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The adoption of corporate social networks : a technology to support strategic scanning ?

Sarah Beyrouthy

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THÈSE

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Présentée par

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ALPES

préparée au sein du **Laboratoire Centre d'Etudes et de
Recherches appliquées à la gestion**
dans l'**École Doctorale Sciences de Gestion**

**L'adoption des réseaux sociaux
professionnels : Une technologie pour
soutenir la veille stratégique ?**

**The adoption of corporate social networks:
A technology to support strategic scanning?**

Thèse soutenue publiquement le **8 décembre 2017**,
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L'Université n'entend donner aucune approbation ni improbation aux opinions émises dans cette thèse. Celles-ci doivent être considérées comme propres à leur auteur.

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*To mom and dad
& teita Souad...*

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Abstract

To preserve its stability and ensure a strong market position, an organization should be able to anticipate upcoming changes. The concept of scanning the environment for valuable information and indicative signals that allow an organization to predict a potential future event is termed “strategic scanning”.

Strategic scanning is still considered a hard task to put in place. One of the reasons to explain this difficulty is the absence of a supporting tool which is also identified as a factor that can lead to the failure of the implementation and sustainability of strategic scanning.

The development of social networks sites (SNS) proved to be extremely popular in the personal sphere, and started raising interest in the scientific community as well as in organizations.

Growing awareness of the added value of SNS in organizations lead to the creation of numerous corporate social networks (CSN) technology that has transformed the way employees work and interact.

On one hand, strategic scanning still lacks an “information management supporting tool”. On the other hand, CSN technology are widely spread ways to communicate, collaborate and share information. This makes CSN technology a potential candidate to support strategic scanning.

The aim of our study is to investigate the adoption of CSN technology as a supporting IS for strategic process. To do so we ask three sub-questions:

1-what is the fit between CSN technology and strategic scanning process?

To answer this, we construct a theoretical framework by addressing the functionalities required to support a strategic scanning process, and addressing the functionalities offered by CSN technology.

Our results show the existence of both a potential fit and misfit between CSN functionalities and strategic scanning process.

Based on this observation, we attempt to study the reasons behind the adoption of CSN technology to support strategic scanning process.

Hence, we address the determinants of CSN technology adoption in two different contexts of use -which is the aim of the two following sub-question.

2-what are the determinants of CSN technology adoption (independently of its managerial context of use)?

Adoption is the process of developing, implementing and having the will to make full use of the technology.

Despite numerous studies attempting to understand technology adoption, existing theories and most of the models lack a holistic view and reflect a fragmented image.

Thus, to answer the second sub-question, we draw a theoretical framework that consists of determinants of technology adoption and determinants of SNS and CSN technology adoption identified in the literature.

Based on this theoretical framework, we identify fifteen determinants that might influence the adoption of CSN technology independently of its managerial context of use.

3-what are the determinants of CSN technology adoption to support strategic scanning process?

To answer this, we split the list of fifteen determinants previously identified into two groups: 1) determinants of CSN technology adoption to support strategic scanning process and 2) determinants of CSN technology adoption to support other business processes.

Comparing these two groups allow us to identify determinants of CSN adoption to support strategic scanning process that do not emerge when addressing the adoption of CSN to support other business processes.

We identified fifteen determinants that might influence the adoption of CSN technology to support strategic scanning process. Importantly, among these determinants, only four

determinants are reported in the case of CSN technology adoption to support strategic scanning process.

Based on all the above, our work reveals that CSN technology can be a supporting tool for strategic scanning process in some contexts. Further, our study allows us to propose recommendations that might help organizations to adopt CSN technology as a supporting tool for strategic scanning process.

Résumé

Afin de préserver sa stabilité, une organisation devrait être en mesure d'anticiper les changements à venir. Le concept d'être à l'écoute de l'environnement pour dénicher les informations précieuses permettant à une organisation de prédire un futur événement est appelé « veille stratégique ».

La veille stratégique demeure une tâche difficile à mettre en place. Une des raisons expliquant cette difficulté est l'absence d'un outil permettant de soutenir le processus de la veille stratégique. Ceci est également identifié comme un facteur pouvant conduire à l'échec de la mise en œuvre et le maintien de la veille stratégique.

Les réseaux sociaux (RS) se sont avérés extrêmement populaires dans la sphère personnelle, et ont suscité l'intérêt de la communauté scientifique et des organisations.

La prise de conscience croissante de la valeur ajoutée des RS dans les organisations a conduit à la création de réseaux sociaux professionnels (RSP) qui ont transformé la façon dont les employés travaillent et interagissent.

D'une part, la veille stratégique manque d'un « outil support à la gestion de l'information ». D'autre part, les RSP sont des outils répandus permettant de communiquer, de collaborer et de partager l'information. Cela rend les RSP des candidats potentiels pour soutenir la veille stratégique.

Le but de notre recherche est d'étudier l'adoption des RSP en tant que SI permettant de soutenir le processus de la veille stratégique. Afin d'y parvenir nous posons trois sous-questions :

1- Quelle est la contribution des réseaux sociaux professionnels au processus de la veille stratégique ?

Afin de répondre à cette sous-question, nous construisons un cadre théorique en adressant les fonctionnalités requises pour soutenir un processus de veille stratégique ainsi que celles offertes par les RSP.

Notre étude montre que les RSP offrent des fonctionnalités de collaboration et de partage d'informations permettant de soutenir le processus de la veille stratégique. Par conséquent, ces plateformes pourraient être un outil support du processus de la veille stratégique. Cependant, nos résultats montrent une limitation à l'utilisation des RSP pour soutenir le processus de la veille stratégique. En effet, les RSP peuvent être adoptés pour soutenir le processus de la veille stratégique sous certaines conditions.

Sur la base de cette observation, nous tentons d'étudier les raisons de l'adoption des RSP pour soutenir le processus de la veille stratégique. Nous abordons alors les déterminants de l'adoption des RSP dans deux contextes d'usage différents, ce qui fera l'objet des deux sous-questions suivantes.

2-Quels sont les déterminants de l'adoption des RSP (indépendamment de leurs contextes d'utilisation managériaux) ?

L'adoption est le processus de développement, de mise en œuvre et l'intention d'utiliser pleinement la technologie.

Malgré de nombreuses études, les théories et les modèles existants reflètent une image fragmentée de l'adoption d'une technologie.

Ainsi, afin de répondre à la seconde sous-question, nous synthétisons, à partir de la littérature, un cadre théorique regroupant des déterminants de l'adoption d'une technologie et des déterminants de l'adoption des RS et des RSP.

En se basant sur ce cadre théorique, nous identifions quinze déterminants qui pourraient influencer l'adoption des RSP indépendamment de leurs contextes d'utilisations managériaux.

3-Quels sont les déterminants de l'adoption des RSP pour soutenir le processus de la veille stratégique ?

Afin de répondre à cette sous-question, nous divisons la liste des quinze déterminants en deux groupes : 1) déterminants de l'adoption des RSP pour soutenir le processus de la veille stratégique et 2) déterminants de l'adoption des RSP pour soutenir les autres processus business. En comparant ces deux groupes, nous identifions quinze déterminants qui pourraient influencer l'adoption des RSP pour soutenir le processus de la veille stratégique. Parmi ces déterminants, quatre sont exclusivement identifiés dans le cas de l'adoption des RSP pour soutenir le processus de la veille stratégique.

Notre étude a permis d'identifier certains contextes dans lesquels les RSP pourraient être un outil support du processus de la veille stratégique.

Elle a permis de proposer des recommandations qui pourraient aider les organisations à adopter les RSP comme outil pour soutenir le processus de la veille stratégique.

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INTRODUCTORY CHAPTER

Strategic Scanning helps foresee the future

In a world characterized by globalization, competition, technological rupture, lack of visibility, instability and turbulence, organizations are struggling to survive and managing them is a complex activity (Welter et al., 2013). As the organization's environment becomes incredibly volatile and shifts in tendencies more frequent (Steinecke et al., 2011), executives are worried they will not be able to adapt and react conveniently (Welter et al., 2013).

It is in a manager's best interest to take every piece of information into consideration when it comes to their competitor's strategies or the latest cutting-edge technology releases. If they bypass information "it is easy for an organization to fall behind by not keeping up in areas such as technology, regulations, and various rising trends." (Albright, 2004, p.40). At any moment, an organization's situation could be compromised by an unexpected breakthrough elsewhere in the field. Thus, to preserve stability and ensure a strong market position, an organization should be able to anticipate upcoming changes (e.g. environmental changes, technological innovations, moves by potential competitor or potential supplier, etc.). This ability to "foresee" future events is nowadays greatly dependent upon an organization's ability to efficiently scan its environment. "Environmental scanning reduces the chance of being blindsided and results in greater anticipatory management" (Albright, 2004, p.40). The concept of scanning the environment for valuable information and indicative signs that allow an organization to predict a potential future event is termed "strategic scanning".

"Strategic scanning" was described by Aguilar as the acquisition, the evaluation and the diffusion of useful information for managers within the organization (Aguilar, 1967). The field of research in strategic scanning is fragmented and weakly organized (Štefániková and Masárová, 2014; Rohrbeck, et al. 2015) and the exact terminologies varies with each author. In fact, a vast number of terminologies "are used synonymously while different terms refer to similar or overlapping concepts." (Rohrbeck et al., 2015, p.1), such as "competitive intelligence", "environmental scanning", "strategic intelligence", "social intelligence", "strategic scanning", "anticipative strategic scanning" (Lesca and Lesca, 2014), "strategic

foresight”, “corporate foresight” (Rohrbeck et al., 2015). Throughout this dissertation, we will refer to this activity as “strategic scanning process”.

Investigating the literature reveals that multiple definitions are suggested by the authors. For example, Stoffels defines it as “a methodology for coping with issues from outside the firm that may be difficult to observe or diagnose but which cannot be ignored” (Stoffels, 1982, p.7). Lackman et al. suggests that it “is the process through which information from multiple sources is gathered, interpreted, and communicated” (Lackman et al., 2000, p. 195). Kuosa argues that it is “a process where the operational environment of an organization is systematically scanned for relevant information” (Kuosaa, 2010, p. 44). Bhardwaj and Kumar state that it is “the collection and use of information about events, trends, and relationships in an organization’s external environment, the knowledge of which would assist management in planning the organization’s future course of action” (Bhardwaj and Kumar, 2014, p.40). More recently, Rohrbeck defines strategic scanning as “identifying, observing and interpreting factors that induce change, determining possible organization-specific implications, and triggering appropriate organizational responses” (Rohrbeck et al., 2015, p.2).

In the context of our dissertation, we refer to the definition proposed by Lesca & Lesca in which strategic scanning "refers to the collective, proactive process through which members of the enterprise deliberately track down, interpret and use relevant anticipative information items relating to their outside environment and to the changes that may occur in it. It aims to enable greater responsiveness, increased innovation and differentiation capabilities, a greater ability to adapt, and a general reduction in uncertainty" (Lesca & Lesca, 2011, p.215).

Strategic scanning process lacks a supporting tool

To enable practitioners to better perform strategic scanning process, authors identify several phases that take part into the process of strategic scanning. A prior work synthesizing the existing strategic scanning processes was published by Lesca and Caron-Fasan in 2006. This work shows that 4 phases are most frequently reported: information collection, sharing, interpretation and usage (refer to table 1)

Most of the literature on strategic scanning addresses its concept, its definition, its advantages and its process (Ben sassi et al., 2016). Despite the rich body of knowledge, strategic scanning is still considered a hard task to put in place (Du Toit, 2016). Practitioners experience difficulties in designing, implementing and executing day to day strategic scanning (Steinecke et al., 2011; Welter et al., 2013). This can be due to many reasons such as the difficulty related to gathering the information or the overwhelming amount of collected information (Albright, 2004; Du Toit, 2016). One of the reasons often mentioned to explain this difficulty is the absence of a supporting tool which was also identified as a factor that can lead to the failure of the implementation and sustainability of strategic scanning (Lesca & Caron-Fasan, 2008). However, only few studies address the development of a specific information system to support strategic scanning (El Sawy, 1985, Ben Sassi et al., 2016).

In his work published 2012, Mayer noticed that the advent of information and communication technologies, like the Web 2.0 applications and social networks has encouraged the design of a technology supporting tool for strategic scanning process. In fact, the wide spread of online social networks has made available a lot of information about competitors and customers that can be useful for strategic scanning (Mayer et al., 2012). All these shifts in technology and the development of Internet have stimulated the design of a supporting tool for a strategic scanning process (Mayer et al., 2012).

He investigates the functionalities of designing an information system to support strategic scanning process and performs a literature review of the existing articles addressing elements of a supporting tool for strategic scanning. He finds that out of eighty-five, only few address functionalities of a supporting tool for strategic. The remaining articles address models and methods to conduct strategic scanning. He synthesizes the functionalities of a supporting tool for strategic scanning and concludes three main functionalities that are information gathering, interpretation and usage.

Since Mayer's work was performed in 2012, we perform a literature review on academic studies that investigate the functionalities of designing an information system to support strategic scanning process between 2012 and 2016, We apply the research method that Mayer used to look in EBSCO host, Google scholar, Science Direct, and Wiley InterScience and choose the same key words which are "environmental scanning system" and the terms

"early warning system", "weak signal", "leading indicator". We do not identify any new functionalities of a tool to support strategic scanning that might be relevant to our research.

Social Network Sites spread

We live in a “social” world where communication is being widely encouraged and facilitated. One sector that has benefited from the rapid technological development is Internet based Social Networks. By efficiently exploiting information and communication technologies (ICT) Social Networks evolved and have taken on new forms such as Social Network Sites. Since 2004, new forms of social platforms emerged allowing people to communicate freely and easily. These human centric tools are designed to allow communication, sharing, discussion and numerous “social” activities through a palette of features designed to be easy and fun to use. These platforms grew exponentially and, in a fast pace, became widely used in the private sphere as part of people’s daily routine.

Raacke and Bonds-Raacke described social network sites as “virtual places that cater to a specific population in which people of similar interest gather to communicate, share, and discuss ideas” (Raacke & Bonds-Raacke, 2008, p.169). Boyd and Ellison defined social network sites as “web-based services” designed to allow individuals to create a public and/or a semi-public profile within a bounded system. Adding up to the complexity of the system, such networks further provide the possibility for each individual to create connections with a selected list of users, view and traverse their list of connections and those made by others within the system (Boyd & Ellison, 2007).

Corporate social networks technology emergence

The development of social network sites proved to be extremely popular in the personal sphere (Roblyer et al., 2010), and started raising a great interest in the scientific community (Boyd et al., 2007; Oinas-Kukkonen et al., 2010; Pempek et al., 2009; Richter et al., 2011) as well as in small, medium and large organizations (Xu et al., 2013). Social networks popularity recently reached the professional stage as these tools started to be integrated in organizations.

Since the widespread of the social networks within the organizations, Boyd and Ellison's (2007) definition has been adopted, yet revised, by Patroni et al. in 2015 who define Corporate Social Networks (CSN) in a professional environment, as "platforms that are bounded within a particular organization and allow employees to (1) construct semi-public profiles within the organizationally bounded system, (2) articulate lists of other employees with whom they are connected, and (3) view and traverse both their lists and those made by others within the organization" (Patroni et al., 2015, p.1). We base our study on this definition and refer to these corporate social networks as CSN technology.

CSN technology is used as a platform "to improvise and organize new ways to get the job done" and "to add value to existing processes or, indeed, to create new "just-in-time" processes (and programs)". CSN technology "inside the organization and out, lowers the costs and increase the power of individuals to productively coordinate on their own initiative" (Schrage, 2013, p.1). "Leaders like IBM's Sam Palmisano, PepsiCo's Indra Nooyi, Microsoft's Steve Ballmer, Carlson's Marilyn Nelson, and Harvard Business School Dean Nitin Nohria are all active social network users" (George, 2010, p.1). They communicate real-time messages anywhere, anytime, and share it with interested parties. Hence, CSN technology "like Yammer, Chatter, Jive and Sharepoint have been branded as great ways to communicate, engage, collaborate, coordinate, update and share information within organizations." (Schrage, 2013, p.1).

CSN technology functionalities

CSN technology are digital infrastructures where any kind of information is created (news, messages and institutional), shared and consumed, they allow:

- Information collection: known as "new communication landscape", these tools are highly interactive interfaces that provide users with access to information. Thus, information can be looked up and collected at large scale (Dimicco et al., 2008, Convertino et al., 2010; Treem & Leonardi, 2012, Gonzalez et al., 2014).
- Information sharing: people can produce information and make it accessible to others by posting it and sharing it in a public space or by sending private messages to chosen

users. One enrichment of these platforms is allowing sharing any kind of media such as text message, music, videos, images, links, etc (Brandel, 2008; Howard, 2009; Ferron et al., 2011; Treem et Leonardi, 2012).

- Information interpretation: one particularity of these platforms is that they allow creating content collectively. Hence, users can comment and discuss information and thus co-create user-generated content (Leader-Chivee & Cowan, 2008; McAfee, 2009).
- Connecting people: many authors describe social networks as channels that allow collaboration and interaction (Leindner et al., 2010; Patel & Jansani, 2010; Gray et al., 2013; Patroni et al., 2015).

A potential fit between CSN technology functionalities and strategic scanning process

In summary, on one hand, strategic scanning still lacks “information management supporting tool”. On the other hand, CSN technology are widely spread ways to communicate, engage, collaborate, coordinate, update and share information within organizations. This makes CSN technology potential candidates to support strategic scanning.

Interestingly, taking into consideration the strategic scanning process, the required functionalities from an information system to support strategic scanning process and addressing the functionalities offered by CSN technology, we conclude that there is a potential fit between strategic scanning and CSN technology:

- investigating the strategic scanning process reveals a multiphase process, four of which are most frequently reported: information collection, sharing, interpretation and usage.

- investigating the functionalities of designing an information system to support strategic scanning process reveals that researchers identified three major functionalities: information gathering, interpretation and usage.
- CSN technology is shown to offer four major functionalities: information collection, sharing, interpretation and connecting people.

In this dissertation, we address the potential fit between CSN technology and strategic scanning process. Hence, we investigate the reasons that might lay behind the adoption of CSN technology to support strategic scanning process. In other words, we address the determinants of CSN technology adoption to support a strategic scanning process.

Adoption theories as a theoretical framework to explore the fit between CSN technology and strategic scanning process

As our objective is to study the specific reasons behind practices on CSN technology for a specific business process, that is strategic scanning process, we first need to understand the reasons behind practices on CSN technology independently of its managerial context of use. In other words, in order to be able to identify the determinants of CSN technology adoption to support a strategic scanning process, we first address the determinants of CSN technology adoption independently of its managerial context of use.

Adoption is the process of developing, implementing and having the will to make full use of the technology or innovation (Kimberly & Evanisko, 1981; Rogers, 1983; Damanpour, 1991; Damanpour & Wischnevsky, 2006). The technology adoption process has been revised several times and many authors attempted to propose their own process. Globally, studies addressing the adoption process defined three phases: pre-adoption or initiation, adoption-decision and post-adoption also called implementation (Hameed et al., 2012). We base our study of CSN technology adoption on two of these three phases process: pre-adoption and post-adoption.

Aim of this study

The aim of this dissertation is to answer the following research question: “**How can CSN technology be adopted to support strategic scanning process?**”.

To answer this research question, we divide it into three sub-questions:

1- SQ1: What is the fit between CSN technology and strategic scanning process?

To our knowledge, no studies tackle the existence of a potential fit between CSN technology and strategic scanning process. However, as upper-mentioned, on one hand, the literature on strategic scanning offers a clear view of this multiphase process (refer to table 1) and a summary of the required functionalities for designing an information system needed to support strategic scanning process (Mayer et al., 2012). On the other hand, literature on CSN technology allows us to categorize the functionalities it offers (refer to table 2).

2- SQ2: What are the determinants of CSN technology adoption (independently of its managerial context of use)?

Previous studies examined the adoption of social network sites (Chang et al., 2015; Hsu et al., 2015; Zolkepli & Kamarulzaman, 2015; Ifinedo et al., 2016) but few of them addressed the adoption of CSN technology (Dermentzi et al., 2016; El Ouiridi et al., 2016; Seol et al., 2016; Shirish et al., 2016).

3- SQ3: What are the determinants of CSN technology adoption to support strategic scanning process?

To our knowledge, no studies tackle the subject of the adoption of CSN technology to support strategic scanning process. The nearest studies to this subject are those that mention forecasting of box office revenues for movies (Asur & Huberman, 2010; Gaikar et al., 2015).

Dissertation structure

This dissertation is organized into four chapters:

1. In the first chapter, we lay the foundation for the theoretical framework. We start by defining the theoretical corpus of our study, namely: 1) strategic scanning, 2) social networks and 3) technology adoption.
2. In the second chapter, we detail the methodology that is the basis of the study we conduct. We explain, step by step, the data collection procedure we set up for our research.
3. In the third chapter, we present the out-coming results of our study.
4. Finally, in the last chapter, we conclude by discussing our results with respect to the literature and highlight the theoretical and managerial contributions of our research.

Chapter 1: THEORETICAL FRAMEWORK

The goal of this chapter is to lay the theoretical foundations of our study. It is organized into two sections:

1. In the first section (1. Strategic scanning and social networks), we define and explain the information technology we are investigating which is “corporate social networks” (CSN technology) as well as the business process we are addressing which is “strategic scanning process”. We also clarify the reasons behind focusing on CSN technology as potential information technology to support strategic scanning process.
2. In the second section (2. Technology adoption and Social Networks adoption), we address the main technology adoption theories and investigate the adoption of social networks (SNS) and corporate social networks (CSN).

It concludes to the theoretical framework of our research.

1. Strategic scanning and social networks

In the first section (1.1 Strategic scanning) we explain the strategic scanning process and its main phases in detail.

In the following section (1.2 Social networks), we investigate public and corporate social networks (CSN technology) and the functionalities they offer.

These two sections outline a first theoretical framework that will allow us to answer our first sub-question which is **“What is the fit between CSN technology and strategic scanning process?”**

1.1 Strategic Scanning

Strategic scanning is an old area of study that has its roots in management literature (Aguilar, 1967). Over the past fifty years, it has been largely investigated and many researchers have

been interested in addressing this research field which nowadays counts numerous publications. Strategic scanning gained the attention of both practitioners and scholars (Rohrbeck et al., 2015; Ben sassi et al., 2016); and “the importance of competitive intelligence in companies is practically become widely accepted.” (Štefániková & Masárová, 2014, p.669). Strategic scanning “offers anticipatory and forecasting information to assist managers in making decisions while attempting to identify crises before they occur” (Albright 2004, p.43). Even though an enterprise has no control over its external environmental influencers, putting in place a strategic scanning process gives it the possibility to quickly react to challenges (Du Toit, 2016). Moreover, “a company that spots and correctly interprets the disruptive potential for its business will be in a good position to respond to this change, and retain, and even advance, its competitiveness” (Rohrbeck and Schwarz 2013, p.1594).

To enable practitioners to better perform strategic scanning, authors structured it into a process. Investigating the literature reveals many suggested processes. A prior work synthesizing the existing strategic scanning processes was published by Lesca and Caron-Fasan in 2006.

Strategic scanning terminologies	Authors	Strategic scanning process phases								
		Targeting	Information Collection	Information Selection	Information Transfer	Information Storage	Information Interpretation	Information Sharing	Information Usage	Animation
Competitive intelligence	Ghoshal (1988)	-	X	-	X	-	-	-	X	-
	Fuld (1995)	X	X	-	-	-	X	-	-	-
	Gibbons et Prescott (1996)	-	X	-	-	-	X	X	-	-
	Kahaner (1996)	X	X	-	X	X	X	X	X	-
	Herring (1999)	X	X	-	-	X	X	X	-	-
	Lackman et al. , (2000)	X	X	-	-	-	X	X	-	-
	Burkhardt (2000)	-	X	-	X	-	X	-	-	-
	Hall (2001)	-	X	-	-	X	X	X	-	-
	Werther (2001)	-	X	-	-	-	X	-	-	-
	McGonagle et Vella (2002)	X	X	X	-	-	X	X	X	-
	Weiss (2002)	X	X	-	-	-	X	X	X	-
Number of publications	8	20	1	3	4	17	13	4	0	
Technological scanning	Bright (1970)	X	X	X	-	-	X	X	-	-
	Jakobiak (1991)	-	X	-	X	X	-	-	X	-
	Jakobiak (1992)	-	X	-	X	X	X	-	-	-
	Julien et al. (1997)	-	X	-	-	-	X	X	X	-
	Vandenbosch et Huff (1997)	-	X	-	-	-	-	-	-	-
	Julien et al. (1999)	-	X	-	-	X	X	X	-	X
	Number of publication	1	7	1	2	3	5	4	4	0

Business intelligence	Ghoshal et Kim (1986)	-	X	-	-	-	X	X	-	-
	Gilad et Gilad (1986, 1988)	X	X	X	-	X	X	X	X	-
	Tyson (1986)	X	X	-	-	-	X	-	X	-
	Herring (1988)	X	X	-	-	X	X	X	X	-
	Fuld (1991a)	X	X	-	X	X	-	-	-	X
	Fuld (1991b)	X	X	-	-	X	X	-	-	-
	Sawka et al. (1995)	X	X	-	-	X	X	X	X	-
	Pawar et Sharda (1997)	-	X	-	-	-	-	-	-	-
	Number of publications	8	10	2	1	7	9	5	6	1
Environmental scanning	Aguilar (1967)	-	X	-	-	-	-	-	X	-
	Wilensky (1967)	-	X	-	X	-	X	-	X	-
	Snyder (1981)	-	X	X	X	-	-	-	-	-
	Stubbart (1982)	-	X	-	-	-	X	-	X	-
	Jain (1984)	X	X	X	-	X	X	X	-	X
	Narchal (1987)	X	-	-	-	X	X	-	-	-
	Sawyer (1993)	-	X	-	-	-	-	-	-	-
	Costa (1995)	X	X	-	-	X	X	X	-	-
	Hagen et Amin (1995)	-	X	X	-	X	-	-	X	-
	Pashiardis (1996)	-	X	X	-	-	X	-	X	-
	Choo (1998)	X	X	X	X	X	X	-	X	-
	Subramanian et Strandholm (2001)	-	X	X	-	-	-	X	X	-
Number of publications	6	28	6	3	5	13	6	21	2	
Social scanning	Martre (1994)	-	X	-	X	-	X	-	X	-
	Bloch (1998)	X	X	X	X	-	X	-	X	-
	Bournois et Romani (2000)	-	X	-	-	-	X	X	X	X
	Number of publications	1	4	1	2	0	4	2	3	1
Strategic scanning	Aaker (1983)	X	X	-	-	X	X	X	X	-
	El Sawy (1985)	-	X	-	-	-	-	-	X	-
	Lesca (1986)	-	-	-	X	-	X	-	-	-
	Lesca (1994)	X	X	X	X	X	X	X	X	-
	Pateyron (1997)	X	X	X	X	-	X	-	X	-
	Liu (1998a, 1998b)	-	X	-	-	-	-	-	-	-
	Lesca et Chokron (2002)	X	X	X	X	X	X	X	X	-
	Lesca (2003)	X	X	X	X	X	X	X	X	X
Number of publications	13	17	8	11	9	15	11	14	3	
Competitor analysis	Ghoshal et Westney (1991)	-	X	X	X	X	X	-	X	-
	Number of publications	0	1	1	1	1	1	0	1	0
Number of publications		37 22%	87 53%	20 12%	29 18%	23 14%	64 39%	41 25%	53 32%	7 4%

Table 1: Strategic scanning processes documented by the academic authors (Lesca & Caron-Fasan 2006)

Since this book was published in 2006, we perform a literature review on studies that investigate strategic scanning process between 2003 and 2016. We look in Ebsco and Scencedirect databases using “competitive intelligence process”, “strategic scanning process”, “environmental scanning process” and “strategic scanning process” key words. We do not identify any new insights about the strategic scanning process that might be relevant to our research. The phases synthesized in the table above are still until nowadays considered as the main phases of a strategic scanning process and our literature scan does not reveal any new main phase since.

While some authors assert that the strategic scanning process mainly consists of collecting information, others consider it as a multi-phases process. “Information collection” is a step that consists of looking into formal and informal sources to gather information. Even though authors agree that strategic scanning process necessarily includes an “information collection” phase, each one suggests a different sequence of phases.

Many propose “targeting” sources of information as a phase that precedes the collection phase. It is considered by these authors as the first step of the process that consists of identifying the needed information. It results in specifying the information to be targeted as well as the sources to be monitored.

Some identify a third phase that is “information selection” phase. It consists of selecting the needed information among all the gathered information. The aim of this phase is to reduce the amount of information caused by the overload of information.

Others extend the process by adding an “information sharing” phase. This phase is considered as one of the important phases that consists of communicating the gathered information to interested parties that might make use of it.

Many identify an additional phase called “information storage” phase. This phase consists of saving the gathered information in a database, sometimes called “knowledge base”, to prevent losing it.

Most of the authors agree that the “information interpretation” phase is a very important step. It consists of processing, analyzing and discussing the gathered information in order to construct interpretations and new possible knowledge.

Other authors consider the “information usage” phase to be also important. It consists of using the analyzed information to support decision making process.

As for the “animation” phase, it does not seem to be very popular. It consists of assigning a person whose role is to animate and motivate people to keep the strategic scanning process alive.

