) interrogated himself on people who do not cooperate (who are unwilling to share information) and Oddou (2009) found that knowledge sharing could only be optimal if the employee was feeling valued by their company. Moreover, it was demonstrated that the lack of trust was a barrier to knowledge sharing (Morley, 2015). Further, Kanawattanachai and al (2007) also studied the impact of knowledge coordination on virtual team performance over time and it was found that teams that were sharing/transfering knowledge were more effective than others.
Furthermore, organizational trust is established over time, so project teams created to complete short term projects typically do not have it at the start of the project (Mancini, 2010).

Individuals who earn the reputation of being deadbeats or deserters on virtual teams are typically viewed negatively by fellow team members and face more conflict (Furumo, 2009): perceptions can impact negatively trust and thus communication and can be sources of conflict and thus poor team performance. One important aspect of high performing teams is that the group members trust one another and have beneficial relationships that contribute to increased performance. (Quisenberry and Burrell, 2012)

2.2.2 Best practices

2.2.2.1 Inputs

Now that we saw what are the biggest HR challenges for virtual teams, we will identify best practices for responding to them using digital collaboration tools presented by the most recent authors. We identified (1) Input needs in terms of Environment, Manager, Team and Digital tools. Next, what the literature suggests as best practices for the (2) processes when working in a virtual team. As we identified desired (3) HRM outcomes in the first part of this literature review, the Processes part will sum up what was suggested earlier on.

2.2.2.1.1 The virtual environment
This part requires another paragraph about creating a positive cycle of success

Morley (2015) insists on the importance of the culture for working in a virtual environment. It means that HRM bundles deployed in virtual teams have to be aligned with the overall strategy of the business and aim at better responding to the challenges cited earlier. Therefore, they have to try to enhance empowerment, autonomy, while the company’s business strategy focuses on creativity and innovation. Petković (2014) mentions the need of a strong, cooperative and creative
structure. This is why the literature focuses on Software development and IT companies for the moment. (Siebdrat 2013)

This is the case in Knowledge-intensive business where the management need to enable ongoing, self-directed learning, virtual training, real-time feedback (Ward 2016)

2.2.1.2 The manager
As mentioned earlier on, in small structures, the manager has both a strategic and HR roles and have a direct influence on their teams’ perceptions, hence job satisfaction and individual effort. For Lee (2009) managers need thus also to be leaders to create a vision. But the digital manager also needs to be an experienced team coordinator (Morley, 2015) and to provide support for his team: high performing self-managed virtual teams need leadership support and organizational technological resources in order to be successful" (Quisenberry and Burrell, 2012) and such communication raises the challenge for the team leader of how to unify the team, and have the members identify themselves collectively as a knowledge sharing collaborative community to get a psychological engagement from them.

Moving on, authors have identified Leadership as another critical success factor for virtual teams: There is a necessity for the manager himself to be convinced of the importance of collaborative tools (Boule, 2008). Strang (2011) believes that transactional leadership even if recently viewed as outdated and ineffective, can add value to establishing the structure and inputs needed for project teams and has contributed to improved performance on virtual teams (Strang, 2011; Quisenberry, 2012).

Further, the supervisor has a huge impact on job satisfaction because it impacts perceptions: he has the responsibility to make the employees feel valued. There is an idea of benevolence and mutual trust that we developed in the 2.2.1.5.

Thomas Buchners (2007), claims that people’s impressions about themselves can moderate their performance, the choice of their goals their engagement to them and
even their career choices. Therefore, to ensure a high commitment for workers, sometimes the responsibility of manager to verbally persuade his collaborators setting higher goals: the role of digital collaboration tools is also to permit faster feedback from all members.

Leading globally distributed teams requires leaders to adapt and enhance leadership styles that appropriately match the environment of a virtual team. Selecting the optimal leadership style appropriate for the virtual environment can be challenging. (Quisenberry and Burrell, 2012)

Leaders must also consider that members of virtual teams may feel isolated. To help negate these feelings, leaders can share non-confidential information with the entire team. The importance of information type exchanged has a role on the relationship building (Quisenberry and Burrell, 2012)

2.2.2.1.3 The team
The literature acknowledges us on the critical success factors for a virtual team: technologies used to communicate within virtual teams and the team members’ level of satisfaction with the technologies and methods are critical to the virtual team’s success.

These conditions for a successful team are: clearly defined tasks and objectives; an appropriate combination of skills; appropriate and developed roles; performance management processes, effective communication but also effective conflict management (Maznevski 2008). In order to achieve high performance, teams must then develop certain additional characteristics: building respect and trust (2.2.2.1.5); engaging in innovative processes; and the management of team boundaries (Maznevski 2008).

For an optimal effectiveness, virtual teams need previous experience in virtual environment (Morley, 2015) as well as to meet face-to-face at the starting point of the collaboration (Lee, 2009).
As in Wright, 2015 the virtual teams need specific training that include self-managing skills, virtual communication skills, and virtual team collaboration technology training." (Wright et al, 2015)

2.2.2.1.4 The tools
We saw that digital tools ¹ are a crucial element in team building.

Virtual teams use an array of communication tools because team output is a function of more intensive interactions among team members (coordination, 2.2.1.4).

Boule (2008) warns us on the importance to choose a tool adapted to the team’s needs and not only for its “shiny characteristics”: the importance of considering learning curve for the team members and thus once again considering the company’s needs to have an adapted tool, aligned with the strategy. Petković (2014) agrees and specifies that the adoption of IT/virtual tools is correlated with employee creativity and organizational innovation.

Moreover, in the same way the common consensus is that the use of HR bundles can boost the productivity of employees, benefiting from a synergy between these, Boule (2008) tells us that companies should combine collaboration tools to provide employees a flexibility in how they manage their own goal (also creates empowerment for employees).

Furthermore, as specified in the 2.2.2.1.4, the teams need previous knowledge relative to technologies. Wright (2015) agrees when he says "Higher levels of proficiency and confidence while using collaborative technologies to conduct dynamic team interaction have been shown to improve knowledge sharing and team performance."

¹ Digital tools Project management tools as Basecamp for example or communication tools (Slack) or Toggl (Time Tracker & Employee Timesheet Software)
2.2.2.2 Processes

The literature also identified best practices to maximise team effectiveness.

As said earlier, a combination of tools provided for the employees creates empowerment (2.2.1.2) because it lets them the choice of how to use the tools. They should also feel free to experiment and find new tools to propose to the other members and should be encouraged to teach others (importance of knowledge sharing). Boule (2008) decided to work both on completely remote teams and blended teams.

He also insists that teams that tend to experiment with technology are more efficient on average in the long run. Indeed, teams that feel comfortable seeking out alternative solutions become more creative. This creates a culture of innovation of which the performance benefits.

Moreover, he suggests that teams should have routines of work as well as frequent conversations and interactions: for example, to check the message board every day to get updated, get frequent check-ins with the manager or other teammates and proceed to an almost instant feedback to keep track of progress and goals. This meets the work described earlier about the importance of team cohesiveness. The interactions can imply several type of information.

The initiation of the virtual team must also include articulation work, setting boundaries, negotiating commitment to common goals, resources and so on (Strauss, 1988; Mark & Poltrock, 2003).

Moreover, as the trust is essential to such a team (Javenpaa, 1999) and this process takes time (Mancini, 2010). Should we suggest to create long-term virtual teams (for projects) instead of short term ones?

Moving on, the type of information/context is also important and differentiating strong teams from poorly linked individuals in a professional group. Boule (2008) insists on the importance online of more than superficial interactions and to have an open
communication structure. The information can be declarative and procedural in a virtual teams but the link between members will never be strong. In high performing teams, the procedural information is more synthetized and members have more time to discuss meanings, implications and areas of change. The employees become more engaged... The frequency of communication is also crucial for high performance.

2.2.2.3 Outcomes

The desired outcomes when using digital collaboration tools are the challenges we identified in 2.2.1, if they are managed well to lead to an optimal performance, being Work motivation and empowerment (Hertel et al, 2015), Job satisfaction, Commitment, Performance (Decision quality, Speed of decisions, Team effectiveness (Jarvenpaa et al, 1988)) as well as an enhanced innovative capability/creativity.

2.3 Literature Conclusion

The virtual team is the essence of digital collaboration tools use. Contrarily, traditional teams used to be by their very nature based on face-to-face interactions and thus stand on the other side of the spectrum (in theory no use of digital collaboration tools).

The literature characterizes the teams that successfully work being a virtual team: in a world driven by the technology, where companies are coping with external pressure of their competitors as well as contextual pressures: Time, geographical limits, worldwide talent war...

Businesses need to know if the use of digital collaboration tools is linked with team building effectiveness and thus if IS can be a lever to reach employee commitment and job satisfaction (outcomes of team building effectiveness). Hence if it is worth investing in internal digital strategies and by extension investing in adopting new modern systems (softwares, on-premises or online, websites or apps and tools) for employees, developing an adapted ERP for example. This research will be based on this issue.

This strategic choice needs to be backed up by HRM policies and processes for it to be efficient. These digital disruptions may have created a new type of managers: the
virtual manager who has to take up virtual and relational challenges. These tools permit to keep a link when not physically and thus to overcome HR challenges.

To conclude we can say that the vision of virtual teams evolved over time. The number of tools is always growing and project management becomes easier and easier thanks to modern collaborative digital tools.

3. Methodology

3.1 Methodology Introduction

It is always hard for businesses to know they are following the right path and it is natural to look for a direct link between investment and financial result. However, on the long run, companies that seek for excellence know they need to find solutions that will make them ahead of the competition in the future. In an economy that is more and more knowledge-driven, we believe that the difference will be made on how companies invested to use this full potential of knowledge that lies in every employee.

We mentioned virtual teams earlier on in the report. The literature taught us that (traditional) team building challenges were even harder to overcome in the case of traditional teams.

(1) According to the literature, there are HR challenges for virtual teams in terms of team building. We want to know if these tools can help (2) The literature extensively focusing on virtual teams seems to indicate that extensive use of digital collaboration tools is reserved to teams that are geographically dispersed.

It is essential to assess the efficiency of such tools and see if their benefits can be extended to traditional teams and none has been done so far.

