

## The Millefeuille Theory Revisited. New Theoretical Lenses to Understand the Millefeuille Effect

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# The Millefeuille theory revisited. New theoretical lenses to understand the Millefeuille effect

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## ABSTRACT

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*Enterprise Social Media (ESM) has gained significant momentum in the workplace and has been presented by both practitioners and academics as the new alternative workplace communications technology to substitute email. However, our knowledge is limited when it comes to explaining how ESM integrates the media portfolio and the extent to which it can or cannot replace email use. Adopting a grounded methodology, we conducted a case study in a large multinational corporation specialized in the beauty and well-being sector, in which we found that ESM superimposes the existing media and thus creates a millefeuille effect.*

*Grounded in our case study, we explain the millefeuille effect in the specific case of ESM over email and develop a revised version of the millefeuille theory. Our findings show that the millefeuille effect emerges from negotiation between the perceived affordances enabled by ESM and its imposed constraints, and from that of email with regard to communication norms and routines and the context of IT use. The results highlight the need for managerial engagement in ESM that goes beyond its sponsorship alone.*

*Our study revisits the millefeuille theory by adopting three theoretical lenses to explain the millefeuille effect: a media portfolio features lens, a norm and communication routine lens, and a context-of-IT-use lens. We contribute to the IS literature by proposing a revised version of the millefeuille theory that integrates the affordance lens. By taking into account the features of the media portfolio and how they are appropriated by users, we gain a clearer understanding of the millefeuille effect. We also come up with some recommendations to help managers deal with media overload and cope with the associated risks related to the millefeuille effect.*

**Keywords:** *Enterprise Social Media, Affordances vs. constraints, Millefeuille effect, Email and revised millefeuille theory.*

## RÉSUMÉ

*Les Réseaux Sociaux d'Entreprises (RSE) ont connu un récent essor et sont de plus en plus présentés comme un alternatif à l'usage de l'email. Malgré l'intérêt croissant pour ce nouveau medium, notre connaissance est encore limitée quant à l'intégration du RSE dans l'ensemble du portefeuille des moyens de communication disponibles ainsi qu'à sa capacité à remplacer l'usage de l'email. À travers notre approche enracinée et notre étude de cas réalisée dans une multinationale spécialisée dans les produits de beauté et le bien-être, nous avons mis en évidence que le RSE se superpose aux médias existants, formant ainsi un effet millefeuille.*

*En adoptant une approche enracinée, nous avons expliqué l'effet millefeuille dans le cas spécifique du RSE vs email et proposé une version révisée de la théorie du millefeuille. Nous montrons que l'effet millefeuille résulte de la négociation des fonctionnalités matérielles du RSE ainsi que celles de l'email. Cette négociation se fait en tenant compte des normes de communication et du contexte d'utilisation des TI. Nous mettons en évidence l'intérêt d'un réel engagement des managers dans l'utilisation du RSE qui va au-delà du simple parrainage du nouveau médium.*

*À travers cet article, nous proposons une version révisée de la théorie du millefeuille en mettant en évidence trois perspectives théoriques : il s'agit des fonctionnalités matérielles du portefeuille des médias, les normes de communication et enfin le contexte d'utilisation des TI. Nous contribuons à la littérature en SI en proposant une version révisée de la théorie du millefeuille qui intègre la perspective de l'affordance. Nous mettons ainsi en évidence que la prise en compte des fonctionnalités matérielles des médias constituant le portefeuille des moyens de communication et comment celles-ci sont appropriées par les utilisateurs, permet une meilleure compréhension de l'effet millefeuille. Notre article permet également de mettre en avant des recommandations managériales pour aider les managers à mieux faire face à la multiplication des médias disponibles et limiter ainsi les risques liés à l'effet millefeuille.*

**Mots-clés :** Réseau social d'entreprise, Fonctionnalités, Effet millefeuille, Email et la théorie du millefeuille révisée.

## INTRODUCTION

Enterprise social media (ESM), a new class of organizational information systems (Van Osch and Steinfield, 2018), has penetrated the workplace with huge positive expectations such as enhancing access to

information (Chen *et al.*, 2008), boosting productivity, and improving organizational communications capabilities (Ngai *et al.*, 2015), including substituting email<sup>1</sup>. This explains why ESM is considered to be at the center of most actions within organizations (Leonardi and Vaast, 2017), and is presented

<sup>1</sup> <https://www.forbes.com/sites/scottallison/2013/07/22/email-sucks-embrace-social-in-the-workplace-instead/#5c8804c64418>

as a revolution in the workplace (Turco, 2016). It helps us to understand why over 80% of CAC 40<sup>2</sup> corporations have now implemented an ESM platform.

We examined the use of ESM in a multinational corporation that implemented an ESM platform in order to benefit from its aforementioned advantages, including reducing the use of emails. However, our exploratory investigation revealed that, paradoxically, the use of email has not decreased as expected, and that the introduction of ESM in fact ended up generating a millefeuille effect. The millefeuille effect refers to the layering process whereby a new medium is added to existing ones without replacing them (Boukef & Kalika, 2006). Several studies in the IS field have incorporated the millefeuille effect to illustrate the layering process between different media in the workplace (Rouland and Tran, 2007; Boukef and Charki, 2008. Tran, 2010; Tahri and Fallery, 2010; Geoffroy *et al.*, 2011; Prost and Zouinar, 2015; Creno and Cahou, 2016; Laniray and Saidani, 2017).

Earlier studies by Kalika *et al.* (2007; 2008) put forward explanations for the millefeuille effect, and various “effects” were suggested to explain the layering process of email over face-to-face meetings. However, despite the valuable insights provided by Kalika *et al.* (2007; 2008), the effects were only suggested and not empirically validated. Moreover, some of the explanations are embedded in the specific characteristics of face-to-face meetings that make their substitution by email communication hard. For instance, the “actors strategy effect”, which refers to the need for face-to-face communication, does not apply when comparing the layering process of email versus ESM. In their recent review of social media affordances for organizing, Leonardi and Vaast

(2017) argued that the way social media are used interdependently with emails is still unknown, and emphasized the importance of understanding the way ESM is integrated within the media portfolio available in the workplace. Indeed, research on ESM has mainly focused on its outcomes. Little has been done on how ESM fits into the existing media. However, this is essential to understand the ways ESM can alter work practices (Leonardi and Vaast, 2017). Thus, there is a significant gap in our understanding of the way this layering process occurs when media other than email and face-to-face communications are considered. Hence, explaining the millefeuille effect became a central focus of our analysis.