1.2 Social Networks

The notion of social networks goes back to the time of pre-historic nomadic trips. A basic social network can be simply defined as a set of specific relations and interactions (support, collaboration, friendship, control, advice, information exchange, etc.) between a number of actors (Garton et al., 1997; Lazega, 1994).

Wasserman and Faust (1994) claim that several researchers from different disciplines have almost simultaneously discovered the notion of network. They declare that the first known studies are published by sociologists and psychologists (such as Moreno, Cartwright, Newcomb, Bavelas) as well as anthropologists (Barnes, Mitchell).

Other researchers (eg. Mercklé, 2004) state that, through his work, the sociologist and philosopher Simmel (1908) studies social relations' configurations and thus became the legitimate father of social network analysis. He focuses, in his research, on analyzing the interactions between individuals and observing social structure that emerge.

Despite the controversy surrounding the legitimate ancestor of social networks, authors agreed that the anthropologist Barnes (1954) is the first author that used "social network" concept and then introduced it into social sciences (Mercklé, 2003; Wasserman & Faust, 1994).

Over the last decade, the development of new Information and Communication Technology (ICT) - specifically Web 2.0 - has empowered a big change in the notion of social networking.

This led to the creation of new web based platforms that allow individuals to communicate in a revolutionary way. Internet websites have since evolved from being tools where users passively utilize information to new form of tools that allow users to continually publish and share information (Al Debei et al., 2013; AL-Ghaith, 2015; Xu & Liu, 2014).

These new means of communication called social network sites (SNS) quickly became part of people's lives and shaped their behaviors. Despite their wide use, there remains no conventional definition of SNS, nor a conventional entitlement. These technologies also referred to as "social media", "social network technologies", "social network platform", "online social networks", "social network sites", "social network applications" and many

other terms are web services that enable an individual to create connections and interact with others (Beer, 2008; Chiu et al., 2013). Hildreth and Ament (2011) use social web to designate this same kind of platforms originally designed to promote social communication between people and organizations.

Kaplan and Haenlein (2010) call these technologies social networking services and imply that these applications allow people to connect through personal profiles, invite their friends and colleagues, view their profiles and communicate with them through e-mails and chatting. Kietzmann et al. (2011) explain that social media involve mobile and web-based technologies that enable communication and interactions between individuals. Kwong state that “Both MySpace and Facebook are social networking websites that provide personalized and interactive services based on users' interest and activities on the web” (Kwong, 2007, p.1).

This novel form of networking, referred to in this dissertation as social network sites (SNS), started in the nineties. One of the earliest SNS is Classmates that was created in 1995 (Rooksby et al., 2009). In 1997 SixDegrees.com was launched and developed remarkably leading to the generation of MySpace and LinkedIn in 2003. The latter distinguished itself by targeting professionals allowing them to create profiles and invite others to connect Murchu et al., 2004). It is also a place where recruiters can look for expertise and post job offers (Leader-Chivée & Cowan, 2008). MySpace is more a friend networking site that enables young people to communicate about mutual interests as well as to create and share music (Parameswaran & Whinston, 2007; Leader-Chivée & Cowan, 2008). Another friend networking site is Facebook that was launched in 2004 as a Harvard-only social network site before becoming accessible to the mass in 2005 (Boyd & Ellison, 2007; Cassidy, 2006). Facebook proposes many connecting features such as posting photos, sharing personal information and notifying friends about up-coming events offering thus a flexible communication style (Raacke & Bonds-Raacke, 2008). YouTube that was created in 2005 is still the most used social network site for posting video contents. Twitter then aroused in 2006 as an SNS oriented towards “instant messaging” and quick status updates. This micro-blogging service site allows people to stay connected and constantly tell others what they are doing (Clark & Roberts 2010; Boyd & Ellison 2007).

It is important to note that SNS popularity differ from one country to another. For example, Renren, that is almost unknown in France, is the most popular SNS in China (Bai et al.,

2015); Badoo, that is the most popular SNS in Latin America, shares its popularity with Bebo in United Kingdom (Ku et al., 2013). In the past few years, SNS have grown to be extremely popular among millions of people (Lipsman, 2007) and continue to fascinate a great number of users (Bausch & Han, 2006).

Even though all these SNS share one objective that is to facilitate communication and encourage social interactions between individuals, they differ in their contexts.

Some authors categorize SNS into several types: “work-related contexts (e.g., LinkedIn.com), romantic relationship initiation (the original goal of Friendster.com), connecting those with shared interests such as music or politics (e.g., MySpace.com), or the college student population (the original incarnation of Facebook.com)” (Ellison et al., 2007, p.1143).

Another classification is proposed by Fraser and Dutta (2008) and consists of five categories: SNS for “egocentric/identity” construction (e.g., Facebook, MySpace), “opportunistic” SNS for professional connections (e.g., LinkedIn), SNS for cultural “community” construction, “media sharing” SNS (e.g., YouTube, Flickr) and SNS for sharing common interests called “passion-centric” SNS (e.g., Dogtser).

According to Rooksby et al. (2009), there are two types of social networks: public social network sites (that we refer to as SNS) and internal social network sites (that we refer to as CSN technology). Public SNS are usually free and managed by technology providers (e.g., Facebook, Twitter etc.) while internal CSN technology are possessed by organizations for internal use (e.g., Beehive at IBM, Watercooler at HP, etc.).

Unlike previous communication technologies (telephone, fax, etc.), the social networks phenomena started in private spheres before integrating organizations. Since their launching, people got very curious about SNS and started using these platforms intensively. In the last few years, SNS’s uses have exponentially grown and thus became part of peoples’ daily lives (Seol et al., 2016; De Salve et al., 2016).

MySpace is considered as the social network site that has helped people to accept the SNSs that followed. By mainly targeting generation of college students worldwide, SNSs helped spreading the social networking culture (Roblyer et al., 2010). Initially created to support communication between college students, Facebook spread like wildfire and is considered the SNS that most helped “tip” these platforms “into the mainstream culture” (Boyd & Ellison, 2007). These pioneer SNS mainly target young adults (i.e., start with college students)

providing them with new venues to express themselves (e.g., create personal profile, pin photos, describe interests in life, declare relationship status, etc.) and to interact with one another without prejudice or boundaries (Pempek et al., 2009).

These SNS lead to the emergence of new vocabulary that is very used especially among young adults (e.g., “Post”, “Like”, “Share”, “Likers”, “Followers”, “Tweet”, etc.). A new way of categorizing people has also emerged called “Generation Y” which refers to highly educated young people born between 1978 and 1995, and who used Internet and mobiles frequently during their childhood and teenage (Boughzala & De Vreede, 2010). They are very passionate about technologies and have developed habits in using them on daily basis (such as blogging, tagging, podcasting etc.) (Boughzala, 2012; Han & Su, 2011; Leindner et al., 2010).

1.2.1 Social networks functionalities

One reason that make SNS hugely admired by users is the numerous functionalities that they offer. These technologies allow users to continually collaborate, organize and share content (Nabil, 2013). Beside managing their identity, these platforms help people stay in touch with others (Richter & Koch, 2008). They mainly allow them to maintain relations as well as create new friendships (Kavanaugh et al., 2005; Nadkarni & Hofmann, 2012; Groups et al., 2009).

The development of numerous SNS has proved extremely popular in the personal sphere (Roblyer et al., 2010), following which it started raising much interest not only in the scientific community (Boyd & Ellison, 2007; Oinas-Kukkonen et al., 2010; Pempek et al., 2009; Richter et al., 2009; Richter et al., 2011) but also -and more importantly- in small, medium and large organizations (Lecko, 2011; Manhes, 2011; Xu et al., 2013). First adopted in relatively closed private circles, their use caught the attention of reputable organizations and prestigious academic communities (Leonardi et al., 2013).

Growing awareness of the added value of social networks in organizations inevitably lead to the creation of numerous corporate social networks (CSN technology) such as IBM

Connections (by IBM), Yammer (by Microsoft), Plazza (by Orange), BlueKiwi (by Atos), Jive (by Jive).

Since their introduction to business environment, CSN technology has transformed the way employees work and interact inside an organization (Ferron et al., 2011). Today, employees are able to use available CSN technology to collaborate and exchange information in an informal and unstructured approach. “The transformation induced by advancements in communication instruments, and specifically “the use of emergent social software platforms within companies” (McAfee, 2006) or the so called Enterprise 2.0 phenomenon, is expected to induce valuable innovation in an organization for professionals, collaborators and employees.” (Ferron et al., 2011, p. 69).

While organizations start harnessing the power of CSN technology as an IT innovation, many studies consider CSN as a mine of information used by organizations as an internal collaboration tool. Employees rely on CSN technology to express their ideas and thoughts, easily access information and build relationships with colleagues geographically distributed around the globe (Gonzalez et al., 2014; Leader-Chivée & Cowan, 2008; Majchrzak et al., 2009; McAfee, 2009; Patel & Jasani, 2010). These new tools empower them to improve their productivity and allow them to better communicate and share knowledge. Moreover, organizations use these platforms to help creating corporate culture and to facilitate the integration of employees into the organizational culture which increases trust level among them (Leindner et al., 2010; Patel & Jasani, 2010).

In his literature review, Jarrahi summarizes the reasons behind the use of CSN technology inside the organizations (Jarrahi, 2013). One of the reasons he states is related to the management of the organizational human resources such as talent acquisition. The CSN technology is used as a new channel to reach potential talents or to connect to internal employees (e.g., Kubitz, 2012). Another reason he reports is related to the knowledge management activities. The CSN technology is the underlying platform to support the internal collaboration across the organizational boundaries. Employees may share their expertise and knowledge through these social networks. (e.g., Brandel, 2008; Howard, 2009).

Furthermore, studies investigating the importance of CSN technology point out numerous advantages. In an organizational context, interactions through an informal social network are

shown to help overcome organizational silos and hierarchies; and thus, encourage active employees to work collectively and more efficiently.

Moreover, from an organization perspective, introducing a social tool provides new information sources and helps understanding the workforce by collecting data related to connections, interests, and employees' activities that become easily available and achievable (Convertino et al., 2010; Dimicco et al., 2008).

Altogether, introducing CSN technology in an organizational context is shown to help:

- 1) enhancing employees individual and team performance (Burton et al., 2010).
- 2) reducing the time to find and access required knowledge and facilitating collaboration and knowledge sharing (Ferron et al., 2011; Patel & Jasani, 2010; Patroni et al., 2015; Treem & Leonardi, 2012).
- 3) helping employees to locate who knows what and allowing them to post questions or ask for an expert opinion (Gray et al., 2013; Morris et al., 2010).
- 4) raising productivity gains by enhancing employees' humor (Bennett et al., 2010; Leindner et al., 2010; Li & Bernoff, 2008; North, 2010; Patel & Jasani, 2010).
- 5) enhancing the product/service quality and responding to opportunities or overcoming challenges (Parameswaran & Whinston, 2007).
- 6) developing of innovation capabilities (Patroni et al. 2015; Parameswaran & Whinston 2007).

Unfortunately, despite the interest it raises in scientific communities, the topic of CSN technology still lacks valuable references. Most of the studies in the field address SNS and are based on analyzing college students data (Clark & Roberts, 2010; Dwyer, 2007; Dwyer et al., 2007; Hargittai, 2007; Mainier & Louch, 2010; Steinfield et al. 2008). Hence, these studies could be considered irrelevant in understanding CSN technology in the corporate world.

Even though SNS are widely used in the private sphere, CSN technology utilization in the organizational context is still relatively new. Thus, investigating CSN technology use inside organizations is relatively a new area of research (McKeen and Smith, 2007; Ferron et al., 2011; Richter et al., 2011). Hence, conducting studies addressing CSN technology use will definitely be an enrichment to research as well as practice (Shirish et al., 2016).

Investigating the literature shows that social networks offer many functionalities that could be classified into four categories. A first category could be “information collection”: many researchers mention that social networks allow finding and accessing information easily. A second category could be “information sharing”: many authors describe social networks as means to share content and knowledge. A third category could be “information interpretation”: in fact, some researchers mention that social networks allow expressing ideas. A fourth category could be “connecting people”: many authors describe social networks as channels that allow collaboration and interaction.

We synthesize social networks functionalities identified in the literature in the table below.

Functionalities	SNS	CSN	Authors
Information collection		- Reduce the time to find and access required knowledge	Patel & Jasani 2010; Ferron et al. 2011; Treem & Leonardi 2012; Patroni et al. 2015
		- Help employees to locate who knows what	Morris et al. 2010 ; Gray et al. 2013
		- Access information easily	Leader-Chivée & Cowan 2008; Majchrzak et al. 2009; McAfee 2009; Patel & Jasani 2010; Gonzalez et al. 2014
		- Provides new information source	Dimicco et al. 2008; Convertino et al. 2010
		- Helps understanding the workforce by collecting data related to connections, interests, and employees' activities	Dimicco et al. 2008; Convertino et al. 2010
Information sharing	- Communicate about mutual interests Create and share music		Parameswaran & Whinston 2007; Leader-Chivée & Cowan 2008
	- Post photos and share personal information		Raacke & Bonds-Raacke 2008
	- Organize and share content		Nabil 2013
		- Facilitate knowledge sharing	Leader-Chivée & Cowan 2008; Bennett et al. 2010; Patel & Jasani 2010; Ferron et al. 2011; Treem & Leonardi 2012; Patroni et al. 2015
		- Share their expertise and knowledge	Brandel, 2008; Howard, 2009; Jarrahi, 2013
Information interpretation	- Express themselves		Pempek et al. 2009
		- Express their ideas and thoughts	Majchrzak et al. 2009; Patel & Jasani 2010; Gonzalez et al. 2014
Connecting people		- Connect to internal employees	Kubitz, 2012; Jarrahi, 2013
		- Notify friends about up-coming events	Raacke & Bonds-Raacke 2008
		- Stay connected and constantly tell others what they are doing	Boyd & Ellison 2007; Clark & Roberts 2010;
		- Collaborate continually	Nabil 2013
		- Interact with others without prejudice or boundaries	Pempek et al. 2009
		- Help people stay in touch with others	Richter & Koch 2008
		- Allow people to maintain relations as well as create new friendships	Kavanaugh et al. 2005; Groups et al. 2009; Nadkarni & Hofmann 2012
		- Build relationships with colleagues geographically distributed around the globe	Leader-Chivée & Cowan 2008; Majchrzak et al. 2009; Gonzalez et al. 2014
		- Increase trust level among employees	Leindner et al. 2010; Patel & Jasani 2010
		- Improve performance and team productivity	Burton et al. 2010
	- Develop innovation capabilities	Parameswaran & Whinston 2007; Patroni et al. 2015	

	- Facilitate collaboration	Leader-Chivée & Cowan 2008; Patel & Jasani 2010; Ferron et al. 2011; Treem & Leonardi 2012; Patroni et al. 2015
	- Allow employees to post questions or ask for an expert opinion	Morris et al. 2010; Gray et al. 2013

Table 2: Functionalities of social networks identified in the literature

Investigating the literature of CSN technology allows us to identify and analyze the main functionalities they offer. The identified functionalities (i.e. information collection, sharing and interpretation) seem to fit some of the functionalities reported in the literature as required for a strategic scanning process' supporting tool (i.e. information gathering, interpretation and usage).

Hence, this could indicate the existence of a potential fit between CSN technology and strategic scanning process.

In our dissertation, we investigate the reasons that might lay behind the adoption of CSN technology to support a strategic scanning process. In other words, we address the determinants of CSN technology adoption to support strategic scanning process.

However, in order to understand the reasons behind practices on CSN technology for a specific business process, that is strategic scanning process, we first need to understand the reasons behind practices on CSN technology independently of its managerial context of use. In other words, before being able to investigate the determinants of CSN technology adoption to support a strategic scanning process, we need to address the determinants of CSN technology adoption independently of its managerial context of use.

2. Technology Adoption and Social Networks Adoption

In order to investigate the adoption of CSN technology to support strategic scanning process, we first address the adoption of CSN technology independently of its managerial context of use. The goal of this section is to construct the technology adoption most complete theoretical framework on which we will base our study.

Hence, we first present (in section 2.1 Technology adoption), the technology adoption process, the main technology adoption theories and their critics. Next, we shed the light on the fragmented image that these theories reflect and argue that there is still a need for an integrative technology adoption model. Later, we introduce Hameed's integrative model that we consider the most integrative model that we find in the literature and illustrate the technology adoption determinants it offers (refer to table 6).

Following, (in section 2.2 Social networks adoption determinants), we investigate studies that address the adoption of social networks. We extract the identified determinants that are proved to influence the adoption of social networks (refer to table 8).

To summarize, we synthesize in one table (refer to table 9) all the adoption determinants that we identify in the literature including technology adoption determinants and social networks adoption determinants. This table will be the theoretical framework that will allow us to answer our second and third sub-questions which are:

- **What are the determinants of CSN technology adoption** (independently of its managerial context of use)?
- **What are the determinants of CSN technology adoption to support a strategic scanning process?**

2.1 Technology adoption

The emerging information technologies (IT) are becoming very complex tools that still prove to be very necessary for business operations' performance (Lancelot Miltgen et al., 2013). The adoption of such technologies is widely studied in the field of information system

(Sherry & Gibson, 2002; Venkatesh, 2006). Investigating the literature shows that this phenomenon is addressed from two angles: a macro level and a micro level.

Technology spread on a macro level “is the process by which a technology spreads across a population of organizations” (Fichman, 2000, p.1). It explains “the process of how a population adopts, adapts to, or rejects a particular innovation. It takes a macro perspective on the spread of an innovation across time.” (Straub, 2009, p.626). It is defined by Rogers (2003) as “the process in which an innovation is communicated through certain channels over time among the members of a social system” (p.5). It is considered as “a collective adoption process over time.” (Straub, 2009, p.629).

Technology spread on a micro level “examines the individual and the choices an individual makes to accept or reject a particular innovation”. It focuses “not on the whole but rather the pieces that make up the whole.” (Straub, 2009, p. 626). It “refers to the individual’s decision whether to integrate an innovation into his or her life” (Straub, 2009, p. 629).

Technology adoption is defined by Rogers as the decision to make “full use of an innovation as the best course of action available” (Rogers, 2003, p.177).

2.1.1 Technology adoption process

Previous work synthesizing the existing technology adoption process is published by Lesca et al. in 2015.

Author	Pre-adoption			Adoption			Post-adoption		
Klonglan and Coward (1970)	Awareness. An individual might become aware of the introduction of an innovation.	Information. Individual may actively seek out information about the innovation.	Evaluation. Individual may decide that the innovation is suited to his/her needs.	Trial. The potential adopter may seek a demonstration of the innovation. If it meets or exceeds the adopter's expectations, he/she may decide to adopt it (use adoption).					
Rogers (1983)	Knowledge. Exposure to the innovation and an understanding of how it functions.		Persuasion. An attitude is formed toward the innovation.	Decision. An individual engages in activities that result in a decision to either adopt or reject the innovation.		Implementation. The innovation is actually put to use.		Confirmation. Individuals seek reinforcement for the decision made, but may reverse this decision if exposed to conflicting messages.	
Kwon and Zmud (1987); Cooper and Zmud (1990)	Initiation. Companies justify the need for adopting Information Technology (IT). They perform an active and/or passive scanning of organizational problems/opportunities and IT solutions are undertaken. Finally, a match is found between an IT solution and its application in the organisation.			Adoption. A decision is reached to invest resources necessary to accommodate the implementation effort.		Adaptation. The IT application is developed, installed, and maintained.	Acceptance. Organisational members are induced to commit to IT application usage.	Routinization . Usage of the IT application is encouraged as a normal activity	Infusion. Increased organizational effectiveness is obtained by using the IT
Rai et al., (2009)	Awareness. Key decision makers are aware of a new IT.	Interest. The firm is committed to actively learn more about the IT.	Evaluation. Acquiring specific innovation-related products and initiating evaluation or trial.	Commitment. The firm has committed to use of the IT in a significant way for one or more activities.	Limited deployment. Establishing a program of regular, but limited, use of the IT for some activities.	Partial deployment. Establishing a program of regular, but limited, use of the IT.		General deployment. The firm has reached a state where the IT is used in a substantial fraction of activities.	
Swanson & Ramiller (2004)	Comprehension. Through the efforts of its members, the firm learns more about an IT innovation and develops an attitude or stance toward it and positions itself, in a basic way, as a prospective adopter or non-adopter.			Adoption. The firm develops a supportive rationale, or business case about the IT innovation. Organisation decides whether to proceed and commit its resources.		Implementation. Bringing the innovation to productive life for its users.		Assimilation. Commences as the IT innovation begins to be absorbed into the worklife of the firm. In time, the innovation may come to be infused and routinized.	
Zhu et al., (2006)	Initiation. Evaluating the potential benefits of IT to improve a firm's performance in value chain activities such as cost reduction, market expansion, and supply chain coordination.			Adoption. Making the decision to use IT for value chain activities (i.e., allocating resources and physically acquiring the technology)			Routinization. The stage in which IT is widely used as an integral part in a firm's value chain activities.		
Hameed et al., (2012)	Initiation. Consists of activities related to recognizing a need, acquiring knowledge or awareness, forming an attitude towards the innovation and proposing innovation for adoption.			Adoption-decision. Reflects the decision to accept the idea and evaluates the options for its acquisition and implementation.		Implementation. Involves acquisition of innovation, preparing the organisation for use of the innovation, performing a trial for confirmation of innovation, acceptance of the innovation by users, and continued actual use of the innovation.			

Table 3: Studies describing adoption process (Lesca et al. 2015)

Despite their disagreement on the number of phases, the authors agree that technology adoption should be addressed as a process. According to Straub (2009), “Although adoption and diffusion theories address different aspects of behavioral changes, most do share certain commonalities and assumptions. Most believe that the adoption process is not a single event. Whereas the decision to or not to adopt an innovation can be a one-time event, the route that leads to one’s decision does not take place in a vacuum” (p. 628). Investigating the existing models shows that there is an implicit consensus around the fact that the technology adoption consists of “a sequence of steps or “stages” that parallel awareness, information collection, and information evaluation before a decision to adopt is made” (Parthasarathy et al., 1995, p.35). Some of the studies describe it as a two-phased process with “symbolic adoption” as a first component and “use adoption” as the second component (Klonglan & Coward, 1970), while others describe a sequence of phases that start from being aware of the existence of the technology and ends when using the technology becomes a daily habit (Rogers, 1983; Kwon & Zmud, 1987; Swanson & Ramiller, 2004; Zhu et al., 2006; Rai et al., 2009; Hameed et al., 2012). Although most of the phases are not clearly delimited, most models address the technology adoption “in terms of stages”, “as a progression of knowledge and understanding” (Straub, 2009, p. 641).

Globally studies addressing the adoption process define three phases: Pre-adoption or initiation, adoption-decision and post-adoption also called implementation (Hameed et al., 2012).

- I. Pre-adoption consists of evaluating the idea of using the technology. It starts with being aware of the existence of the technology then collecting information about it and finally evaluating its potential use. This phase is called initiation by Kwon & Zmud (1987), Zhu et al. (2006) and Hameed et al., (2012). It is called comprehension by Swanson & Ramiller (2004). Under this phase we find the awareness, information and evaluation phases of Klonglan & Coward (1970) model. We also find the knowledge and persuasion phases of Rogers’ model. The phases awareness and interest described by Rai et al. (2009) are also classified under this first phase.

- II. Adoption starts with the trial during which the technology is tested, and then based on that experience a decision is made to implement it (or not). After that the technology is acquired. While Zhu et al. (2006) and Hameed et al. (2012) use the same terminology for this phase, Rogers (1983) proposes two phases that are classified under the adoption phase namely decision and implementation. Swanson & Ramiller (2004) also describe two phases that are categorized under the adoption phase: adoption and implementation. Kwon and Zmud (1987) suggest a more detailed level by specifying three phases that are classified under the adoption phase namely adoption, adaptation and acceptance. While Rai et al. (2009) introduce an even more detailed level with their four phases evaluation, commitment, limited deployment and partial deployment.
- III. Post-adoption focuses on the continuation of use of the implemented technology over time. This includes the fact that it is still used (or not) as well as the developed practices and habits. This phase is identified under different terminologies: Rogers (1983) names it confirmation, Hameed et al. (2012) name it implementation, Swanson & Ramiller (2004) name it assimilation, Zhu et al. (2006) name it routinization and Rai et al. (2009) name it general deployment. Kwon and Zmud (1987) identify two phases that are classified under the post-adoption phase namely routinization and infusion.

2.1.2 Technology adoption theories

The use of technology in organization is highly impacted by the adoption process. This includes influencers such as various users as well as environmental determinants that can predict and determine the use of technology. In an organizational context, a wide variety of determinants can influence the use of technology which makes it a challenging research area (Benbasat and Zmud, 1999).

In the following section we define seven of the most commonly used adoption theories: uses and gratifications theory, diffusion of innovation model (Rogers, 2003), theory of reasoned action (Fishbein & Ajzen, 1975), theory of planned behavior (Ajzen, 1985), technology

acceptance model (Davis, 1989), unified theory of acceptance and use of the technology (Venkatesh et al., 2003), technology organization environmental (Tornatzky & Fleischer, 1990).

I- Uses and Gratifications Theory (UGT)

The uses and gratifications theory (UGT) also known as the “needs and gratifications Theory” originates in the mass communication research area (Katz et al., 1974; Palmgreen et al., 1985; Joo & Sang, 2013). It asserts that people use and chose a media to fulfill and satisfy their needs (Luo et al., 2011). These needs are expressed as psychological, or social interests towards their use of a media. They experience the media as they use it where gratitude and leisure are generated and received by the user. However, the gratitude and the pleasure received by the user can vary from one to another for the same media (Severin & Taknard, 1997). The user’s gratifications determine whether their needs are satisfied or not and consequently if they are going to continue to use the media (Weibull, 1985; Papacharissi & Rubin, 2000; Sangwan, 2005; Barton, 2009).

The UGT objectives are two-folded: the first is to understand the user’s psychological needs that shape his/her behavior on media use to satisfy those needs (Rubin, 1994; Leung & Wei, 2000; Stafford et al., 2004). The second is to comprehend how these behaviors are manifested into uses’ consequences at the individual level (Lin, 1999; Roy, 2009).

The UGT assumes that users are not passive and they actively integrate their media use into their everyday life (Ruggiero, 2000). Users seek out a specific media among many other alternatives that best fulfill and satisfy their psychological needs (Ku et al., 2013). The purpose of choosing a media varies from one individual to another according to their psychological conditions (Ruggiero, 2000; Wang et al., 2015). This assumption proliferates in a more specific statement that users are goal oriented in their media selection, use and adoption. They are aware of their needs, conscious about the media use behavior and they integrate it into their daily life to reach an ultimate level of gratifications (Katz et al., 1974; Rubin, 1986; Cheung & Lee, 2011; Phua et al., 2017).

Instead of proposing a fixed set of factors to determine the technology adoption and use, the UGT provides a framework to conduct the research (Mantymakia & Riemer, 2014). Gratification in many studies is considered as a good predictor for the media use and the continuous media use (Palmgreen & Rayburn, 1979; Kaye & Johnson, 2002; Williams, 2013).

UGT critics

The UGT is criticized in some of its foundations as it assumes that individuals are actively observing the media and have goal oriented behavior (Lometti et al., 1977; Wimmer & Dominick, 1994). Ruggiero (2000) asserts that individuals may not be necessarily aware of the motive behind choosing a certain media. In addition, some key concepts of UGT such as “motives”, “needs”, “uses” and “gratifications” are considered ambiguous (Swanson, 1977; Ruggiero, 2000); and the difference between “motives” and “needs” is not clear (Atkin et al., 2015). Finally, some authors consider that UGT is “too individualistic” (Carey & Kreiling, 1974; Elliot, 1974).

II- Diffusion Of Innovation theory (DOI)

Rogers describes Technology as “a design for instrumental action that reduces the uncertainty in the cause-effect relationships involved in achieving a desired outcome” (Rogers, 2003, p.13). He defines Innovation as “an idea, practice, or object that is perceived as new by an individual or other unit of adoption” (Rogers, 2003, p.12).

Despite defining “technology” and “innovation” as two independent concepts, Rogers uses these two terms as synonyms in all of his work (Sahin 2006). Throughout this study, the two terms, technology and innovation, are used interchangeably. Hence, the innovation adoption definitions are also considered to describe the adoption of the technology.

Rogers’ diffusion of innovation theory (DOI) is one of the earliest theories developed to understand the adoption of a technology. It “provides a foundational understanding of adoption theories” (Straub, 2009, p.627). It addresses determinants influencing individual behavior in adopting a technology. According to this model, a technology that is compatible

with existing ones and shows a relative advantage over them will be adopted faster (Rogers, 1995). Rogers model states that the decision to adopt a technology occurs after it has been observed and tested (Chen & Chang, 2013). This includes assessing the complexity of the introduced technology and its compatibility with the existing technologies (Rogers, 1995).

In his theory, Rogers (2003) classifies adopters into five categories: innovators, early adopters, early majority, late majority, and laggards. DOI introduces five attributes of innovation which influence technological innovation pre-adoption. In more recent studies, these attributes are also considered as determinants of the adoption phase (Forman, 2005; Hsu et al., 2007). They are: relative advantage, compatibility, complexity, trialability and observability.

- 1- Relative advantage is the degree to which an individual perceives that the introduced innovation is an improvement comparing to the existing one.
- 2- Compatibility is the degree to which an individual perceives an innovation as consistent with the values, the experience and the needs of users.
- 3- Complexity is the degree to which an individual perceives an innovation as hard to use.
- 4- Trialability is the degree to which an innovation could be tested.
- 5- Observability is the degree to which an innovation generates results that could be observed by others.