We have outlined our research question and research objectives in the introduction (first section of the report).

The literature characterizes the teams that successfully work being a virtual team, focusing on advantages and disadvantages of virtual teams, critical success factors.
and best practices for virtual teams but doesn’t measure the impact of digital tools of teams’ on the process instead of the results (during the completion of a project, are digital tools really facilitating the work of people or is it preventing them from doing it with passion?) As Gaan (2012) underlines it, the literature is more descriptive than analytic. There is a need for integration of perceptual measures (Wilson et al, 2012) that wasn’t done so far in the research in (virtual) team effectiveness.

Seeing these tools from an HR perspective more than purely strategic is a real need in todays’ world.

Team members’ perceptions (that can lead or not to engagement/commitment/satisfaction) are too poorly taken into consideration since it can become a factor of poor performance/poor talent retention and at a bigger level impact on the company’s public image.

Behind all this, there is one big historic conflict that appeared to be causing great firms to fail: a rupture between strategy formulation and strategy implementation. (Christensen, 1997)

The last point that seemed to indicate a gap in literature is the fact that digital collaboration tools still tend to be seen in a purely strategic lever for performance. Maybe are we underestimating the power of these modern collaboration tools?

As it was proved in the literature, positive practices can lead to improved organizational effectiveness (Cameron et al., 2011). Therefore, positive teams are more productive (Seppala, 2015), hence a strategic opportunity for both individual/functional level and business level.

To be more concise, this literature review shows that despite bigger challenges for team building in the case of dispersed teams, digital tools facilitate team members’ cooperation. This research aims at trying to find out (1) if these digital collaboration tools can create stronger virtual teams (through action on HR challenges identified in the literature 2.2.1) in practice, (2) if these digital tools can have a positive impact only on virtual teams or if it can benefit teams whose communication and contact between members does not depend only on virtual technologies (physical contact is
possible and existing) and (3) if the use of digital collaboration tools can represent the missing link for an alignment (a coherence) between strategy and operations.

In sum, this paper seeks to determine if it is worth investing in collaboration tools to create stronger teams.

To understand the dynamic between digital collaboration tools’ use, teams’ perceptions and performance, we decided to have a different approach, focusing on the processes themselves (bearing in mind the end result, being performance and integrating it as any other element like the inputs, or the teams’ perceptions).

Therefore, this research had to determine the use of DCT by the teams as well as their team building effectiveness. Team building effectiveness as mentioned earlier in the literature review 2.2.1.1 and according to Wright (2015) has 5 dimensions (knowledge sharing, trust, cohesion, performance, and satisfaction). However, we decided to include questions that were taking into consideration the best practices identified by the literature for virtual teams and digital tools use (2.2.2) including empowerment.

However, as our 3 main research themes are respectively Strategy (business level, Management side), HRM (operational level, team and team building effectiveness) and IT/IS (Digital collaboration tools), we decided to observe the digital collaboration tools use of the teams, integrating managers’ perspectives.

To explore the link between these three, we will try to define each team’s specific collaboration tools use and to link it together with virtual teams effectiveness (through trust, communication/coordination, psychic distance, empowerment, job satisfaction, knowledge sharing, availability of the manager, frequency of check-ins…)

Reliability (to make it as less biased as possible) and validity of the questionnaires (linked with objectives)

3.2 Research Design

According to Kerlinger (1986), “A research design is a plan, structure and strategy of investigation so conceived as to obtain answers to research questions or problems.”
In this section, we will express the complete process followed to answer our research questions as well as reach our objectives.

Figure 1 Based on Saunders’s Research Onion. (Saunders et al, 2007)

3.2.1 Research Philosophy

The research philosophy is the perspective, the set of beliefs that explains why the choices are made and how the subject is seen by the researcher. Henceforth it is crucial for readers to understand and accept researchers’ decision. (Saunders, 2016)

We discarded positivism as it focuses on “strictly scientific empiricist methods to yield pure data or facts uninfluenced by human interpretation or bias” (Kumar, 2014). The critical realism was put aside because of its ontological considerations socially constructed through power relations.

According to Saunders et al (2016), there are five major philosophies in business and management research as follows: Positivism, critical realism, interpretivism, postmodernism and pragmatism.
In front of the complexity of the subject matter, the mixed methods and the different layers observed, we tried to avoid methodological monism. Indeed, we believe that focusing on one and only research method would have been an obstacle to covering the whole research question.

An analysis of different philosophies was carefully conducted through different sources, amongst which Kumar 2014, Bryman 2011, etc.. We analysed characteristics and implications of every choice. We believe that all methods had their benefits and drawbacks and could have turned the dissertation in another way. Nevertheless, we decided to go through this thesis using two philosophies, because we are here opposing the strategic side and the operational side of a business.

Overall we believe that a **pragmatic** philosophy is required for this purpose, as the strategic conclusion of this research aims to contribute to the future of organisation, at its level. We believe that Ideas trigger practical implications and knowledge is an enabler for actions to be successful. Consequently, the data would only be relevant if they support action (hence the use of questionnaires to observe facts and interviews to observe ideas concepts and opinions). The nature of the elements observed makes this paper a Value-driven research; The research was initiated by the researchers’ doubts and beliefs on business strategies and opportunities.

Nonetheless, we also used the **Interpretivism** philosophy because it emphasizes that humans are different from physical phenomena (create meaning); different groups make different meanings so look at organizations from different groups of people. Our research is based on individual experience, memories and expectations of social actors (i.e. the employees and their manager) and implies their behaviours and perceptions (Bryman, 2011). Emphasizes that humans are different from physical phenomena (create meaning); different groups make different meanings so we had to look at organizations from different groups of people (or different layers, as explained later on in the section 3.2.4).

Our perception is our reality. Therefore, the data collected is relative and thus dependent, determined and affected by every team's context. The population studied is very specific (to environments and cultures that foster creativity and innovation,
involving knowledge workers) it is not widely generalizable (Saunders, Lewis and Thornhill, 2007).

3.2.2 Research Approach

We decided to use an Inductive approach: we made the choice of being guided by the themes emerging from the literature review (Bryman, 2007) in order to draw conclusions and develop a theory (This paper is trying to understand how digital tools impact team building effectiveness). This is therefore an exploratory research (Kumar, 2014). The observations and findings helped us to organize our thought, although we also used a deductive dimension as for designing the questionnaires (drawing a “highly effective team profile” depending on the best practices. The subject matter being very wide, we decided to have a flexible, open and evaluative methodology. The different sub-questions needed to cover the whole subject matter necessitated different perspectives and data collection instruments.

Findings are thus dependant on the context and the data is qualitative. The research was conducted using two different dimensions to understand the issue. The variety of data collection methods (mixed methods) as well as a flexible approach (possibility to orientate the research depending on the findings, particularly during the interviews with experts).

The team effectiveness is measured with perceptual dimensions (psychic distance, trust, collaboration with less conflict and communication breakdown, the way the employee feels valued, empowered and committed to the job). However, to be comparable, we needed to make the respondents very objective. The diversity of method for data collection instruments will be explained in more details in the 3.3 section.

We tried to (1) observe the population (objectively, distantly and through online self-administered questionnaires) and (2) approach the population (by contacting experts and giving them the opportunity to express through semi-structured interviews). However, the qualitative approach was dominant (Kumar, 2014)
3.2.3 Research Strategy

The strategy of this research is based on epistemological considerations as this dissertation is trying to understand the logic behind team building and the place the digital collaboration tools in the management of teams, to suggest opportunities to use these tools to improve teamwork and collaboration in other teams’ environment. This is a social research and it requires to draw assumptions beyond the simple facts. Therefore our strategy is to use ethnography.

We also try to find correlations between different subject fields relative to team building and management practices (HR, IS, Strategy).

Grounded theory, in relation with the inductive approach ; The paper follows an integrative logic where both the team and the manager’s data fit together to bring about news element to the study on the effect of digital tools.
<table>
<thead>
<tr>
<th>Strategy</th>
<th>Aim</th>
<th>Sample</th>
<th>Type of questions</th>
<th>Method of analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Manager Questionnaire</strong></td>
<td>Understand the management perspective in team building</td>
<td>6 managers</td>
<td>Close-ended mainly and open-ended (qualitative data treated through quantitative method for objectivity and comparison)</td>
<td>Graphs, Charts</td>
</tr>
<tr>
<td><strong>Team Questionnaire</strong></td>
<td>Observe team building effectiveness and intensity of DCT use (ethnography)</td>
<td>6 collaborators</td>
<td>Close-ended mainly and open-ended</td>
<td></td>
</tr>
<tr>
<td><strong>Interview of experts</strong></td>
<td>Complete data collected from the representative sample (questionnaires); Grounded theory</td>
<td>4 interviews</td>
<td>Open-ended</td>
<td>Content analysis</td>
</tr>
</tbody>
</table>

**3.2.4 Research choice**
The final research choice of this paper was determined depending on the findings (as the inductive approach permits it). When starting to plan the research, mix methods (questionnaires and interviews) were envisaged for answering the two first sub-questions (observation phase as stated in the 3.2.2). Indeed, it seemed to be the most complex to ask questions about connecting parts, qualitative elements (manager and employees’ perceptions) segments or layers of a social whole (teamwork in a virtual structure).

Moving on, the overall structure of the research was broken down into two components of layers (team and manager). The survey conducted was run on the two layers and the result of the surveys is the combination between Manager and Team Questionnaires. Each layer was encrypted to form the overall research (the manager and collaborators of one team was giving us team building effectiveness) of the constituted hierarchy (and perceptions team-manager).

This research choice implied the necessity to have a clear model to consolidate and cross data from the teams and the manager.