We thus adopted a grounded approach to propose an update to the millefeuille theory. More specifically, our research seeks to review explanations of the millefeuille effect by contrasting use of the medium considered as the most frequently deployed in today’s organizations – email – with the medium considered as the most promising for a revolutionized workplace of the future – Enterprise Social Media (ESM) – by both practitioners (Chui, 2012) and academics (Leonardi, 2017).

Moreover, as ESM provides unprecedented features not previously available from earlier communication and collaboration technologies (Treem and Leonardi, 2012), we used the affordance perspective as an overarching theoretical framework to interpret and organize our findings. The affordance perspective – the potential for action that new technologies provide to users – was recently recommended as a useful perspective for understanding the role of social media use within organizations (Leonardi and Vaast, 2017). Indeed, ESM provides employees with

<sup>2</sup> <https://www.journaldunet.com/solutions/dsi/1149478-80-des-groupes-du-cac-40-equipements-d-un-reseau-social-d-entreprise/>

new communication opportunities that go beyond those of email, such as access to information and knowledge that cannot be found elsewhere (Karoui *et al.*, 2015), “view and traverse network connections” (Kane *et al.*, 2014, p.290), and greater communication visibility (Leonardi, 2014). More recently, Leonardi and Vaast (2017) argued that, given the new features and subsequent affordances of ESM, it may have led to one of the most significant organizational shifts in the workplace. An updated explanation of the millefeuille effect is thus needed that acknowledges the specific features of media in-use. We address the issue with the following research question: Why does the millefeuille effect occur in the situation when ESM is used in the organization in addition to email?

Consequently, and by adopting a meta-theoretical affordance lens, we embarked on a research journey to develop a grounded theoretical revision of the millefeuille effect in organizations. To do so, we used a case study where qualitative data was collected through 81 semi-structured interviews with six categories of informants who had different key roles in the initiation, management, promotion and use of ESM. We also had access to internal data that improved our understanding of the context of ESM use.

Our findings revealed new, previously unidentified explanations for the millefeuille effect, such as the gadget effect and the domino effect. In addition, we called other assumptions about the millefeuille effect into question (e.g., the spiral effect). More specifically, our paper proposes new theoretical lenses that integrate the affordances perspective to explain the millefeuille effect.

The article is structured as follows. We begin by analyzing the millefeuille theory initially presented by (Kalika *et al.*, 2007; 2008). We then present our empirical context and methodology. Next, we show our results while supporting our findings with evidence

from our interviews. We end by showing our theoretical contributions related to the revised millefeuille theory, providing concrete managerial recommendations and offering operational guidelines.

## **1. THEORETICAL BACKGROUND**

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We analyze the relevance of the millefeuille theory to explain media use compared to other theories. Based on the analysis of the different millefeuille effects suggested by previous studies (Kalika *et al.*, 2007; 2008), we classify them into three groups of explanations based on their associated constraints. We then discuss the specific features of ESM that distinguish it from existing media and argue the relevance of the meta theoretical affordance lens to explain the millefeuille effect.

### **1.1. The relevance of the millefeuille theory to explain new media use**

Research on media use has gained significant momentum with the proliferation of IT tools. IS scholars have investigated media choice and explored the extent to which it impacts on communication outcomes (Chen *et al.*, 2008; Dennis *et al.*, 2008) and individual performance (Ali-Hassan *et al.*, 2015). Various theories have been put forward to explain how and why a given medium is used (e.g. information richness theory (Daft, 1986)). These single medium choice theories have mainly investigated the different factors that trigger the use of electronic communication, notably email. Initially focusing on the task-technology fit to explain media and the irrelevance of email use for ambiguous tasks (Daft and Lengel, 1986), they offer further factors such as experience of use (Carlson and Zmud,

1999) and communicators' geographical and temporal constraints that may impose a certain media choice (Trevino *et al.*, 1990).

However, given the proliferation of media available in the workplace, focusing on the choice of one medium alone fails to provide a full understanding of the different communication options available. Indeed, employees usually have to manage a set of communication tools rather than one single medium (Massey and Montoya-Weiss, 2006; Leonardi *et al.*, 2012), in other words, they need to handle different media simultaneously or in sequence (Bélanger and Watson-Manheim, 2006). While single medium choice theories focus on how and why a single medium is used, multiple media research puts the emphasis on how and why a set of communication media is managed to accomplish a specific task. For instance, Watson-Manheim and Bélanger (2007) developed a media repertoire which looks at the use of multiple media communication tools for specific communication purposes. More recently, Leonardi *et al.* (2012) showed that managers combine media in different ways depending on the outcomes they want to achieve. These combinations are based on how the features of different media are perceived.

While single medium choice theories focus on one medium, and multiple media use theories apply to a repertoire or a set of media, other approaches deal with media superimposition. In this regard, media multiplexity (Haythornwaite, 2005) and the millefeuille theory (Kalika, 2002) offer two different perspectives. Haythornwaite (2005) spoke about media multiplexity, which refers to multiple media used in a dyadic relationship. The assumption is that when two users have a strong relationship, they are likely to employ more media (and thus increase media multiplexity) in order to maintain their relationship. Studies investigating media multiplexity have adopted social network analysis, measuring the

frequency of interaction with each media for each dyadic relationship.

In contrast, the millefeuille theory focuses on how different media coexist and the extent to which the existing layering process is modified when a new medium is introduced (Boukef and Kalika, 2009). With the expansion of new media available in the workplace, the millefeuille effect investigates the way a new medium coexists with those already in place, with a focus on the layering process and the extent to which it can or cannot alter the layers already in place (Boukef & Kalika, 2006). The new medium can superimpose the existing layers and is able or not to change the use of the existing media. In their study of email use, for instance, Boukef and Kalika (2006) compared the latter with phone calls and face-to-face communication, and found three forms of millefeuille effect depending on whether email use had modified the existing layers (meetings and phone calls) to a limited or to a large extent. The millefeuille effect can be "constrained", "chosen", or "planned and emergent". When it is constrained, email apparently fails to improve the use of the existing layers (phone calls and meetings). While the number of meetings remains higher because of the constraints linked to the activity and communication norms ('reunionite' culture), phone use can be reinforced due to email overload. The millefeuille effect can be desired by the proactive sensemaking of top management that manages to reduce the number of meetings and improve its efficiency, but can also have unexpected outcomes such as increased email use at the expense of informal face-to-face meetings (planned and emergent millefeuille effect). Finally, the millefeuille effect can be deliberately chosen. In this case, the email layer does not change the previous layers (meetings and phone calls); users prefer non-mediated communication, which remains unchanged, while adding an email layer as well.