DOI critics

Despite the value of the DOI model, it is criticized for not covering all the adoption process phases (pre-adoption, adoption and post-adoption) and not taking into consideration organizational nor environmental determinants (Lee & Cheung, 2004).

Moreover, The DOI theory does not address the technology actual use or acceptance by the user (Coombs et al., 1987). In order to understand and study the adoption behavior of the user, the theory of reasoned action (TRA) was developed (Mathieson, 1991).

III- Theory of Reasoned Action (TRA)

Another theory aiming at understanding determinants that impact technology adoption is developed by Fishbein and Ajzen (1975). This theory, called theory of reasoned action (TRA), is considered one of the most important models in explaining the user acceptance behavior at the post-adoption phase (Venkatesh et al., 2003). Many theories that intend to understand individual behavior are founded on TRA. In their model, Fishbein and Ajzen (1975) establish links between beliefs, attitudes, norms, intentions and individual behaviors. In their model, they state that an individual's behavior is determined by his intention toward the behavior of adopting an innovation. They identify two determinants that impact this intention: individual's attitude and subjective norms (Özlen & Šišić, 2013).

- An individual's attitude is defined by his beliefs concerning the repercussion of executing a certain behavior. If he positively assesses the behavior, he will have the intention to execute it (Nasri & Charfeddine, 2012).
- Subjective norms are determined by an individual's perception of the way important others evaluate the execution of certain behavior. He takes into consideration if the behavior is encouraged by his reference people (Fishbein & Ajzen, 1975). When the individual perceives a subjective norm as high, he will have the intention to execute the behavior (Chu & Chen, 2016).

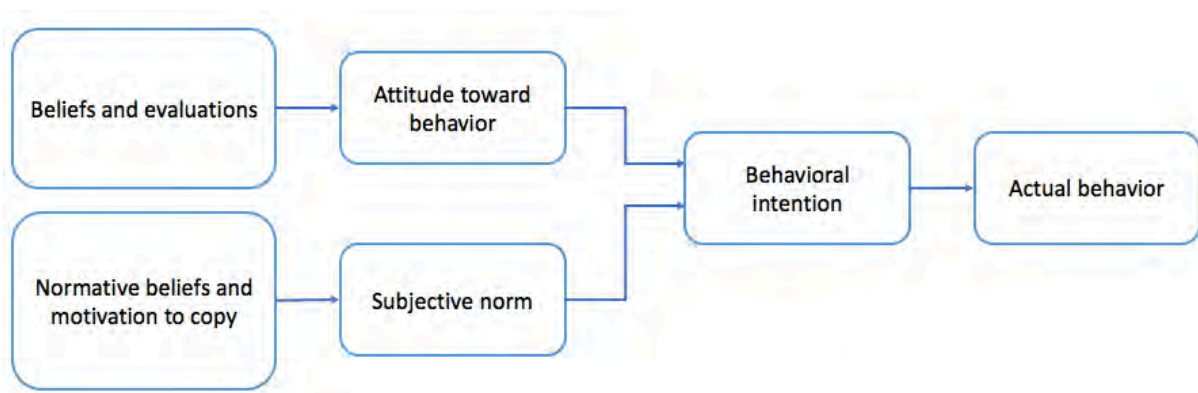


Figure 1: Theory of Reasoned Action (Fishbein and Ajzen, 1975)

TRA Critics

The TRA theory is criticized from a cultural point of view. TRA model doesn't focus on the users' cultural differences in the technology diffusion process. In addition, the TRA model doesn't take into account the behavioral, normative and control beliefs (Hameed et al., 2012). In order to fill the TRA gap, a new model, known as the theory of planned behavior (TPB), is developed.

IV- Theory of Planned Behavior (TPB)

The TPB model focuses on the person's perceived behavior independently of his/her use intentions. The TPB model extends the TRA model by including the "perceived behavioral control" (PBC) as well as different conditions influencing the person's behavioral intention (Venkatesh & Davis, 1996).

In an attempt to better understand the individual behavior at the post-adoption phase, Ajzen (1985) extends TRA and introduces the theory of planned behavior (TPB). He specifically looks at conditions where he cannot entirely control his behavior (Ajzen, 1991).

In this model, Ajzen introduces a third attribute entitled "Perceived Behavioral Control" (PBC), along with an individual's attitude and subjective norms, that impacts behavioral intention and actual behavior (Nasri & Charfeddine, 2012). PBC shows that an individual's motivation is impacted by his perception of the behavior's difficulty as well as his capability of successfully performing the activity (Nasri & Charfeddine, 2012). Since the PBC introduction by Ajzen (1985, 1991) as a key factor in TPB, PBC has been systematically elaborated (Yzer, 2012). Fishbein and Ajzen (2010) formulate that PBC indicates the degree to which individuals perceive their capability of execution of a certain behavior as well as their capability of controlling it. Assuming that they are capable of executing a behavior, people will get motivated to try to execute it and will most likely put good effort in doing it (Ajzen, 2002; Bandura, 1997; Bandura and Locke, 2003). TPB model is basically composed of three attributes that are: attitude toward behavior, subjective norms, and perceived behavioral control (Özlen & Šišić 2013). As summary, the TPB suggests that technology

implementation could be facilitated by the person's perceptions toward internal and external behaviors.

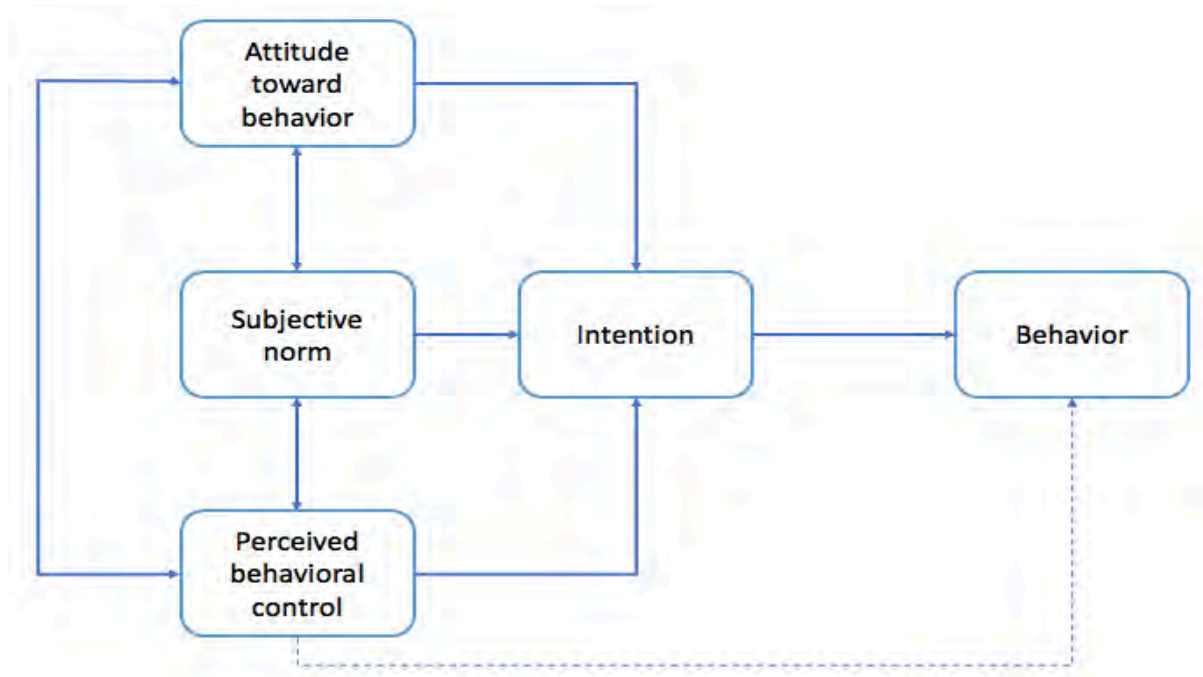


Figure 2: Theory of Planned Behavior (Ajzen, 1991)

TPB critics

TPB is frequently criticized for focusing exclusively on logical thinking (Sniehotta et al., 2014; Barber, 2015; McDermott et al., 2015) and not taking into consideration the impact of emotions and unconscious on behavior (Sheeran et al., 2013; Conner et al., 2013). Another criticism addresses the PBC construct, as the author Yzer (2012) argues, that sometimes individuals may “not have actual control over the behavior” (p. 103); for instance, not having the required competencies will prevent them from achieving a certain behavior.

V- Technology Acceptance Model (TAM)

Davis (1989) introduces technology acceptance model (TAM) that intends to understand user acceptance of an innovation at the post-adoption phase (Chen and Chang, 2013). The well-known TAM - and its revised versions TAM2, TAM3 - are also an adaptation of TRA and theorize that perceived ease of use and perceived usefulness are to affect the usage of the innovation.

- Perceived usefulness is defined as the degree to which a person perceives that a technology will help him execute a task (Burner & Kumar, 2005; Davis, 1989)
- Perceived ease of use is defined as the degree to which a person perceives that using a technology is easy (Davis, 1989).

TAM is a widely applied theory in understanding user behavior (Bagozzi, 2007). This theory is considered as one of the first models that address Internet technologies, hence, its usefulness (Venkatesh & Davis, 2000). Researchers attempt to complement TAM and extend it to TAM2 (Venkatesh and Davis, 2000) by “identifying and theorizing about the general determinants of perceived usefulness -that is, subjective norm, image, job relevance, output quality, result demonstrability, and perceived ease of use- and two moderators -that is, experience and voluntariness” (Venkatesh and Bala, 2008, p.227). Then Venkatesh and Bala (2008) suggest TAM3 which is a combination of TAM2 and the determinants of perceived ease of use proposed by Venkatesh (2000). Thus, TAM3 includes two main determinants (namely perceived usefulness and perceived ease of use), factors that influence them (namely subjective norm, image, job relevance, output quality, result demonstrability, computer self-efficacy, perceptions of external control, computer anxiety and computer playfulness), adjustment variables (namely perceived Enjoyment and objective Usability) and modifiers of behavioral intention (namely experience and voluntariness) (Jeffrey, 2015).

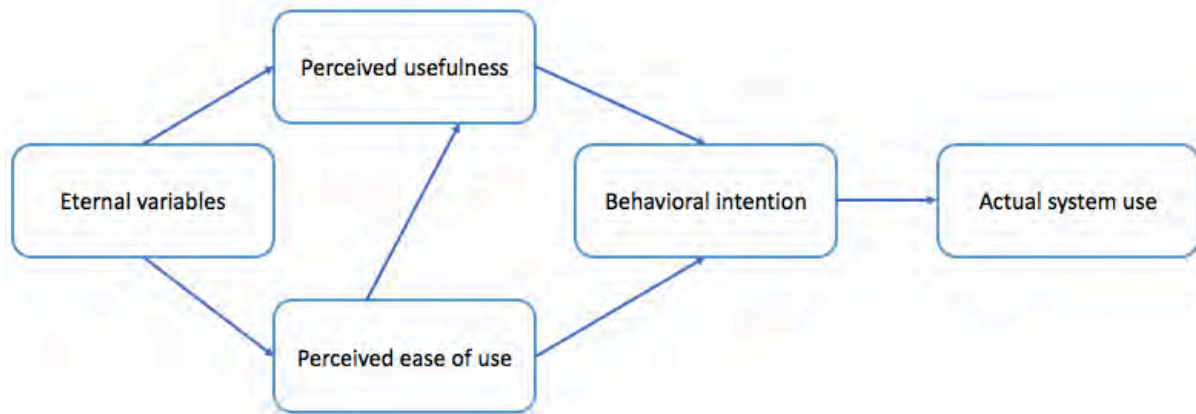


Figure 3: Davis' Technology Model (Venkatesh & Davis, 1996)

TAM critics

One of the utilities of TAM is mainly due to the fact that it is one of the first models to specifically address the computer technology and the Internet technology (Venkatesh & Davis, 2000).

It should be noted that like TPB, TAM is developed as an extension to TRA. TAM's main contribution is the introduction of the perceived ease of use and the perceived usefulness attributes (Davis, 1989).

TAM introduces two new attributes that prove useful in explaining user acceptance of a technology (perceived usefulness and perceived ease of use). However, it is criticized for not being able to entirely explain technology adoption decision (Wang & Lin, 2012). Thus, TAM is revised and TAM2 and TAM3 emerge. Despite these extensions, TAM is still criticized for not taking into consideration some user behavior aspects such as ethical decision-making and innovation characteristics (Ratten, 2014). In an attempt to fill this gap, Venkatesh et al. (2003) and Davis suggest the unified theory of acceptance and use of the technology (UTAUT).

VI- Unified Theory of Acceptance and Use of the Technology (UTAUT)

Venkatesh et al. (2003) synthesize theories from prior research and propose the unified theory of acceptance and use of technology UTAUT, in order to complement existing models aiming at understanding technology adoption.

This model introduces four key constructs that influence behavioral intention and use behavior at the post-adoption phase: performance expectancy, effort expectancy, social influence and facilitating conditions.

- Performance expectancy is the degree to which a person thinks that using the technology will improve his job performance.
- Effort expectancy is the degree to which a person expects that using a technology will be easy or demands putting effort.
- Social influence is the degree to which a person thinks that using a technology is supported by important persons to his eyes.
- Facilitating conditions is the degree to which a person thinks that there is an infrastructure implemented to support use of the technology.

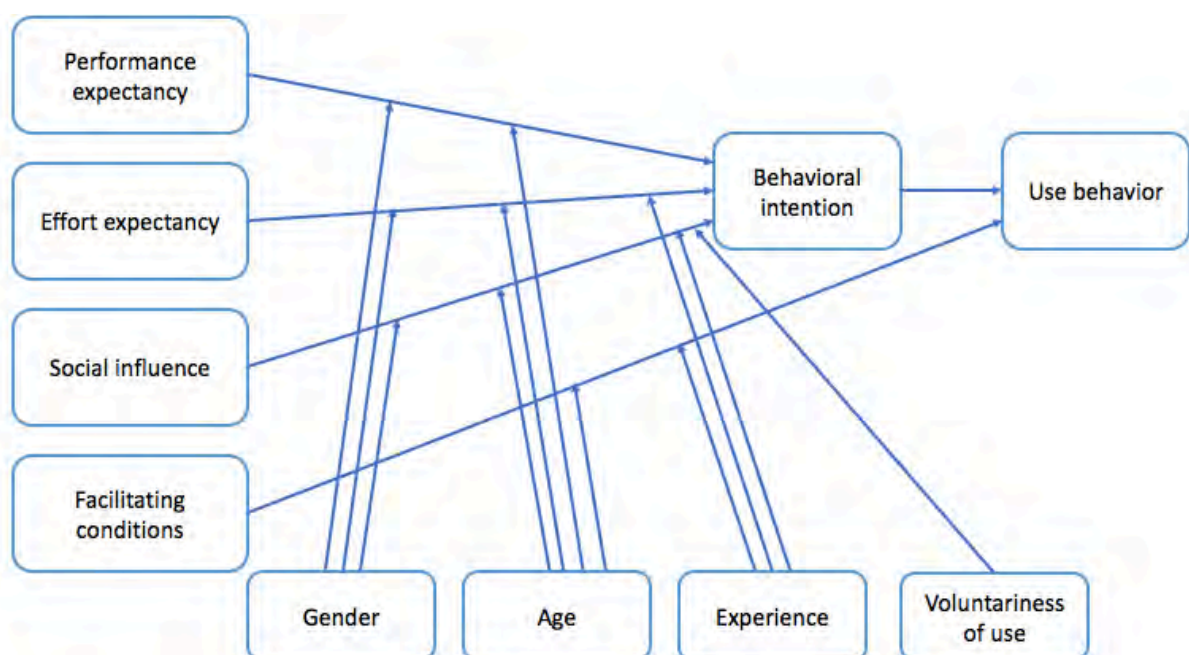


Figure 4: Unified Theory of Acceptance and Use of the Technology (Venkatesh et al., 2003)

UTAUT critics:

Although UTAUT helps the researchers to better understand the technology adoption, it is criticized for its insufficient constructs to explain the adoption of a new technology (Moghavvemi *et al.*, 2011). The UTAUT model is described as limited, since the four determinants and moderators presented in the model may interact with each other (Park, 2010). In addition, the UTAUT originally studies and predicts the technology adoption in large organizations which by itself is considered as a limitation. The UTAUT is accused of not being able to explain the adoption of a technology outside the organization (Peters, 2011) nor the user acceptance of a technology in a voluntary context (Venkatesh *et al.*, 2012).

VII- Technology Organization Environmental (TOE)

Tornatzky and Fleischer (1990) develop the “Technology, Organization, Environmental” (TOE) framework. It addresses the elements that impact the adoption of a technology by organizations. This model introduces three contexts: technological, organizational and environmental context.

- Technological context included any technology that might be interesting to the company. It combined external as well as internal practices and technologies.
- Organizational context included characteristics that described the organization like its structure, size etc.
- Environmental context included the environment that surrounded the organization such as its competitors, industry etc.

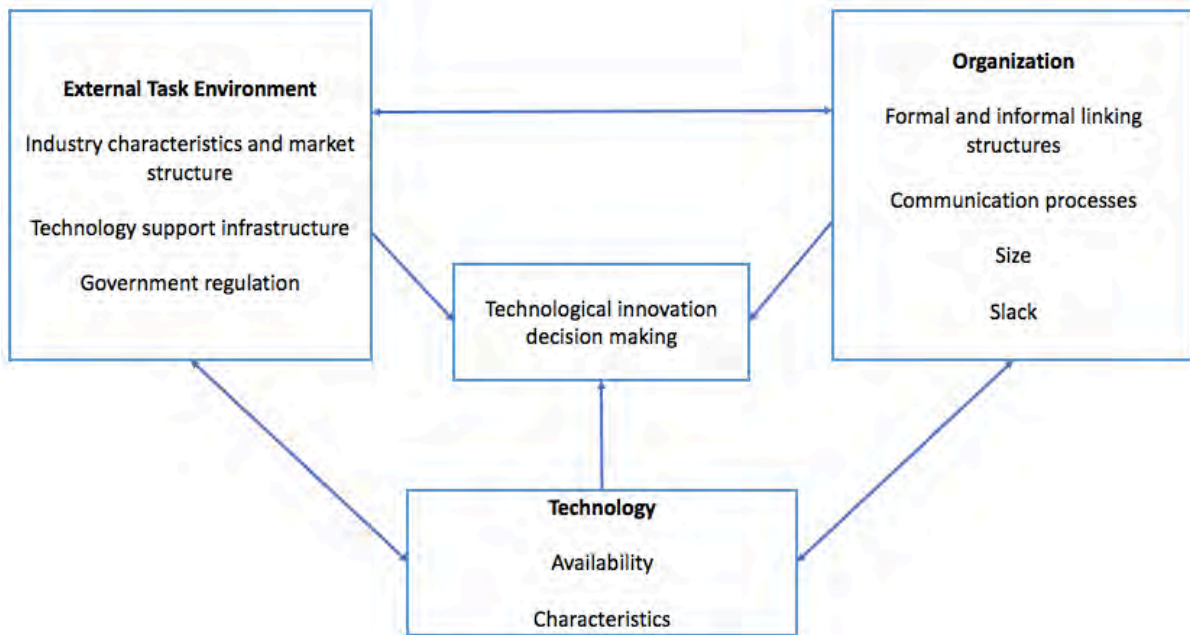


Figure 5: *Technology, Organization, and Environment framework (Tornatzky and Fleischer, 1990)*

TOE critics

Even though TOE proves to be useful for investigating the technology adoption by organizations, it is criticized for not taking into consideration the individual characteristics nor the task contexts (Awa *et al.*, 2017).

Synthesis of technology adoption theories

The table below summarizes the main technology adoption theories identified along with their critics:

Theories	Statements	Critics
UGT	Individuals use a media to fulfill and satisfy their needs.	<ul style="list-style-type: none"> - Individuals are not always actively observing the media. - Some concepts of the theory are ambiguous. - Theory is too individualistic.
DOI	Five determinants influence the pre-adoption and adoption of an innovation: relative advantage, compatibility, complexity, trialability and observability.	<ul style="list-style-type: none"> - Theory does not cover all the adoption process phases. - Theory does not take into consideration organizational nor environmental determinants. - Theory does not address the technology actual use or acceptance by the user.
TRA	Two determinants influence the post-adoption of an innovation: attitude and subjective norms.	<ul style="list-style-type: none"> - Theory does not take into consideration the users' cultural differences in the technology diffusion process. - Theory does not take into account the behavioral, normative and control beliefs.
TPB	In addition to attitude towards behavior and subjective norms, perceived behavioral control is a determinant that influences the post-adoption of an innovation.	<ul style="list-style-type: none"> - Theory focuses exclusively on logical thinking and does not takes into consideration the impact of emotions and unconscious on behavior. - Individuals may "not have actual control over the behavior".
TAM	Two determinants influence the post-adoption of an innovation: perceived usefulness and perceived ease of use.	<ul style="list-style-type: none"> - Theory is not able to entirely explain technology adoption decision. - Theory does not take into consideration some user behavior aspects such as ethical decision-making and innovation characteristics.
UTAUT	Four determinants influence the post-adoption of an innovation: performance expectancy, effort expectancy, social influence and facilitating conditions.	<ul style="list-style-type: none"> - Theory has insufficient constructs to explain the adoption of a new technology. - Theory is limited since the four determinants and moderators presented in the model may interact with each other. - Theory is not able to explain the adoption of a technology outside the organization nor the user acceptance of a technology in a voluntary context.
TOE	Three contexts are introduced: technological context, organizational context and environmental context.	<ul style="list-style-type: none"> - Theory does not take into consideration individual characteristic nor task contexts.

Table 4: Technology adoption theories identified in the literature

Technology adoption theories: the level of analysis

In the past few years many theories addressed the acceptance and use of the technology at both individual and organizational levels (Davis, 2006; Im et al., 2011). Among the most used theories, that propose new insights on determinants impacting technology adoption at an

individual level, are UGT, TRA, TPB, TAM and UTAUT (Chen & Chang, 2013; Martins et al., 2014; Chiyangwa & Alexander, 2016).

While the authors agree on the fact that the previous cited theories investigate the adoption of a technology by the individual, they argue that DOI could be applied to studies investigating individual as well as organizational adoption of a technology. According to Altschuller and Benbunan-Fich (2009), DOI mainly focuses on individual behavior of adopting the technology, while Chiyangwa and Alexander (2016), assert that DOI is developed to explain the technology's adoption by a group. Although DOI is used by researchers to explain the adoption of a technology by an organization, its application to the organizational level is criticized (Chau & Tam, 1997). Some authors assert that DOI mainly studies the technology being adopted autonomously by users (Fichman & Carroll, 1999). Another criticism that is addressed to DOI is that it does not take into account organizational nor environmental determinants (Lee & Cheung, 2004) and so could not entirely explain the technology adoption by an organization (Brancheau & Wetherbe, 1990).

Moreover, the technology, organization, environment model addresses technology adoption by organizations (Oliveira et al., 2014). TOE framework focuses on the organizational, environmental characteristics and technology context in investigating the technology adoption. It is developed to explain the adoption of a technology at an organizational level.

Technology adoption theories: The phase(s) of the adoption process

The previously reviewed theories are developed in order to identify determinants that impact the technology adoption process. They attempt to understand attributes influencing the adoption process phases. However, each model investigates one or at best two phases of the adoption process. Some theories explore determinants influencing the decision to acquire a technology, while other models identify determinants influencing the user acceptance and the technology use.

While DOI and TOE are considered to offer insights that explain both the pre-adoption and adoption phases (Hameed et al., 2012), UGT, TRA, TPB, TAM and UTAUT are considered

to investigate user acceptance of technology at the post-adoption phase (Igarria et al., 1997; Venkatesh, 2000; Hameed et al., 2012).

Theories	Adoption process phases		
	Pre-adoption	Adoption	Post-adoption
UGT			X
DOI	X	X	
TRA			X
TPB			X
TAM			X
UTAUT			X
TOE	X	X	

Table 5: Distribution of technology adoption theories with respect to the adoption process phases they address

Technology adoption theories are still applied

A further analysis of the literature shows that these theories are practically applied in recent studies and some authors attempt to extend them. Researchers are employing many theories to understand determinants influencing the adoption of a technology (Hameed et al., 2012). Many authors choose to apply one of the predefined theories to study the adoption of a technology in a specific context.

Many researchers still use the Uses and Gratifications theory (UGT) (for example: Kim et al., 2011; Hsu et al., 2015; Ifinedo, 2016).

Diffusion of innovation model (DOI) as well as technology acceptance model (TAM) are still applied and investigated by authors (for example: Acarli & Sağlam, 2015; Agag & El-masry, 2016; Clarke et al., 2016; Hu et al., 2016; Lin & Kim, 2016; Ooi & Tan, 2016).

Many authors base their studies on the theory of reasoned action (TRA) as well as theory of planned behavior (TPB) (for example: Mishra et al., 2014; Zarzuela & Antón, 2015; Borges et al., 2016; Chin et al., 2016; Halder et al., 2016; Kaplan et al., 2016; Lio bikienè et al., 2016; Rowe et al., 2016).

Many researches address the unified theory of acceptance and use of technology (UTAUT) and the technology, organization, environmental framework (TOE) (for example: Santos-

Feliscuzo & Himang, 2011; Al-qeisi et al., 2014; Bradford et al., 2014; Lin, 2014; Yeh et al., 2014; Tosuntas et al., 2015; De Sena Abrahão et al., 2016; Wang et al. 2016).

Technology adoption theories: Emerging new models

Despite the large number of studies attempting to understand the adoption of a technology, this field of research is far from being saturated. Some authors call for new theories development that take into account the organizational context and the technology aspects (Orlikowski & Iacono, 2001) (e.g., Venkatesh et al., 2003; Jasperson et al., 2005). Reagan and Lee (2007) point out the absence of clear model explaining the adoption of new technology.

Many researchers attempt to develop new models by combining two or more theories or by simply adding one or more constructs to an existing model (for example: Roca et al., 2006; Nasri & Charfeddine 2012; Venkatesh et al., 2012; Al-Debei et al., 2013; Martins et al., 2014; Oliveira et al., 2014; Fayad & Paper, 2015; Turan et al., 2015; Zuiderwijk et al., 2015; Alzahrani et al., 2016; Kim & Woo, 2016; Jafarkarimi et al., 2016; Yadav & Pathak, 2016; Chinyangwa & alexander 2016; Miltgen et al., 2013). For example, Chinyangwa and Alexander (2016) base their study on constructs from diffusion of innovation model (DOI) and the unified theory of acceptance and use of technology (UTAUT). In order to explore cloud computing adoption, Oliveira et al. (2014) propose a model that associates the technology, organization, environment (TOE) framework with the characteristics of an innovation resulting from the diffusion of innovation (DOI) model.

Other authors borrow constructs from a technology adoption theory and try to complement it with a theory arising from other fields. For example, Martins et al. (2014) develop a model that combines attributes from the unified theory of acceptance and use of technology (UTAUT) with perceived risk. Miltgen et al. (2013) study individual acceptance of biometric identifications techniques by using attributes from the unified theory of acceptance and use of technology (UTAUT), technology acceptance model (TAM), diffusion of innovation (DOI) and trust-privacy research domain.

Technology adoption theories: Literature GAP

In summary, each technology adoption model mainly addresses one level of analysis (individual or organizational), attempts to suggest determinants that influence one or at best two phases of the technology adoption process (pre-adoption, adoption or post-adoption).

In addition, technology adoption theories are extended (sometimes combined) and new models attempting to explain the adoption of a technology keep emerging.

This reflects the fragmented image that these theories compose and that this area of research is still not mature. Thus, it could be considered that there is no definite single model of technology adoption (Fichman & Carroll, 1999) and there is still no unified framework to support researches in this field (Zhu et al., 2006).

Despite the efforts to suggest a more comprehensive model, new models might be insufficient to understand the adoption of a technology by an organization. In fact, while researchers extend the existing models, they generally tend to enrich them by identifying new determinants impacting the adoption of a technology. However, they rarely focus on constructing an integrating model that investigate determinants influencing the complete adoption process (pre-adoption, adoption and post-adoption). They also rarely simultaneously address organizational and individual determinants impacting the adoption of a technology.

Technology adoption theories: The need of an integrative model

According to Gopalakrishnan and Damanpour (1997), the adoption of a technology by an organization can be considered as successful when it becomes integrated and accepted inside the organization, and users keep using it for a period of time.

Ratten (2014) explains that the process of technology acceptance can be considered successful after it becomes incorporated into the user's lifestyle for a long period of time. This integration ensures the successful adoption and implementation of an IT innovation inside organizations. After being adopted, a technology should be "accepted, adapted, routinized, and institutionalized into the firm" (Zhu et al., 2006). As Fichman and Kemerer (1999) state "A new technology may be introduced amid great enthusiasm and enjoy widespread initial acquisition, but nevertheless still fails to be thoroughly deployed among many acquiring firms".

Many companies fail to benefit from the technology after its initial adoption (Chatterjee et al. 2002). However, it is proved that in order to produce significant business value, a technology should be incorporated into the corporate value chain (DeLone & McLean, 1992; Sethi & King, 1994; Devaraj & Kohli, 2003).