However, as we were observing teams, we chose to distance with the respondents to avoid any influence (possibility of biasing data) and to benefit from a neutral position (Robson et al, 2016). We also needed the data collected to be clear and comparable. Besides, there was a need to explore and to give respondents the opportunity to express about their own area of knowledge (qualitative data). We were seeking for both generalization (Robson et al, 2016) and objectivity as well as perceptions from the participants. Incidentally, we included some open-ended questions. The closed-ended questions were added to try to clarify characteristics of the respondents to contextualize the data collected.
However, in the second phase, we needed to engage and learn from the experience of experts. These experts didn’t necessarily correspond to the population observed (Team with manager, working in collaboration and with the agreement of all members to participate), however we believed they had valid, reliable knowledge or experience on the subject. (We will go more in details on these choices in the section 3.3

3.2.5 Sampling - Selecting Respondents

According to Kumar (2014), there are different sampling strategies that can be categorised as follows:

- Random/probability sampling
- Non random/non probability sampling designs
- Mixed sampling design

The potential respondents being distributed in the whole world, it wasn’t possible to have access equally and independently to all of them. There is no existing list gathering the total population (being teams and their manager) Indeed, the probability to select one team over another was influenced by the reputation of big companies and their search engine optimization, as well as the network of the researcher. Hence the choice not to retain a probability sampling (to have a sample representative of the total population).

The only characteristic that determined the success of the questionnaires was that teams needed collaboration to complete their individual tasks and objectives to participate.

The objective being to find both team and managers We used a non-probability sampling (where research respondents are (1) Managers of remote teams as well as members of remote teams and (2) Managers and team members of collocated teams)

The representative sample wasn’t one specific type of teams to let place to the discovery and be able to reach objectives (1.3). Teams and their managers were
targeted no matter what kind of team it was or industry it was operating in to be able to observe the differences in the different populations. Nonetheless, the respondents had to be part of a team where collaboration is important. We also decided to limit the sample to “knowledge workers”: offices workers for the questionnaires while the interviews targeted individuals who had to manage remote teams (dispersed nationally).

<table>
<thead>
<tr>
<th>Collocated teams</th>
<th>Semi-collocated (with frequent remote work)</th>
<th>Distributed teams</th>
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<tbody>
<tr>
<td>• Manager</td>
<td>• Manager</td>
<td>• Manager</td>
</tr>
<tr>
<td>• Team members</td>
<td>• Team members</td>
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The population was identifiable but not small enough to reach all of them. We decided to contact companies through organizations like the Guinness Enterprise Centre (GEC) to contact the virtual teams.

The targets were identified in France and Ireland but the contacts were initially made in the whole world (Singapore, Malaysia, USA). As it was made available online without direct contact with the researcher, we used articles where the consent form was made available.

However, along the research, we identified other individuals who did not correspond to the description at the very moment of the research (as mentioned in the 3.2.4). Therefore, we also decided to integrate individuals who used to but do no longer match the characteristics for this very survey: freshly retired managers as well as entrepreneurs who do work in a team but have to collaborate efficiently with clients. We used a convenience sampling for this part of the research.

We also contacted influencers in digital business world, however it resulted in no successful attempt.
3.2.6 Time horizon

The time horizon of this research is a one-off insight of all teams (phase 1) and the perception of subject matter experts at the particular time of the data collection (August 2017). Therefore, it follows a Cross-sectional time horizon. (Saunders, 2015) Longitudinal requires a longer time frame that wouldn’t have matched this dissertations’ guideline.

3.3 Data Collection Instruments

3.3.1 Overall insight:

First of all, the data collection methods were carefully reviewed. We had to let aside observations because of the very nature of a part of the research (virtual teams can be distributed in the whole world) and this research was exploring feelings, perceptions, habits and experiences than visible behaviours. Later, we decided to discard Interviews as a way collect data to be able to expand the geographical scope of the research to the whole world. Interviews are more time-consuming and expensive solutions than questionnaires, both for the researcher and the respondent (Kumar, 2014). Furthermore, with interviews, the quality of interaction may influence data collection, as well as the interviewer quality. This also influences data analysis as it can let place to bias as the interpretation of responses, selective memory, etc… Therefore, the data collected may vary with other interviewers: the consistency of the method is threatened.

Consequently, we made the choice of exploring this subject through two questionnaires. The first one which is the Manager questionnaire and the second being the Team questionnaire. They were both available in French and English, had to be completed online, on any device (mobile, tablet, laptop), at any time. To complete the questionnaire takes in general 10 minutes and participants could save, exit and come back to the questionnaire any time they wanted.

An online website was also created to be able to share questionnaires easily.
The questionnaire was structured and common for the teams. We limited the number of questions to 25 to try avoiding “respondent fatigue” (Bryman, 2007), that could result in participant error/bias (Saunders, 2015), questionnaire withdrawal or questions omission. We also took into consideration the fact that answers depend on experience: the questions needed to be simple and not too long for managers to accept filling them.

3.3.2 Questionnaire formulation

For respondents’ convenience and to try minimising a potential lack of interest in the research, we decided to proceed with this dissertation using Self-administered questionnaires.
We decided to integrate in the questionnaire the information collected through secondary data to understand if the team building effectiveness was correlated with digital collaboration tools’ use. Therefore we decided to include both open and closed questions (Bryman, 2007) as mentioned in the 3.2.4.

We considered different websites to create online questionnaires but our final choice was a French start-up for personalisation and ease of use for the respondent. The participants also had the possibility to come back to the questionnaire later on…

All elements of the questionnaires were chosen from the perspective of the respondents to maximise the number of respondents. We gave the possibility to every team to get a score for team building effectiveness for them to get something out of the survey.

<table>
<thead>
<tr>
<th>Name</th>
<th>Zoho Survey</th>
<th>SurveyMonkey</th>
<th>Google forms</th>
<th>evalandgo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unlimited surveys</td>
<td>Mostly used by students</td>
<td>Unlimited respondents</td>
<td>Personalisation</td>
</tr>
<tr>
<td>+</td>
<td>150 responses</td>
<td></td>
<td>Lots of theme options</td>
<td>Nice design</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>15 survey questions</td>
<td>Limited personalisation</td>
<td>We considered that the design did not look professional enough</td>
<td>Possibility to translate questionnaires</td>
</tr>
</tbody>
</table>

Table 2 Choice of the Questionnaire tool

Evalandgo.com enabled us to use:

- List questions, to make sure there was no ambiguity and the respondents had considered all possible responses (Saunders, 2015)
- Ranking questions to understand the importance order of elements from their perspective
- Rating questions, to measure and compare perceptions
- Open-ended questions, to give them the opportunity to express

Moreover, we considered that the respondents could even be influenced by the question itself when answering. Therefore, we decided to design the questionnaire with indirect questions to avoid biased answers (i.e. not being completely honest in the answers concerning trust).

3.3.3 Questionnaire administration

As Kumar (2014) explains it, questionnaires must be administered in various ways: Mailed questionnaires, where the respondents are identified and contacted by email directly; Collective administration, where the researcher has access to a captive audience such as a classroom (Kumar, 2014)

We decided to use several techniques to maximise the data collected (August being the time where companies are slowing down their activity, especially in France).
As well as online (with specified characteristics expected before starting the questionnaire)

### 3.3.4 Interview of experts

**MANAGEMENT PRACTICES**

**Interviews**

If you are an expert on Digital Collaboration and/or Team building and you want to contribute to how today’s management is perceived, you can answer this interview on printed or contact me to use Video Call or video conference in order to give us your answers.

Before starting, please contact us to make sure you sign the consent form.

You can answer the questions via a comment on this article or via email on clemente.huchon@gmail.com

Don’t hesitate to go beyond the question and to express freely, to explain your answers contextualizing your ideas.

Are you ready? Let’s get you on board!

1. Kindly present yourself. What is your name, occupation, country of origin, country where you are based now?
2. What is your experience in terms of team building?
3. Have you ever had to manage conflicts in a team?
4. Digital collaboration tools?
5. Do you believe that the critical success factors of team building are the same in colocated teams and dispersed teams? In what context?
6. What impact do you think it has on team building? Can you give us an example?
7. Do you think the impact is different on virtual team building?
8. Do you believe that DCT can reduce the number of communication breakdowns in a team? (DCT: Colocated teams)
9. Do you think digital collaboration tools can help conflict resolution? Do you think it can reduce the level of stress in a team?
10. Do you believe the digital collaboration tools can make a difference in terms of HR for colocated teams? Can you explain?
11. Do you think adapted tools can bridge the historical gap between management and operations?
12. Do you think digital collaboration tools in the case of a colocated team can improve individual work experience?
14. Do you have any other suggestion or comment for what concerns the subject? For example, Do you think your opinions evolved? Do you think the impacts change depending on the country observed?

Thank you so much for participating!

Have a wonderful day!

Clément.

We decided to use semi-structured interviews to independent individuals who are or used to be concerned by the subject and have reliable and valid knowledge/experience on the subject matter.

However, structured interviews were also put available online with the consent form.
3.4 Data Analysis Procedures

The inductive approach used for this dissertation, from its exploratory nature, necessitated a clear research purpose and objective (Saunders, 2007) stated in the Introduction.

3.4.1 Online questionnaires

The choice of online questionnaires to interpret qualitative data was subject to critical considerations. There were different types of questions. Some of them were collecting explanatory data (characteristics like size of the company, collocated team or not, etc…).

For others, teams had to rate affirmations concerning team building effectiveness. Some of them were positive (the highest you rate the more effective your team building is) and conversely some were negative (the lowest you rate the more effective your team building is). The maximal answer for each question was 5. Therefore, after addition of the ideal answers, we got a maximum of 135 points.

We used numerical data coding technics (with scores in questionnaires) There was a need to create a rigorous method to link both perspectives (manager-collaborators). The data was regularly assessed and led to the addition of another data collection instrument to go further in the findings.

3.4.2 Interviews

The complex situation had to be supplemented to make sure the data collected was valid and reliable. Accordingly, In a second phase, we decided to conduct semi-structured interviews in order to complete and compare with questionnaires. Flexibility was needed to efficiently fulfil our research objectives, in correlation with the inductive approach.

This method gave us the advantage to be free to follow up an interviewee’s answer to a question (Hair et al, 2016), related and unanticipated questions to understand their point of view and experience. The interviews were clearly structured, to encourage respondents to talk freely (hence the choice of freshly retired managers
who were no longer tied down to any company in order to maximise honest responses). The questions were here to guide the discussion but also engage the respondent for him to proactively participate to the research.