The millefeuille theory provides insights that change our understanding of the way a new medium is used by taking the existing media portfolio in the workplace into account. It also provides interesting new perspectives by acknowledging people's negotiation of the millefeuille effect given communication norms in place and the context of use (Boukef and Kalika, 2006). Focusing on the specific case of email over meetings, Kalika *et al.* (2007; 2008) argued that while email use enlarges the portfolio of available media, it does not lead to a shake-up of the already existing layers. Email adds new interaction opportunities without impacting the number of meetings. The latter remain high for most of the companies in the sample. Different effects have been identified to explain this layering process. In the following section, we classify these suggested explanations into three groups, based on their associated constraints.

## **1.2. Proposition of a classification of the millefeuille effect suggested by Kalika *et al.* (2007; 2008)**

Kalika *et al.* (2007; 2008) put forward a list of different explanations for the millefeuille effect. These explanations highlight constraints that prevent email from replacing face-to-face meetings, which ends up superimposing face-to-face meetings without really modifying the already existing layers. Our analysis of the list enabled us to highlight three categories of constraints that explain the layering process and reinforce the millefeuille effect. The millefeuille effect can be explained by the constraints related to email characteristics compared to face-to-face meetings, by communication norms and routines, and in the context of IT use. We thus put forward three groups of explanation that reinforce the layering process. Moving from a list of suggested

explanations for their classification into three groups of constraints provides us with further insights into how the layering process occurs by clearly identifying the associated constraints that reinforce the millefeuille effect.

### **1.2.1. The millefeuille effect explained by email constraints vs. face-to-face meeting opportunities**

Email has been described as a poor media form (Daft and Lengel, 1986) that is unsuitable for equivocal communication. Boukef and Kalika (2006) argued that a stronger millefeuille effect can be caused by the characteristics of this media form. Kalika *et al.* (2007; 2008) suggested that while email use can reduce the number of meetings, it may also generate new ones. The basic assumption is that email can be a source of ambiguity and misunderstanding, triggering the need for new meetings to clarify the roots of equivocality and leading to an escalation in the number of meetings. This is referred to as the spiral effect, which, in the specific case of emails over meetings, is linked to the characteristics of electronic communication compared to face-to-face interactions.

In contrast, face-to-face meetings play an important role in organizations and it is hard to substitute them with electronic communication. The "representation of work effect" thus strengthens the millefeuille effect. Meetings provide opportunities for people to exhibit their power, benefit from certain forms of privilege and develop the formal and informal ties needed for a job to get done. The "social needs effect" reinforces the millefeuille effect.

Kalika *et al.* (2007; 2008) pointed to the extent to which meetings are linked to players' strategies (Crozier and Friedberg, 1977) and social needs. Face-to-face meetings are thus hard to call into question

because of the underlying symbolic meaning and the advantages that employees seek that make the millefeuille effect even thicker.

### **1.2.2. The millefeuille effect explained by communication norms and routines**

Organizational routines and communication norms may reinforce the millefeuille effect. In particular, Kalika *et al.* (2007, 2008) highlighted the extent to which an organization's routines can be a source of inertia that may strengthen the millefeuille effect. Meetings are considered as formal routines that are hard to do away with. The prevalence of this "bureaucratic effect" thus reinforces the millefeuille effect.

In addition to these routines, Kalika *et al.* (2007, 2008) also highlighted the extent to which organizational norms play a part in the layering process. IS scholars have frequently acknowledged the crucial role of norms in media choice (Watson-Manheim and Bélanger, 2007) as well as in explaining the millefeuille effect (Boukef and Kalika, 2006). The "communication norms effect" has an impact on the millefeuille effect by reinforcing the existing layers.

### **1.2.3. The millefeuille effect explained by context of use**

Previous studies by Kalika *et al.* (2007, 2008) also emphasized the fundamental role of managers in encouraging or obstructing email substitution compared to meetings. More particularly, Boukef and Kalika (2006) argued that managers can play different roles in shaping the millefeuille effect. They can be actors in its design (the case of the planned and emergent millefeuille), witnesses to its implementation (the case of the chosen millefeuille effect) or can submit to its related limitations (the case of the constrained millefeuille effect). This

has been called the "involvement management effect".

Kalika *et al.* (2007, 2008) also took fluctuations in activity into account to explain the millefeuille effect. Hence, increased activity requires more meetings and more email communication, so an increase in email use does not necessarily imply a decrease in the number of meetings. The "efficiency effect" thus reinforces the millefeuille effect.

Table 1 summarizes how the suggested explanations for the millefeuille effect proposed by Kalika *et al.* (2007; 2008) are sorted into three groups of explanations.

While these suggested explanations provide us with valuable insights into the millefeuille effect, they are not empirically validated and are embedded in the specific context of email versus face-to-face meetings. Given the shift in users' media portfolio, we believe that it is useful to reexamine the layering process, taking into account today's media-in-use features. Indeed, while more than ten years ago, the question of email use was relevant, this is no longer the case since email has become omnipresent in organizations. Moreover, some explanations initially proposed by Kalika *et al.* (2007; 2008) cannot be applied when different media are involved other than face-to-face communications. This is true for the players strategy effect and the social needs effect, for instance, that can only be applied to face-to-face meetings. The next section will shed further light on the shift in the characteristics of the media portfolio and the extent to which adopting an affordance lens can deepen our understanding of the millefeuille effect.

## **1.3. ESM specific features and the affordance lens**

Below, we discuss the extent to which email use raises issues in organizations,

**Table 1: Proposed classification of the explanations provided by Kalika *et al.* (2007; 2008)**

Three associated explanations for the millefeuille effect	Suggested explanations for the millefeuille effect (Kalika <i>et al.</i> , 2007; 2008)	Details
Millefeuille effect explained by email constraints vs. face-to-face meeting opportunities	Spiral Effect	Email communication may be a source of ambiguity and misunderstanding that triggers an increase in the number of meetings and thus reinforces the millefeuille effect.
	Representation of Work Effect	Face-to-face communication has long been considered a dominant way of working in organizations, making its substitution by electronic communication challenging.
	Social Needs Effect	Face-to-face meetings create more of the interaction and socialization opportunities between employees needed to build sustainable relationships and foster cohesion between co-workers. It is difficult to achieve the same results through electronic communication.
	Players Strategy Effect	Asking for or participating in face-to-face meetings may be a demonstration of power. Calling meetings into question may curb some employees' privileges, who may then resist their replacement. The players' strategy may thus be to reinforce the millefeuille effect.
Millefeuille effect explained by communication norms and routines	Bureaucratic Effect	Meetings are perceived as formal routines that cannot be wholly removed or replaced by email use.
	Communication Norms Effect	Communication norms shared in an organization explain the choice of media used and the predominance of face-to-face meetings to a large extent. The latter may be associated with a participative management style that cannot be supplanted by electronic communication.
Millefeuille effect explained by context of use	Involvement of Management Effect	Management plays a crucial role in fostering email use and promoting new working methods that help to reduce the number of meetings.
	Efficiency Effect	The efficiency effect takes fluctuations in activity into account, thereby reinforcing the millefeuille effect through an increase in communication needs (greater need for meetings and, at the same time, increased use of email communication).

and how ESM features enable them to deal with these challenges.