Thus, in order to understand the adoption of a technology inside an organization, all the phases of adopting that technology should be investigated. Hence, this consists of investigating the adoption process through which the technology passes until it becomes integrated inside the company. This means taking into consideration all the phases starting with when the organization seeks to learn about the technology (in other words, the pre-adoption phase), through the decision making to acquire the technology (in other words, the adoption phase) and including the acceptance and use of that technology by end users (in other words, the post-adoption phase).

In addition, in order to understand the adoption of a technology inside an organization, both individual and organizational determinants should be taken into consideration. In fact, deciding to acquire the technology happens at organizational level since it is up to the organization to decide to adopt (or not) a technology. However, using the technology and integrating it as part of the daily working routine depends on the user acceptance which makes this part of the process an individual level.

While technology adoption models prove useful in understanding the user behavior and his acceptance of a technology, some other theories introduce characteristics that explain the organization decision to acquire the technology. Despite the importance of both aspects, technology adoption by an organization is actually influenced by the two aspects and thus they could not be addressed separately. Actually, the adoption of a technology inside an organization starts with the organization considering adopting it, collecting information about it and then deciding to acquire it (or not). But that is not enough, for a technology to be adopted inside the organization, users should also accept it for a long period of time. Only then a technology could be considered as successfully adopted inside the organization and it can start to produce business value.

However, investigating the literature shows that existing theories and most of the new emerging models lack that holistic view. In fact, by combining existing models with existing constructs, researches succeed to enrich the technology adoption theories but still do not take into consideration simultaneously the two aspects that are: the determinants impacting each adoption process phase (pre-adoption, adoption, post-adoption) and the level of analysis (individual or organizational).

Toward an Integrative technology adoption model

I- Laying the foundations for an integrative technology adoption model:

Believing that technology adoption in an organization cannot be considered as successful unless the technology is accepted and then used by employees, Hameed et al. (2012) propose an integrative model. This declaration clearly attests that the success of a technology adoption is conditioned by its adoption by both individual and organization. Thus, determinants affecting individuals to adopt a technology as well as determinants impacting organization to adopt a technology should be studied simultaneously. Hameed et al. consider organizational level analysis for the pre-adoption and adoption phases until the decision to acquire the technology is made (Hameed et al., 2012). As for the post-adoption phase, they focus on individual level of analysis which explains the user acceptance of the technology.

Hameed et al. (2012) consider that the technology adoption inside a company goes through two processes:

1. The organizational process consists of the technology adoption and starts with the pre-adoption phase until the technology is acquired.
2. The user acceptance process starts after the acquirement of the technology by the organization and addresses the individual's behavior inside the organization.

Therefore, Hameed's framework assembles constructs from theories that investigated individual level as well as those that focus on organizational level (refer to figure 6). Hameed et al. fulfill a literature review on ninety-two IT adoption articles published between 1990 and 2009. They construct their model by combining existing theories, diffusion of innovation theory (DOI), theory of reasoned action (TRA), theory of planned behavior (TPB),

technology acceptance model (TAM), technology-organization-environment framework (TOE) along with CEO characteristics.

They use DOI theory, TOE framework and CEO characteristics to construct their first process (until the technology is acquired) and TRA, TPB and TAM to model their second process (user acceptance of the technology).

Moreover, Hameed et al. (2012) perform a literature review on technology adoption process. They choose to base their framework on a technology adoption process that incorporates three major phases: initiation, adoption and implementation. For each phase, they list all the determinants introduced by existing theories as determinants influencing the decision in that phase. They group the determinants identified by existing theories into five categories: innovation characteristics, organizational characteristics, environmental characteristics, CEO characteristics and user acceptance characteristics. The first four categories (innovation, organizational, environmental and CEO characteristics) are considered as influencers of the organizational process that consists of initiation and adoption phases in other terms pre-adoption and adoption phases. While user acceptance category is considered as impacting the user acceptance process that consists of implementation phase in other terms the post-adoption phase.

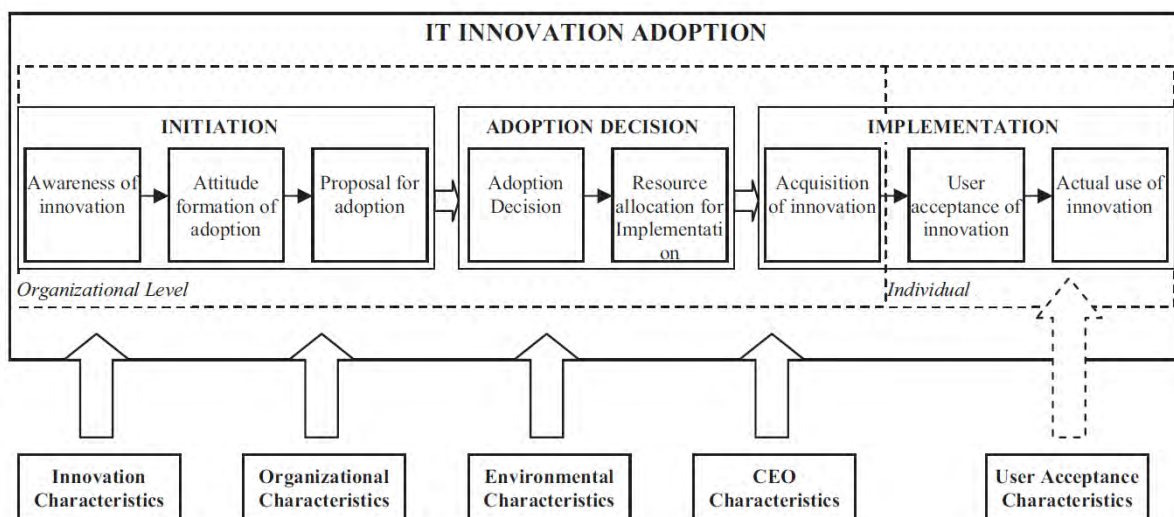


Figure 6: Conceptual model for the process of IT innovation adoption (Hameed et al., 2012)

Investigating the literature - by looking in Scopus and Science Direct databases, Google scholar and ResearchGate, and that only in peer reviewed journal - that this model has not been put into use yet.

The table below assembles determinants mentioned by Hameed et al. (2012)

Categories	Code	Determinants of technology adoption identified in the literature	Adoption process phases		
			Pre-adoption	Adoption	Post-adoption
Innovation characteristics (List of innovation factors considered in the innovation adoption literature)	I01	Relative advantage	X	X	X
	I02	Cost		X	X
	I03	Complexity	X	X	
	I04	Compatibility	X	X	X
	I05	Triability	X	X	
	I06	Observability	X	X	
	I07	Security	X	X	X
	I08	Demonstrability		X	X
	I09	Communicability		X	X
	I10	Divisibility		X	
	I11	Profitability		X	
	I12	Social approval		X	
	I13	Business process re-engineering			X
	I14	Strategic decision aid		X	
	I15	Scalability		X	
	I16	Task Variety		X	
	I17	Managerial productivity		X	
	I18	Organizational support		X	X
	I19	Critical mass		X	X
	I20	Perceived Risk		X	X
Organizational characteristics (List of organizational factors considered in the innovation adoption literature)	O01	Top management support		X	X
	O02	Organizational size	X	X	X
	O03	IT expertize	X	X	X
	O04	Organization readiness	X	X	
	O05	Product champion		X	X
	O06	Centralization	X	X	X
	O07	Formalization	X	X	X
	O08	IS dept size	X	X	X
	O09	IS infrastructure	X	X	X
	O10	IS investment		X	X
	O11	Information intensity		X	X
	O12	Resources	X	X	X

Categories	Code	Determinants of technology adoption identified in the literature	Adoption process phases		
			Pre-adoption	Adoption	Post-adoption
Environmental characteristics (List of environmental factors considered in the innovation adoption literature)	E01	Competitive pressure	X	X	X
	E02	External pressure		X	X
	E03	Government support	X	X	X
	E04	Vendor support	X	X	X
	E05	Partners support	X	X	
	E06	Partners readiness		X	X
	E07	Environmental uncertainty	X	X	X
	E08	Vertical linkage		X	
	E09	Partners defense		X	
	E10	Government pressure		X	
	E11	No. of competitors		X	X
	E12	External expertize			X
	E13	Consultant effectiveness			X
	E14	Trust with partners		X	
	E15	Globalization		X	
	E16	Social influence		X	
CEO characteristics (List of CEO factors considered in the innovation adoption literature)	C01	CEO innovativeness		X	X
	C02	CEA attitude	X	X	X
	C03	CEO IT knowledge	X	X	X
	C04	Managers tenure	X	X	X
	C05	Managers age		X	X
	C06	Managers gender		X	X
	C07	Managers educational level		X	X
	C08	CEO involvement		X	X
User acceptance characteristics (List of user acceptance factors considered in the organizational level adoption)	A01	Perceived usefulness		X	X
	A02	Perceived ease of use		X	X
	A03	Perceived voluntariness		X	X
	A04	Anxiety			X
	A05	Attitude towards use		X	X
	A06	Behavioral intention			X
	A07	Subjective norms			X
	A08	Perceived enjoyment		X	X

O13	Training		X	X
O14	Earliness of adoption		X	
O15	No. of business lines	X	X	X
O16	No. of customers		X	X
O17	Organizational complexity		X	X
O18	Barrier to adoption		X	
O19	Image		X	X
O20	Expansion	X		
O21	Specialization		X	X
O22	External integration		X	
O23	Managerial obstruction	X	X	X
O24	Culture		X	
O25	Job relevance	X	X	
O26	Perceived barrier		X	
O27	Information sharing culture		X	
O28	Trust		X	
O29	Motivation		X	X
O30	Internal pressure		X	
O31	Technology level		X	
O32	Openness	X	X	
O33	Norm encouraging change	X	X	
O34	Role of IT		X	
O35	Strategic planning		X	X
O36	Age of IS		X	
O37	No. of competitors		X	X
O38	Satisfaction with existing system	X	X	
O39	Job rotation		X	X
O40	User involvement		X	X
O41	Degree of integration	X	X	X

<i>literature)</i>	A09	Perceived playfulness	X	X
	A10	User experience		X
	A11	User training		X
	A12	User involvement		X
	A13	Organizational support		X
	A14	Organizational usage		X
	A15	Educational level		X
	A16	User age		X
	A17	Self-efficacy		X
	A18	Facilitating conditions		X
	A19	Perceived behavioral control		X
	A20	Financial incentives		X
	A21	Technical assistance		X

Table 6: Determinants of technology adoption assembled from Hameed et al. (2012)

II- Reasons behind the choice of Hameed's model in this dissertation

Hameed et al. (2012) model look to understand the adoption of a technology inside an organization. This model addresses determinants influencing the adoption of a technology by individuals as well as by organization.

In addition, Hameed's model takes into account the entire technology adoption process starting with the pre-adoption, the adoption and finally the post-adoption phase. Hence, it combines the existing technology adoption models with the user acceptance theories in order to offer a holistic view of the entire technology adoption process along with the determinants influencing each phase of it.

This model can help us investigate our research question: **How can CSN technology be adopted to support strategic scanning process?**

To answer this question, we need to investigate the whole adoption process (pre-adoption, adoption and post-adoption phases) and to look at the two adoption levels: individual and organizational. This motivates us to adopt the integrative model developed by Hameed et al. in this dissertation.

III- Updating the integrative model: Literature review on technology adoption studies since Hameed's model

In order to complement the literature review performed by Hameed et al. (2012), we investigate publications that address technology adoption between 2012 and 2016. We apply the same methodology described by Hameed et al. and search using the same key words ('innovation'; 'adoption'; 'diffusion'; 'infusion'; 'integration'; 'implementation'; 'assimilation' and 'IT usage' (Hameed et al. 2012, p. 362). We identify twenty-six articles that tackle the issue (Cegielski et al., 2012; Ozlen & Sisic, 2013; Ratten, 2013; Riviera & Cox, 2013; Shayan & Suganda, 2013; Oliveira et al., 2014; Hernández-Ortega et al. 2014; Martinez et al. 2014; Martins et al. 2014; Pantano 2014; Ratten 2014; Tsai & Hung 2014; Ratten (2014); Wu & Chiu 2015; Atkin et al. 2015; FathiZahraei et al. 2015; Mou & Lin 2015; Ratten 2015; Yang et al. 2015; Sallehudin et al. 2015; Chu & Chen 2016; Trang &

Zander, 2016; Chiyangwa & Alexander, 2016; Kim et al., 2016; Sherer et al., 2016; Sarabdeen & Ishal, 2016).

Among the twenty-six published articles that we find, only five introduce new determinants that are not mentioned in Hameed's integrative model. We synthesize them in the table below.

Authors	Determinants of technology adoption identified in the literature between 2012 and 2016	Definitions	Adoption process phases		
			Pre-adoption	Adoption	Post-adoption
Wu & Chiu (2015)	Task structure	Task complexity is one important component of external stimulus and has an important impact on a multi-stage diffusion structure, initiation, adoption, implementation, and diffusion.			X
	IT innovation type	There are three IT innovation types: IT unit; Intra-organization; Inter-organization.			X
	User attribute	Gender.			X
Atkin et al. (2015)	Opinion leadership	A two-step flow suggesting that information and influence flows from the media to opinion leaders, and from them to the less interested segments of the population.			X
	Contagion	For Valente (1995), “contagion refers to how individuals monitor others and imitate their behavior to adopt or not adopt innovations” (p. 12). This process depends on one’s peer relationships and represents the interpersonal influence on the diffusion process.			X
	Fluidity	Lin (2009) defines fluidity as “an interoperable multifunctional and multitasking capability stemming from the converged synergy of compatible digital communication, information, and media technologies” (p. 886).			X
Chu & Chen (2016)	Social bonds	The social bonds refer to social sanctions against deviant behaviors in a social group. Social bonds was operationally defined as the degree to which users perceived the bonds in their group.			X
Trang & Zander (2016)	Technology readiness	Technology readiness consists of both technology infrastructure as well as IT human resources. Technology infrastructure comprises all technologies that enable and facilitate Internet-related businesses. In comparison, IT human resources consists of IT professionals that are responsible for the development of e-business applications.		X	
	Technology Integration	Technology integration is defined as the degree of interconnectivity between an organization's back-office information systems and databases and those externally integrated with the suppliers' systems and databases.		X	
Cegielski et al. (2012)	Task uncertainty	Organizations seek to reduce task uncertainty through the application of information to their decision-making processes.			X

Table 7: Determinants of technology adoption identified in the literature between 2012 and 2016

This section allows us to identify determinants of a technology adoption mentioned in the literature. However, as we are aiming at investigating the adoption of a specific technology which is CSN technology, we now need to complement our list with additional determinants specific to social networks technology adoption. Therefore, in the following section, we will study the literature of social networks technology adoption in order to draw a complete list of determinants that will help us answer our second and third sub-questions which are:

- **What are the determinants of CSN technology adoption** (independently of its managerial context of use)?
- **What are the determinants of CSN technology adoption to support a strategic scanning process?**

2.2 Social Networks adoption determinants

While social network sites (SNS) wave keeps growing exponentially introducing new unimaginable tools, new habits that emerge in peoples' lives draw the attention of researchers who are trying to understand this revolutionary phenomenon (Zhang et al., 2014).

Some researchers focus in their work on the frequency of use of SNS, reasons behind it and the consequences of such intense use. The wide admiration for SNS by young adults especially university students starts to be perceived "alarmingly high" by some researchers (for example: Junco, 2012; Center, 2014; Raacke & Bonds-Raacke, 2008; Smith & Caruso, 2010). Some authors call that high frequency of use "pervasive use" and "addiction" and treat it as bad habits. Anxiety, severe depression, insomnia, are among the predictors of Facebook addiction identified by Koc and Gulyagci (2013). As for the frequency of use, some authors attempt to understand reasons that motivate users to frequently use SNS. Correa et al. (2010) identify extraversion, emotional stability and openness to experience as factors that motivate users to use more or less frequently SNS. Zhong et al. (2011) introduce information technology communication innovativeness, need for cognition and media multitasking as additional traits that impact SNS frequency of use.

Investigating the literature shows that many studies address the adoption of social networks issue. Many authors focus on understanding determinants that influence the adoption of SNS, some approach determinants that impact the adoption of social networks by academics and others address the adoption of corporate social networks (CSN technology) inside organizations.

2.2.1 Social Network Sites (SNS) adoption by public

In the past few years, many studies attempted to analyze motivational determinants behind SNS adoption and continuance of use.

Kim et al. (2011) observe college students' motivations towards using SNS. Their results suggest that seeking friends, entertainment, social support, information and convenience play a major role in SNS use.

In their Study, Ellison et al. (2007) confirm that the main objective behind students' use of Facebook is to communicate with offline friends rather than meeting new people. This finding is different from prior results suggested by Lin and Lu (2011) who argue that the most important reason behind peoples' continuance use of SNS is enjoyment followed by number of peers and usefulness.

Boyd (2007) describes individual created profile on SNS as "a form of digital body where individuals must write themselves into being" (p.131). Whereas SNS request that members build a truthful digital identity that is similar to their real identity, people don't exactly lie but tend to stretch the truth (Amichai-Hamburger & Vinitzky, 2010). It is considered that SNS "allow users to become the producers and stars of their productions as they create their own profiles and observe those of others" (Pempek et al., 2009, p.237). Some studies suggest that individuals create their digital identity (through their profiles) by drawing online selves that are appealing amplifications of their real selves (Zhao et al., 2008). In order to reflect the "right" image to the world, users put good effort in choosing who to accept in their friends list (Boyd & Donath, 2004). In addition, posting photos on their profiles is their way of reflecting a certain image they want to project to others (Amichai-Hamburger & Vinitzky, 2010). Furthermore, Nadkarni and Hofmann (2012) confirm that the need for self-presentation and the need to belong motivate Facebook use.

More researches address psychological determinants that motivate people to use SNS as well as psychological impacts that SNS use have. Ryan and Xenos (2011) suggest that extraversion, family loneliness and narcissism characterizes better Facebook users than non-users. On the other hand, they affirm that narcissism impacts the used SNS features as well as intensity of use. Narcissism is a personality trait suspected to influence “Millennials” behavior on SNS (Millennials are people who attended college between the early 2000s to late 2010s). Bergman et al. (2011) argue that narcissism does not affect the amount of time spent on SNS nor the frequency of status updates. However, they find narcissism related to the number of friends on SNS, the importance of meeting as many people online as possible, the projection of a positive image, the desire to let friends know what they are doing as well as the belief that those friends are interested in what they are doing. Some researches confirm that narcissism is positively linked to publishing self-advertising content on SNS (Buffardi & Campbell, 2008). Carpenter (2012) also investigates the link between narcissism aspects and behaviors on Facebook. He concludes that grandiose exhibitionism can predict (self-promoting) behavior such as updating status and photos and reaching big numbers of friends. While entitlement/exhibitionism can predict antisocial behaviors like reacting against posted unpleasing comments about them, checking friend’s status updates to see if they have been mentioned.

Chen et al. (2012) address the influence of four social determinants that are subjective norms, image, critical mass and electronic word-of-mouth on the continuance intention of using Web 2.0 (according to them, Web 2.0 are applications that includes blogs, Facebook, IGoogle, Twitter, YouTube). They confirm that continuance intention of use of Web 2.0 is affected by electronic word-of-mouth (e word-of-mouth), image as well as by perceived critical mass. They also deduce that there is a positive relation between continuance intention of Web 2.0 and the increased number of users of these services. They add that satisfaction can also be a factor that significantly impact continuance intention of Web 2.0 use. More importantly they assert that subjective norm, that has previously been identified as a construct of theory of planned behavior (TPB) influences continuance intention to use Web 2.0.

Cheung et al. (2010) address determinants behind students’ use of SNS. They investigate the role of social presence, social influence and the uses’ and gratification’s five key values in the “we intention” to use SNS. Social presence is identified as significantly influencing the “we-intention” to use SNS. Further, social related determinants reveal to mostly influence the

intention to use among all the five values. The authors also assert that some social determinants could be significant influencers of the intention of SNS use. They reveal that group norms impact the “we intention” to use SNS. In addition, Cheung and Lee (2010) find that subjective norms and social identity determine the collective intention to use an SNS.

Chang and Zhu (2012) use expectation-confirmation model and test perceived social capital’s and flow experience’s impact on users’ continuance use of SNS. They assume that continuance intention is influenced by gender and perceived bridging social capital but not by perceived bonding social capital.

Kang et al. (2013) examine the impact of alternative and self-oriented perspectives in the continuance use of SNS. Their findings show that self-image congruity and regret significantly affect the post-adoption phase.

Park (2014) suggests that personalization features, satisfaction and switching cost influence SNS use.

Social Network Sites (SNS) adoption through the lenses of TAM model

Chaouali (2016) looks into understanding the continuance intention of SNS on mobiles. He affirms that, while it is positively affected by satisfaction, it is negatively impacted by emotional exhaustion. Calisir and al. (2013) study determinants influencing SNS usage specifically on smartphones of students. For this purpose, they extend technology acceptance model (TAM) by adding perceived enjoyment, social influence and perceived mobility value constructs. Their findings show that perceived enjoyment, perceived usefulness and perceived ease of use are determinants that impact intention to use. However, they find that social influence does not affect the intention to use. They also propose that mobility can be considered as necessity for websites and finally conclude that entertainment is an important motivational reason behind young peoples’ use of SNS on smartphone’s.

Harden et al. (2012) attempt to identify constructs impacting SNS continuance intention. They construct a theoretical framework by combining technology acceptance model (TAM) and Expectation-Confirmation-Theory (ECT). Testing their model show that intention to continue to use SNS is positively impacted by satisfaction as well as by resistance to change. On the other hand, they find two constructs that positively affect satisfaction with SNS that are perceived playfulness and disconfirmation. They also assert that higher level of

satisfaction positively impacts SNS continuance of use.

Lee and Suh (2013) look into understanding the reason behind peoples' use of SNS. They propose a model based on the technology acceptance model (TAM), network externality theory and diffusion of innovation theory (DOI). This model includes five constructs namely, perceived usefulness, perceived ease of use, members, compatibility and actual use. They deduce that a positive relation is established between the actual use of SNS and the four other constructs. Hence users, who perceive that utilizing the SNS is easy (perceived ease of use) or beneficial (perceived usefulness) to them, tend to use these services. In addition, they believe that the more their friends (members) are using SNS, the more opportunities they have to get for publishing information, promoting friendship, etc. As for compatibility, Lee and Suh explain that the positive impact it has on SNS use is a reason to believe that SNS projects their true lives well. They add that Facebook users usually tend to use it as means to communicate with friends even though they consider it as not easy platform due to the multiplication of its functionalities. In contrary, Twitter users use it as means to spread their thoughts and opinions all over the world, rather than communicating with real friends. It is also noted that Twitter is considered easier to use than Facebook due to its limited functions .

Chang et al. (2015) extend technology acceptance model (TAM) by including the constructs of conformity and perceived playfulness to understand users' continuance intention of use of Facebook. They conclude that attitude, perceived playfulness and perceived usefulness impact the continuance intention of using SNS.

Qin et al. (2011) address the determinants influencing user acceptance of SNS. They propose an extended model of theory of acceptance model (TAM) by adding two constructs of social influence namely subjective norm and critical mass. They prove that perceived ease of use and perceived usefulness influence the intention to use SNS.

Sledgianowski and Kulviwat (2008) address the antecedents of SNS adoption and use. They deduce that critical mass, perceptions of playfulness, normative pressure, perceived usefulness, perceived ease of use and trust significantly influence the use intention of SNS.

Social Network Sites (SNS) adoption through the lenses of TPB theory

Al-Debei et al. (2013) investigate the behavior and the continuance participation intentions on Facebook. They propose an extended theory of theory of planned behavior (TPB) by adding the perceived value attribute. They conclude that post-adopters' continuance participation intention is significantly influenced by attitude, subjective norms, perceived behavioral control and perceived value. Perceived value and continuance participation intention strongly impact continuance participation behavior. Perceived behavioral control is proved to have no significant influence on post-adopters' continuance participation behavior. This research also asserts that when users perceive their behavior to be associated with an added-value, their continuance intentions and behavior on Facebook are likely to be greater. Mlaiki et al. (2012) use the theory of planned behavior (TPB) and include user's perceived degree of shyness to investigate the continuance intention of use of SNS. Their findings suggest that perceived behavioral control, attitude and shyness impact continuance intention of using Facebook.

Social Network Sites (SNS) adoption through the lenses of TRA theory

In an attempt to identify determinants influencing the intention to adopt and continuously use an SNS, Chiang (2013) combines the theory of reasoned action (TRA) with the uses and gratification theory (UGT) and observe the innovation diffusion. The author concludes that attitude and playfulness impact the intention to continue using SNS.

Social Network Sites (SNS) adoption through the lenses of UGT theory

Ifinedo (2016) addresses the pervasive adoption of SNS by university students. He applies the theory of uses and gratifications (UGT) and the social influence process and concludes determinants that influence students' pervasive adoption of SNS: identification, internalization as well as entertainment value, social enhancement, self-discovery and the need to maintain interpersonal connectivity.

Zolkepli and Kamarulzaman (2015) address the motivational determinants behind adopting

social media. They use the uses and gratification theory (UGT) along with the five characteristics identified by Rogers (i.e., relative advantage, compatibility, complexity, triability and observability). They deduce that the adoption of social media is impacted by social needs (i.e. social interaction and social influence), as well as by personal needs (i.e. trendiness, enjoyment, entertainment and interactivity). They also assert that three of the five innovation characteristics influence social media adoption namely relative advantage, observability and compatibility.

Hsu et al. (2015) built upon the uses and gratification theory (UGT) and assess that entertainment, information seeking, self-presentation, and socialization impacts the continuance intention of social media.

Ku et al. (2013) address the continuance intention to use SNS by applying the uses and gratification theory (UGT). The findings show that perceived critical mass, gratifications, privacy concerns and subjective norms impact the continuance intention to use these platforms.

Social Network Sites (SNS) adoption through the lenses of UTAUT model

Hsu and Wu (2011) examine the continuance of use of Facebook by developing a model that includes the unified theory of acceptance and use of technology (UTAUT), the expectation disconfirmation model (EDM) and the flow theory. They deduce that performance expectancy, effort expectancy, social influence, satisfaction and flow experience are constructs that determine the continuance intention of Facebook use.

2.2.2 Social Network Sites (SNS) use by academics

Dermentzi et al. (2016) investigate the differences between intention to adopt SNS and other online technologies by academics. For this purpose, they use two main theories, theory of planned behavior (TPB) and the uses and gratifications theory (UGT), to build their model. One interesting finding is that the need to sustain existing contacts positively impacts academics' attitude in the case of SNS rather than other technologies. As previous studies highlight the importance of social media tools in projecting a professional image (Fieseler et

al., 2015; Gandini, 2016). They also stress the impact of SNS in preserving and enhancing academic professional image. This finding is in line with previous studies (Ferguson & Wheat, 2015).

Dermentzi et al. confirm that academics are concerned about the liability of information collected by non-official channels. A finding that is conformed with other studies stating that academicians limit their use of twitter for practical-based tasks (Knight & Kaye, 2016). In addition, the two constructs borrowed from TPB namely attitude and perceived behavior control are proved to significantly affect academics' intention in both SNS and other technologies. However social norms are demonstrated to positively impact intention of online technologies, but has no effect on SNS.

2.2.3 Corporate Social Network (CSN technology) adoption in organizations

As the contemporary generation also called generation Y (Gen Y) starts integrating companies and becoming part of the workforce, they are expected to bring their “habits” to the corporate culture. Organizations start implementing corporate social networks (CSN technology) as a supporting tool that promotes knowledge sharing and collaboration among employees (Shirish et al., 2016).

Very few studies examine the adoption and use of CSN technology by employees. Shirish et al. (2016) investigate the use of CSN technology by Gen Y. They look into Gen Y's perception towards using CSN technology inside organizations as well as their motivations behind using it. They confirm that Gen Y acknowledge the importance of using CSN technology for organizations, and extract their recommendations for a successful implementation of such platforms. The study assert that Gen Y's motivations behind using CSN technology can be categorized into four groups: safety, social, esteem needs and self-actualization needs. They then conclude six themes that organizations should take into consideration when implementing a CSN technology. These are: “keep it strictly professional”, “provide distributive justice”, “provide privacy for participants”, “lead by example”, “ensure quality assurance and provide training”, “satisfy higher-order needs in equal measures”.

On the other hand, North (2010) affirm that employees believe that using CSN technology in workspace is probably inappropriate. However, this conviction does not prevent them of using these platforms. Seol et al. (2016) introduce determinants that impact continuance intention to use of CSN technology. They conclude that user satisfaction is the most influencing factor that predicts user intention to continue using CSN technology followed by perceived enjoyment and perceived usefulness.

El Ouiridi et al. (2016) investigate the adoption of social media in the process of choosing and recruiting employees. To do so, they extend the unified theory of acceptance and use of technology (UTAUT) by adding two constructs, the managerial position and the educational level of the recruiter. Their findings confirm the effort expectancy, performance expectancy, and social influence on adoption intention. In addition, they affirm that behavioral intention and facilitating conditions influence the usage behavior.