The choice of respondents was relevant rather than representative (Hair et al, 2016) since the representative sample was observed via questionnaires. The interviews were conducted in Face-to-face or videocall

3.5 Research Ethics

Privacy (Maintenance of confidentiality, Protection of participant anonymity): the modalities will be known beforehand. Every individual will have to sign a statement of confidentiality ensuring that this work won’t be used for other purposes than the one originally agreed on and we promise to ensure confidentiality to my respondent answers. We will not use any information we are not entitled to use and will not divulgate information on findings.

We ran this research trying to create a positive environment for respondents. It included building trust and open communication to identify and respond to any blockage or eventual conflict (for example replace team members by numbers that only them and I know to guarantee confidentiality for the manager). An “Information Sheet” and a “Participant Consent Form” was distributed to all participants.

3.6 Limitations of Methodology

A research is always constrained by external elements. Time, contacts, maturity of the researchers’ ideas… The choices made for designing this methodology are the result of an evolutive reflexion. Some of the choices made had to be discarded because of the availability of respondents at the specific period of data collection. Therefore, the final methodology, although adapted to the research questions and objectives, may have been altered by contextual elements.

First of all, the choice of Self-administered questionnaires led to a standardization of data that might have caused decontextualization (Robson et al, 2016) as well as misinterpretation of the question and thus misunderstanding by the respondent. We
tried to keep the questions simple and to add additional information when an ambiguity was present.

Moving on, the research implied Self-reported data where the risk was the of the lack of conscientious answers, no control over the data and the interpretation of questions.

Henceforth, we decided to include a lot of elements to be able to compare the teams, to see if the teams that had the necessary characteristics (manager support of the technology, ) that were Moving on, it is important to have in mind that the managers as well as team members sometimes gave non-objective answers.

The access to information also was a limitation as Finding web-based companies (virtual teams) became a challenge. Interlocutors that had accepted to participate to the survey were no more available during the data collection phase (summer period). Therefore, the sampling may be too restricted to give an objective representation of the issue. Although the information for this survey was clearly given beforehand, some managers did not transmit the questionnaire to their collaborators, etc…

Nonetheless, as we needed objective and comparable information, we decided not to use any question that could complicate the data analysis in the expectation of a larger number of respondents.

Next, the criterium chosen to determine the correct identification of an efficient team building depends on other criteria: it is thus hard to establish an unbiased cause-to-effect link.

Further, the research does not link the findings with the company’s market and industry averages for results (turnovers) and the budget affected to HRM bundles (that often depends on firm’s performance).

Moreover, the success of the research also depends on the coordination between the managers’ employee and the team, hence “layer” one cannot be used without the other. The managers were always busy and were only reading the emails quickly. Most of them were not transmitting the questionnaire to collaborators, or weren’t completing the consent form.
To finish, the findings may be limited to the company which environment and culture are fostering innovation, creativity, and where empowerment and psychological commitment to the company is a factor of competitive advantage. A more widely-scaled research would help businesses that hesitate to launch new projects because of geographical/time boundaries.
4. Data Analysis/Findings

The data was collected in France and more marginally in Ireland during August 2017. We used multiple methods to explore the subject (Questionnaires and interviews) and targeted representative sample (virtual teams) as well as relevant sample (retired managers, managers whose teams could not participate, etc…). Interviews collected were rephrased, translated, summarized. The main recurrent points were highlighted and compared to the open-ended questions’ results collected in the online questionnaire. The online questionnaire was supposed to reflect the profile of teams whose manager had previously accepted to fill it. However, only three teams filled the questionnaire after their managers The actual sample was thus smaller than the one expected (we were initially expecting around 8 team members per team for 6 managers ideally).

<table>
<thead>
<tr>
<th>Research method</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manager Questionnaire</td>
<td>7 managers</td>
</tr>
<tr>
<td>Team Questionnaire</td>
<td>9 team members (3 teams)</td>
</tr>
<tr>
<td>Interviews of experts</td>
<td>4 experts</td>
</tr>
</tbody>
</table>

4.1. Questionnaires

4.1.1 Qualitative Analysis

4.1.1.1 Manager questionnaire

The manager questionnaire was conducted to understand the managers’ position in team building as well as to complete the profile of teams where the digital tools were used at their full potential, as proposed in the literature review.

Population:
a) The industry

The teams who answered the questionnaire were part of the Transports, Market Research ECommerce and Finance/Banking/Insurance.

![Respondents' industry chart]

**Figure 7 Respondents' industry**

<table>
<thead>
<tr>
<th>#</th>
<th>Question</th>
<th>Nb.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Can you please precise the size of your company</td>
<td>6</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Small and midsize business (SMB)</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Small and midsize enterprise (SME)</td>
<td>2</td>
<td>33.33%</td>
</tr>
<tr>
<td></td>
<td>Large enterprise</td>
<td>4</td>
<td>66.67%</td>
</tr>
</tbody>
</table>

b) The companies
c) The dispersion of the team

Out of the 7 managers who accepted to answer the Questionnaire manager, 4 were managing remote teams.

- Collocated (sharing HQ)
- Collocated but working remotely from times to times
- Domestically distributed
- Globally dispersed

Table 4 Team dispersion (Manager Questionnaire)

<table>
<thead>
<tr>
<th>#</th>
<th>Question</th>
<th>Nb.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Would you say your team is more...</td>
<td>7</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>A Multigenerationnal team</td>
<td>6</td>
<td>85.71%</td>
</tr>
<tr>
<td></td>
<td>Composed by juniors mainly (0 to 20 years of experience)</td>
<td>1</td>
<td>14.29%</td>
</tr>
<tr>
<td></td>
<td>Composed by Seniors mainly (20 years of experience or more)</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

Figure 9 Generational Diversity

a) The age of team members

After this, managers were asked if the usage of digital tools provided by the company was based on the internal Information system or if they were using external solutions. For three of them, the tools they are using the most are part of their internal Information System. For three others, it is based on a software and for one team only
The digital tools used are part of an online solution (application or software).

![Nature of the digital tools used](chart)

**Figure 10 Nature of the tools**

![Use of digital tools](chart)

**Figure 11 Type of digital tools used on average**

We asked managers to tick the type of digital tools they were using amongst this list. They could choose several tools and add the ones that were not listed. The digital tools that are the most used amongst these ones by the teams are all observed...
companies provide Instant messaging, eMail, Online shared documents, shared calendar and Intranet.

Figure 12 Choice of the tool

We decided to ask them if they had given their input in the choice of the tool. The results were different: For the vast majority of managers, they were not consulted and it resulted in a tool non-adapted to the team level. For one company only, the manager participated to the choice. The tool was considered as adapted to the teams’ activity.
Figure 13 Name of the tools

This number represents the percentage of respondents who use each tool.

<table>
<thead>
<tr>
<th>#</th>
<th>Question</th>
<th>Nb.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>The communication in the team...</td>
<td>7</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>There are frequent meetings or e-meetings gathering the whole team</td>
<td>4</td>
<td>57.14%</td>
</tr>
<tr>
<td></td>
<td>We are communicating one by one mostly, via Instant Messaging/Email/Telephone/Videoconference</td>
<td>5</td>
<td>71.43%</td>
</tr>
<tr>
<td></td>
<td>We are mostly communicating online, the information can be available for everyone anytime</td>
<td>3</td>
<td>42.86%</td>
</tr>
<tr>
<td></td>
<td>We are mostly communicating face to face</td>
<td>3</td>
<td>42.86%</td>
</tr>
</tbody>
</table>

Figure 14 Nature of the communication
Moving on, the respondents were asked what was according to them the principal factor of choice for the digital tools in their company.

**Figure 15 Manager Perception of the tools**

<table>
<thead>
<tr>
<th>#</th>
<th>Question</th>
<th>Nb.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Please select the affirmations corresponding to your situation</td>
<td>7</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>I am open to digital tools. I am aware of what is on the market and I propose new tools for the company</td>
<td>2</td>
<td>28.57%</td>
</tr>
<tr>
<td></td>
<td>I am familiar with digital tools proposed by the company. I am using most of them</td>
<td>5</td>
<td>71.43%</td>
</tr>
<tr>
<td></td>
<td>I prefer to use my own methods to produce result (not necessarily digital)</td>
<td>4</td>
<td>57.14%</td>
</tr>
<tr>
<td></td>
<td>I am not convinced of the outstanding advantage that bring the digital collaboration tools</td>
<td>3</td>
<td>42.86%</td>
</tr>
</tbody>
</table>

"Others" represented
- the managers who did not participate in the choice of the tools,
- Communication efficiency

**Figure 16 Main Choice Factors in DCT**
For the question number 19, participants were asked if they believed the use of DCT could help to reach a better organization of teamwork and exchanges. Managers agreed saying that tools can help but are only tools and therefore necessitate an individual organization by members. One of the managers however draws our attention to the threat of creating too many tools that would risk producing the opposite effect than the one sought.

Are DCT helping work organization and exchanges?

- 57.14%: Yes
- 28.57%: No
- 14.29%: I would like to add more to this answer...

Figure 17 Impact of DCT on work and exchanges
The comment added this question expressed his incertitude in reducing stress or uncertainty (he never considered both)

4.1.2 Qualitative data analysis

Open-ended questions Manager

According to you, how different is it to manage a team and its projects through digital collaboration tools?

- Different to doing it through more traditional methods? I would suggest that it's very different and far more efficient.
- Information sharing made easier, especially with collaborators who are not on site
- Do not forget that digital must be at the service of communication between men and women. In some respects, multiplying the modes of communication can lead to the opposite effect, isolation, incomprehension, rejection, loneliness, failure ...
They are a means today to get the messages across and have massive and organized returns. They have a more moderate effect on the ability to understand and analyse.

This can help to share and ensure everyone is at the same level of information.

Do you have any other suggestion, comment, thought or experience to share for what concerns the impact of digital collaboration tools on team building?

- I believe a balance is needed between digital collaboration and face to face communications - both are needed at different times and for different purposes.
- We organize every Monday in Bordeaux a management committee in Video call (for decentralized sites: Poitiers, Limoges, Périgueux). For this each one fills a team table under share point. This allows you to go faster in meetings while sharing the necessary information. The system is still looking a little, especially when the video does not work!!! More generally, I find that we do not use the digital tools very much, we do not know well what to do with them ... We also should get helped (how to be more efficient?). As for now, we have not taken the step!