**1.3.1. Email use issues**

Scholars have noted a shift in email research from email adoption and use to the challenges raised by email use (Barley *et al.*,

2011). Email communication has been called a “selfish” form of communication where good ideas perish and information is locked in (Griffith, 2014). While it has become a prevalent tool in organizations, its use raises many concerns. Employees spend a large part of their day checking their emails, and extant research has pointed to the issue

of overload and interruption related to its use (Sumecki *et al.*, 2011). These problems impact on productivity (Barley *et al.*, 2011) and even on employees' job satisfaction (Russell *et al.*, 2007; Hacker, 1985) and performance (Addas and Pinsonneault, 2018). Many organizations thus question the rationale of using email as their main communication tool (Johri, 2011). Given the new opportunities afforded by the use of ESM and the adverse consequences of email use, some scholars have asked whether companies are "ready to finally kill email" (Griffith, 2014; Pillet and Carillo, 2016), predicting that its volume could decrease by up to 20% (Richter *et al.*, 2013). This is perceived by a growing number of organizations as a clear benefit of the increased use of ESM. Recently, Pillet and Cartillo (2016) emphasized the extent to which email is seriously being called into question, with an increase in enterprise social platforms that facilitate information accessibility and improve employees' networking capacities. In view of its specific features, ESM has thus been presented as an alternative to solve the problems linked to email.

### **1.3.2. ESM: an alternative to email pitfalls?**

ESM has rapidly proliferated in the workplace in both scale and scope (Neeley & Leonardi, 2018). It has been presented by IS scholars as a revolutionary new medium responsible for one of the most significant organizational shifts in the workplace, since it provides employees with new communication capabilities that go beyond simply sending and receiving electronic messages (Leonardi & Vaast, 2017). ESM allows employees to "(1) *communicate messages with specific co-workers or broadcast messages to everyone in the organization;* (2) *explicitly indicate or implicitly reveal particular co-workers as communication*

*partners;* (3) *post, edit, and sort text and files linked to themselves or to others;* and (4) *view the messages, connections, texts and files communicated, posted, edited and sorted by anyone else in the organization at any time of their choosing"* (Leonardi, Huysman and Steinfeld, 2013, p. 2). This definition of ESM reveals the major unprecedented affordances ESM offers employees in today's workplace that were not previously available from existing media in general and email in particular.

First, ESM improves connectedness between employees, irrespective of their status, location, position, tenure or hierarchy. At virtually no additional cost, employees can significantly extend their audience (Leonardi, 2014) that, with email, was restricted to their workflow. Second, ESM goes way beyond email in boosting employees' visibility as it reveals ambient awareness by disclosing employee metaknowledge (who knows what and who knows whom) (Leonardi, 2015). Third, in contrast to email, ESM is a platform where employees can interact, providing instant feedback to others' comments in real time. Fourth, ESM use enables employees to view and traverse network connections that facilitate employees' endeavors to forge and maintain relationships (Kane *et al.*, 2014). Fifth, on social media, *content is generated by employees*, which constitutes a significant change in organizational action as it gives employees a voice within their workplace, where they can share their knowledge, ideas and even concerns (Leonardi & Vaast, 2017). As social media allows user-generated content (UGC) to be broadcasted to everyone in the organization (Leonardi *et al.*, 2013), employees are empowered to generate content in a proactive way, going beyond the bureaucratic boundaries associated with their jobs and bypassing technologies linked to their classic workflow contacts and task interlocutors.

However, despite the growing enthusiasm for ESM, recent research has shown that ESM still has a long way to go before replacing email (Leclercq *et al.*, 2017). Empirical evidence from the recent Adobe Consumer Email Survey Report 2017<sup>3</sup> for the U.S. revealed that despite the proliferation of ESM, email is still the most dominant form of communication technology. The respondents indicated that it remains their preferred communication technology, whereas ESM was mentioned by only 10% of them. Since the addition of ESM to the portfolio of existing media obviously has some way to go before it replaces email, we instead observe a layering process.

Thus, as the employees' media portfolio expands, it generates new questions about the use of the new medium and the way it is added to existing ones, as well as the extent to which it can replace some of them. Such questions make it crucial to understand the potential outcomes this new medium can trigger (Leonardi and Vaast, 2017). It appears that as ESM creates new interaction opportunities and is presented as a communication means that can overcome the challenges linked to email, studying how these two media are used and the extent to which ESM can replace email use is crucial in helping us understand ESM use in organizations as well as its related outcomes.

### **1.3.3. The affordance lens**

Previous studies on millefeuille theory have acknowledged that the millefeuille effect results from users' negotiations involving the media's characteristics linked to its norms and context of use (Boukef and Kalika, 2006). We argue that its use is explained by the way different features of the new medium are interpreted by users as either affordances or constraints. A new

medium is likely to reinforce the millefeuille effect without altering the existing layers, especially when users cannot make sense of the benefits they may get from its features.

In order to understand how the media is used and its related outcomes, we need to focus on the features built into the technology and how people make sense of the opportunities for action that it affords (Leonardi and Vaast, 2017).

As Leonardi (2011) pointed out, understanding media outcomes depends on the capabilities of the media as well as how people make sense of and use these capabilities. Desanctis and Poole (1994) argued that users' interpretations "are likely to capture only limited aspects" (p. 126) of the media in use. Thus, users will not necessarily make sense of or use all the available features built into the system when interacting with the technology. Only some of the features will be used (Sun, 2012).

Each medium has its own features that afford certain actions and constrain others (Leonardi, 2011). The medium provides affordances when users perceive that the features enable them to perform certain actions (Leonardi & Vaast, 2017). However, when people feel that these same features constrain some of their actions, the medium is seen as imposing constraints. Both affordances and constraints result from people's interpretation of the features built into the technology (Leonardi, 2013).

As users' media portfolio grows, they interpret the material characteristics of the different media according to their context of use, and these can be perceived as either affordances or constraints. Affordances and constraints are thus relational since they result from the user's interaction with the technology and are not enabled by the media or the user alone (Leonardi, 2011).