Determinants of social networks adoption identified in the literature are synthetized in the table below:

Determinants of social networks adoption identified in the literature	Author(s)	Determinants of SNS adoption identified in the literature			Determinants of CSN technology adoption identified in the literature		
		Pre-adoption	Adoption	Post-adoption	Pre-adoption	Adoption	Post-adoption
Entertainment	Kim et al. 2011			X			
	Hsu et al. 2015			X			
	Ifinedo 2016			X			
	Zolkepli & Kamarulzaman 2015		X				
Perceived enjoyment	Calisir et al. 2013			X			
	Seol et al. 2016						X
Enjoyment	Lin & Lu 2011			X			
	Zolkepli & Kamarulzaman 2015		X				
Number of peers	Lin & Lu 2011			X			
Seeking Friends	Kim et al. 2011			X			
Social support	Kim et al. 2011			X			
Socialization	Hsu et al. 2015			X			
Self-presentation	Hsu et al. 2015			X			
Need for self-presentation	Nadkarni & Hofmann 2012			X			
Information seeking	Hsu et al. 2015			X			
Information	Kim et al. 2011			X			
Convenience	Kim et al. 2011			X			
Extraversion	Ryan & Xenos 2011			X			
Family loneliness	Ryan & Xenos 2011			X			
Shyness	Mlaiki et al. 2012			X			
Attitude	Chiang 2013			X			
	Chang et al. 2015			X			
	Chang & Zhu 2011	X		X			
	Mlaiki et al. 2012			X			
	Al-Debei et al. 2013			X			
	Dermentzi et al. 2016				X		
Information technology communication innovativeness	Zhong et al. 2011			X			
Need for cognition	Zhong et al. 2011			X			
Media multitasking	Zhong et al. 2011			X			
Narcissism	Ryan & Xenos 2011			X			
Electronic Word-of-mouth	Chen et al. 2012			X			
Image	Chen et al. 2012			X			
Perceived critical mass	Ku et al. 2013			X			
Critical mass	Sledgianowski & Kulviwat 2008			X			
	Chen et al. 2012			X			
Satisfaction	Hsu & Wu 2011;			X			
	Chen et al. 2012			X			
	Harden et al. 2012			X			
	Park 2014;			X			
	Chaouali 2016			X			
Subjective norm	Cheung & Lee 2010		X				
	Chang & Zhu 2011	X		X			
	Chen et al. 2012			X			
	Al-Debei et al. 2013			X			
	Ku et al. 2013;			X			
Social presence	Cheung et al. 2011		X				
Group norms	Cheung et al. 2011		X				
Social identity	Cheung & Lee 2010		X				
Need to belong	Nadkarni & Hofmann 2012			X			
Gender	Chang & Zhu 2012			X			
Perceived bridging social capital	Chang & Zhu 2012			X			

Self-image congruity	Kang et al. 2013		X		
Regret	Kang et al. 2013		X		
Personalization	Park 2014		X		
Switching cost	Park 2014		X		
Emotional exhaustion	Chaouali 2016		X		
Perceived usefulness	Sledgianowski & Kulviwat 2008		X		
Usefulness	Lin & Lu 2011		X		
Perceived usefulness	Qin et al. 2011		X		
	Calisir et al. 2013		X		
	Lee & Suh 2013		X		
	Chang et al. 2015		X		
	Seol et al. 2016		X		X
Perceived ease of use	Sledgianowski & Kulviwat 2008		X		
	Calisir et al. 2013		X		
	Lee & Suh 2013		X		
Resistance to change	Harden et al. 2012		X		
Members	Lee & Suh 2013		X		
Compatibility	Zolkepli & Kamarulzaman 2015	X			
	Lee & Suh 2013		X		
Playfulness	Chiang 2013		X		
Perceived playfulness	Chang et al. 2015		X		
Perceived playfulness	Sledgianowski & Kulviwat 2008		X		
Trust	Sledgianowski & Kulviwat 2008		X		
Normative pressure	Sledgianowski & Kulviwat 2008		X		
Perceived behavioral control	Chang & Zhu 2011	X	X		
	Mlaiki et al. 2012		X		
	Al-Debei et al. 2013		X		
	Dermentzi et al. 2016		X	X	
Perceived value	Al-Debei et al. 2013		X		
Identification	Ifinedo 2016		X		
Internalization	Ifinedo 2016		X		
Social enhancement	Ifinedo 2016		X		
Self-discovery	Ifinedo 2016		X		
Maintaining interpersonal connectivity	Ifinedo 2016		X		
Social interaction	Zolkepli & Kamarulzaman	X			
Social influence	Zolkepli & Kamarulzaman	X			
	Hsu & Wu 2011		X		
	El Ouiridi et al. 2016		X		X
Trendiness	Zolkepli & Kamarulzaman 2015	X			
Interactivity	Zolkepli & Kamarulzaman 2015	X			
Relative advantage	Zolkepli & Kamarulzaman 2015	X			
Observability	Zolkepli & Kamarulzaman 2015	X			
Gratifications	Ku et al. 2013		X		
Privacy concerns	Ku et al. 2013		X		
Performance expectancy	Hsu & Wu 2011		X		
	El Ouiridi et al. 2016		X		X
Effort expectancy	Hsu & Wu 2011		X		
	El Ouiridi et al. 2016		X		X
Flow experience	Hsu & Wu 2011		X		
Facilitating condition	El Ouiridi et al. 2016		X		X
User Satisfaction	Seol et al. 2016		X		X
Safety needs	Shirish et al. 2016		X		X
Social needs	Shirish et al. 2016		X		X
Esteem needs	Shirish et al. 2016		X		X
Self-actualization needs	Shirish et al. 2016		X		X

Table 8: Determinants of social networks adoption identified in the literature

In their model, Hameed et al. (2012) categorize technology adoption determinants into five categories (i.e. innovation, organizational, environmental, CEO and user acceptance characteristics). Following their categorization, we classify into the same five categories the determinants that we identify in the technology adoption literature (between 2012 and 2016) as well as those identified in the literature of social networks adoption.

2.2.4 An integrative technology adoption theoretical framework

The goal of this section is to construct the most complete theoretical framework of technology adoption that will help us answer our second and third sub-questions which are:

- **What are the determinants of CSN technology adoption** (independently of its managerial context of use)?

- **What are the determinants of CSN technology adoption to support a strategic scanning process?**

To do so, we first investigate the literature on technology adoption and identify determinants that are reported to influence technology adoption with respect to the adoption process phases (summarized in table 6 and table 7).

Following, as we address the adoption of a specific technology which is CSN technology, we investigate the literature on social networks adoption and identify determinants that are reported to influence social networks adoption with respect to the adoption process phases (summarized in table 8).

Finally, we construct the theoretical framework of technology adoption that will help us answer our second and third sub-questions, by combining these three tables (table 6, table 7 and table 8) into table 9.

This last table synthesizes all the adoption determinants that we identify in the literature, including technology adoption determinants and social networks adoption determinants.

This table is divided as follow:

- 1- Determinants of technology adoption identified in the literature are shown in the column entitled “Determinants of technology adoption identified in the literature”
 - 2- Determinants of Social Network Sites (SNS) adoption identified in the literature are shown in the column entitled “Determinants of SNS adoption identified in the literature”
 - 3- Determinants of Corporate Social Networks (CSN technology) adoption identified in the literature are shown in the column entitled “Determinants of CNS technology adoption identified in the literature”
- * Determinants marked with an asterisk refer to determinants of technology adoption identified in the literature between 2012 and 2016 (after the publication of Hameed’s integrative model).

Categories	Determinants	Determinants of technology adoption identified in the literature			Determinants of SNS adoption identified in the literature			Determinants of CSN technology adoption identified in the literature		
		Pre-adoption	Adoption	Post-adoption	Pre-adoption	Adoption	Post-adoption	I Pre-adoption	Adoption	Post-adoption
Innovation characteristics (List of innovation factors considered in the innovation adoption literature)	Relative advantage	X	X	X		X				
	Cost		X	X						
	Complexity	X	X							
	Compatibility	X	X	X		X	X			
	Trialability	X	X							
	Observability	X	X			X				
	Security	X	X	X						
	Demonstrability		X	X						
	Communicability		X	X						
	Divisibility		X							
	Profitability		X							
	Social approval		X							
	Business process re-engineering			X						
	Strategic decision aid		X							
	Scalability		X							
	Task Variety		X							
	Managerial productivity		X							
	Organizational support		X	X						
	Critical mass		X	X			X			
	Perceived Risk		X	X						
	IT innovation type *			X						
	Fluidity *			X						
	Technology readiness *		X							
	Technology Integration *		X							
	Information technology communication innovativeness						X			
	Convenience						X			
	Personalization						X			
Media multitasking						X				
Organizational characteristics (List of organizational factors considered in the innovation adoption literature)	Top management support		X	X						
	Organizational size	X	X	X						
	IT expertise	X	X	X						
	Organization readiness	X	X							
	Product champion		X	X						
	Centralization	X	X	X						
	Formalization	X	X	X						
	IS dept size	X	X	X						
	IS infrastructure	X	X	X						
	IS investment		X	X						
	Information intensity		X	X						
	Resources	X	X	X						
	Training		X	X						
	Earliness of adoption		X							
	No. of business lines	X	X	X						
	No. of customers		X	X						
	Organizational complexity		X	X						
	Barrier to adoption		X							
	Image		X	X			X			
	Expansion	X								
Specialization		X	X							
External integration		X								

	Managerial obstruction	X	X	X					
	Culture		X						
	Job relevance	X	X						
	Perceived barrier		X						
	Information sharing culture		X						
	Trust		X					X	
	Motivation		X	X					
	Internal pressure		X						
	Technology level		X						
	Openness	X	X						
	Norm encouraging change	X	X						
	Role of IT		X						
	Strategic planning		X	X					
	Age of IS		X						
	No. of competitors		X	X					
	Satisfaction with existing system	X	X						
	Job rotation		X	X					
	User involvement		X	X					
	Degree of integration	X	X	X					
	Task structure *			X					
	Task uncertainty *			X					
Environmental characteristics (List of environmental factors considered in the innovation adoption literature)	Competitive pressure	X	X	X					
	External pressure		X	X					
	Government support	X	X	X					
	Vendor support	X	X	X					
	Partners support	X	X						
	Partners readiness		X	X					
	Environmental uncertainty	X	X	X					
	Vertical linkage		X						
	Partners defense		X						
	Government pressure		X						
	No. of competitors		X	X					
	External expertise			X					
	Consultant effectiveness			X					
	Trust with partners		X						
	Globalization		X						
	Social influence		X			X	X		X
	Social bonds *			X					
	Social presence					X			
	Group norms					X			
	Social interaction					X			
	Normative pressure								X
	Members								X
	Social support								X
	Social enhancement								X
	Electronic Word-of-mouth								X
	Perceived bridging social capital								X
	Maintaining interpersonal connectivity								X
	Identification								X
	Number of peers								X
	CEO characteristics (List of CEO factors considered in the innovation adoption literature)	CEO innovativeness		X	X				
CEO attitude		X	X	X					
CEO IT knowledge		X	X	X					
Managers tenure		X	X	X					
Managers age			X	X					
Managers gender			X	X					
Managers educational level			X	X					
CEO involvement			X	X					
Opinion leadership *				X					
User acceptance characteristics (List of user acceptance)	Perceived usefulness		X	X			X		X
	Perceived ease of use		X	X			X		
	Perceived voluntariness		X	X					
	Anxiety			X					

<i>factors considered in the organizational level adoption literature)</i>	Attitude towards use	X	X				
	Behavioral intention		X				
	Subjective norms		X	X	X	X	
	Perceived enjoyment	X	X			X	X
	Perceived playfulness	X	X			X	
	User experience		X				
	User training		X				
	User involvement		X				
	Organizational support		X				
	Organizational usage		X				
	Educational level		X				
	User age		X				
	Self-efficacy		X				
	Facilitating conditions		X				X
	Perceived behavioral control		X	X		X	X
	Financial incentives		X				
	Technical assistance		X				
	User attributer *		X				
	Contagion *		X				
	Attitude			X		X	X
	Social identity				X		
	Trendiness				X		
	Enjoyment				X	X	
	Entertainment				X	X	
	Interactivity				X		
	Playfulness					X	
	Perceived critical mass					X	
	Self-presentation					X	
	Need for self-presentation					X	
	Self-image congruity					X	
	Seeking Friends					X	
	Need to belong					X	
	Socialization					X	
	Effort expectancy					X	X
	Perceived value					X	
	Performance expectancy					X	X
	Satisfaction					X	
	Gratifications					X	
	Gender					X	
	Shyness					X	
	Self discovery					X	
	Narcissism					X	
	Extraversion					X	
	Emotional exhaustion					X	
	Family loneliness					X	
	Need for cognition					X	
Resistance to change					X		
Regret					X		
Information					X		
Information seeking					X		
Privacy concerns					X		
Internalization					X		
Flow experience					X		
Switching cost					X		
User satisfaction						X	
Safety needs						X	
Social needs						X	
Esteem needs						X	
Self-actualization needs						X	

Table 9: Table summarizing technology adoption determinants and social networks adoption determinants identified in the literature

Chapter 2: METHODOLOGY

The aim of this dissertation is to answer the following research question: “**How can CSN technology be adopted to support strategic scanning process?**”.

To do so we divided our research question into three sub-questions:

- 1- SQ1: What is the fit between CSN technology and strategic scanning process?**
- 2- SQ2: What are the determinants of CSN technology adoption** (independently of its managerial context of use)?
- 3- SQ3: What are the determinants of CSN technology adoption to support strategic scanning process?**

To answer these questions, we conducted a qualitative study which enables us to identify:

- 1-** The existence of potential fit between CSN technology and strategic scanning process.
- 2-** Fifteen determinants that impact the pre-adoption and post-adoption of CSN technology independently of its managerial context of use.
- 3-** Four determinants that specifically impact the pre-adoption and/or post-adoption of CSN technology to support strategic scanning process.

1. Sample

Our goal is to investigate determinants of CSN technology adoption to support strategic scanning process. In the context of our study, we are interested in addressing determinants of CSN technology in the whole adoption process: pre-adoption, adoption and post adoption (refer to table 3). Thus, we plan to conduct interviews in organizations that have implemented a CSN technology or are in the process of implementing one. The targeted sample includes profiles who we expect to have practices on CSN technology such as community managers,

marketing managers, innovation managers, product managers, business intelligence managers, project managers and commercial directors.

Moreover, knowing that our investigated technology -CSN technology- and our business process - strategic scanning process - could be implemented in any organization and are not related to a specific business sector, we have no constraints related to the business activity of the organization.

The table below illustrates the targeted sample:

Position	Operational	Manager	Director
Community manager	X/3		
Documentation	1		
Local development officer	1		
Product developer	1		
Archivist	1		
Marketing manager		X/1	
Innovation manager		X/2	
Product manager		X/2	
Business intelligence manager		X/11	
Project manager		X/2	
Digital strategy manager		1	
Information architect manager		1	
Commercial director			X/3
Technical director			1
Digital transformation director			1
Communication director			1
Performance director			1
Number of Interviews	7	20	7
X: illustrates the originally targeted profiles Numbers in columns “operational”, “manager” and “director” refer to actual number of interviewees for each profile.			

Table 10: Interviewed profiles

2. Data collection

After constructing our sample, we contacted the targeted profiles. Unfortunately, we had to face classical difficulties that many researchers deal with when conducting interviews within organizations namely willingness and availability for academic research interviews. Thus, though we had precise profiles of people we expected to interview, we had to tolerate some methodological opportunism (Girin, 1989). This explains the disparity of our sample and

results in interviewing ten interviewees whose profiles are not originally targeted. Since our original aim is to investigate the determinants of CSN technology adoption to support strategic scanning process rather than to dissect differences in practices on CSN technology between distinct profiles of interviewees, this methodological difficulty does not impact our study.

In our sample consisting of twenty-nine French organizations, we conduct thirty-four semi-structured interviews with thirty-five interviewees (one interview is conducted with two managers) between October 2013 and January 2014. The interviews are mainly done as face to face meetings (20 interviews out of 34, or 59%) and to a lesser extent by phone/skype (14 interviews out of 34, or 41%) when interviewing people face-to-face was not possible for distance or disponibility constraints.

Interviewees can be split into three groups according to their attitude toward CSN technology:

- i. A first group of interviewees who work in organizations that have implemented a CSN technology and who report having practices on this CSN technology. Some of them specifically use CSN technology to support their strategic scanning process while others use it for other business processes. This group express the reasons behind their adoption and practices of CSN technology.
- ii. A second group of interviewees of interviewees who work in organizations that have implemented a CSN technology but who report having no practices on this CSN technology. This group specifically express the reasons why they have not adopted CSN technology.
- iii. A third group of interviewees who work in organizations that are in the process of implementing a CSN technology. This group does not yet have access to fully implemented CSN technology and interviewees express expectations and reserves toward the use of CSN technology in their organizations, to support strategic scanning process as well as to support other business processes.

The following table illustrates our sample and the conducted interviews:

Organizations	Business sector	Activity	Interviews	Job title	Length	Interviews Mode
O1		Online marketing consulting services	1	Business intelligence manager	0h35	Skype
O2		Strategic monitoring services	1	Commercial director	0h34	Face to face
O3		Strategic management consulting	1	Business intelligence manager	0h26	Face to face
O4	Professional, Scientific, and Technical Services	Strategic management consulting	1	Business intelligence manager	1h40	Face to face
O5		Information technology consulting	1	Commercial director	0h45	Skype
O6		Information technology consulting	1	Innovation manager	1h15	Face to face
O7		Applications software programming services	1	Product manager	0h43	Face to face
O8		Applications software programming services	1	Technical director	1h24	Face to face
O9		Applications software programming services	1	Commercial director	0h40	Phone
O10		Applications software programming services	1	Digital strategy manager	00h45	Phone
O11		Plastic Product	1	Business intelligence manager	1h28	Face to face
O12		Transportation Equipment	1	Business intelligence manager	0h47	Face to face
O13		Food	1	Digital transformation director	0h49	Phone
O14	Manufacturing	Military equipment	1	Business intelligence manager	0h34	Face to face
O15		Industrial equipment	1	Business intelligence manager	0h58	Face to face
O16		Electronics	1	Business intelligence manager	0h34	Phone
O17		Thermostats manufacturing	1	Marketing manager	0h32	Face to face
O18		University library	1	Documentation	0h42	Face to face
O19	Public Administration	Chamber of « métiers et artisanat »	1	Business intelligence manager	0h38	Face to face
O20		Chamber of « métiers et artisanat »	1	Business intelligence manager	0h20	Phone
O21		Chamber of Commerce and Industry	1	Communication director	0h42	Phone
O22		Town hall	1	Local development officer	1h11	Face to face
O23a	Information	Telecom operator	1	Product developer	1h39	Face to face
O23b		Telecom operator	1	Information architect manager	0h54	Face to face
O23c		Telecom operator	1	Community manager	1h03	Phone
O23d		Telecom operator	1	Project manager	0h47	Phone
O23e		Telecom operator	1	Product manager	0h19	Face to face
O23f		Telecom operator	1	Business intelligence manager	0h34	Phone
O24	Educational Services	Professional School	2	Archivist	1h08	Face to face
O25		Business school	1	Innovation manager	0h50	Face to face
O26	Utilities	Electric Power Generation, Transmission and Distribution	1	Project manager	0h52	Face to face
O27		Electric Power Generation, Transmission and Distribution	1	Community manager	0h35	Phone
O28	Transportation	Rail Transportation	1	Community manager	0h35	Phone
O29	Construction	Electrical services	1	Performance director	0h24	Phone call

Table 11: Sample description and conducted interviews

3. Interview guide

We construct a semi-structured interview guide as a supporting tool during the interview. We first conduct two interviews in order to “test” and validate the interview guide. The latter proved useful and applicable with a reasonable average duration of forty-five minutes. The interview guide is developed based on the literature review and addressed three main themes,

namely CSN technology, Strategic Scanning Process and CSN technology to support Strategic Scanning Process.

The interview guide is also constructed based on “scenarios”. To each of the interviewees, we ask questions adapted to his/her particular case. For example, to those who reported using a CSN technology, we ask questions about their practices as well as the reasons behind them. However, to those who reported not using a CSN technology, we ask questions about the reasons behind their decision.

Thus, though our semi-structured interview guide consists of forty-six open questions, every question is not systematically asked, according to the evolution of each interview and the attitude of the interviewees toward CSN technology adoption and practices.

As our objective is to identify the greatest possible number of determinants of CSN technology adoption, we ask interviewees about their practices as well as the practices of their colleagues in their business units.

Following, we present our interview guide that includes six sections. We explain the goal behind each section and detail the different scenario cases.

A - Introductory questions about the organization and the interviewee

We start our interview with an introductory section where we ask our interviewee to tell us about the organization business activity as well as his job.

These are the questions that we ask:

1. What is the main activity of the organization?
2. What is your job in the organization?
(The role of the interviewee within the organization)

B - Questions about collaboration between employees

We ask our interviewee about the collaboration between employees inside his organization. The goal of this section is to launch the conversation. Our goal is to break the ice by discussing collaboration which is not a very delicate issue in the organization. But more importantly we were hoping that the interviewee would mention the CSN technology as a collaborative tool that is used inside the organization. If he/she does so, he/she will be helping us introducing the next section smoothly.

These are the questions that we ask:

3. Is collaborating with your colleagues important:
 - a. *For your job? why?*
 - b. *Inside the organization? In your department? why?*
4. What topics do you collaborate about with your colleagues?
5. How would you evaluate the degree of collaboration with your colleagues? Why?
6. What collaborative means/tools/platforms do you use in the organization?
7. How do you identify who does what in the organization?
8. Are you encouraged to collaborate with your colleagues? Why? And if yes, how?
9. Regarding collaboration, what are the main developments that you witnessed in the past few years in your organization?

C - Questions about the corporate social network (CSN technology)

Before asking if the CSN technology is used as a supporting tool for strategic scanning process, we need to learn if the organization have already implemented a CSN technology and what is it used for. Therefore, in this third section we focus on the practices on the CSN technology.

We start by introducing the CSN technology concept so we ask the interviewee to formulate his perception of what a CSN technology is. We then state our definition of a CSN technology to set the frame for the rest of the interview. Once we agree on the definition, we ask if the organization has a CSN technology. Depending whether the answer is yes or no, a

set of questions is asked. Two scenarios are possible. If the organization has a CSN technology, we investigate to learn more whether it is used, for what purposes it is used or for what reasons it is not used. However, if the organization does not have a CSN technology, we ask about the reasons behind the absence of this tool and the interviewee's perception whether it would be useful to have one.

These are the questions that we ask:

10. How would you define a corporate social network (CSN technology)?

Corporate Social network (CSN technology) definition: "platforms that are bounded within a particular organization and allow employees to (1) construct semi-public profiles within the organizationally bounded system, (2) articulate lists of other employees with whom they are connected, and (3) view and traverse both their lists and those made by others within the organization" (Patroni et al., 2015, p.1).

11. Do you have this kind of tools in your organization? Can you tell us about it?

If the answer is Yes then ask the questions 12 to 20

If the answer is No then ask the questions 21 to 23

In case the organization have a corporate social network (CSN technology)

12. Do you use it? For how long?

13. For what purposes do you use it?

14. How frequently do you use it?

15. Does using this corporate social network (CSN technology) help you accomplish your job tasks? If yes, how? If not, why?

16. Is this corporate social network (CSN technology) used by your colleagues?

17. Does using this corporate social network (CSN technology) facilitate the collaboration with your colleagues?

18. Do you think that this corporate social network (CSN technology) helps facilitate the collaboration among employees in your organization? on what topics? Why?

19. Does the management support and encourage the corporate social network (CSN technology) use (top management level, middle managers)? Why?
20. Is your organization starting a policy that consists of substituting emails by corporate social network (CSN technology) use? (like Atos that decided to replace emails by social network)

In case the organization does not have a corporate social network (CSN technology)

21. According to you, what are the reasons why your organization does not have a corporate social network (CSN technology)?
22. According to you, would it be useful to deploy an internal corporate social network (CSN technology) inside your organization? Why?
23. Do you know if your organization has a project of corporate social network (CSN technology) deployment? If yes, in what time frame?

D - Questions about strategic scanning process

Before asking if CSN technology is used as a supporting tool for strategic scanning process, we need to introduce the strategic scanning process. Therefore, in this fourth section we ask the interviewee to formulate his/her perception of what a strategic scanning process means. We then state our definition of strategic scanning process to set the frame for the rest of the interview. We also ask him/her if he/she performs such an activity and if he/she believes his/her organization does.

These are the questions that we ask:

24. What does the term “strategic scanning” mean to you?

Strategic scanning definition: “the acquisition and utilization of information about events, trends and the dynamics of the external environment, the knowledge of which would help managers to orient the course of their future actions” (Aguilar, 1967).

25. Do you personally perform a strategic scanning process?

26. Does your department or your organization perform a strategic scanning process?

E - Questions about using CSN technology to support strategic scanning process

Now that we pave the way to our main theme by introducing CSN technology and strategic scanning process concepts, we can start investigating whether CSN technology is used to support strategic scanning process.

We start this section by setting the frame of what does “using CSN technology to support strategic scanning process” mean. Our goal is to avoid any ambiguity that might lead the interviewee to believe that we are asking him about an e-reputation monitoring activity. Therefore, we ask the interviewee to formulate his/her perception of what difference he/she makes between “using CSN technology to support strategic scanning process” and “using CSN technology to monitor e-reputation”. We then state our perception of “using CSN technology to monitor e-reputation” which is when the organization monitors its reputation on social networks; while “using CSN technology to support strategic scanning process” is when the organization uses the corporate social network (CSN technology) as a tool to support strategic scanning process. In order to make this point clearer, we illustrate the two concepts with examples. We then set the frame for the rest of the interview by specifying that we will be focusing on “using CSN technology to support strategic scanning process”.

Thus, we ask the interviewee whether his/her organization uses CSN technology to support strategic scanning process. In case the answer is yes we ask to which phase(s) of the strategic scanning process CSN technology is used. We also ask if he/she finds it interesting to use CSN technology as a supporting tool for strategic scanning process.

On the other hand, if the answer is no, we ask about the reasons why the organization does not use CSN technology as a supporting tool for strategic scanning process. We also ask if it seems useful to him/her to use CSN technology as a supporting tool for strategic scanning process.

These are the questions that we ask:

27. What difference do you make between “**using corporate social network (CSN technology) to monitor e-reputation**” and “**using corporate social network (CSN technology) to support strategic scanning process**”?

Examples:

Using corporate social network (CSN technology) to monitor e-reputation: the organization monitors what is happening and what is said on one or many social networks.

Using corporate social network (CSN technology) to support strategic scanning process: the organization uses one or many CSN technology in order to collect, diffuse/share, store, comment/discuss, interpret, utilize and animate. The organization uses corporate social network (CSN technology) as a supporting tool to perform strategic scanning process.

28. We will now focus on “using corporate social network (CSN technology) to support strategic scanning process”. Does your organization use corporate social network (CSN technology) to perform a strategic scanning?

If the answer is Yes then ask the questions 29 to 39

If the answer is No then ask the questions 40 to 45

About using CSN technology to support strategic scanning process

29. What are the goals of using corporate social network (CSN technology) to support strategic scanning process?

30. How do you use the corporate social network (CSN technology) to support strategic scanning process?

31. Do you use the corporate social network (CSN technology) to COLLECT information? Do you think your colleagues do the same?

32. Do you use the corporate social network (CSN technology) to DIFFUSE/SHARE information? Do you think your colleagues do the same?

33. Do you use the corporate social network (CSN technology) to STORE information?
Do you think your colleagues do the same?
34. Do you use the corporate social network (CSN technology) to COMMENT/DISUCSS information? Do you think your colleagues do the same?
35. Do you use the corporate social network (CSN technology) to ANIMATE the strategic scanning process? Do you think your colleagues do the same?
36. Is this information then INTERPRETED?
- Using which method/tool?*
 - Who does the information analysis? Are they the same individuals who collect the information?*
 - How do they present their analysis?*
 - What happens to these analysis? what are they useful for?*
37. Finally, is the information UTILIZED?
- Is this information helpful in taking decision? What kind of decision? Decisions made by whom? could you give us an example?*
38. Is using corporate social network (CSN technology) to perform a strategic scanning process institutionalized inside your organization?
- Is there an appointed person that is responsible for animating the strategic scanning process inside your organization? If yes, do you know who he/she is?*
 - What is his/her mission?*
 - If no, do you think it will be useful to appoint a person to be responsible for strategic scanning?*
39. Finally, do you believe that using corporate social network (CSN technology) to support strategic scanning process is useful? Could you illustrate it with an example?

In case the organization does not use CSN technology to support strategic scanning process

40. Why do you think your organization does not use the corporate social network (CSN technology) to support strategic scanning process?

41. According to you, what are the obstacles/difficulties?
42. According to you, in what way using a corporate social network (CSN technology) to support strategic scanning process might be useful?

F - Questions about the interviewee

We end our interview by asking few questions about the interviewee job.

These are the questions that we ask:

43. What is the exact entitlement of your job?
44. For how long have you been working in this job?
45. Since when do you work for this organization?
46. Have you ever been trained to perform strategic scanning process?

4. Data coding and Data Analysis

As previously mentioned 59% of the interviews are conducted face to face. The remaining are held by phone/skype. The average duration of each interview is around 49mn (refer to table 11).

4.1 Unit of analysis: the "idea"

First, the interviews are recorded and fully transcribed. We then proceed to the choice of the analysis unit which is “to determine the unit of analysis in the field notes or media being analyzed. For example, a phrase, sentence, or paragraph of field notes may be the unit being considered. Similarly, one second or one minute of video or audio may be the unit for media.