Open-ended questions Teams’ answers:

- “Effectiveness of face to face, creation of a bond of trust; Easier alignment”
- “I think yes in the very moment, but it will fade in the future. Virtual collaboration, is a mode of functioning of modern times and in any evolution it is necessary to modify its habits and the individual is not a big fan of change”
- “No, virtual communication is generally a good palliative to face-to-face communication."
- “Difficult to say in our case, because our team is gathered in the same office. When we encounter any problem, we talk about it face to face (it’s faster, and more user-friendly). However, it is true that digital tools greatly simplify communication in the team. We have a generic mailbox with which the whole team works, so we know who does what, when, and we can also do our
assistance more easily. It is a total transparency that reinforces the cohesion of the team. We also use Skype for instant messages, an intranet portal where we can share documents, and internal folders. Our meetings are also done via digital media (especially PowerPoint), we work as a team for the drafting of content. Then yes ! Virtual collaboration is a means of avoiding communication disruptions. Especially since it has become indispensable today”

- “Virtual collaboration can have a greater impact on conflicts and communication disruptions because it can lead to misunderstandings that could have been clarified during a discussion. Depending on the tone used in a mail or recipients, the person may feel charged without daring to respond.”
- “Both are different. When you work in virtual teams you know you’re here for the work rather than for the interpersonal elements. I know my co-workers in a professional way and even if we have informal conversations (we need to know how the person works to collaborate) we don’t have time for conflicts. I feel like the communication is clearer and we are not wasting time with conflicts. when a member needs help, he/she shares. This is possible because we have a small structure.”
- “Yes, I agree. The problems are fewer. But it’s not only because we use digital tools. Digital tools bring reliability reactivity and incontestability, thus removing disputes and conflicts. But the trust and delegation from the manager are essential”
- “Everybody in the company is free and independent. We have no problem in communication and no conflicts, we use digital tools and the manager is able to see if there is a problem”

4.1.2 Team questionnaire

The population sought was team members of whom the success of respective projects in the team largely relied on collaboration between members.

Population:
Figure 19 Age of team members

![Bar chart showing age distribution of team members.]

Figure 20 Experience in the Company

![Pie chart showing experience distribution in the company.]

- 11% less than a year
- 33% 2-3 years
- 56% 5 years and more

Note: The values represent percentages of the total team members.
The different tools used was different from the managers’ results concerning the tools provided by the team.

For the question 9, team members were asked what was for them the main obstacle they were facing when handling these tools.
Surprisingly, no participant answered, “I don’t need them to work”. Not all of the team members are using them and it jeopardises the good use of the tools, I am more effective when using traditional method to work/communicate/collaborate, The tools complicate/slow down the process

The “Other” answer was answered by two members of the team B who included connexion problems (in the trains, the reception is poor)

We also asked our team members If they had received a training. 66% of them had received a training and the ones who did mentioned being satisfied with it for the use they were having.
The question number 15 also acknowledged us on the main purpose of the digital collaboration tools, which is to communicate with their manager or collaborators (online or in real time).

The question number 12 was about the positive environment (or not in the teams). All participants answered the question rating the affirmation depending on their
trustworthiness. The two first affirmations were about negative emotions. We can see that they were more agreeing with the affirmations concerning positive cycles.

This question only has a meaning when comparing the teams' average. We will explain this point in the Team building results (4.1.3)

Figure 25 Average rating by team members

Participants were asked to rate their own performance as well as their team’s. They rated their own individual performance 3.63/5 in average and 3.88/5 for the performance of their team (see hereunder)
The team members were feeling 78% free to bring new ideas, processes or software to the company (as they rated 3.8% on average) and that they were globally satisfied (4.13/5) with the tools they are using.

They also rated their individual motivation at 4.5 out of 5 and their satisfaction 4.13/5.
The members are in majority using all digital tools provided by the company, but not using other tools for most of them (62.5%). They were 87.5% to think the tools were coherent with the business strategy and 75% to believe they were adapted to their individual objectives and tasks.

![Figure 28 Objectives and manager: Teams' perception](image)

**Title: Objectives and manager: Teams' perception**

We can see here that teams considered the project’s objectives were clear and well communicated, but in average they considered them less adapted to their daily work life. The managers are globally perceived as available for their teams, although we couldn't have access to all teams of managers having accepted to answer the questionnaires.
Leadership style from Lewin’s Leadership Styles framework of the 1930s

- The manager centralises decision-making. He chooses without consulting the team, gives orders, taking full authority and assuming full responsibility. This affirmation represents an Autocratic Leadership. No team reported working with this style of leadership. (Lewin, Lippitt, and White, 1939)

- The manager consults the team. He persuades, shows example and encourages decision-making. This is the democratic leadership style, here again according to Lewin (1939)

- The manager leaves the team free. No direction or control is exercised over the people, they are free to set their goals, he generally avoids responsibility.

- The manager guides and protects his subordinates as members of his family. He provides his subordinates with good working conditions and fringe benefits, he is almost acting like a father for the team.
The participants were asked to rank a list of 8 affirmations, 1 being the greatest obstacle for an optimal performance and 8 being the least important. Therefore in average the main obstacle for an optimal performance is the lack of resources to complete the tasks, followed by the lack of communication between members. The lack of affinities between members came at the end.
People give each other direct, personal and constructive performance and interpersonal feedback in team meetings with everyone participating in a frank dialogue about the issues. (A)

Team members are closed and careful in team meetings. The group is divided into alliances and cliques (B)

In group meetings, people openly share their personal development challenges and patterns (e.g., lack of confidence, insensitivity) in a vulnerable way, receiving emotional support and guidance from other team members (C)

Members coordinate their actions to most effectively reach the goals they have defined together. Although they prefer their separate roles and resources, they regularly look for win/win improvements that will serve the team and the customers. (D)
The raw data collected from the Manager Questionnaire and the Team Questionnaire permitted to calculate team building effectiveness (through the rating questions), the maximum score being 135. What is following is the data

The results per team are included in the appendixes.
During the managers’ questionnaire, they had to specify if the teams were exceeding objectives, fulfilling or hardly reaching out their objectives.

We decided to call companies by letters to simplify the expression.
Figure 34 Team building results for Natixis

Average answers team Natixis

- Employees get Appreciation and recognition: 3.5
- When one of us has the skills necessary for a job: 5
- If I make an error, we are trying to find ways to improve: 4
- I feel free to contact other team members: 5
- I feel valued in the company: 4.5
- I feel involved in the business decisions: 4.5
- I feel integrated in the team: 5
- I consider how my actions will impact the team: 4.5
- Our team has a meaningful, shared vision: 4.5
- I communicate with my team members: 4.5
- I often collaborate with the other team: 4.5
- I communicate several times a week: 5
- I share informal information with my colleagues: 4.5
- I know what my teammates are working on: 5
- I know the other team members: 5

2.5 3 3.5 4 4.5 5
Figure 35 Team building results for Research and Markets

Team C: SNCF
Figure 36 Team building results for SNCF

It is important to note that for three managers (belonging to the same company, the teams are considered as domestically distributed from time to time but still shared offices)

<table>
<thead>
<tr>
<th></th>
<th>Team A</th>
<th>Team B</th>
<th>Team C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member 1</td>
<td>113</td>
<td>115</td>
<td>89</td>
</tr>
<tr>
<td>Member 2</td>
<td>124</td>
<td>127</td>
<td>120</td>
</tr>
<tr>
<td>(Member 3)</td>
<td></td>
<td></td>
<td>95</td>
</tr>
<tr>
<td>Team building effectiveness</td>
<td>79.62%</td>
<td>80.74%</td>
<td>75.06%</td>
</tr>
</tbody>
</table>
4.2 Interviews

Respondents background:

Respondents selected were managing virtual teams which are directly on the field to have a practical insight on the effects of DCT. A construction project manager, a manager of a 500 members team piloted via digital collaboration tools, the manager of a travel agency and the manager of 3 hotels.

Answers

1. Do you believe that the critical success factors of team building are the same in collocated teams and dispersed teams? In what context?

Respondent A: Yes, if you use the DCT correctly, it is the same thing. Employees are used to being autonomous since they are moving in trains scattered all over France and only linked by digital

Respondent B: Yes if we were able to delegate and recruit the right people

Respondent C: “In my projects, it is difficult to envisage teams on the same site; There is necessarily remote work, including within in the entities themselves. For example, the specialists of structural problems are not in the premises of the specialists of the flaws. The tool eliminates this notion of distance and loneliness. On the other hand, the collective results being the sum of the individual results, it is up to the project manager to give himself the means to control each one."

2. What impact do you think DCT have on team building? Can you give us an example?

Respondent A: “Instant update, Reactivity of contacts, creation of trust between employees and manager”
Respondent B: “To be able to see our interlocutor can help, even virtually: I prefer to use video calls. I see my co-workers every Monday”

Respondent C: “The impact is mostly on efficiency. The exchange of plans, sketches of drawings are much more relevant than speeches, participants are quicker on the subject, there is a trace, a common reference of exchanges, so the match between the participants and the project is quickly brought to light”

3. Do you think the impact is different on virtual team building?

Respondent A and B: “I don’t know”

Respondent C: “Since emotion is mainly related to human contact, it is less present in virtual teams. Technicians for example, need less emotion than designers. The graphic representations can nevertheless give them the sensitivity of the project.”

4. Do you believe that DCT can reduce the number of communication breakdowns in a team? VT? Collocated teams?

Respondent A: “The fact that a question can be answered immediately, solving a problem online reduces the misunderstandings, especially because everything is written”

Respondent B: “Yes in the sense that as long as it is very easy to use, we can go faster, act with more reactivity and keep track of all that one writes or puts online. It limits the sources of errors and one can find the sources of errors”

Respondent C: “Yes, exchanges being easier physically, distance no longer exists, they are more numerous, therefore richer”
5. Do you think digital collaboration tools can help conflict resolution? Do you think it can reduce the level of stress in a team?