<sup>3</sup> [https://blogs.adobe.com/digitaleurope/files/2017/08/20170815\\_Email2017\\_EMEA\\_Report.pdf](https://blogs.adobe.com/digitaleurope/files/2017/08/20170815_Email2017_EMEA_Report.pdf)

Thus, in line with Leonardi and Vaast (2017), we believe that the affordance lens is useful to understand the role of ESM within organizations since it focuses on the intersection between people's goals and a technology's material features.

By adopting an affordance lens to explain the millefeuille effect, we can provide a detailed explanation of how people interpret and use the media's features. If these features are not appropriated and used, they cannot provide any change. Citing the work of Gibson (1986), Leonardi and Vaast (2017) explained that users do not interact with a technology prior to perceiving what the technology is good for. Thus, "the affordance lens is particularly useful for theory in that it has the potential to help explain why, how and when new technologies like social media become enrolled in and affect organizational action" (p. 9).

Our literature review emphasized the extent to which existing explanations for the millefeuille effect need to be revised given the evolution of employees' media portfolios and the fact that there is no longer any question regarding the use of email. Now, organizations wonder how they can reduce its use rather than increase it. ESM is considered a potential solution to resolve the issues related to email overuse.

This paper aims not only to examine the millefeuille effect by focusing on different media from those initially explored by Kalilka *et al.* (2007; 2008), but also seeks to introduce a revised version of the millefeuille theory by proposing new theoretical lenses to explain the layering process.

## 2. METHODOLOGY

Our paper attempts to offer a revised version of the millefeuille theory. The aim was not to use the data collected to confirm existing theories, but rather to generate a

revised version of the millefeuille theory. The updated version builds on existing theories and conclusions regarding the millefeuille effect to propose new theoretical lenses to explain the layering process. Thus, given our research question: "Why does the millefeuille effect occur in the situation when ESM is used in the organization in addition to email?" We conducted a qualitative study using a grounded theory approach.

We further explain the use of the Grounded theory approach in the following section and then give detailed insights about the context of our research and data collection and analysis.

### 2.1. Grounded theory approach

The grounded theory approach was deemed suitable for three main reasons. First, following the principle of emergence (Glaser & Strauss, 1967), our research question and its related concepts earned their relevance through the systematic generation and conceptualization of empirical data. Second, we purposefully allowed confusion and data complexity at the data collection initiation process to enable relevant findings to emerge, taking the greatest care to avoid forcing existing theory onto our empirical data or to influence interviewees (Urquhart, 2013). Third, leveraging access to our unique data and guided by the spirit of grounded interviewing (Charmaz, 2006), we collected rich data and benefited from practical experience by following the recommendations of our key informant who – thanks to over 20 years of tenure at the company – helped us to select the most appropriate categories of informants to interview during the sampling process.

Grounded theory is widely used in social science (Morse, 2009) and in IS research in particular (Wiesche *et al.*, 2017) since its aim is to generate theory from empirical data, unlike other approaches where data

are collected and analyzed to verify existing theory (Holton and Walsh, 2017). Grounded theory is particularly useful for theory generation as well as for developing context-based explanations of IS phenomena (Urquhart *et al.*, 2010), where constructs gain their relevance through the systematic generation and conceptualization of data (Glaser and Strauss, 1976). It thus enables us to develop theory grounded in data through continuous interaction between data collection and analysis (Urquhart *et al.*, 2010). Our revised millefeuille theory aims to explain the layering process. Thus, special emphasis was placed on investigating **why** this layering process takes place in the specific case of ESM versus email. However, in so doing, we also considered how this layering process takes place and the extent to which the layering process reinforces or changes the existing layer. We also considered at which point or **when** the millefeuille effect is strengthened. We thus identified the role of communication norms and context-of-IT-use in the layering effect. Following Gregor's (2006) classification, our theory type is explanation since our revised millefeuille theory provides an exhaustive explanation of how, why and when the layering process takes place.

## 2.2. Research context

Our qualitative case study was conducted in a large multinational specialized in the beauty and well-being sector. The company is headquartered in France and has subsidiaries in twenty-nine countries spread over four continents (Europe, Africa, Asia and North America). It manages eight brands in the fields of cosmetics, textiles, clothing and household brands. We gained access to the organization through the consulting company that implemented the ESM project and helped with the post-adoption phase.

The consulting company introduced the team of researchers to the social

media steering committee responsible for overseeing the social media experience. The social media community manager was selected by the committee to be our key informant as she has significant tenure at the company.

ESM implementation was the main aspect of a large digital transformation project that the organization had started two years before we began our research. From an organizational standpoint, the company suffered from various shortcomings such as an old hierarchical structure, a siloed organization system, lack of communication and collaboration between the different business units, and lack of knowledge-sharing between the subsidiaries. From a medium vantage point, email was the most prevalent and widely used media for all organizational activities including communication, collaboration, group projects, etc.

The consulting company saw the integration of the new medium of ESM as the solution needed to overcome the firm's organizational shortcomings. More specifically, it was considered highly desirable to replace email by integrating ESM into the employees' day-to-day job-related activities in order to reap the positive expected benefits associated with ESM.

The ensuing research is thus a revelatory case study (Yin, 2017), where we had unique access to different categories of ESM users ranging from the CEO and top executives to social media ambassadors and (light and super) contributors to the ESM system.

Single case studies are widely used and accepted in the IS literature (e.g., Gregory *et al.*, 2015; Levina and Ross, 2003) since they enable researchers to generate in-depth understanding of information systems, being naturally and socially embedded in their social (Orlikowski and Iacono, 2001) and organizational context (Klein and Myers, 1999).

### 2.3. Data collection and analysis

Data were mainly collected through 81 semi-structured interviews. Our data collection lasted over 22 months, from June 2014 until March 2016. This corresponds to the post-adoption phase.

The interviews covered different stakeholders involved in ESM use. In particular, we interviewed the consultants who had implemented the ESM project and handled the change management phase, the ESM steering committee, the community manager and the champions in charge of promoting ESM internally, most of the firm's top managers and the two categories of users with different levels of engagement on the platform (super contributors and light contributors). We carefully selected our interviewees with the help of our key informant (the ESM community manager) to ensure the representativeness of our sample (see Table 2). Our selection of interviewees was guided by our determination to gain an in-depth understanding of the attitudes and thinking of those who gave sense to the new medium (e.g. the social media steering committee, the champions) and those who made sense of the new medium (users). Our key information provider, the ESM Community Manager, helped us identify these categories of interviewees based on their contribution to the ESM. More specifically, with regard to the choice of users, our key informant advised us to focus on the two groups of top contributors and light contributors as she believed they formed the two most informative groups with respect to ESM use motivation. From a methodological standpoint, we found supporting evidence for this choice. According to Flyvbjerg (2006), extreme cases are often the source of enhanced information since they involve more actors and more basic mechanisms in the situation studied. In addition, it is often preferable to clarify

the underlying causes of a given problem and its consequences than to describe the symptoms of the problem, and random samples seeking representativeness are rarely able to produce this kind of insight.