On the other hand, the unit could be a particular event or topic of conversation.” (Ratcliff, 2008, p.122). We choose the “idea” as our unit of analysis. Hence, we read each interview entirely and code the interviewee’s answers based on the different “ideas” that are mentioned. For example, *“In this platform, all the information have tags and can be searched for//(Collect), and we can also create alerts//(Diffuse), actually this platform is a complete information collection system (Collect).”*

This choice is due to the fact that the interview guide is semi-structured and the questions serve only to launch the conversation and encourage interviewees to tell us about their practices on CSN technology. Interviewees do not stick to the asked question during the entire interview: some “ideas” related to practices on CSN technology, for example, are mentioned while answering questions about collaboration. Thus, in order to extract every piece of interesting information as systematically as possible, we focus on the “ideas” expressed by the interviewees.

4.2 Coding scheme

After choosing our data analysis unit we proceed to the process of coding the data. This starts by defining codes. This qualitative analysis is generally based on a coding scheme

established to organize the collected data (Krippendorff, 2004). “Qualitative research books often speak of ‘coding’ field notes. This involves an abbreviation or word that describes a given unit.” (Ratcliff, 2008, p.122). “To find a good code for a unit of data, one should ask ‘What is this?’ or ‘What is happening?’ during a video or in field notes. In contrast, the researcher is more likely to ask ‘What’s the idea being communicated?’ to find codes in an interview” (Ratcliff, 2008, p.123).

We conduct a coding process founded on a coding scheme constructed based on the literature review and divide it into four main parts, that will be detailed in the following paragraph, namely: strategic scanning process, corporate social networks (CSN technology), technology adoption process and technology adoption determinants (refer to table 9).

I- Strategic scanning process

The first part of our coding scheme is based on the literature review of strategic scanning process. It includes codes that represent the phases of the strategic scanning process:

1. Collect: refers to the collection phase of the strategic scanning process.
2. Diffuse: refers to the diffusion/sharing phase of the strategic scanning process.
3. Store: refers to the storage phase of the strategic scanning process.
4. Discuss: refers to the discussion/comment phase of the strategic scanning process.
5. Analyze: refers to the analysis phase of the strategic scanning process.
6. Utilize: refers to the usage phase of the strategic scanning process.
7. Animate: refers to the animation phase of the strategic scanning process.

II- Corporate social networks (CSN technology)

The second part of our coding scheme is mainly based on the literature review of CSN technology. This part allows to categorize the use of CSN technology into two groups: (1) to support strategic scanning process and (2) to support other business processes. We designate a code for each group:

1. SSCSN (CSN technology for Strategic Scanning process): refers to the CSN technology when it is used to support strategic scanning process.
2. BPCSN (CSN technology for other Business Processes): refers to the CSN technology when it is used to support other business processes.

Based on the first part (strategic scanning process) and the second part (corporate social networks (CSN technology)) of our coding scheme, we create a “coding” consisting of a matrix combining SSCSN with Collect, Diffuse, Store, Discuss, Analyze, Utilize and Animate. This allows us to investigate the fit between CSN technology and each phase of the strategic scanning process.

III- Technology adoption process

The third part of our coding scheme is based on the literature review of technology adoption process. This part allows us to identify in which adoption phase each business unit is.

It includes three main themes:

1. PRE (pre-adoption): refers to the phase where the CSN technology is being examined and the idea of adopting it is being considered.
2. ADO (adoption): refers to the phase where the CSN technology is tested and the decision to implement it (or not) is made.
3. POS (post-adoption): refers to the phase where practices and habits are developed on CSN technology. Hence in this phase, there will be continuation of use (or rejection) of the CSN technology.

IV- Technology adoption determinants

The fourth part of our coding scheme is based on the literature review of technology adoption determinants and social networks adoption determinants that we previously summarized in table 9.

Based on the third part (technology adoption process) and the fourth part (technology adoption determinants) of our coding scheme, we create a “coding” consisting of a matrix combining PRE, ADO, POS and the determinants summarized in table 9. This allows us to identify fifteen determinants that influence the pre- and post- adoption of CSN technology independently of its managerial context of use.

Finally, based on the second part (corporate social networks (CSN technology)) of our coding scheme that include two codes (SSCSN and BPCSN), we split the previously identified fifteen determinants into two groups:

- 1- Determinants of CSN technology adoption to support a strategic scanning process.
- 2- Determinants of CSN technology adoption to support other business processes.

This allows us to identify four determinants that specifically influence the pre-adoption and/or the post-adoption of CSN technology to support strategic scanning process.

4.3 Double coding

We choose to perform a rigorous double-coding process to guarantee better reliable results. “Team members can both code their own and others' data gathered in the field to cast a wider analytic net and provide a "reality check" for each other. For these types of collaborative ventures, intercoder agreement or interpretive convergence, the percentage at which different coders agree and remain consistent with their assignment of particular codes to particular data, is an important part of the process” (Saldana, 2009, p.27).

Each interview is so coded by two researchers independently. Then the two researchers compare their codes and a coding rate of consistency is calculated to assess the coding validity. This rate is defined by Rust and Cooil (1994) as the proportion of coinciding encodings between two coders.

Our calculated rate shows a consistent average of 72,8 %, which is higher than the minimum rate of 70 % recommended for this type of study (Nunnally & Barnstein, 1994).

4.4 Emerging subcategories

After coding our data, we find that all the ideas we identify during our analysis could be classified according to our previously defined coding scheme. Hence, we do not need to define additional codes. However, a closer look to our data reveals that under each code, our interviewees express different ideas that could refer to the same code.

This observation suggests that “codes can and should be refined” (Ratcliff, 2008, p.123). As existing codes “are filled out with additional examples from ongoing data collection and analysis, definitions – as well as codes and categories – may be revised and thus be more precise and more clearly represent the data” (Ratcliff, 2008, p.124).

In our study, we decide to deepen our understanding of each of the codes addressed, by further analyzing collected data from our interviews. Consequently, we find that number of these codes could be subdivided into several subcategories. For example, under the Security code we identify six subcategories: hacking risks, access management, confidentiality, information leaks, loss of control over information and espionage. Such subcategories provide more details about the standard category. “They reveal categories within categories. As a result, they provide greater precision in the analysis.” (Ratcliff, 2008, p.124)

4.5 Study unit: the "business unit"

It is noteworthy that we choose the organization's “business unit” as the study unit. Thus, when analyzing data, we consider all the interviews that are conducted inside the same business unit as one interview. This is the case of the organization O23 in which we conduct six interviews within the same business unit. For our data analysis, we consider these interviews as one and labeled them O23a, O23b, O23c, O23d, O23e, O23f (refer to table 11).

Chapter 3: RESULTS

In this chapter, we detail the results of our content analysis. Our findings are organized into three sections, each dedicated to answer one of our three sub-questions:

1-SQ1: What is the fit between CSN technology and strategic scanning process?

In this first section, we investigate what fit exists between CSN technology and each of the strategic scanning process' phases. We point out the existence of a potential fit between CSN technology and strategic scanning process. In order to deepen our understanding, we investigate the reasons that might lay behind the adoption of CSN technology to support strategic scanning process. Therefore, we investigate the determinants of CSN technology adoption to support strategic scanning process. However, before investigating the determinants of CSN technology adoption to support strategic scanning process, we need to address the determinants of CSN technology adoption independently of its managerial context of use. This leads us to our second sub-question:

2- SQ2: What are the determinants of CSN technology adoption (independently of its managerial context of use)?

In this section, we identify the determinants that influence the pre-adoption and post-adoption of CSN technology independently of its managerial context of use. We compare the list of determinants identified in the empirical study with those reviewed in the literature (refer to table 9) and emphasize on newly identified determinants in our findings; and point out, for each determinant, the adoption process phase(s) it impacts. Hence, we deduce new mappings between determinants of CSN adoption and the adoption process phases (pre-adoption and post-adoption). Now that we identified determinants of CSN technology adoption (independently of its managerial context of use), we proceed to our third sub-question:

3- SQ3: What are the determinants of CSN technology adoption to support strategic scanning process?

In this last section, we specifically investigate the determinants of CSN technology adoption to support strategic scanning process. Thus, we split the determinants identified in the

previous section into two categories: determinants influencing CSN technology pre-adoption and post-adoption 1) to support strategic scanning process and 2) to support other business processes. We then compare these two categories of determinants and conclude those specifically influencing the pre-adoption and post-adoption of CSN technology to support a strategic scanning process.

Sample sorting

As we explained in the methodology chapter, our goal is to target organizations who have a CSN technology or is in the process of implementing such platforms. Thus, we specifically ask, when we contact potential interviewee to schedule an interview, if their organizations have a CSN technology or are in the process of implementing one.

We decide to interview only those whose answer to this question is affirmative. However, we were surprised to learn during some interviews that to some people, what they thought was CSN technology is in fact a classic information technology tool (such as intranet).

Therefore, a first observation indicates that, within our sample of twenty-nine French organizations, eight of them do not have a CSN technology nor do they intend to deploy one. These organizations are excluded from our analysis.

In our sample, only one organization is found in the phase of adopting a CSN technology and thus could not be included in our analysis.

Interestingly, we identify nine organizations in the pre-adoption phase and eleven in the post-adoption phase of a CSN technology.

Hence, our findings will be exclusively focused on the pre-adoption and the post-adoption of a CSN technology. We base our following analysis on these twenty organizations.

The table below illustrates our sample repartition among CSN technology adoption phases.

Organizations	No CSN	Pre-adoption	Adoption	Post-adoption
O1		X		
O2	X			
O3				X
O4				X
O5	X			
O6		X		
O7				X
O8	X			
O9				X
O10		X		
O11			X	
O12				X
O13		X		
O14	X			
O15		X		

O16	X			
O17	X			
O18				X
O19	X			
O20				X
O21				X
O22				X
O23				X
O24				X
O25		X		
O26		X		
O27		X		
O28		X		
O29	X			
	8	9	1	11

Table 12: Distribution of organizations with respect to the adoption process phases

1. Addressing the potential fit between CSN technology and Strategic Scanning process

As described in chapter one (theoretical framework), the strategic scanning process involves numerous phases. In this section, we aim at investigating the existence of potential fit between CSN technology and each of the strategic scanning process' phases. In other words, we report what CSN enables (or not) to do for each phase of the strategic scanning process. This will help us answer our first sub-question: What is the fit between CSN technology and strategic scanning process?

Collect

Some of our interviewees acknowledge that CSN technology enables **collecting information**: *“I, personally find it really suitable to collect information”, “Yammer is a good tool for collecting information and knowledge creation since it is very easy to use”*. To some of our interviewees, CSN technology replaces other strategic scanning supporting tools traditionally use: *“In our field of expertise which is strategic scanning, social networks are eventually used to perform strategic scanning activity /.../ and they replaced other tools that were used few years ago and that consisted on subscribing to RSS feeds”*. They integrated these tools in their strategic scanning process *“which became our supporting tool to daily perform strategic scanning activity”*.

While some highlight that CSN technology is a valuable **source of information**: *“as for the strategic scanning activity, we use it as a source of information”*; others assert that CSN technology enables to **centralize all collected information from many sources**: *“in addition, with Jamespot, we are capable to connect with other strategic scanning tools. We can connect it to Kb Crawl, Sindup, we can also connect it to Digimind and Ami software”*.

Our interviewees explain that CSN technology allows **to monitor specific topics**: *“/.../ it consists of using social networks to monitor some specific topics such as innovation”* as well as **to identify sources to follow**: *“we identify sources – on daily basis – who publish information that is relevant to our strategic scanning topics”*. These interviewees declare that CSN technology allows **to monitor competitors**: *“/.../ and we encourage people to publish*

reports of their participation in conferences so we can collect our competitors' presentations in these conferences", "the evolution of strategic scanning business is that... the emergence of social networks have increased the amount of information which kind of forced us to use these platforms. And thus we nowadays rely on these tools to monitor our competitors' activity". They add that CSN technology allows to **monitor consumers' behaviors**: "Yes of course, in order to understand the importance of our competitors' offers, we need to be informed about the consumer behavior".

On the other hand, some interviewees state that CSN technology is not adequate **to collect information for their strategic scanning activity**: "it is not useful to me because there is no.... I can't find interesting information... I do not use it for strategic scanning activity".

According to them, this is either because CSN technology does not provide **interesting information**: "it is usually noise, it is not useful to me", "I do not use Piazza, I have never found any interesting information", "what I find on Yammer is generally things that I already found elsewhere", "there is always an article that tells us things /.../ but concretely nothing we do not already know. We do not uncover anything new"; or because CSN technology does not highlight interesting information within **the huge amount of published information** which makes it very hard to make sense out of them: "we access a huge amount of information that we fail to process"; or also because **information's publishing** on CSN technology is **instantaneous** thus CSN technology does not **allow long lasting information**: "You see; it is really instantaneous. It is not interesting because what I do is a more specific strategic scanning. I am not interested in catching the scoop as long as it is not analyzed", "I will not use it for strategic scanning since it is instantaneous and there is no analysis of the information"; and the information might be lost: "If a salesman publishes 'the offer is won for that amount of euros' who will be able to catch this information on time?"

Interviewees also express that CSN technology does not **offer reliable information, thus the information published on these platforms cannot be trusted**: "In fact, we experience this with social networks. The difficulty is to figure out if the information we are reading is authentic, is plausible or not", "the hardest thing is to determine truthfulness"; and it takes a lot of time to collect: "I tried to use it, but at the end I dropped it because it took me a huge amount of time comparing to the result that I get out of it", "I think that there are people who use it, probably because they have nothing else to do but no... check this: if I type Livebox on Piazza for example, I get 160 documents...(sigh)", "I think that Digimind takes me one

hour per day to collect information. Now if I have to check 24h of posts of a big number of salesman, I would not be able to do anything else.”

Diffuse/Share

Some of our interviewees consider that CSN technology has very advantageous features that encourage them to diffuse information on these platforms.

First, CSN technology enables **to access information**: *“this is something that I share on Spice. And I am not the only one... others also share photos for example, photos of a competitor’s stall that might be interesting, they diffuse this information via Spice, because it allows them to quickly share what happened without even knowing who in the organization will be using this information. And that is a part of strategic scanning”, “It helps me share stuff that I would normally not share by mail”, “there are some obstacles to sharing by mail behavior. One would not send an email every two days about something that might not be interesting to the person. One would not want to bother people by sending them many emails containing photos taken at Castorama”, “For example, McKinsey published a study about social networks: how many social networks are in USA? What are the trends? There it is, I can find it published here with a white book attached. Our competitor YoolinkPro have developed a new system, one of our salesman found it and published it. So in sum, we have sensors: every employee in this organization knows that if he finds something interesting he should publish it! This allows us to perform an active strategic scanning activity of our domain”, “I will give a simple example. We have created a community concerning a new business activity that we called 'direct-to-consumer'. Our new strategy is to sell our products to the consumers. So far our commercial strategy was to sell to clients such as Carrefour, Auchan, Walmart... which are not the consumers of our products. We decided that we want to start selling directly to consumers... deliver to consumers, which categorically changes our ways of selling, of marketing and distributing our products. So we realized that we need to gain more experience about that issue, we need to make sure that this new way of marketing is really interesting to the market, we need to learn about the numbers, the statistics, we need to find out what are the best practices that our competitors or any other important organizations use that we could benchmark. So we created a community and we invited many of our business managers and marketing managers to join it, and we decided to*

make this community an open community since we will not be exchanging any confidential information. On the other hand, the more business managers will join this community, the more we will collect information and the more we will develop our competency. So we created this community where anyone can share any interesting information that he finds whether it is a link, a document, a PowerPoint, a video, any kind of information... will be available to all members.”

Second, CSN technology enables **to easily share any kind of information**: *“it makes diffusing the information easier”, “we can share files... If someone wants to share an information and attach a file to it... it could be a photo taken with his cellphone: he shares it on Yammer”, “we have a very handy tool: whenever you are surfing on the net, reading an article on Le Monde, on a blog, on your competitor website... if you find anything interesting, you just click on this bar and it will automatically generate an article that contains all the information of the web page that you are surfing. And this is very powerful, it makes the curation available to everyone”.*

Third, CSN technology enables **to instantaneously access information**: *“there is also information sharing... each employee, anywhere on the planet, can immediately access the information. This is very very important for our organization”, “/.../ and sharing a particular information on the corporate social network in order to make it available to employees asap”.*

In addition, some of the interviewees claim that some kind of information cannot be published on a wide range: *“we target who will receive the information”.* They report that CSN technology enables **targeted diffusion by creating communities and groups**: *“/.../ we have opened communities that anyone can join and then we have closed communities that you can join only if you are invited to... this helps maintaining some confidentiality about the exchanged content. And we have many opened communities that were created to gather information about trending”, “I have my tab ‘strategic scanning’ and I publish here. With what we do today... we killed the blog... when I find an interesting information on Digimind I share it... we have a group ‘France competitors and Market’ where we share information, we want to make it accessible by a maximum number of persons”, as well as by **choosing receiver’s profiles**: *“It is a particularly valuable information. We found it, now we share it with employees according to their profiles. Because we should not forget that the point is to**

have different types of profiles on the corporate social network... so we can share a specific information with specific profiles”.

On the other hand, some of the interviewees express being opposed to diffuse strategic scanning information on CSN technology. According to them, CSN technology is not adequate to share **strategic information**: *“this information is too strategic to be shared”, “at the end, we cannot make the result of our studies available to everyone”, “Of course we have the possibility to share information but we cannot share everything. We are dealing with strategic information”, “Hmmm... no, because the diffusion of information is controlled, at least on our level, the strategic level. We do not share everything because Spice is very opened /.../ we do not master the confidentiality issue”*; and so **publishing** this information on **CSN technology raises confidentiality issues**: *“The issue is always the confidentiality /.../ strategic scanning is a very confidential field where we are very careful /.../ The definition of a social network by default... with the internet, one has the impression to lose the information, and that, I think is the hardest issue with social networks”*. It also raises **information control issues**: *“there is always the risk that the information ends up somewhere where it is not supposed to be”, “once it is published, there is no telling where it will end up”, “It is because... when we publish, we never know where the information goes /.../ we do not control networking”*.

Store

Even though interviewees appreciate that CSN technology enables **searching and attaching functionalities**: *“in addition we can index the published content with tags so we can later on find the information using the search function”, “We can also attach documents to an information which is interesting: it is very useful to have a supporting document attached to the information”*; they assert that CSN technology is **not designed to serve as databases**: *“it is not a database, if that is your question”, “No... not on Yammer. It is not... to me it is a database and it cannot become one, even if we use it to share files.”*

Comment/Discuss

Some interviewees report that CSN technology enables **to interact with published information**: *“People will interact around the collected information”, “if the information is interesting to them, they will comment it”, “Again, everyone can participate, everyone can annotate, everyone can collaborate, etc.”*. They assert the importance of interacting around information in its analysis: *“well it is different with Yammer... It will create interactions: can you precise more? can you explain? what did that mean? Would it mean that...? I heard that... Can you confirm that? etc. These are interactions, which is cool like: I heard that... Really? We can immediately react, enrich and get to have something that is pre-analyzed. While the classic way is to have designated employees writing reports or filling structured predefined forms with limited number of words, some check points etc. With this method, we will never be able to reach the same degree of discussion”, “this allows us to comment the information. So if it is a document, you can update it and comment it”, “exchanges between employees, especially in communities of practices or in groups: this is very useful. We can have instant access; we can exchange information with others directly through the instant discussion module. This is quicker than exchanging emails”*. CSN technology enables to **create collective intelligence**: *“so it is a collaborative dimension that allows us to share information and then be able to create collective intelligence out of it. It is a little bit hard to define this concept but this is globally the emulation of collecting information”*.

More precisely, some interviewees insist on the fact that CSN technology enables **to rate the content**: *“the most used features are commenting and rating. The rating is very important, since we do not have a knowledge management system, a knowledge base, a documents base... So rating is very important, when you join a community... if you are new to the community, if you are assigned to a certain project like 'direct-to-consumer' and you decide to join the community. You will already find around 500 published documents; you will not read them all! You will just read the best rated ones... the system will show all the five stars' documents... that will help you filter the best rated by the community members”, “we have buttons, social actions that in addition to 'Like' we have 'useful to my business activity' or 'useful to my strategic scanning activity' or 'useful to...' etc. So people put '+1' as if they clicked 'Like' and this helps other users... it is a very nice feature”, “this also allows them to evaluate the information, there is a rating system, you know with stars like on Tripadvisor*

where you can give your feedback for a restaurant that you tried: whether you liked it or not.”

But, on the other hand, some interviewees assert that CSN technology does not encourage **to comment on shared information**: *“It does not seem that the commenting feature is used... I don’t see a lot of comments”, “Of course, people can enrich the discussion with comments, but it rarely happens. People are more information consumers”, “It seems that every time I share something on the corporate social network, or even when I ask questions people read but do not react.”, “I try to make people react because this is what is interesting to us. But it is not working so far”. This could be explained by the fact that they don’t find it useful: “People can comment if they want to, but they usually don’t”, “maybe they do not see the added value of commenting the information”, “they do not interact on the corporate social network. They are willing to discuss issues on the phone but not on the corporate social network. People read but do not react.”*

Some interviewees also explain that CSN technology is not adequate **to discuss strategic information**: *“there is no problem as long as it is about trends but when it comes to strategic level, an internal development plan, it becomes very complicated”, “when it comes to an offer evolution... if we have a PowerPoint that is shared about trends, people comment 'how can we apply this offer?' and someone answers 'well we should take this offer and change this and that', I think that at this level, people will send emails or discuss the issue over the phone ...”*

While others focus on the fact that CSN technology does not **protect ideas**: *“I think that there is always the idea of keeping the idea protected /.../ If someone published 'about your analysis, I think we can work something out of it: do you think that we can develop that offer?' ... If this is on Spice, so it is opened to everyone. No one will ever do that, I guess. On the contrary they will call the person and say 'listen I have an idea, what do you think?' and they will discuss it. But they will not share the idea that might be re-used internally.”*

Some interviewees also mention the influence of French culture: *“I think that many French organizations will not like that; maybe because we are in France, and after all, we should admit that we avoid sharing information.”*

Interviewees also express some concerns about commenting information on CSN technology. According to some of them CSN technology lacks **governance structure**: the main difficulty is **how to let employees interact on these platforms**: *“we should be very careful, because*

some organizations risked their lives by reacting on social networks. A well-known example is the Toyota scandal, when many clients criticized one of the organization's cars and an employee replied by saying that 'the car is fine' ... the problem was that he commented using his personal profile and did not present himself as an employee of Toyota. And of course social networks are not dump, people started wondering why is he defending that hard the organization and they figured out that he works at Toyota. That made a big mess and turned into a scandal resulting in the Toyota shares' value in stock market dramatically falling /.../ This became a case study that was analyzed and lead to 'we definitely should be present on social networks but in an organized way'. We are now training our managers /.../ of course an employee has the right to interact on social networks but he should be aware that being an employee of this organization, the fact that he reacts about an issue, he engages the organization in the discussion. People are not usually aware of that, so we are brainstorming to figure out a way of how we should do it. We should be present and interact but the question is how? /.../ so today we advise our employees not to react on any social network that discusses the organization, we have experts, we have teams whose job is to do that."

Besides, some interviewees question their legitimacy to express themselves on CSN technology: *"Actually I react but only with my personal accounts... I don't feel that I have the legitimacy to react in the name of the organization... and I don't think I can express my organization point of view through my personal account, I don't think we have the right to do that anyway", "I don't interact on external corporate social networks, because you only need to ask or say one thing like 'I am interested in connected glasses' and there you go, this will travel around the world and at the end you it will become 'his organization is working on a new connected glasses project' simply because you tried to ask someone about the subject."*

Some interviewees add that CSN technology doesn't **highlight important comments**. This makes it **very hard to catch interesting comments since they are drowned into the massive amount of comments**: *"but usually the interesting comment is lost among 'Wow! Great! You are the best man!' (sigh)."*

Analyze

Interviewees explain that CSN **are not used to analyze information**: *“honestly I am not sure that we can analyze the information on the corporate social network”, “I am not sure that there is someone responsible of that internally”*. According to them, CSN technology is not adequate to analyze information since these platforms **do not offer analyzing functionalities**: *“It does not seem like there are many analyzing functionalities on social networks.”*

Utilize

Interviewees assert that **they use the information collected on CSN technology**: *“yes I use the information, it could enrich a future ticket for example”*. They report that CSN technology helps to **take decisions** based on the collected information: *“depends on the subject, we take actions (or not), or we include the information for future actions”, “Inside our organization, we feel that our decisions are well thought over because we had a lot of information about the issue”, “Most of the time, people from different entities will rely of these communities to take some decisions.”*

They mention that CSN technology can enable the **evolution of some products** based on the collected information: *“or simply take information into consideration, like crowdsourcing, to enrich our product”, “Yesterday, I came across a post about an organization that made a material that fits the foot on 3D printers. I analyzed it and deduced some interesting ideas that I can adapt and use”, “and suggest ideas... and shake the classic interior environment of the organization that tends to make offers, responds to projects and forgets to look at its environment. So the point is to identify some ideas, adapt and reuse them inside our organization and see the reaction it makes.”*

They also explain that CSN technology can enable to **foresee the future of products and get inspired to develop new products** based on the collected information: *“This gives me an idea about the existing interfaces, the trending interfaces and the new trends of designs which inspires me... gives me an idea about what will be considered esthetic in the future”, “about corporate social network, we can see signals and trends, we see things getting into shape, but in a certain way, relying on things that already exist”, “I can say that: in the lab, 80% of the*

ideas that I have in boxes and prototypes are from corporate social network”, “I will give you an example, one day, our marketing manager in Romania who noticed an important decrease in the number of his young customers (under 35 years old), started investigated the reason. He found out a new trend among young consumers and figured out a solution by adapting the product. He then published, in the community, a study including the new trend that he discovered along with the solution he found. And now, we sell in France the same adapted product... later on our marketing manager in Argentina found out, thanks to the study published by our marketing manager in Romania, that he was also losing a part of his young customers. So he checked if the solution published by the marketing manager of Romania could be suitable to his problem. And it worked! /.../ so by giving people access to some information at some times, they get aware of the existence of new trends and that helped them in taking some decisions.”

Some interviewees mention that CSN technology can enable to **develop new marketing and sales strategies** based on the collected information: *“we have something that is changing which is our marketing strategy, more precisely the e-commerce. Today ventre-privee.com launched a new website 'Miam Miam', which is a food website. This is very different from the... originally vente-privee.com is an outlet that sold stocks of clothes that were not sold by brands... and today they decide to start selling food. In USA, Amazon has launched AmazonFresh and they sell... you can find yogurt, meat etc. So there is an interesting revolution in food marketing strategies. And most of our business managers, who manage our departments in different countries, have no idea of this new marketing strategy and are not aware of the existence of these trends. And if we look at the sales projections, we realize that it is drastic... this shift from the traditional sales strategies to the electronic sales strategies. So we created a community that we called 'e-commerce', and we invited almost all the business managers... in this community people exchange information about e-commerce they collaborate, they collect information and publish it.”*

Animate

Some of our interviewees claim that CSN technology can enable **discussions when there are designated employees that animate the communities**: *“we have designated employees... we have four animators whose responsibility is to animate the communities. It is an*

investment, four animators”, “he is responsible of animating the communities /.../ he spends his time monitoring what happens in the world, suggesting and giving information to communities”, “/.../ and he is on every single tool. He always publishes, he is active on many communities, he helps establishing connections etc.”, “he should make sure that discussions are created. So at first he should animate the debate, by publishing content, identifying and gathering people and then let them debate /.../ you launch the conversation, you animate it in case it dies but normally you should not be the one who talks all the time”, “the animation is structured around the collaborative network of the organization, by designated animators who send us feedbacks about our activity”. They assert the important role that animators play “/.../ it relies on few people. If we remove them, it dies right away”, “in fact the answer should be the animation happens naturally but it is not true! /.../ when we launched the corporate social network, and we still do it today... we support people who create communities on how to animate these communities /.../ we should help people, especially the volunteers who wants to share information and who see a professional profit from sharing information, we should give them the success keys of how to animate communities”, “it depends on the enterprise culture I think. In some organizations, sharing, exchanging information or reacting to information is not an issue /.../ I think that it is a good thing to have an animator because it will help people to be engaged, to feel safe, to see that there is someone who takes the lead, who encourages them to exchange, discuss etc.”

Strategic scanning process	CSN technology may enable (fit)	CSN technology may not enable (misfit)
Collect	<ul style="list-style-type: none"> - to collect information - to have a valuable source of information - to centralize collected information from many sources - to monitor specific topics - to identify sources to follow - to monitor competitors - to monitor consumers' behaviors 	<ul style="list-style-type: none"> - to collect information for strategic scanning activity - to find interesting information - to highlight interesting information within the huge amount of published information - to retain long lasting information: information's publishing on CSN is instantaneous - to offer reliable information
Diffuse/Share	<ul style="list-style-type: none"> - to (instantaneously) access information - to easily share any kind of information - to target information diffusion by creating communities and groups as well as by choosing receiver's profiles 	<ul style="list-style-type: none"> - to share strategic information: CSN raises confidentiality and information control issues
Store	<ul style="list-style-type: none"> - to provide search and attach functionalities 	<ul style="list-style-type: none"> - to be used as databases: CSN are not designed to serve as databases
Comment/Discuss	<ul style="list-style-type: none"> - to interact with published information - to create collective intelligence - to rate (evaluate) contents 	<ul style="list-style-type: none"> - to encourage comments on shared information: CSN does not encourage to comment on shared information - to discuss strategic information - to protect ideas - to have governance structure: how to let employees interact on these platforms - to highlight important comments: it is very hard to catch interesting comments since they are drowned into the massive amount of comments
Analyze		<ul style="list-style-type: none"> - to analyze information - to offer analyzing functionalities
Utilize	<ul style="list-style-type: none"> - to take decisions - to evolve products - to foresee the future of products - to get inspired to develop new products - to develop new marketing and sales strategies 	
Animate	<ul style="list-style-type: none"> - to animate discussions 	

Table 13: Fit between CSN technology and strategic scanning process

Summarizing our data in the table above shows that for each phase of the strategic scanning process, interviewees report fits but also misfits between CSN technology and strategic scanning process. Based on this observation and in order to deepen our understanding, we then attempt to investigate the reasons that might lay behind the adoption of CSN technology to support strategic scanning process. In other words, we will address the determinants of CSN technology adoption to support strategic scanning process.