Respondent A: “Yes, all the applications they (collaborators) have in their tablet can resolve situations both with the manager and the clients. About the stress: Absolutely, having all the necessary information in real time helps to reduce the stress of loneliness”

Respondent B: “Yes, to the extent that responsibilities can be better identified, we can be more reactive, there is a traceability”

Respondent C: “No, DCTs are tools as their name suggests. They cannot replace the manager who himself can regulate the level of stress of his collaborators. Stress is not an exact science, it is individually that one has to solve the problem, stress is motor for some and brake for another. A good manager, to get the most out of his team will have to be psychologist and adapt to each personality and therefore dose the pressure according to each person. It is not the tool but the one who uses it does the work”

6. Do you believe the digital collaboration tools can make a difference in terms of HR for collocated teams? Can you explain?

Respondent A: “It can make a difference if you maintain physical contact, maintain regular or frequent contact. One must not go without the other”

Respondent B: “Yes they can see the results in real time of the three hotels, their results ... I tell them we had a good day, I better manage my objectives and results ... it allows a better reactivity, adjustment of a policy of price.... It restores confidence”
Respondent C: “For me, the team is built through complementary skills. The company's human resources should not be managed in a project. The resources of the company are the responsibility of a specific service, we must not mix responsibility. Project management and management do not have the same constraints and objectives”

7. Do you think adapted tools can bridge the historical gap between management and operations?

Respondent A: “Yes, of course”

Respondent B: “If the maid is ill on a hotel, this is not an application that will handle the problem, but the hotel manager can contact me, discuss it. More reactivity, possibility of finding a solution quickly, I immediately send the post and a request for reinforcement to Adecco ... it takes a minute.”

Respondent C: “First of all, I do not think there is a gap. Of course, "operationalists" always want more resources, and the company must manage costs in relation to results, but it is up to the managers to explain what can and cannot be done with the means available. The tools are pure communication.”

8. Do you think digital collaboration tools in the case of a collocated team can improve individual work experience?

Respondent A: “Yes, provided we use all the managerial levers we have at our disposal”
Respondent B: “Yes, tablets indoors for the control of the dishes enable us to avoid all parasite displacements in the restaurant and this eliminates the risks of error ... in terms of reactivity it is high”

Respondent C: “Of course, the answer is in the question. Collaboration, exchange is the best way to benefit from the experience of others, collectively or individually, the shared experience is necessarily an enrichment. The digital tool is a plus insofar as it communicates much faster and much further. But again, that does not do it all. If we do not have that philosophy of learning from others, it is useless.”


Respondent A: “Yes, without a doubt”

Respondent B: “Yes, as long as you think that the customer is satisfied with the service, it improves the feeling of satisfaction of the agents, of belonging to the company, one reduces the stress”

Respondent C: “For performance this is sure. For the results of the company, however, if the managers did not understand that to bring out the best of each of us, we need a climate of confidence, employee-oriented practices and a search of positive for everyone, a well-being in the company, in short an atmosphere of respect and team spirit, then, none of the tools can do anything.”
The findings of the literature review (best practices) enabled us to draw a profile for effective users of digital collaboration tools. This profile was used to design the questionnaires of both management and team (that are completing each other). The optimal user of digital collaboration tools for effective team building (as specified in the literature review) uses the tools to collaborate, makes the information available instantly and for every member of the team to instantly clarify potential uncertainties. However the communication between members can never be entirely formal. In the case of virtual teams, the human element needs to exist in a virtual way.

The virtual collaboration tools can therefore minimize the risk of conflicts by enhancing the responses to challenges.

5.1 Different perspectives

The results revealed diverse perspectives that we could link to the “type” of respondents.

(1) Those who find digital collaboration tools can make the work more human (seen as opportunity)

(2) Those who find that DCT tend to “erase” the human dimension to work (seen as threat)

What can explain these different perspectives?

In the introduction, we explained we were trying to understand what were the impacts of DCT on team building and what could make them vary.

Firstly, this research was intended to discover the impacts when the tools were used optimally. It was not possible for the researcher to determine beforehand if the use of the tools used was optimal or not in the team. Being a quite innovative practice, the representative sample would have been more illustrative if the researcher had had access to more virtual and traditional teams during a longer period of time. Every
organisation is unique, each member of a team has his own experience, personality, and perception. Therefore, it is hard to explain some phenomena through a one-off research since it doesn’t include any dimension of evolution. As the interpretivism philosophy believes, some members are different from others. Diversity sometimes triggers creativity, however it also means that by their differences and diverse perceptions, they can experience diverse workplace realities (Kumar, 2016).

5.2 Answering Sub-research questions

Sub-question 1: ARE DIGITAL COLLABORATION TOOLS EFFICIENT ENOUGH TO OVERCOME HR CHALLENGES OF REMOTE TEAMS?

The literature review identified Human Resource challenges for virtual teams, being knowledge sharing, empowerment, Psychic distance, Coordination, Trust. Specific Challenges are overcome if the remote teams can be successful and have the same or higher team building effectiveness than traditional teams.

<table>
<thead>
<tr>
<th>Team A</th>
<th>Team B</th>
<th>Team C</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Collocated • 79.62%</td>
<td>• Globally distributed • 80.74%</td>
<td>• Collocated • 75.06%</td>
</tr>
</tbody>
</table>

Figure 37 Team building results through questionnaires

Of our 3 teams, the team B (globally distributed) got a higher team building effectiveness score than the collocated ones even though the rates were quite similar.

The research revealed that the members of virtual teams did not have a higher rate of psychic distance than the members of traditional teams. This meant that despite the lack of face-to-face contact with other team members (and through the use of 88
other tools as Video Call) They were not facing more communication breakdowns; the members were relatively empowered and the interviews reflected the same trends.

The answers to the questions concerning Psychic distance between members were answered with the same rates than the traditional teams because in practice members learn to adapt to communicate efficiently.

These results could also be explained by the fact that VT members chose this kind of structure because they tend to be independent and autonomous, empowered. They need to trust more their colleagues so they do to keep control of their stress level. The advantage is that team members communicate when they need to and can stay focused on their tasks and avoid time wasting.

The tools are only new means to collaborate but they need to be initiated by the members themselves. The management of remote teams considered by participants to be different and far more efficient. Team B’s Manager identified more individuality in the relationship, less paternalism, collaborators are treated as adults…

There is nonetheless a balance needed between digital collaboration and face to face communications to keep the human dimension of the work. Both communication types are needed at different times and for different purposes and this is why the transition necessitates training and engagement from the collaborators. Tools need to be complemented with team building events

Virtual teams, as they use in average tools that are more innovative and adapted at team level, succeed to reach high team building effectiveness. The modern digital tools therefore permit to overcome HR challenges when they are optimally used in a favourable context.

Sub-question 2: WHAT EFFECT DCT HAVE ON TEAMS (SEMI-VIRTUAL AND TRADITIONAL TEAMS) AND TEAMWORK?

The impact of DCT on exchanges concerns principally the intensity of communication. Managers of teams working “in the field” tend to say the digital
collaboration tools can enrich the contacts between individuals. Indeed, the exchanges are simplified so they can be more frequent and intense. Via typed communication the author can correct himself to get straight to the point. The communication breakdowns are not only less frequent but also no more triggered by misunderstanding, as the risk of memory lapses is less important when we can keep track of the progress.

It seems like digital collaboration tools may benefit to traditional teams only in the case where the collaboration is threatened by the nature of relation between members. Where there is a conflict, the digital collaboration tools are removing emotions to the work. The link yet appears indirect between satisfaction and use of tools.

We are not saying that digital collaboration tools in the case of traditional teams need to reduce human contact. The tools need to complement the work strategy in place. For virtual teams, it also means that members need to be carefully selected. Digital practices seem assimilated by VT members who see the potential and are satisfied by these tools.

For traditional teams, it would represent a digitalized way to organize thoughts, to keep track of the progress in our own objectives, through the variety of devices collaborators use. Maybe aren’t the individuals ready to accept such a change in their working modes…
In terms of HR, the impacts were also different depending on the experience they had with DCT and the context of their activity.

For workers in trains for example, it was said that DCT could reduce the level of stress, build self-confidence, whereas respondents working in one office insist on the strategic benefits of the work, the digital tools bring speed, reactivity, reliability, objective decision-making, time saver. Yet, they all agree on the strategic benefits of DCT.

All respondents nonetheless agree on a creation or strengthening of trust between teams and their managers (in both ways).

Moving on, the research revealed that most of the time, even in 2017, the solutions proposed for teams are the same no matter what department they’re evolving in since they are part of the internal information system of the company (instead of external solutions to complement the IS.). Henceforth, the solutions and tools are standardized and mostly non-adapted to individual tasks... For some of the respondents being part of a large enterprise, the systems were obsolete and prone to slow-downs.
Our results revealed differences for different types of teams.

We didn't compare the turnover of the company. Team members reported the tools were now getting more present at the business scale, however the managers are not sure yet how to use them efficiently (they did not receive a training).

We also observed that

- The oldest company was the most represented in the survey (number of respondents) it’s also the one where we observed the most obstacles to an optimal use of digital tools.
- In companies where the manager and team members’ inputs were not considered in the choice of the tools, they were not adapted to the team’s objectives and tasks and the users were more rarely satisfied of the tools. The members whose input wasn’t included also had a team building effectiveness is a little bit lower than the other teams). The fact that they use DCT only to communicate (instead of using them for their core work) may be the reason why they don’t see the potential of these tools. They are
here to enhance creation and individual organization and this can have positive effects.

- The teams that used web-based applications in addition to their internal system seemed to be more convinced of the utility to have specific tools.
- A balance is needed between digital collaboration and face to face communications - both are needed at different times and for different purposes.
Sub-question 3: ARE DCT THE MISSING LINK BETWEEN MANAGEMENT AND OPERATIONS?

We saw previously the strategic impact of DCT (through the literature review and the data collection). We observed that in this relationship DCT could have an impact both way. First, it is easier to report to the manager IRT. Second, the manager can communicate his expectations more efficiently. It is therefore one element linking both together by creating more trust. However, it is the choice of the management to provide more transparency on his choices to enable the tools improving a better alignment since the management can have a better understanding of the work on the field. They can incidentally adapt resources provided to the teams for them to facilitate their work life as well as perform better.