The interviews aimed to understand how and when employees use ESM, as well as the benefits they obtained from its use. The interviews also sought to understand how and why employees use emails and ESM.

All of the interviews were recorded, giving us a total of 69 hours, 46 minutes and 35 seconds of listening material from 81 interviews. This meant the average interview lasted 51 minutes and 41 seconds. In addition to the formal interviews, we had several informal conversations with our key informant and members of the social media steering committee.

Moreover, in addition to the data we collected, we had access to internal documents and reports as well as internal videos that improved our understanding of both the context of use and the use of ESM itself within the company. These documents explain ESM use, its goals for the group as well as the best uses for its employees.

The interviews were carefully read to understand the extent to which ESM adoption can replace or complement email use, with special attention given to users' interpretation of their mobilization of ESM as well as their perception of the differences between the two media. We attempted to gain a deeper understanding of ESM interpretation and use, as well as further explanations for the millefeuille effect of ESM over email. We wrote notes to summarize our findings which were systematically compared with the framework proposed by Kalika *et al.* (2007; 2008). Finally, going back and forth between our empirical data and the existing literature on the millefeuille effect, we attempted to conceptualize our new framework.

**Table 2: Details of the interviews**

Interviewee	Number	Rationale
<b>The CEO</b>	1	The CEO is a fervent believer in the power of social media to transform his company and build ties between his employees who work in over twenty-nine countries on four continents.
<b>Top executives</b>	21	All the top executives were tasked with promoting the use of ESM and encouraging its use.
<b>Consulting company senior consultants</b>	3	The consulting company set up the ESM platform and ran the associated change management campaign.
<b>ESM steering committee</b>	6	The steering committee was entrusted with following the social media challenge and ensuring its success. Its members are: the digital director, the HR director, the communications director, an IT manager, a business analyst and the ESM community manager (our key informant).
<b>ESM champions</b>	19	The champions were responsible for promoting the use of the ESM platform within their units. They are the internal ESM ambassadors.
<b>Super contributors</b>	18	The super contributors were identified by our key informant as the most prolific contributors to ESM.
<b>Light contributors</b>	13	The light contributors were identified by our key informant as the weakest contributors to the ESM platform.

**Table 3. Internal data used**

Source of data	Quantity	Rationale
<b>Internal Social Media Documents</b>	8 documents	The documents explain how social media was promoted internally. They include: Presentation of social media project Social media Detailed user guide EN Social media Essentials EN Project Management with Social Media Social media Interview Guide Introductory email about social media to the employees What is Social Media?
<b>Internal Videos</b>	11 Videos	The internal videos explain social media, its goals and some of its best uses to BC employees 1. What is social media? Episode 1: 1 minute and 25 seconds 2. What is social media? Episode 2: 2 minutes and 24 seconds 3. What is social media? Episode 3: 1 minute and 53 seconds 4. Social media: the revelation (interview of the CEO): 5 minutes and 11 seconds 5. Social media in 1 minute: 2 minutes and 41 seconds 6. Working with social media (interview with one Super Contributor): 2 minutes and 57 seconds 7. Working with social media (interview with HR Director): 2 minutes and 33 seconds 8. One year of social media: 1 minute and 6 seconds 10. Social media anniversary: 1 minute and 45 seconds 11. How to contribute to social media: 4 minutes and 45 seconds 1 minute to understand social media: 2 minutes and 41 seconds

The coding process relied on three key phases of data coding associated with grounded theory (Strauss and Corbin 1998). We began with the open coding phase (Glaser, 1978), which consists of coding the data in every possible way to generate numerous provisional codes. Our goal was to identify concepts and higher-level categories to gain a better understanding of the millefeuille effect subsequent to ESN use over email. Given its elasticity, multiple coding options and information cross-referencing tools (Richards, 1999), NVivo software was used to analyze the data that was coded line by line. A code was attributed to each explanation provided which helped us to understand millefeuille reduction or reinforcement. For instance, one unexpected finding from our coding showed that the use of email notifications reinforces the millefeuille effect. We then moved to axial coding, where the emphasis was on grouping codes. These were linked to one another in terms of underlying concepts and properties in such a way as to elaborate the main categories stemming from our analysis (Strauss, 1987). For instance, some codes related to challenges with ESM in terms of sensemaking (e.g., ESM is not a working tool and is even an obstacle to work, ESM is a nice tool to have, ESM is perceived as a Facebook tool) were grouped to constitute the gadget effect.

Third, we ended our coding procedure with the selective coding stage, where we related our previously identified categories to one another. We thus grouped the explanations or effects identified into a homogenous ensemble. Three groups were then put forward, namely, media features and related affordances or constraints, communication norms and routines, and context of IT use. Our theoretical lenses emerged from this last step (see Figure 1 for the way

the different codes were grouped through the various stages of the coding process). Our codes were double coded by the second author. We obtained an inter-reliability rate between the two codings of 95.5%<sup>4</sup>.

### 3. RESULTS

While ESM offers new opportunities for interactions between employees, some of them do not really feel the need to switch to the new medium, as noted by one of the consultants involved in the project: *“The main burdle was employee resistance. Even though we emphasized cases of operational use, the employees don’t really see the tool’s utility. They communicate by email, phone calls and face-to-face meetings, and don’t understand the usefulness of ESM which is seen as adding a new layer to the communication media portfolio rather than replacing existing ones. The second burdle, which is linked to the first one, is that employees don’t see the need to switch from their usual communication tools to the new one”* (Senior Consultant). Our findings highlight the extent to which ESM use finds it hard to replace email. We instead observe a layering process known as the millefeuille effect. Our qualitative analysis revealed an ensemble of three lenses that have been critical in providing answers to our research question: “Why does the millefeuille effect occur in the situation when ESM is used in the organization in addition to email?” These lenses are: the media portfolio features lens (gadget effect, domino effect), the norm and communication routine lens (communication routines effect) and the context-of-IT-use lens (media redundancy effect and managerial engagement).

In the following section, we describe how the millefeuille effect unfolds, and

<sup>4</sup>(Number of codes-number of coding disagreement)/number of codes.

put forward the three lenses we empirically highlight to explain this layering process.

### 3.1. The millefeuille effect highlighted

Our analysis showed that despite the new interaction opportunities linked to ESM use, the newly added layer failed to replace email use, leading to the observation of a layering process known as the millefeuille effect.