However, in order to understand the reasons behind practices on CSN technology for a specific business process, that is strategic scanning process, we need to understand the reasons behind practices on CSN technology independently of its managerial context of use. In other words, before being able to investigate the determinants of CSN technology adoption to support strategic scanning process, we need to address the determinants of CSN technology adoption independently of its managerial context of use.

2. Determinants of CSN technology adoption independently of its managerial context of use

Analyzing the data collected exclusively from the selected twenty organizations (nine in the pre-adoption phase and eleven in the post-adoption phase) results in the identification of a list of fifteen determinants that can influence the pre-adoption and the post-adoption of CSN technology independently of its managerial context of use. The table 14 illustrates our findings with respect to the literature.

Comparing our findings to the determinants reported in the literature

We now perform a comparison between our results and previously reported literature (refer to table 9) for determinants influencing the pre-adoption and the post-adoption of CSN technology.

For each identified determinant, we report our findings with respect to the pre-adoption and the post-adoption phases in the table below.

			Determinants identified in the literature		Determinants of CSN technology adoption independently of its managerial context of use identified in our interviews	
Categories	Code	Determinants	Pre-adoption	Post-adoption	Pre-adoption	Post-adoption
Innovation characteristics	I01	Relative advantage	X	X	5	5
	I04	Compatibility	X	X	1	2
	I07	Security	X	X	8	7
	I13	Business process re-engineering		X	1	3
Organizational characteristics	O04	Organization readiness	X		3	
	O19	Image		X	2	-
	O23	Managerial obstruction	X	X		3
	O27	Information sharing culture			4	
Environmental characteristics	E05	Partners support	X		-	1
User acceptance characteristics	A01	Perceived usefulness		X	9	11
	A02	Perceived ease of use		X		4
	A05	Attitude towards use		X	7	9
	A10	Perceived playfulness		X	3	3
	A12	User training		X		1
	A17	User age		X	4	4
Total					9	11
<p>* Numbers in the column entitled “Determinants of CSN technology adoption independently of its managerial context of use identified in our interviews” illustrate the number of business units in which the interviewee(s) report each determinant.</p> <p>* Cells highlighted in blue illustrate differences with the literature.</p> <p>* Numbers in cells highlighted in grey refer to the total number of business units interviewed in each phase.</p>						

Table 14: Comparison between determinants identified in our findings and the literature

By closely monitoring the fifteen determinants of CSN technology adoption we identify:

- Seven determinants that are already identified in the literature and that are classified in the same adoption phases: Relative advantage, Compatibility, Security, Organization readiness, Managerial obstruction, Perceived ease of use, and User training).
- Eight determinants that are already identified in the literature but classified in different adoption phases: Business process re-engineering, Image, Information

sharing culture, Perceived usefulness, Attitude towards use, Perceived playfulness, User age and Partners support.

a- Five determinants identified in the literature as specific to the post-adoption, appear to influence both the pre- and the post- adoption in our empirical study: Business process re-engineering, Perceived usefulness, Attitude towards use, Perceived playfulness and User age.

One determinant, namely Image, identified in the literature as specific to the post-adoption appear in our empirical study as specific to the pre-adoption.

One determinant, namely Information sharing culture, identified in the literature as specific to the adoption appear in our empirical study as specific to the pre-adoption phase.

b- One determinant identified in the literature as specific to the pre-adoption appears to specifically influence the post-adoption in our empirical study: Partners support.

[A better understanding of security determinant](#)

Interestingly, our results also provide further understanding of the 'Security' determinant previously identified in the literature.

Security

In the literature, 'Security' determinant refers to "*the subjective probability with which users believe their sensitive information (business or private) will not be viewed, stored, and manipulated during work sessions by unauthorized parties in a manner consistent with their confident expectations*" (Luo et al., 2010, p.165). It is classified (refer to table 9) as a determinant that influences the pre-adoption and the post-adoption phases (Hameed et al., 2012).

Our findings reveal that Security can be subdivided into two dimensions: Technology Security and Information Security.

Technology Security is related to the protection mechanisms against perceived technical threats. It can influence both the pre-adoption and the post-adoption phases of a CSN technology:

- It is a determinant that can influence the pre-adoption phase of a CSN technology when the technology is perceived as not safe and easy to **hack**: *"in the context of 'digital networks security'. Who can guarantee today that a digital network, even the one that belongs to an important organization - that invests in protecting its networks - will never be hacked? This is then an obstacle."*
- It is a determinant that can influence the post-adoption phase of a CSN technology when **access management** is an issue: *"our organization has different affiliates... sometimes we lack a good understanding of rights and access management /.../ for example we cannot allow engineers to have access to medical files."*

Information Security is related to the protection of organizational information from the perceived threats while using the technology: confidentiality, information leaks, loss of control over information and espionage. In fact, some interviewees report information security concerns as they point: *"Here, we are dealing with an information that becomes even more valuable: this is why these networks should be secured..."*. They state not trusting the tools they use, *"for information sharing, I do not really have tools that seem to be highly secured or suitable, and I believe that we all use tools that do not secure or protect the whole information flow."*

Information Security can influence both the pre-adoption and the post-adoption phases:

- It is a determinant that can influence the pre-adoption phase of a CSN technology when it raises **confidentiality** issues: *"the complete lack of confidentiality of the corporate social networks' providers, that are Microsoft and other, actually makes this a question and then... we have therefore put in place a tool whose level of security we believe is consistent with the type of documents that we do not wish to put within the reach of a wider audience", "we often use... I believe this may not be the best way to work as we leave behind and store numerous information in this tool. Therefore, this tool that facilitates today's information exchange and sharing - which I believe is extensively used by me as well as by others -, well... this allows us to work remotely, but it may not be indeed the smartest way to work, as for confidentiality issues, well,*

here is what I believe... this is a platform in which we leave a part of our data and information /.../ we talk about tools and confidentiality, but I do not believe that they are really suitable". In addition, some interviewees assert being opposed to sharing what they consider as sensitive information on CSN technology: "it clearly must not be related to a subject that is a bit critical /.../ we cannot put our research at the disposal of everyone", "In R&D, it won't be shared on corporate social network, as this subject is more critical than turnover or prices". Others mention another obstacle which is confidentiality clauses: "on the group level, there are clauses of confidentiality /.../ In fact, certain information cannot be disclosed as they represent confidential and regulated information."

- It is a determinant that can influence the post-adoption phase of a CSN technology when **information leaks** is pointed out as part of the security concerns: "(the organization) is very cautious when it comes to its data opening. It protects itself. If you examine online problematic, you notice that it is not simple. If you are hosted by an organization in US territories, you are subject to the US law and you almost lose your data. You lose control over your data", "I believe that one of the reasons, in my opinion, behind the abstention from putting in place a corporate social network is the fear of information leaks". To some interviewees sharing information using CSN technology can be dangerous, especially if critical information goes to a competitor: "this is dangerous because... you cannot then, obtain a patent if it is disclosed. Moreover, if a competitor receives the slightest leak, it is a competitor that will overpower you."

It also influences the post-adoption phase when **loss of control over information** is an issue : "Therefore, it is true that it limits the use of this tool, perhaps because we do not really know how to protect the information /.../ or because the information slips out of our hands", " we never know where information goes /.../ we have no control over networking", "we do not know, even us, in the private sector, where information goes and when we can retrieve it", "fear /.../ of loss of control, the possible loss of control over information."

Finally it also influences the post-adoption phase when concerns for potential **espionage** are raised: "we fear espionage... what can happen is, in fact, if we share a lot, you have all these interns, alternates, all those individuals in limited duration

contracts, who may leave the enterprise and start work for our competitors. So far, we have not been too rigorous but two years ago, because we found sensitive information in Iran /.../ we realize that espionage is everywhere without exceptions. One should have no illusions. This is now part of the business, so how to limit this". Therefore, the top management can sometimes be extremely careful about information sharing on corporate social networks: "we did not want to because... Actually, the top management did not want, as they feared that certain people could manage to get out of the enterprise with the printed document."

Our results show that, in accordance with the literature, Security is indeed a determinant that can influence both the pre-adoption and the post-adoption phases. Importantly they permit to propose a subdivision of the Security determinant into two dimensions:

- Technology Security that is related to the protection mechanisms against perceived technical threats.
- Information Security that is related to the protection of organizational information from the perceived threats while using the technology.

Security	Dimensions	
	Technology security	Information security
- Hacking risk	X	
- Access management	X	
- Confidentiality		X
- Information leaks		X
- Loss of control over information		X
- Espionage		X

Table 15: Dimensions of security determinant

2.1 New mapping between determinants of CSN technology adoption and the adoption process phases: the pre-adoption phase

In the following, we start by addressing the seven determinants that our study suggests are influencing the pre-adoption of CSN technology in contrast with previously reported literature.

Categories	Code	Determinants	Determinants identified in the literature		Determinants of CSN technology adoption independently of its managerial context of use identified in our interviews	
			Pre-adoption	Post-adoption	Pre-adoption	Post-adoption
Innovation characteristics	I13	Business process re-engineering		X	1	3
Organizational characteristics	O19	Image		X	2	-
	O27	Information sharing culture			4	
User acceptance characteristics	A01	Perceived usefulness		X	9	11
	A05	Attitude towards use		X	7	9
	A10	Perceived playfulness		X	3	3
	A17	User age		X	4	4

* Numbers in the column entitled “Determinants of CSN technology adoption independently of its managerial context of use identified in our interviews” illustrate the number of business units in which the interviewee(s) report each determinant.
* Cells highlighted in blue illustrate differences with the literature.

Table 16: Comparison between determinants identified in our findings and the literature

Business process re-engineering

Business process re-engineering is described as “*the fundamental rethinking and radical design of business processes to achieve dramatic improvement in critical, contemporary measures of performance such as cost, quality, service and speed*” (Hammer & Champy, 1993, p.35). According to the literature, Business process re-engineering influences the post-adoption phase (refer to table 9).

In line with the literature, some of the interviewees (three out of eleven, refer to table 16) report that Business process re-engineering is a determinant that influences the post-adoption phase of a CSN technology. They explain the need for **structuring**: “*even though using a CSN is simply based on collaboration, this does not exclude the need for structuring*”. They also report the need for a structured way to support CSN technology functioning: “*it is interesting to have someone who masters and easily manages corporate social network, someone who thus can communicate about it, and maybe start a debate and somehow*

animate it. After all, it would be similar, I believe this is something that we should work on: how the departments support and supply this person with information?"

However, our results also identify Business process re-engineering as a determinant that can influence the pre-adoption phase. One manager (refer to table 16) suggests that **restructuring** could be required for the pre-adoption of a CSN technology: *"CSN might be an outcome of restructuring work that should be conducted upstream. And this could later lead to putting in place a CSN. But I believe that a restructuring should be done first."*

Image

Image is defined as *"the degree to which use of an innovation is perceived to enhance one's image or status in one's social system"* (Luo & al., 2010, p. 163). According to the literature, Image influences the post-adoption phase (refer to table 9).

While our results do not identify Image as a determinant that influences the post-adoption phase they indicate that it can influence the pre-adoption phase (refer to table 16).

Few of the interviewees (two out of nine, refer to table 16) report that image is a potential determinant that influences the pre-adoption phase of a CSN technology.

According to them **organizations seek to constantly control their external image**. This is why they highlight the importance of laying down communication policies: *"if we go for social networks, what is the image we want to reflect on social networks /.../ a communication policy is a must", "what an enterprise seeks is mastering first its... and especially on the web, it is all about mastering its image-the way the outside world sees it".* This is how they explain the importance of **managing visibility of the information**: *"not all the discussions should be visible especially to clients... There should be some kind of privacy, because sometimes there are bugs that we should fix or.... Showing that to the clients does not reflect a good image. So there should be a minimum of... so let's be honest, we cannot be 100% transparent."*

Information sharing culture

Information sharing is defined as “voluntary act of making information available to others... sharer could pass information on, but does not have to” (Davenport, 1995, p. 5). Information sharing culture is considered in the literature as influencing the adoption phase (refer to table 9).

Some of the interviewees (four out of nine, refer to table 16) report that Information sharing culture is a potential determinant that influences the pre-adoption phase of a CSN technology. They suggest that **information protection culture** might explain the absence of a CSN technology: *"I believe that the absence of a real social network of information is also somehow due to the culture of the enterprise /.../ as we have a culture of... let's call it of information protection /.../ there is somehow a culture of information protection and partitioning /.../ that is still present, even though we have put in place monitoring systems and the top management itself has evolved, however there is still a strong partitioning of information /.../ for example we have a server to store the information of different services, the server is organized in different folders allocated to different services. This means that there is a folder dedicated to the sales department, another to the marketing department, another to R&D department and not everyone has to rights to access the different folders. This illustrates the partitioning of information", "whether it is a network, a tool or not, there are some people who are naturally inclined to share information with others while others are naturally inclined to retain them out of the principle stating that knowledge is power. Therefore, I believe that this fact is certainly another obstacle as well", "it is for reasons of power seeking that they do not want to provide their information."*

Perceived usefulness:

Perceived usefulness is defined in the literature on adoption as the degree to which a person perceives that a technology will help him execute a task (Burner & Kumar, 2005; Davis, 1989). It is introduced by the technology acceptance model (TAM) and is classified in the literature as a determinant that impacts the post-adoption phase (refer to table 9).

In line with the literature, all interviewees (refer to table 16) report that Perceived usefulness is a determinant that influences the post-adoption phase of a CSN technology.

They assert that some people **do not see the benefit of a CSN technology**: *“People do not include it in their practice, they do not see its benefit...”*, *“I think that people did not see its usefulness. Maybe today they are starting to, which explains the CSN projects that are being launched”*, *“I am personally not sure, I still cannot tell if it is really useful.”*

However, although in the literature Perceived usefulness is reported exclusively as a determinant of the post-adoption phase, our results also reveal its importance as a potential determinant in the pre-adoption phase. In fact, all the interviewees (refer to table 16) report that perceived usefulness influences the pre-adoption phase of a CSN technology.

They point it out: *“this is especially true, in my opinion, given that when you are in a successful enterprise, the problem generally lies in the fact that people tend to focus on their navels and to ignore what is happening around them /.../ once you make them realize that it is also interesting to open up and to start providing others with information, well they realize that even if they are successful, there are certain things that are highly important happening and that can affect their business activities.”*

According to the interviewees, perceived usefulness might impact on the decision to consider adopting a CSN technology in some cases. For example, some of the managers explain believing that a CSN technology might be **useful to build and maintain a mechanism of collective intelligence**: *“it is simply because the subject seems interesting to me and I believe that there is a pertinent field to develop and that allows going beyond and sharing... I mean, using this... allows to benefit from a certain form of collective intelligence and economies of scale /.../ that allows everyone to contribute, and to gain more than his contribution in a symmetrical way.”*

Others mention that CSN technology deployment can be considered as an **improvement of productivity in terms of reducing time loss**: *“the interest is that I targeted all this ‘processing time’ in the organization, and I know that we waste much time in looking up information, and I hope that, via all these tools and the knowledge base, we will gain much in terms of productivity.”*

In addition, some managers find that a CSN technology might be interesting in **reducing information exchanging via hard copies format and thus contributing to protect the environment**: *“it is because nowadays there is no more paper forms /.../ this will help save*

forests, therefore /.../ it is the 'environment' level: avoid using papers for nothing /.../ there is an ecologic aspect."

Attitude towards use

Attitude towards use is defined as “*the user’s desirability of his or her using the system*” (Malhotra & Galletta, 1999, p.1). It is identified in the literature as a determinant that influences the post-adoption phase (refer to table 9).

In line with the literature, most of the interviewees (nine out of eleven, refer to table 16) report that Attitude towards use is a determinant that influences the post-adoption phase of a CSN technology.

They raise the issue of **lack of curiosity**: *"They do not use social networks... because they do not want to read! The good attitude is to be curious and take time to read. The problem is people’s lack of curiosity"*. They also explain that people are **skeptical**: *"numerous people are skeptical about using the digital identities, I rarely expose my professional digital identity."*

However, although in the literature Attitude towards use is reported exclusively as a determinant of the post-adoption phase, our results also reveal its importance as a potential determinant in the pre-adoption phase. In fact, most of the interviewees (seven out of nine, refer to table 16) report that Attitude towards use influences the pre-adoption phase of a CSN technology.

Some of them point out that one of the reasons behind not considering having a CSN technology is that it is **not a priority in their organization**: *"people have other priorities"*. Others explain fearing that CSN technology use will somehow make them **feel observed**: *"it is simply not possible, we cannot do this as we will identify people. It somehow holds records of information /.../ Some people will take the forefront, others will not appreciate this /.../ in fact, people do not appreciate this type of aspects. It is better to remain anonymous as highlighting the position of a person, his identity /.../ this bothers people in general"*. This is why *"some people use alias"*.

In addition, some interviewees indicate that using a CSN technology might open the way for their **colleagues to judge the quality of their work**: *"in the enterprise, saying or showing*

that one does not master his subject... is a major fear. And people do not dare /.../ the second obstacle is once again 'what will people think?' People do not dare /.../ they do not want to publicly be identified as the ones asking questions and not mastering their job".

Some interviewees explain being concerned about the **legitimacy of expressing their ideas** which may make them reluctant: *"sometimes, using social networks, displaying one's name, expressing one's self /.../ even if eventually it will not work, because people will fear expressing ideas using their names, or even on the level of their unit, because if it was not validated by the assistant general direction, how one allows himself to express an opinion on a certain project?"*

Some interviewees explain having observed a certain **passivity and** noticing a **lack of willingness**: *"one should accept... one should come to accept it. We should have the willingness /.../ I believe we will do it /.../, but some people will strongly find it hard to do, because we want to be at the heart of the matters. But it is true that we feel the lack of willingness...".* Others mentioned a **difficulty in motivating people**: *"the biggest challenge we will face is motivating people to use such type of networks. And this will be a major problem",* due to the lack of the motor behavior *"what matters to them is perhaps being informed and not necessarily being motors /.../ people receive information, they read it or not, but in general they do not want to be motors to the extent that they will comment, share /.../ I have the impression that people /.../ do not want to be motors."*

Some interviewees raise the point of **visibility improvement**: *"I believe this can help their careers. This will give them visibility. The more I publish posts, the more I gain points and I am visible. Thriving in a group is a good thing."*

Perceived playfulness

According to Moon and Kim (2001) Perceived playfulness is defined as *"the extent to which the individual (a) perceives that his or her attention is focused on the interaction with the information technology; (b) is curious during the interaction; and (c) finds the interaction intrinsically enjoyable or interesting"* (Moon & Kim, 2001, p. 219). Perceived playfulness is classified in the literature as a determinant that influences the post-adoption phase (refer to table 9).

In line with the literature, few of the interviewees (three out of eleven, refer to table 16) report that perceived playfulness is a determinant that influences the post-adoption phase of a CSN technology.

They explain that having a **playful** tool could interest people: *"Playful. It is hard to do with the existing tool we have. But we decided to take time to make it enjoyable. We ended up creating something fun. So fun that other communities' members in Piazza, almost everyone, asked us how we did it."*

However, our results also highlight that Perceived playfulness may also influence the pre-adoption phase.

Few of the interviewees (three out of nine, refer to table 16) report that Perceived playfulness is a potential determinant that influences the pre-adoption phase of a CSN technology. According to them, having a playful tool is important to users. They tend to look for tools that might be **playful** and thus they evaluate the potential playfulness of a tool before deciding to adopt it: *"emails exist, but everyone is overburdened with emails, with meetings and tasks. This is why, we should find another way to exchange and share information on thematic issues in a way that is much more informal and playful."*

User age

User age is identified in the literature as a determinant that influences the post-adoption phase (refer to table 9).

In line with the literature, some of the interviewees (four out of eleven, refer to table 16) report that User age is a determinant that influences the post-adoption phase of a CSN technology. They explain that **User age** might be an issue: *"Not all of us is really into these tools. This is maybe what is called 'Old France' we were not raised with computers and messages. I personally cannot...", "The new generations mindsets are different. You probably are more familiar with social networks' use than we are... you probably use these tools more naturally than we do".*

However, some of the interviewees (four out of nine, refer to table 16) report that User age is a determinant that also influences the pre-adoption phase of a CSN technology. According to

them, **user age** might be a barrier for considering a CSN technology: "*I am not part of generation Y /.../ and it is true, that will perhaps represent an obstacle*". They explain the existence of a **gap between generations**: "*between the generation of decision-makers or managers in place and the famous generation Y that wants to share, to immediately receive information and that lives in immediacy and for which technology is never an obstacle*". They report a generational barrier as some 'older' collaborators found it hard to switch to CSN technology: "*therefore this is actually perhaps the reason why there is this new generation that gradually prompts the use of such tools. And since they take advantage of these tools better than we managed to and since techniques improve, the transplant will perhaps be successful in five or six years, we will not be able to work without these tools. Who would have imagined, 15 years ago, that we will be working today without a pen, a pencil or an eraser? Yet, this is the case today! /.../ I do not know what the generation of tomorrow may yield. They will perhaps get used to working without seeing people, without making eye contact with them. However, I find it hard to imagine myself in such a place*", "*I belong to the old school. I am not like these youngsters who rely a lot on computers. I keep everything in my head.*"

2.2 New mapping between determinants of CSN technology adoption and the adoption process phases: the post-adoption phase

In this section, we focus on the single determinant shown to be influencing the post-adoption of a CSN technology in contrast with previously reported literature.

Categories	Code	Determinants	Determinants identified in the literature		Determinants of CSN technology adoption independently of its managerial context of use identified in our interviews	
			Pre-adoption	Post-adoption	Pre-adoption	Post-adoption
Environmental characteristics	E05	Partners support	X		-	1
* Numbers in the column entitled “Determinants of CSN technology adoption independently of its managerial context of use identified in our interviews” illustrate the number of business units in which the interviewee(s) report each determinant. * Cells highlighted in blue illustrate differences with the literature.						

Table 17: Comparison between determinants identified in our findings and the literature

Partners support

Partners support “provides complementary resources and serves as a source of learning in fields where a company might possess little expertise” (Hoppmann et al., 2014, p. 2). It is classified in the literature as a determinant that influences the pre-adoption phase (refer to table 9).

While our findings do not identify Partners support as a determinant that influences the pre-adoption phase they suggest that it can influence the post-adoption phase. One interviewee (refer to table 17) mentions that he is reluctant to collaborate with other organizations on CSN technology because he does not want to **expose his work to others**: “I don't want to collaborate with the outside on social networks because I don't want to disclose what I am working on.”

The table below summarizes the determinants and their “subcategories” identified in our results with respect to the literature.

				Determinants identified in the literature		Determinants of CSN technology adoption independently of its managerial context of use identified in our interviews		
Categories	Code	Determinants		Pre-adoption	Post-adoption	Pre-adoption	Post-adoption	
Innovation characteristics	I13	Business process re-engineering	- Structuring - Restructuring		X	X	X	
	I07	Security	- Hacking risk - Access management - Confidentiality - Information leaks - Loss of control over information - Espionage	X	X	X	X	
Organizational characteristics	O19	Image	- Organizations seeking to constantly control their external image - Managing visibility of the information		X	X	X	
	O27	Information sharing culture	- Information protection culture			X		
Environmental characteristics	E05	Partners support	- Expose work to others	X			X	
User acceptance characteristics	A01	Perceived usefulness	- Do not see the benefit - Building and maintain a mechanism of collective intelligence - Improvement of productivity in terms of reducing the wasted time - Reducing information exchanging via hard copies format		X	X	X	
			- Lack of curiosity - Being skeptical - Not a priority - Feeling observed		X		X	
	A05	Attitude towards use	- Colleagues judging the quality of their work - Legitimacy of expressing their ideas - Passivity and lack of willingness - Difficulty in motivating people - Visibility improvement			X	X	X
						X	X	X
						X	X	X
A10	Perceived playfulness	- Playful		X	X	X		
A17	User age	- User age - Gap between generations		X	X	X		

Table 18: Determinants and their “subcategories” identified in our findings

3. Comparison between CSN technology adoption to support strategic scanning process and CSN technology adoption to support other business processes

In the previous section, we studied all identified determinants influencing the pre-adoption and the post-adoption of CSN technology. This includes determinants of the pre-adoption and the post-adoption of a CSN technology independently of its managerial context of use: whether it is to support strategic scanning process or to support other business processes.

Since the goal of our study is to investigate reasons why CSN technology can be adopted (or not) as a supporting tool for strategic scanning process; in this section, we specifically address the difference between the adoption of a CSN technology to support strategic scanning process and its adoption to support other business processes. In other words, we investigate what are the determinants that emerge as specific for adopting a CSN technology to support strategic scanning process in comparison with those specific for adopting a CSN technology to support other business processes. This will help us answer our third sub-question: **What are the determinants of CSN technology adoption to support strategic scanning process?**

For this purpose, we start by splitting the fifteen determinants previously identified in our study into two groups:

- 1- A first group that consists of determinants that influence the pre- and post- adoption of a CSN technology to support strategic scanning process. We refer to this group of determinants as “determinants of a CSN technology adoption to support strategic scanning process”.
- 2- A second group that consists of determinants that influence the pre- and post-adoption of a CSN technology to support other business processes mentioned by interviewees that are not related to strategic scanning process. We refer to this group of determinants as “determinants of a CSN technology adoption to support other business processes”. These business processes include:

- marketing purposes: *“Our goal is to promote our business /.../ This is why we use social networks /.../ it’s for marketing purposes”, “I use these social networks to promote our work... it has nothing to do with strategic scanning activity.... it is for advertisement purposes.”.*
- project management: *“we use these platforms to manage our projects. For each project, we create a community, we invite team members who work on this project, we communicate on these communities, we share documents... it is for project management purpose”, “we use Yammer to collaborate on projects. We share our documents, this helps us prevent the situation when we have to answer ‘wait I had this document, it is somewhere on my “h” directory or in my inbox... I’ll find it and send it to you.’”.*
- recruitment: *“I use it to check candidates’ profiles /.../ When we want to hire someone we systematically check his social networks’ profiles /.../ and depending on his posts, it could influence our decision which candidate to hire.”.*

The use of CSN technology is also associated with many other business practices such as:

- Identifying experts: *“We are a big company, we cannot memorize what every colleague does... if we need to ask a question to an expert... the corporate social network helps us identify to whom we should talk... it helps us identify everyone’s expertise and who does what”.*
- Collaborating between colleagues: for example, real time collaboration *“We can communicate as one-to-many and in real time. We don’t use our social network to discuss our personal life, we use it to publish reports, meeting minutes etc. on Jamespot”*; long distance collaboration *“I’ve seen interesting things happening on this platform... Sometimes our colleagues in Spain post a request like “I am meeting tomorrow with a client whose company’s activity is in this industry... Anyone has a presentation or a supporting doc on this industry? And then... 10 minutes later*

someone in Finland answers him... without knowing each other... they collaborate even though they have never met”, “I work with colleagues who operate from Canada... we don’t have same working hours... we collaborate using Spice... I open it every morning and I can find the latest version they produced, the latest information they shared, I can keep track”.

After splitting our fifteen determinants into these two groups, we summarize them in the table 19 shown below.

- The first column shows all determinants of CSN technology adoption independently of its managerial context of use.
- The second and the third columns show respectively determinants of CSN technology adoption to support other business processes and to support strategic scanning process.

To help going through this table, we will take as an example the case of the determinant “user age”. The determinant “user age” is identified to influence the pre- and the post- adoption of CSN technology independently of its managerial context of use. It is mentioned by interviewees from four different business units in pre-adoption phase as well as by interviewees from four different business units in post-adoption phase. Further investigation shows that interviewees from four business units in pre-adoption phase mentions this determinant to support a strategic scanning process. It also indicates that interviewee from one business unit in the post-adoption phase mentions this determinant to support strategic scanning process. It also reveals that this determinant is mentioned by interviewees from four different business units in post-adoption phase to support other business processes.

It is noteworthy that the sum of determinants of CSN technology adoption to support strategic scanning process and to support other business processes in the post-adoption phase (1+4) is higher than the total of determinants of CSN technology adoption (independently of its managerial context of use) in the post-adoption (4). This is due to the fact that an interviewee from one business unit in the post-adoption phase mentions user age as both a determinant to support a strategic scanning process and a determinant to support other business processes.