The respondents of interviews were categorical. The DCT permit to bridge the gap between management and operations. However, in the questionnaires, several managers admitted they did not participated in the choice of the tool. However, if the tools used to be standard and not specifically adapted to the team’s tasks, the tools were getting more numerous and the trend was the individualization of solutions, which is a first step to the adoption of adapted tools.

This can only be the missing link if both participate for the choice of tool and if it is adapted, therefore if the characteristics are gathered for an optimal performance.
Incidentally and the same way this research, we can say the tools can definitely bridge the gap between management and operations if the management is willing to bridge the gap. It means it comes with an overall philosophy and a determination to align strategic and operational choices.

These tools give the possibility to collaborate and to exchange and give inputs before a strategic choice is made but cannot have an impact if the management is authoritarian, closed and

However we also noticed that company whose management provides its employees adapted tools must already have willingness to take into account its needs. Therefore the tools can have their expected effect

**ARE DIGITAL COLLABORATION TOOLS A HUMAN RESOURCES LEVER FOR TEAM BUILDING EFFECTIVENESS?**

The conclusions of this research enabled us to answer the sub-research questions that permit us to answer this overall question.
The effects on team building:

The interest of digital tools lies in the functionalities that are creating new ways to share instead of doing the same thing digitally. Like the video call enhanced normal calls by adding facial expressions to the traditional calls, online digital tools add another dimension to teamwork.

The subjective characteristics of individuals make the study hard in practice because a change of tools (to “go virtual”) includes a learning process which is different for everybody. Each individual needs to see the importance of change and to engage with the new practices (creating lists, memos, using tools to g and it may not be adapted to every kind of team and personality.

Always has to be used along with visual contact: the whole team must be gathered at some point.

When the team is not functioning correctly, the digital tools cannot fix the problems and the manager has to intervene in any case.

5.3 Linking our results with objectives

Through this research we understood the Benefits and Challenges that can be triggered for companies in the context of virtual collaboration. These benefits can be
of strategic order as well as human resources.

**Strategic**

- Instant information sharing (same information for everyone)
- Reactivity
- Creation of a common vision (through graphic representation possible online)
- Objectivity

**HR**

- Stress reduction
- Creation of trust between employees and manager - first-line manager
- Avoidance of conflicts related to emotional concerns (interpersonal misfit between members)
- Diminution of the "feeling of distance"

**Figure 41 Benefits of DCT**

Our second objective was to understand the share of managers and collaborators estimate that the tools are an HR lever for team building. The sample of respondents who answered our questions represented more traditional and collocated teams. Henceforth the lack of knowledge concerning the modern tools, leading to opinions where the opportunity is not obvious. Yet, they all agreed on the fact that IS could have positive HR outcomes.

To determine if the DCT benefit more to a certain team profile than another: we couldn’t successfully contact any team using digital collaboration tools optimally in the case of collocated teams, therefore the data collection wasn’t complete.

- To find out if digital collaboration tools’ benefits can go beyond business strategy and enhance performance and work experience for individuals themselves

Remote teams, especially with members in the field that can benefit from mobile solutions on their devices tend to say the individual experience of work can be improved by digital tools. Enhanced collaboration, knowledge sharing are always enriching the experience; Restores trust between direct management and employees.
To understand if investment in Information Technologies can have Human Resource benefits

Here again, the managers of remote teams seemed convinced that investing in IT could have HR benefits such as Job satisfaction, Motivation, reduction of stress for collaborators in the field.

Individual Performance ? Team performance? Business performance?

To assess if the DCT can have positive effects on team building effectiveness or if instead it tends to isolate team members and create conflict

The tools can have positive effects and can isolate team members the same way. The research underlined the fact that tools are only tools and it emphasizes the behaviour of people. It is new possibilities to collaborating towards digital. The conflicts in the same way won’t be triggering conflicts. Through the digital members have the possibility to use technology to fix human issues but it was not proved that teams that were using less DCT were facing more obstacles, conflicts, communication breakdown because the activities of both are not the same and therefore can’t be compared.

Given these points, we can say that DCT could be an HR lever in team building effectiveness through the facilitation of exchanges, being the main CSF of team building effectiveness.

DCT can only have the effect HR and Team building outcomes if there is an alignment between Business strategy, HR practices and IS choices.

Figure 42 Flow of information necessary for successful strategy implementation.
For some managers, the CSF of team building are the same in collocated and dispersed teams. The most important factor is the selection of the right people (best fit) adapted to the strategy of the business.

However the research revealed that companies that seek innovation often use digital collaboration tools that are more adapted to the work at the team scale.

They were also more often constituted by young professionals.

The tools can have a positive impact on team building if they are correctly managed. If the human element finds its place in collaboration.

The HR challenges can be overcome only in the case where DCT are used at their full potential.

Figure 43 Critical success factors for optimal DCT use
5.4 Conclusion

The strategy is the result of considerations in terms of context: external (industry averages, stakeholders), internal environment (culture, resources) to reach a goal.

The research would have given different results if the researcher had had access to real experts aware of the most innovative business practices. IS slowly becoming the unifying element between all departments and it now needs to be the principal ally of strategy. The tools need to be adapted to the team nature and specific teamwork, to be able to reach optimal effectiveness. This would also centralize data and give access to the top management IRT to be able to react accordingly. This is why all departments of the company need to have a clear awareness and understanding of the tools and the possibilities the tools offer. Modern digital tools, to be used optimally, need to come along with a new organization and a set of new practices. It may not be suitable for all and can be hard to acquire for somebody who doesn’t engage in learning.
6. Conclusions/Recommendations

6.1 Conclusions

The present investigation gave us the following results:

- Digital tools are starting to be used and appreciated. DCT are making the information available and easily accessible, giving the opportunity to correct instantly misunderstanding and avoid conflicts and isolation. They reinforce the sense of belonging to a team, help with the daily work (real time, reliability, traceability), they help building a team (sense of belonging, stress reduction, well-being at work).

- However, digital tools are not enough. They must be accompanied by a strategy but accompanied by the managers on why, how and what it serves. otherwise they can be neglected and not achieve their effectiveness.

The research highlighted different points that hadn't been considered through secondary research. The top management needs to be more attentive to employees’ daily work. However every single person is unique with its own experience, personality and specific reactions and choices for each situation. Our decisions are not always objective because most of them in HR also depend on emotional intelligence factors. The overall performance of a company depends on the sum of individual performances and they can only implement the strategy if the individual objectives and expectations are coherent with the business choices and the strategy formulation:

- Employees who have the necessary tools for working (adapted to the task, coherent with the objectives), are in average more satisfied with their work and the work of their teams benefits from it too through a better team building effectiveness.

- The management’s responsibility is to build a shared meaning for the team and to be the unifying element in the team and build team building effectiveness is the sum of individual efforts.
Business projects most of the time fail because of a misinterpretation of the scope of the project or a misfit between strategic objectives, needs and resources for the companies.

- The interest of IS at a wider scale is about making the connection between disciplines, skills, areas of knowledge and this is why companies need multidisciplinary boards of directors (to overcome the psychic distance barrier between departments) and to understand all implications of strategy.

The cost to use a digital tool adapted to every team with training could be higher than traditional methods and this is probably why it is not put in practice enough.

The true meaning of this is that collaboration needs to be at the business scale, there needs to be an active link between strategy, tools and implementers.

6.2 For further research

This area of research is very wide and new and the research needs to wait for a wider adoption of these new tools to understand possible outcomes and draw causal relationships on effects observed.

Besides, mentalities in business are changing, as recent HBR best-sellers are showing it (i.e. mindfulness, conscious leadership, etc.) (2017)

This topic necessitates a longer research (about 1-year minimum) on the use of digital collaboration tools and the well-being at work, with a larger but more targeted sample, at a period where not everyone is on holidays.

Other research ideas to make evolve the management could include:

- Digital collaboration tools and conflict management
- Effects of DCT on team building effectiveness in the case of student project teams
- Comparison of the success/satisfaction rate of employees when they were asked to give an input for the choice of digital tools or when they weren’t
• Effects of team building events (seminary, after work events, with or without families) on team building, psychic distance and satisfaction of members

• Observation in practice with a second analyse after a training (to ensure they know how to use the tool optimally

• Observation: Target traditional teams that are not using digital collaboration tools where a negative circle is in place or where there is a conflict, make them start collaborating with digital tools to see if it would change something

We decided not to follow somebody else’s scheme but to build the subject from scratch, therefore all the elements discovered in this research would deserve to be in-depth research matters themselves to discover which can trigger higher team building effectiveness.

If we could do this research again, we would probably revise the scope of the research by reducing the number of questions, considerations, simplify the literature review starting from team building and without doing the distinction with VT and TT. We would also have included a bigger emphasis on the culture of the company and the team activity.
7. Reflection on learning

<table>
<thead>
<tr>
<th>What</th>
<th>So what</th>
<th>Now what</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Situation outline (7)</td>
<td>• Discussion about the learning (7.1)</td>
<td>• Sustain the learning (7.2)</td>
</tr>
<tr>
<td>• Consideration of actions, consequences, responses, feelings and problems, learning style</td>
<td>• examination of what was learnt (about oneself, others, processes...)</td>
<td>• Identify the applications of learning (7.3)</td>
</tr>
</tbody>
</table>

Figure 44 Adapted from Rolfe (2001) Framework for reflective practice


According to Bolton (2010), a reflective and reflexive writing must be done through the completion of five stages (i.e. the Six-minute write; the Incident, Narrative, Story; Read and Respond; Sharing Writing with a peer and finally Developing Writing.) Our writing was inspired by it before being organised our own way.

As mentioned in the Acknowledgements section (p.3), this dissertation is the final piece of work that concludes this Management Practices Master’s Degree, that came to complete my Bachelor in Business. These two years in Ireland enriched me in so many ways, developing my self-awareness, my interpersonal skills, cognitive and but also my theoretical and business relative knowledge in a multicultural environment.

My objective starting this Master’s Degree was to develop my awareness of the business world and Management at an advanced level to be able to someday occupy positions in management. I reached this objective, also through the contact of diverse
business world guest speakers and I feel like I am now ready to start my career in the business world.