#### 3.1.1. New opportunities for interactions associated with ESM use

The company uses a digital platform called Chatter, a cloud-based collaboration platform developed by Salesforce. The company decided to set up an ESM in order to enhance collaboration between its employees that work for 8 brands in over 29 countries, as indicated by one senior manager: *“our aim is to encourage innovation and exchange, best practice sharing, process facilitation, and targeted replies... I was in charge of drawing up a monthly report on best practice and the most successful communities for the steering committee, and I can say that we have many good practices”* (Senior Manager). Indeed, as the company had a siloed and relatively limited governance system in terms of innovation, implementation of ESM was expected to break through the silos between different brands and company units, and foster the sharing of best practice between them.

The ESM tool was also introduced to reduce the volume of emails sent and to address the problem of email overload. This issue was crucial for the company, the idea being to transform the way work gets done and to promote new forms of communication. Analysis of internal data during the implementation phase showed

that reducing email use in favor of community-based communication was a clearly acknowledged goal. When employees need to send a message to many recipients, they can use Chatter instead of emails. ESM communities have thus been set up to host communications related to specific topics. Employees are encouraged to share and access information through the dedicated community instead of by email exchange. In this way, the number of emails is expected to decrease, as the community manager explained: *“The aim was not to stop using emails. Instead, we’re looking to reduce the number of emails by creating communities for operational processes.”* This is also highlighted by the ESM project manager: *“ESM is supposed to replace emails to a certain extent, notably emails sent when we need to share information with a number of people.”*

One of the consultants who managed the ESM implementation project added that the choice of media is really important as it represents a substantial cultural shift and significantly modifies the way work gets done and information is shared within the company: *“We aim to change working methods to move to a community form of communication rather than exchanging information via thousands of emails. Everyone is drowning in absolutely phenomenal email flows... this project involves a real cultural revolution, a real change in working methods... we hope that it will limit the number of emails and prevent employees from sinking under their number...”*

Besides ESM and email, employees have a diversified portfolio of communication media at their disposal such as instant messaging (WhatsApp), Skype and collaborative tools such as SharePoint. Phone calls and face-to-face meetings remain prevalent. Given the international context of the company, IT-enabled media is particularly

useful in communications with distant co-workers. In this sense, Chatter provides these co-workers with new interaction opportunities.

The platform gives users different communication opportunities, either through their profile page or via private (only accessible to invited members) or public (accessible to all users) communities. Users can belong to a large number of communities and thus be able to share and have access to valuable information. One top manager emphasized the extent to which joining communities on Chatter gives him access to information that is not usually easily available. The following quote shows the extent to which this community-based communication is appreciated compared to email, since users can proactively look for the information they need which they might miss if it is sent by email: *“I follow groups that are directly linked to my field of responsibility and that helps me a lot, especially now that other members of (the name of the group) use this tool to a greater extent. There’s more and more information available because anyone who’s interested can join and if you’re interested, you never miss anything that’s important for you, because not everyone in France knows it might be important for me, so they won’t include my email address... But when they post it on Chatter, I always see it, even though they probably don’t know that it’s important for me. But it’s how I get a lot of additional information that helps me in my job every day.”* (Light contributor)

Users can send a post, comment, share a link or a file, or ask others for help. They can also follow other users and thus have access to all the information shared by said user on his/her private page. This is also a distinguishing feature of the ESM as it provides new opportunities for interactions with users they may not know, as highlighted by

the following quote from one champion: *“I got to know people I wouldn’t have known otherwise.”* This is particularly interesting in the case of the company in our study since ESM use facilitates interaction between employees working in different brands and different countries.

Users can send private messages via the platform and can also click the @mention feature to grab someone else’s attention or ask them a question. They also have access to recent updates on the platform and can set up email notification alerts for updates important to them.

### 3.1.2. ESM use vs. email use

Despite the different communication opportunities enabled by Chatter, not all employees show the same enthusiasm for the new medium, as highlighted by this project manager: *“I’m really convinced that it’s an essential tool, a requisite for the future. I think it’s a question of time. There are people who quickly get into it and use it well, others who will never use it, and others who’re in the middle as they don’t make the effort to explore the tool because of their workload...”* Since it is not mandatory to use Chatter, employees are free to adopt it or not. Our study focused on employees who had logged into Chatter at least once, and we interviewed people with varying levels of contribution to and appropriation of the tool.

Our interviews show that by enabling community-based communication, ESM fosters the exchange and fertilization of ideas, as highlighted by this quote: *“Actually, it gives us new ideas. I think it’s a really good example because I’m in some communities that post things about what our competitors are doing in different countries, and in Sweden it’s really good sometimes to see what our competitors are doing in France. So, I think I’ve found some ideas*

on ESM that I can use, and I've actually been also learning. It could be learning about competitors, about the market, about anything. I think I've learned, yes. And I think I've gotten some good ideas." (Light contributor)

ESM is also used in project management. Our analysis shows the extent to which online communities on ESM can help to facilitate project coordination as this quote from one super contributor indicates: "We've created some communities to manage projects. It's particularly useful since you can track all the interactions between the project team, the questions asked, the answers given. Moreover, all the documents are available for the team project." Our interviewees highlighted the extent to which ESM use is particularly helpful compared to email where users are overloaded with messages. One top manager pointed to the value of ESM over email when she has to manage different projects: "The main advantage of Chatter is that all the information you need is accessible via the dedicated community. This is particularly useful when you're managing several projects and you need to work on a specific one. It wasn't as easy when we used emails, we needed to track the different messages and use keywords, so we weren't sure we hadn't missed anything."

Our analysis shows the extent to which ESM use helps to improve some processes compared to email use. Different cases of use were revealed both in our interviews and through the analysis of internal documents. For instance, ESM is used to foster internal mobility between the company's different plants to manage activity fluctuations and staffing needs. Community-based communication means they can be reactive and get updates, considerably helping to simplify the process compared to email use. The employees highlighted the efficiency of ESM when it comes to managing

information, as confirmed by this senior manager: "It saves me time, and we're sure that all the members of the community get the information. We don't need to worry about how to get it out to everyone anymore." Our results also indicated that ESM use can be easier than managing emails. This was illustrated by the following light contributor: "Instead of searching for emails, lost emails that were archived and that we couldn't find in our mailbox any longer, we went directly to Chatter."

ESM can provide valuable business outcomes, even though it is not widely used in the company and has not replaced email use as initially expected. ESM introduced a new media layer with specific features and subsequent new affordances but, at the end of the day, could not replace email. Many users indicated that email is still the company's main communication tool. It will not be abandoned, as this user emphasized: "I think the most powerful tool right now, the one we use most, is email" (Champion).