Categories	Code	Determinants	Determinants identified in the literature		Determinants of CSN technology adoption independently of its managerial context of use identified in our interviews		Determinants of CSN technology adoption to support other business processes identified in our interviews		Determinants of CSN technology adoption to support a strategic scanning process identified in our interviews	
			Pre-adoption	Post-adoption	Pre-adoption	Post-adoption	Pre-adoption	Post-adoption	Pre-adoption	Post-adoption
Innovation characteristics	I01	Relative advantage	X	X	5	5	4	4	2	1
	I04	Compatibility	X	X	1	2	1	1	1	1
	I07	Security	X	X	8	7	5	4	5	5
	I13	Business process re-engineering		X	1	3	1	2	1	1
Organizational characteristics	O04	Organization readiness	X		3		2		1	
	O19	Image		X	2	-	1		1	
	O23	Managerial obstruction	X	X	-	3		2		1
	O27	Information sharing culture			4				4	
Environmental characteristics	E05	Partners support	X		-	1				1
User acceptance characteristics	A01	Perceived usefulness		X	9	11	3	7	6	6
	A02	Perceived ease of use		X	-	4		2		2
	A05	Attitude towards use		X	7	9	1	4	6	5
	A10	Perceived playfulness		X	3	3	1	3	2	1
	A12	User training		X	-	1				1
	A17	User age		X	4	4		4	4	1

* Numbers in the columns illustrate the number of business units in which the interviewee(s) report each determinant.
* Cells highlighted in blue illustrate differences between determinants of CSN technology adoption to support other business processes and determinants of CSN technology adoption to support strategic scanning process.

Table 19: Comparison between determinants of a CSN technology adoption to support strategic scanning process and determinants of a CSN technology adoption to support other business processes

Comparing the determinants of CSN technology pre- and post- adoption to support strategic scanning process and to support other business processes reveals that:

- 1) One determinant identified as exclusively influencing the post-adoption phase in the case of other business processes is shown to impact both the pre- and the post- adoption phases to support is strategic scanning process. This determinant is 'User age'.
- 2) Three determinants emerge in the strategic scanning context: 'Information sharing culture', 'Partners support' and 'User training'. These determinants, reported by interviewees, are shown to exclusively influence the pre- and/or the post- adoption of a CSN technology to support strategic scanning process. Importantly, none of these determinants is thought to impact the pre- nor the post- adoption of a CSN technology in the case of other business processes.

In the following, we detail the three newly identified determinants that are revealed when dealing with the adoption of a CSN technology to support strategic scanning process.

Information sharing culture

In the literature on adoption, Information sharing culture is defined as “*voluntary act of making information available to others... sharer could pass information on, but does not have to*” (Davenport, 1995, p. 5).

Our results show that information sharing culture is a determinant that may influence the pre-adoption of a CSN technology to support strategic scanning process: “*On the level of trackers who work on strategic scanning, well it depends /.../ there are people who consider information is power, therefore they do not want to give information /.../ this is why I would say that information sharing exists however in the first place... this exists, it is true, but it is not very developed and most importantly it is not managed by good practices*”.

This determinant is not mentioned in the case of pre-adoption nor post-adoption of a CSN technology to support other business processes.

Partners support

According to the literature on adoption, Partners support “*provides complementary resources and serve as a source of learning in fields where a company might possess little expertise*” (Hoppmann et al., 2014, p. 2).

Our results show that Partners support is a determinant that may influence the post-adoption of a CSN technology to support strategic scanning process: *"Since I work on strategic scanning... I don't want to collaborate with the outside on social networks because I don't want to disclose what I am working on."*

This determinant is not mentioned in the case of pre-adoption nor post-adoption of a CSN technology to support other business processes.

User training

In the literature on adoption, User training is defined as “*the process of transferring required knowledge and skills to users of information technology*” (Huang, 2003, p.20).

Our results show that user training is a determinant that may influence the post-adoption of a CSN technology to support strategic scanning process: *"The problem is that this person should select the information among the huge amount of available information /.../ the person that will gather the information... will not necessarily keep this in mind /.../ what will they gather then? How will they analyze them? /.../ however, it is hard for someone who gathers information to figure out that 'this is good stuff; this is not'. So, we always return to the problematic: it is an issue of user competencies"*.

This determinant is not mentioned in the case of pre-adoption nor post-adoption of a CSN technology to support other business processes.

Taken together our findings indicate that all the determinants identified in the case of CSN technology adoption to support other business processes are also all reported as determinants of CSN technology adoption to support strategic scanning process. Interestingly, One determinant identified as exclusively influencing the post-adoption phase in the case of other business processes (User age) is shown to impact both the pre- and the post- adoption phases to support strategic scanning process. In addition, our results further identify three determinants that are specific to CSN technology adoption to support strategic scanning process namely: Information sharing culture, Partners support and User training.

Chapter 4: DISCUSSION

In this chapter, we discuss our results and report the insights our work brings with respect to the literature in the field.

Hence, we first explain that, by partially basing our study on an integrative theoretical framework of the technology adoption, we are able to gain new insights into the technology adoption theory field.

Next, we attempt to put our findings in context and answer our research question.

Finally, based on our study, we suggest recommendations to help organizations enhance CSN technology adoption to support strategic scanning process.

1. New insights into the technology adoption theory

The aim of our work is to investigate the adoption of CSN technology in organizations to support strategic scanning process. In order to answer our research question we investigate the whole adoption process (pre-adoption, adoption and post-adoption phases) and look at both adoption levels: individual and organizational.

We choose to base our study on Hameed's model (2012) who proposes an integrative model that combines all existing technology adoption theories. In contrast with previous adoption theories, - described in the literature as fragmented - Hameed's model integrates the entire adoption process (pre-adoption, adoption and post-adoption phases) at both, the individual and the organizational levels.

This model synthesizes the determinants of technology adoption in a list and divides them into five categories (refer to table 6): 1) determinants related to the innovation characteristics, 2) determinants related to the organization characteristics, 3) determinants related to the environmental characteristics, 4) determinants related to the CEO and 5) determinants related to the user acceptance.

To our knowledge, no research addressing technology adoption has used Hameed's model since its publication. Our study is therefore the first to put this model into use, as a theoretical framework, in its attempt to understand a technology adoption. As Hameed's model is published in 2012, we first intend to update it. Hence, we investigate the literature and complement it with newly identified technology adoption determinants (refer to table 7).

Interestingly, when addressing technology adoption in organizations, Hameed's model proved useful.

Based on our results analysis, we conclude that determinants expressed by interviewees (refer to table 14) cannot be classified into a single technology adoption theory such as DOI or TAM or TRA etc. In fact, these determinants are enrolled in multiple categories such as innovation characteristics, organization characteristics, environmental characteristics etc. We could notice that there is no one single technology adoption theory that could include all these determinants. This conclusion shows the importance of studying the adoption of a technology in an organization, based on Hameed's integrative model that addresses it from different categories (innovation, organization, environment, CEO and user acceptance characteristics) and at different levels (individual and organizational). Since Hameed's model offers a more holistic view of technology adoption determinants than each technology adoption theory separately, we assume that many categories may be investigated in order to understand the technology adoption. Every category could reveal determinants that help understand technology adoption in organizations as proposed by Hameed.

As detailed in chapter one, technology adoption theories address one or two phases -at most- of the adoption process. Each of these theories identifies determinants of technology adoption that are classified consequently into the corresponding adoption process phase(s). Our findings reveal deviations from the literature. This deviation manifests in a difference of how the determinants are classified with respect to the technology adoption process phases:

- The TRA theory identifies two determinants that influence the post-adoption phase: 1) attitude toward use and 2) subjective norms. Interestingly, our findings identify the attitude toward use as a determinant that can also influence the pre-adoption phase. This suggests that TRA theory, so far known as a theory of the post-adoption phase, could also partially contribute to explain the pre-adoption phase of a technology.

- The TAM theory identifies two determinants that influence the post-adoption phase: 1) perceived ease of use and 2) perceived usefulness. Our results suggest that the perceived usefulness is a determinant that can also influence the pre-adoption phase. This suggests that TAM theory, so far known as a theory of the post-adoption phase, could also partially explain the pre-adoption phase of a technology.

2. Answering our research question

2.1 A first observation regarding CSN technology deployment and usage in organizations

Our study started with the preliminary assumptions: we supposed that, based on what we heard from the industry leaders, CSN technology is widely deployed in organizations. We assumed that employees are familiar with this technology and have developed usage practices.

Our goal was to try to support strategic scanning process by a technology that was already in place and on which usage practices have been developed. Therefore, we aimed at conducting interviews in organizations that have implemented CSN technology or that are in the process of implementing one.

Thus, we list potential interviewees who work in organizations that we expect have implemented a CSN technology or are in the process of implementing one. However, when contacting these potential interviewees to set meetings, we were surprised to learn that, in contrast with what is being advertised, most of them replied that their organizations do not have a CSN technology in place nor intending to put one in place.

In addition, we observe that among those who confirmed that their organization has put in place a CSN technology many of them has mistaken the CSN with other information technology such as intranet. In fact, we realized during some interviews, that to some interviewees the concept of CSN technology seems to be ambiguous. This ambiguity seems to be in line with the unprecise picture reflected in the literature where different terminologies and definitions designate the concept of the CSN technology.

As result, organizations that do practically have a CSN technology or are in the process of acquiring a CSN technology finally constitute a small percentage.

In addition, we observe that in contrast to what is branded, usage practices on CSN technology are not very developed within organizations. In fact, CSN technology use remains limited as interviewees express difficulties to use this technology.

Taken together, all these observations challenge the assumptions on which we base our research question. As our intention is to take advantage of an already implemented technology, we choose CSN technology to support strategic scanning process. Consequently, the possibility of the organization acquiring a new tool and investing in a new technology to support strategic scanning process does not leverage our approach. If an organization is supposed to acquire and implement a CSN technology to support strategic scanning process, then we are sent back to the well-known problematic: introducing new specialized information technologies into the organization to support strategic scanning process.

2.2 Determinants of CSN technology adoption independently of its managerial context of use

On one hand, we observe the absence of CSN technology in most organizations. On another hand, in organizations who have deployed a CSN technology, most of the interviewees have few usage practices.

Based on the above statements, we are interested in understanding the reasons behind CSN technology adoption independently of its managerial context of use. In other words, we want to investigate the determinants that influence CSN technology adoption independently of its managerial context of use within organizations.

It is noteworthy that, even though the core of our study is the CSN technology, which is an internal social network technology, we notice that some of our interviewees “link” the CSN technology deployed inside their organization with accounts that the organization has on public social networks (SNS) such as the Facebook page, the Twitter account and the Youtube channel of the organization etc. They use these accounts to complement their activity on the CSN of the organization. These accounts are not bound inside the organization and are accessible to users outside the organization who can consume and post information. This might raise the question: Do such practices impact the organization’s boundaries?

In order to investigate the determinants that influence CSN technology adoption independently of its managerial context of use, we differentiate between organizations who

have already in place a CSN technology (post-adoption phase) and those who are still considering putting in place CSN technology (pre-adoption phase). The first group, having already practices on CSN technologies, reports determinants based on their experience. The second group has not yet experienced the CSN technology and thus identify potential determinants based on their evaluation. Both groups of determinants are of interest to help us have a comprehensive understanding of CSN technology adoption independently of its managerial context of use.

We notice some similarities between the two groups of determinants. In fact, some determinants reported by interviewees whose organizations are in the pre-adoption phase, were also reported by interviewees whose organizations are in the post-adoption phase. These determinants are: Relative advantage, Compatibility, Security, Business process re-engineering, Perceived usefulness, Attitude towards use, Perceived playfulness, User age.

However, some differences between the two groups of determinants could be reported. Some determinants identified by interviewees in the pre-adoption phase were not reported by those in the post-adoption phase and vice-versa:

- Organization readiness is reported by interviewees whose organizations are in the pre-adoption phase. This is not surprising, as these interviewees could be concerned by the fact that the organization is ready (or not) to put in place a CSN technology. On the other hand, interviewees whose organizations are in the post-adoption phase do not seem to be concerned about this issue. These organizations already assessed their readiness to deploy the CSN technology before taking the decision to acquire it.
- Image is reported by interviewees whose organizations are in the pre-adoption phase. This could be explained by the fact that they did not use the CSN technology yet, and thus they might have in mind the experience of public social networks sites such as Facebook, Youtube etc. These public social networks are open to outside the organization. Thus, interviewees in the pre-adoption phase might be concerned about the impact that the use of CSN technology could have on the image of the organization. However, interviewees who already have experienced CSN technology use (in post-adoption phase) know that it is an internal technology and hence its use does not affect the image of the organization.

- Managerial obstruction is reported by interviewees whose organizations are in the post-adoption phase. At first, managers might be on board with CSN technology use since it gives them visibility to information flow between employees from operational level, information that was probably hidden to them. This might explain the absence of managerial obstruction determinant in the pre-adoption phase. However, after experiencing CSN technology use, managers may realize that this platform, by promoting information sharing and encouraging collaboration, helps employees to collectively find solutions to some problems without referring to their managers anymore. Thus, managers may realize that they lose some of their “power” as employees refer less to them. This might explain managerial obstruction in the post-adoption phase.
- Information sharing culture is reported by interviewees whose organizations are in the pre-adoption phase. This might be explained by the fact that those who expressed this determinant are evaluating potential information sharing on CSN technology based on their previous experience inside the organization with a predominant culture of information protection. In contrast, interviewees who are already using CSN technology (in the post-adoption phase) did not mention this determinant as they notice a great amount of information being shared on CSN technology.
- Perceived ease of use is reported by interviewees whose organizations are in the post-adoption phase. This is not surprising as these employees have experienced CSN technology use and thus have a perception of its ease of use, in contrary to interviewees who never used these platforms as their organizations are still in the pre-adoption phase.
- Partners support is reported by an interviewee whose organization is in the post-adoption phase. In addition, it was not reported by interviewees whose organizations are in the pre-adoption phase. This could be explained by the fact that, collaboration between organizations is not the main purpose nor it is a driver of CSN technology use.

- User training is reported by an interviewee whose organization is in the post-adoption phase. It was not reported by interviewees whose organizations are in the pre-adoption phase. This might be due to the assumption that employees are familiar with CSN technology since they are very much like public social networks sites widely used in private sphere. However, one interviewee who is already using CSN technology mentioned user training as a determinant as he experienced some difficulties using CSN technology.

2.3 Determinants of CSN technology to support strategic scanning process

In our study, we are interested in investigating CSN technology adoption to support a specific business process which is strategic scanning process. Thus, we want to investigate the determinants that influence CSN technology adoption to support strategic scanning process within organizations. We collect answers from interviewees whose organizations are in the pre-adoption as well as the post-adoption phase. Both group of determinants are of interest to help us have a comprehensive understanding of CSN technology adoption to support strategic scanning process.

We notice similarities between determinants of CSN technology pre- and post- adoption to support strategic scanning process expressed by interviewees and determinants of CSN technology pre- and post- adoption to support other business processes.

The list of determinants identified as influencing the CSN technology pre- and post- adoption to support strategic scanning process includes all determinants identified as influencing the CSN technology pre- and post- adoption to support other business processes. In addition to all determinants of CSN technology pre- and post- adoption to support other business processes, this list also includes three determinants exclusively reported as determinants of CSN technology pre- and post- adoption to support strategic scanning process:

- Information sharing culture is reported as exclusively influencing the pre-adoption of CSN technology to support strategic scanning process. This might be due to the fact that strategic scanning core activity depends on shared information. Thus, interviewees report that they frequently have to face the challenges of a resistant

culture to share information. They notice that employees tend to keep information since they consider it as advantage over their colleagues. In addition, some interviewees report not willing to share information because strategic scanning information is considered sensitive that should not be accessible to everyone. Thus, they express being reluctant to sharing this information even on internal CSN technology to preserve its confidentiality and security.

- Partners support is reported by an interviewee as exclusively influencing the post-adoption of CSN technology to support strategic scanning process. This could be explained by the sensitive nature of strategic scanning and thus collaborating with other organizations to perform this process may be out of question.
- User training is reported by an interviewee as exclusively influencing the post-adoption of CSN technology to support strategic scanning process. This could be due to the assumption that employees are familiar with CSN technology since they are very much like public social networks sites widely used in private sphere. And thus, training employees to use CSN technology to support strategic scanning process might be considered as an unimportant criterion.

Identifying determinants that are exclusively reported when addressing CSN technology adoption for a specific business process which is strategic scanning process is an interesting finding.

Numerous studies have been previously conducted on the adoption of a specific technology independently of its managerial context of use. The outcoming results of these studies enriched the knowledge on the subject over the years. Similarly, as we conduct part of our study on the CSN technology adoption independently of its managerial context of use, we could identify numerous determinants. In addition to this, we study the CSN technology adoption in a specific managerial context of use that is strategic scanning. Importantly, we report new determinants specific to strategic scanning context that do not show when CSN technology is investigated independently of its managerial context of use.

This shows the relevance of studying the adoption of a technology with respect to a specific managerial context of use.

We could conclude that investigating technology adoption independently of its managerial context of use is an important approach as it helps understanding the technology adoption.

Importantly, we conclude that it might be interesting to take into account the managerial context of use of a technology when addressing its adoption. This might uncover insights that were not discovered when addressing the adoption of the technology independently of its managerial context of use.; and importantly allow suggesting better recommendations that help organizations enhance technology adoption for the specific managerial context of use.

2.4 CSN technology can be adopted to support strategic scanning process under certain conditions

Our study brings new insights about CSN technology adoption as a supporting tool for strategic scanning process. Despite all the difficulties that our research faced, and in the context of our sample, we attempt to answer our research question: “How can CSN technology be adopted to support strategic scanning process?”.

Thus, we investigate the potential possibility of CSN technology to support each of strategic scanning process phases. We conclude that CSN technology could be a supporting tool for strategic scanning process under some conditions.

In the following, we explain the specific conditions that make CSN technology a supporting tool for each phase of the strategic scanning process:

- **Collect:** CSN technology can be a supporting tool for strategic scanning “information collection” phase since it offers valuable sources of information, helps identifying sources to follow and allows monitoring specific topics as well as competitors and consumers. However, it seems to have a limitation to its use to collect information. In fact, strategic scanning depends on sensitive information which is rarely published on CSN technology. Hence, it might be hard to find information relevant to strategic scanning process on these platforms. In addition, since sharing information on these platforms is instantaneous, the little amount of interesting information diffused on CSN technology are easily drowned into the massive amount of information. Thus, it’s hard to capture the relevant and reliable information among the noisy set of information.

In order to overcome this limitation, an organization may put in place a content management system by creating tags to classify and help to quickly find the information. In addition, it may also follow “the train the trainers approach” to develop key users that will lead training sessions on their own. In these training sessions, tool functionalities can be communicated to form the users on how to utilize the platform. Another topic such as curation functionalities may be explained which enables employees to create newsfeeds about their subjects of interest. In this way, employees may stay updated, informed about precious information and this may reduce the amount of missed critical information. Another topic of the training session could be educating employees to properly cross many sources of information to increase the level of information reliability.

- Diffuse and share: CSN technology can be a supporting tool for strategic scanning “information diffusion” phase since it allows instantaneous access to information and supports sharing any kind of content (text, image, document, video). However, sharing strategic scanning information on these platforms raises confidentiality and information control issues. In fact, strategic scanning process handles sensitive information that should not be diffused on a wide range.

In order to overcome this limitation, employees may create private groups that include only members working on strategic scanning process. Inside these groups they can share their sensitive information.

- Store: CSN technology cannot be a supporting tool for strategic scanning process “information storage” phase as they are not designed as databases.

- Comment/ Discuss: CSN technology can be a supporting tool for strategic scanning process “information discussion” phase since it allows commenting and interacting on published information. It helps creating collective intelligence. Strategic scanning process produces sensitive information that employees tend to discuss in private, fearing to lose them if gone public. One limitation to discussing strategic scanning information on CSN technology is that it doesn’t protect ideas. Another limitation is related to the fact that interesting comments are very hard to capture as they are lost in the massive amount of noisy

comments. In addition, CSN lacks governance structure and thus, using it raises the issue of guiding the employees on how to interact on these platforms.

In order to overcome these limitations, a set of recommendations can be implemented by the organization: a) employees can create private groups and invite respective members involved in strategic scanning process. They can leverage these groups to discuss sensitive information. b) in order to help capturing the interesting comments, one possible recommendation is to highlight best shared comments. c) in order to overcome the lack of governance structure, organization could create a community charter defining best practices on CSN technology. This will also help employees to better understand how to interact on these platforms.

Due to the public and open nature of these platforms, employees are hesitant to interact on CSN technology. In order to encourage the employees' interactions, organizations could designate core team members -for every group- whose responsibilities are to animate, motivate and moderate discussions on these platforms. Organizations can also put in place a reward system based on the participation rate. The employees' participation can also be included as an evaluation criteria in the employees' monthly performance assessment.

- Analyze: Even though CSN technology does not offer analyzing functionalities, the fact that it allows discussing and exchanging individual interpretations of information, as well as enriching available information with input from employees involved in strategic scanning, renders the CSN technology an important tool to create collective intelligence within the organization. By helping involved employees better understand the collected information, this collective intelligence is an important part of the "Analyze" phase of strategic scanning process as it helps.

In summary, despite the absence of analyzing functionalities, CSN technology may be a supporting tool for strategic scanning process "information analysis" phase.

- Utilize: CSN technology may be a supporting tool for strategic scanning process in the phase of utilize. In fact, collected information on CSN technology can be utilized to help taking decisions, better understand how product evolves, get inspired with new ideas to

develop new product or services, predict the future of the product and developing new marketing and sales strategies.

- **Animate:** CSN technology can be a supporting tool to animate strategic scanning process. In fact, an organization can assign a dedicated employee to animate strategic scanning groups. The animator plays also the role of keeping the dynamics and monitoring the diffused information and comments. He may also promote success stories on CSN to encourage employees to use it and follow up with the core team members of each group to assure its healthy functioning. The animator could also organize events to raise awareness and encourage sharing feedback on experiences among employees as well as promote the benefit of CSN use by diffusing videos featuring the top management personals.

The table below synthetizes recommendations that might help CSN technology adoption to support strategic scanning process with respect to each of its phases.

Strategic scanning process	Recommendations
Collect	<ul style="list-style-type: none"> - Put in place a content management system. - Train the trainers to develop key users that will lead training sessions on their own.
Diffuse/Share	<ul style="list-style-type: none"> - Create private groups dedicated only to members working on strategic scanning process.
Store	<ul style="list-style-type: none"> - Use another IT (e.g. document management system) to store information since CSN technology does not allow information storage.
Comment/Discuss	<ul style="list-style-type: none"> - Create private groups dedicated only to members involved in strategic scanning process. - Highlight best shared comments. - Create a community charter defining best practices on CSN technology. - Assign core team members -for every group- whose responsibilities are to animate, motivate and moderate discussions on these platforms. - Put in place a reward system based on the participation rate. - Include employees' participation as an evaluation criteria in the employees' monthly performance assessment.
Analyze	<ul style="list-style-type: none"> - Take advantage of the collective intelligence created using CSN technology by discussing and exchanging individual interpretations of information, as well as enriching available information with input from employees involved in strategic scanning
Utilize	<ul style="list-style-type: none"> - Information collected on CSN technology are used. It seems that there are no difficulties related to the utilization.
Animate	<ul style="list-style-type: none"> - Assign a dedicated member to animate strategic scanning groups.

Table 20: Recommendations that might help CSN technology adoption to support strategic scanning process with respect to each of its phases

3. Recommendations to help organizations enhance CSN technology adoption to support strategic scanning process

In summary, our study suggests the existence of a fit between CSN technology and strategic scanning process. The functionalities that the CSN technology provides make this platform a suitable tool to perform many of the strategic scanning process phases, under certain conditions. Based on our findings, and in order to help the organizations better use the CSN technology to support the strategic scanning process, we suggest the following recommendations:

- 1- A first step can be to establish a culture of collaboration and sharing inside the organization. Before introducing CSN technology, a preliminary work can be conducted to help employees adopt sharing behaviors and mindset. The objective is to raise awareness of the importance of collaboration and information sharing between employees. Thus, when CSN technology will be deployed, difficulties related to sharing and collaborating will be reduced.
- 2- Organize training session to train Key users that will lead training sessions on their own. Training sessions can include:
 - a. Training on the CSN technology functionalities (such as curation functionalities, comments rating functionalities) to make them discover these functionalities and become aware of the usefulness of CSN technology.
- 3- Assign a dedicated employee as an animator whose responsibilities are:
 - a. To keep the dynamics and monitor the diffused information and comments.
 - b. To encourage employees to use CSN technology by promoting success stories.
 - c. To follow up with the core team members of each group to assure its healthy functioning.
 - d. To frequently organize campaigns to raise awareness, to promote the importance of CSN technology use, boost the participation and encourage employees to share feedback on experiences.
 - e. To promote the benefit of CSN technology use by diffusing videos featuring the top management personals.

- f. To create private groups that includes only members involved in strategic scanning process and manage access rights.
- 4- Designate a core team member -for every group- whose responsibilities are to animate and moderate discussions on daily basis.
 - 5- Create a reward system based on members' participation rate to encourage them interact on CSN technology.
 - 6- Put in place a content management system that allows:
 - a. Creating tags to organize and quickly find the information.
 - b. Highlighting best shared comments.
 - 7- Create a community charter defining best practices on CSN technology.
 - 8- Include the participation rate of members as an evaluation criterion in the employees' monthly performance assessment.
 - 9- Sponsor CSN technology use, by hierarchy, by featuring videos and diffusing the benefit and importance of CSN technology use.
 - 10- Define and communicate of best practices on CSN technology to members to help them better understand how to interact on CSN.

Chapter 5: CONCLUSION

1. Dissertation Summary

The aim of this dissertation is to answer the question: “How can CSN technology be adopted to support strategic scanning process?”

To do so we divide our research question into three sub-questions:

- 1- What fit exists between CSN technology and strategic scanning process?**
- 2- What are the determinants of CSN technology adoption (independently of its managerial context of use)?**
- 3- What are the determinants of CSN technology adoption to support strategic scanning process?**

We choose to partially base our study on an integrative technology adoption theoretical framework. For this purpose, we start by reviewing the literature addressing the determinants of technology adoption and identify an integrated list of determinants synthesized by Hameed et al. (2012). We then update this list with technology adoption determinants identified after Hameed’s article publication. We also complement it with determinants of social networks adoption (SNS & CSN). Finally, we synthesize all the above determinants and draw one integrative comprehensive table that includes an updated list of determinants of technology adoption as well as determinants of social networks adoption (SNS & CSN) (refer to table 9).

Our research is based on a qualitative study that consists of interviews. It is the first to use Hameed’s model as a theoretical framework. Our findings prove the usefulness of this model and question the positioning of two theories (TAM and TRA) with respect to the adoption phase they address. These theories known to address the post-adoption phase suggest determinants that influence the post-adoption phase. Our findings reveal deviations from the literature. This deviation manifests in a difference of how the determinants are classified with respect to the technology adoption process phases. Our results show that some determinants

suggested by these theories could also influence the pre-adoption phase. Thus, we conclude that these theories could partially investigate the pre-adoption phase.

Our findings allow us to answer our three sub-questions. As for the first sub-question, mentioned above, our results reveal that a fit can exist between CSN technology and some strategic scanning process phases. Concerning the second sub-question, we identify a list of determinants that influence the CSN technology pre-adoption and post-adoption independently of its managerial context of use (refer to table 14). Finally, to answer the third sub-question, we identify a list of determinants that influence the CSN technology pre-adoption and post-adoption to support strategic scanning process. In addition, we identify determinants that are exclusive to CSN technology pre-adoption and post-adoption to support strategic scanning process (refer to table 19).

We could conclude that investigating technology adoption independently of its managerial context of use is an important approach as it helps understanding the technology adoption. Importantly, we conclude that it might be interesting to take into account the managerial context of use of a technology when addressing its adoption. This might uncover insights that were not discovered when addressing the adoption of the technology independently of its managerial context of use; and importantly allow suggesting better recommendations that help organizations enhance technology adoption for the specific managerial context of use.

Based on all the above findings, our study brings an answer to our research question: CSN technology can be a supporting tool for strategic scanning process under some conditions. Finally, we suggest a list of recommendations that might help organizations to enhance CSN technology adoption to support strategic scanning process.

2. Limitations and avenues for future research

Initially, our goal was to investigate the entire CSN technology adoption process: pre-adoption, adoption and post-adoption phases. Unfortunately, our sample included only one organization that is in the adoption phase and thus could not study it as part of our research. Studying this phase of the process could be of interest for future studies.

Another limitation is the number of interviewed organizations that might have affected our study's results. This number is due to the fact that most of the contacted organizations replied not having a CSN technology implemented nor being in the process of implementing one. In addition, some of the interviewees who replied that their organizations have a CSN technology in place were mistaking this technology with classical information technologies. This significantly reduced the number of our interviews. Future research could conduct studies with a bigger sample to enrich the results.

Moreover, although our work allows us to identify interesting findings to answer our research question, investigating CSN technology adoption to support strategic scanning process based on interviews didn't enable us to address its best practices in depth. A complementary research could tackle the same subject based on a case study approach. This might allow to closely observe and identify best practices on CSN technology to support strategic scanning process.

Finally, our research suggests a list of recommendations that we believe might help organizations to enhance CSN technology adoption to support strategic scanning process. An interesting future perspective could be to attempt to put these recommendations into action inside an organization. An action research study could be interesting to conduct, as it might allow to put in place these recommendations, observe their application, assess the outcoming results and suggest enhancements.

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