This very dissertation is the result of a progression initiated by a literature review on digital business strategies, through the Strategic Management Module. Last year, another literature review was completed about the challenges faced by frontline managers. We decided therefore to learn more about the teams in this dissertation, linking all the knowledge acquired during these two years at DBS.

We believe we learn when going out of our comfort zone. Therefore, this whole dissertation was a learning process, from the subject matter that had to be determined after having researched about the general topic, the choice of methods and the sampling choice, the contact of respondents, to the academic writing style, following guidelines and specific rules.

To begin, we decided to highlight the main challenges we had to face when doing the dissertation. First of all, we started the dissertation having misunderstood its scope: we believed there had to be content creation for this research. This led us to a large number of readings, creating an original subject, with unique methods and perspectives which did not facilitate the understanding of methodologies. Through this, we understood that sometimes it is better to choose a simpler subject than to try to be creative and unique at all costs.

Moreover, the subject we chose to research, was not clearly matching only one type of method, philosophy, research strategy… The methodology part that could never have been completed without the books of the library and without the help of the librarian Debora Zorzi.

Next, the questionnaire creation became a challenge because we designed it with the findings of the literature review (through best practices for effective team work and HR challenges).

Finally, the contact of respondents was impacted by the period at which the data collection occurred.
7.1 Review of Learning

Kolb’s Experiential Learning Styles (1984) as cited in the work of Lowy and Hood (2013), examine learning styles through two dimensions: perceiving (on an axis going from concrete experience and abstract conceptualization) and processing (from active experimentation to reflective observation).

The degree of flexibility concerning my personality and supporting the interpretivist philosophy and the induction methods used in the dissertation resulted in a different learning style, dominated by active experimentation but all the other elements were equal. Hence integrating a learning through active experimentation but also reflective observation.

I found myself in the profile of accommodators who learn better when being actively involved as much as the pragmatic profile trying to understand the practical implications and solving problems creatively (this is why we also considered the pragmatic philosophy when writing the methodology section (see section n°3).
Nevertheless, my learning takes place when I actively take part in discovering, understanding. This necessitated an active reasoning to rephrase what I observe or read in my own terms. However, when a concept or phenomena fails being clearly understood, I need to experiment the matter observed by myself. Sometimes learning occurs better when trying to develop my own representation of adapted concepts and models (like in the HRM module with David Wallace). I like to graphically represent ideas to share a vision with my collaborators.

The online Learning Styles Inventory by Brett Bixler got me the result of Visual learner, while the version of Honey and Mumford (1986 as cited in Williams et al, 2012) also inspired from Kolb’s questionnaire taught me I was more of a Reflector, learning by observing and thinking, who rather thinks about experiences and observes from different perspectives. This is coherent with the research methods I used.

I like to believe that my learning style depends on the constraints (time and tools at our disposal), the nature of the learning we are trying to acquire, the people with who the learning must be acquired.

Moving on, the major evidence supporting the skill development that occurred during this Master’s Degree is the evolution of the set of assignments I handed out to my lecturers over time. We can clearly see the confidence I gained during these two years, when comparing the writing and the tone, the English level, the ideas and issues discussed evolved to become professional.

7.1.1 Development of Skills

7.1.1.1 Researching skills

Through my first year at DBS and through other modules, we got used to doing literature reviews. We learned the importance to proceed step by step. Learning how important to have a goal clearly set in mind and not to lose this objective as the work goes. In the way managers have to keep the business vision for every action they do, researchers need to select and renounce to some articles no matter how interesting they are depending on the end objectives of the research.

Academic journal reading taught me to open my mind to understand and take into account diverse perspectives and to synthetize. During my first semester of Bachelor, 107
when we started to read articles for the first literature review, I remember having thought it was a nightmare. I had spent months doing it, reading carefully all articles in technical vocabulary in English for hours to understand their real meaning. We saw the difference with the second literature review we had to present at the first semester of this Master’s Degree. It seemed way easier and faster to understand and be critic with the literature to synthesize the ideas.

However, at the end of this dissertation, we also understood it was better to keep it simple and stop trying to make it interesting: too much passion is not always good. In the same way, we realized a researcher is never fully happy with what we create but we sometimes have to step back and relativize on the work produced. It is not going to determine our life…

To finish, we also realized that in a research, no matter how important and interesting the topic is, even if people would like to participate, they never like to involve themselves, their company no matter the absence of risks.

7.1.1.2 Reporting skills

The continuous reading during this Masters’ thesis, made me even more aware of the business vocabulary, tone of writing, academic practices, theoretical perspectives and concepts developed by experts in the business world (business leaders or worldly known academic researchers). Therefore, my skills were impacted in terms of writing syntax, vocabulary, grammar, as well as my individual understanding of the current business issues.

The constitution of the report itself represented a more in-depth research I ever had to conduct and required me to use different tools but it was the continuity of all reports we had to hand out regularly for this master’s. We learned how to organize our ideas to be efficient in our expression, to organize personal thoughts to make sure everything important was said and what was not directly relevant removed. In other terms, we learned the importance of being concise and go straight to the point. We decided to let our research be guided by our findings. A lot of articles were read on the matters surrounding the final research subject and the hardest was to renounce to some of them.
We also learned and enjoyed drawing the layout, creating graphs, charts for a professional finish…

7.1.1.3 Personal Skills
I would say the element where I progressed the most through this Master’s Degree is Self-awareness:

The PAMS diagnostic Survey completed during the module Management Simulation and Personal Development surprised me but revealed itself during the time of the dissertation as exposed to high levels of stress. My results showed that I was not fully aware of my own emotional reactions and that my emotional control was medium. It also showed that I could have different perspectives and I feel empathy but needed to be careful, especially when having to manage Stress, decision-making, responsibility taking…

My reflection led to identify self-confidence as a main factor of stress and weakness (fear of not meeting the deadline, not being good enough, being judged, etc.): my problem wouldn’t be to understand and analyse the situation (emotional intelligence) but more to react to the situation (need to feel valued and trusted).

7.1.1.3.3 Patience and stress management
Indeed, during this dissertation we had to face frustrating events, in the creation of questionnaires (online and semi-automatic and new on the market so we sometimes were getting surprises. However as this dissertation wasn’t the first long report I had already acquired my own adapted method, I knew how to take time before starting to save time later on).

7.1.1.3.1 Personal/Work life Balance
This dissertation also made me realize that the success of a project does not only depend on the time you actively spend on it. Efficiency also depends on other factors like the level of stress, the physical, emotional and moral health of the researcher. Therefore, a balance is needed between professional life and personal life. It is important to be balancing priorities and not doing so can highly jeopardize the results.
7.1.1.3.2 Personal Organisation and Time Management
We also understood that you can never include everything and link everything in a qualitative research, the real skill is to renounce on some things to emphasize what is really important. We also had to work taking into account others’ work and time and plan ahead without being blocked by others’ answers and confirm.

7.1.1.3.4 Adaptability
In this dissertation more than ever, we realized the importance of learning to work with constraints and unexpected obstacles. It is here about being ready to face unexpected changes and take quick decisions that can impact the whole dissertation. The final research is never like we thought it would be and we need to react without confirms, taking responsibility for our actions.

7.2 Sustain the Learning
We believe that we are shaped by our experiences and all types of learning. The person we are today evolves with instincts, perspectives, and every element or action is making us closer from what we will be tomorrow. Therefore, all knowledge, skills and abilities learned through this Master’s degree and this dissertation are part of us. Once the learning is conscious and the willingness to develop this learning proactive, we can sustain the learning.

7.3 Future Applications of Learning and conclusion
This dissertation taught us to follow rules even if it means hindering creativity, however research needs creativity to evolve. We also realized we are all one effort away from making it evolve and It’s up to us to use our knowledge to solve situations and do our best in the world.

Henceforth the future applications of learning, because what we learned in the past impacts decision making. We now realize how we progressed towards a more mature and critical thinking.

We also saw the importance of developing a Personal development plan (Cottrell, 2015) and saw how this dissertation impacted our life choices. We now understand that no matter what happens in life, we have to make connections and be guided by
our knowledge and creativity. We can never be afraid to face challenges because they all cause a kind of learning which makes us richer.

Therefore from now on we decided to engage with the discipline, maybe keeping the online material that was created for this occasion and developing it through researches and innovation to be able to keep track of business evolutions…
8. Bibliography


9. Appendices

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Digital collaboration tools: A new HR lever for team building?

Posted on 9 August 2017 by Clémence

To respond efficiently to today's globalized world, companies had to create new structures and thus overcome barriers of culture, time, space, etc. The virtual teams needed solutions to collaborate. At the beginning, a lot of companies were seeing Information Technologies (IT) like a threat or a due to avoid lagging in the competition. They adopted these digital tools to facilitate procedures, make data sharing easier and storage at the scale of the business but the individuals were often not the priority. They were strategic solutions that often were delaying the procedures at the operational level. These tools have evolved enough to facilitate collaboration.

But what if we had underestimated the power of digital tools? What if they could actually act on team building effectiveness, and could be a HR lever to enhance well-being at work and thus overall performance?

What if these digital tools benefits could be extended to all sorts of teams?

We decided to explore this subject through two complementary methods:

- Questionnaires. The first one which is the Manager questionnaire and the second being the Team questionnaire. They are both available in French and English, have to be completed online, on any device (mobile, tablet, laptop), at any time. To complete the questionnaire takes in general 10 minutes and you can save, exit and come back to the questionnaire anytime you want. You will find attached the information sheet/consent form for participants that needs to be filled before or after completing the questionnaire, depending on your convenience.
- Interview. If you are a manager but your team is on holidays, or if you are an expert who do not match the description here above, you can click on this link to discover the questions.

Before starting, please make sure:
11. Please select a number 1 to 5 from your opinion or experience where the values correspond to:
Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4) and Strongly Agree (5)

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Figure 46 Elements to consider for an optimal DCT use

Before: Importance of the Sector/Industry, the budget, the culture of the company, the nature of the team and the experience.

During: Importance of having the right practices, training, support, people who understand the reasons of change. Have adapted devices.

After: Importance of feedback to adapt the tools.