### 3.2. Empirical explanations for the millefeuille effect

Our analysis revealed different explanations that are subsequent to the millefeuille effect. These explanations can be related to the features of the portfolio (Media portfolio features lens), norms and communication that strengthen the millefeuille effect (norms and communication lens) and the context of IT use (context of IT use lens).

#### 3.2.1. Media portfolio features lens

Our analysis showed that the millefeuille effect is explained by the features that can be interpreted as affordances or constraints related to the added medium or the already existing one (email in our case). Our findings showed that the millefeuille effect

results from both the sensemaking of the ESM features and that of email.

- *Gadget effect*

Our findings suggest that a discrepancy may exist between the sense the ESM steering committee gave to the new technology and how it was actually interpreted by some employees. The company rolled out ESM in order to enhance collaboration and knowledge sharing. In a professionally produced publicity interview, broadcasted internally to the organization, the interviewer asked a question about the ambition of ESM. The CEO replied that: *“ESM is a collaborative tool which has been launched in order to speed up the group’s transformation. We need to change the way we work. ESM will help us to be more efficient... It will make us more agile and collaborative.”*

In the video used to promote ESM adoption during the early days of its implementation, another executive – the director of international markets – had a similar interpretation of the organizational power of ESM.

Interviewer: *“You are one of the very first users of ESM. Could you try to describe ESM in a few words?”*

Director of International Markets: *“ESM is a place for sharing, exchanging inside the company with colleagues who’re working on similar topics, colleagues who’re abroad. It’s a place where we share best practices, tools which will enable us to save time... with ESM we can make sense of what’s going on internally and be less isolated... ESM will provide the latest versions of documents...”*

However, many employees failed to see it as a working tool and continue to use email almost exclusively. Unexpectedly, ESM was instead perceived as a nice-to-have tool that could be used outside working hours. Many employees did not feel the need to use it regularly or to incorporate it into their working routines, as emphasized by these two users: *“To be honest, it hasn’t changed my life as I still get as many emails and phone calls... I check new updates on my smartphone when I’m traveling since I don’t really have enough time during the day at work. I haven’t adopted it as a working tool... Today, ESM is seen as an extra tool that requires extra time”* (Top executive), while another added: *“Maybe we haven’t put enough important stuff on it, so I don’t feel it’s essential to use it. I see it as a nice-to-have tool, yes, nice to have. If I don’t have it, it won’t matter. It’s a facilitator but it’s not yet a working tool.”* (Champion)

There is a real contradiction between the sense given to ESM and the sense made of it by some users. Our analysis highlights the extent to which ESM is compared to Facebook<sup>5</sup>, where people can find useful and interesting information but not necessarily information for work, as suggested by this quote: *“Because it’s designed very much like Facebook, I think that in general, maybe people use it like Facebook. Again, it goes back to my point that it’s less of a critical working tool and more of a social world, a place to explore, to find things out, to look at things, as opposed to being an efficient working tool.”* (Light contributor)

Thus, ESM is perceived by employees as a nice-to-have tool of Facebook variety, but not necessarily for work. They may even see it an obstacle to work, as suggested by this quote: *“There’s a psychological*

<sup>5</sup> By Facebook, we mean the mainstream version of Facebook and not the more recent version of Facebook at work (Workplace) that has been introduced in some organizations.

*obstacle, when you're in ESM, you're not really working...*" (Super contributor), while another added: *"We're here to work and ESM is seen as preventing people from doing their job..."* (Champion). This misinterpretation linked to ESM use is due to the fact that social media tools were originally used outside the workplace for non-work purposes. It does not appear easy for users to make sense of the work-related value they could get from ESM use. This misinterpretation is reinforced by the fact that to promote ESM use, project managers encouraged users to share non-work-related information. The following quotes highlighted the extent to which this non-work-related information, while fostering contributions, has created misinterpretation and misunderstanding regarding ESM use: *"When ESM started, the management was hoping to see growing rates of contributions so there was encouragement to create public groups that anyone could access. As these groups were not oriented toward work, it could have given the impression that ESM is not for work"* (the community manager), and one user added: *"But there's no important information that's posted there. There's no need to go there... It's optional. It's not important. It still remains an option. It's good, but it's an option. So, if you don't have time for other options, you just ignore them. That's how it goes..."* (Light contributor)

Despite the fact that the ESM tool was implemented to enhance collaboration and boost knowledge sharing, we found evidence supporting the notion that it is seen by some users as a gadget that is unnecessary for work-related tasks. While this interpretation is not widespread, it remains an obstacle to ESM use, driving employees to continue to use email instead. Thus, a new layer is superimposed over the email layer without changing it. We label these issues related to a misinterpretation of ESM as the gadget effect.

#### • *Domino effect*

Users can set up notification options to receive an email about any interaction on ESM (e.g., if someone follows them, posts on their profile, shares or likes a post or comment they have made, makes comments involving them, mentions them in a post, or sends them a message). These notifications help users make the most of ESM as suggested by these quotes: *"I think so because right now I've put settings in ESM so that every time someone posts something in a community I'm in, I get an email because I always have my email open. So, when I see that there's something new, then I go in"* (Light contributor), while another added: *"I set up notifications for the activities I'm interested in which I receive directly in my email box... when I see the notifications, I go to Chatter..."* (Champion). In this way, users appropriate the different features of ESM, enabling them to improve the management of their activities through the tool without having to constantly check all the new activities in ESM. As they can be notified of any interaction in which they are involved, their access to ESM is managed accordingly. This is particularly useful for individuals who do not use the tool on a regular basis. The email notifications enable them to get updates on the different activities they are involved in, as illustrated by this quote: *"For me, Chatter is more optional because if I don't log in during the day, at the end of the day I receive notifications by email and I can check if there's anything interesting to look at, and then go to Chatter..."*

While the use of email notifications may be helpful to some people, enabling them to better manage their use of ESM, it increases the number of emails they receive, thereby reinforcing the millefeuille effect. The domino effect refers to the knock-on effect of notifications that involuntarily intensify

email use while simultaneously increasing ESM use.

- **Communication needs effect**

Despite the interaction opportunities ESM provides, it cannot fully replace email communication. The latter remains prevalent for one-to-one and private communication, as illustrated by the following excerpt: “*ESM doesn’t mean I can reduce the number of emails. I don’t belong to private communities, people tell me they need very specific information for a project, so I get hold of that information and send it to them by email...*” (Super contributor).

Email is also needed to communicate with people outside the headquarters who do not have access to the ESM tool. In this case, email use is imposed by the constraints linked to the recipient’s access to ESM: “*We feel we can do our main job without ESM, so for me, for instance, I need information sent to my mailbox because the main contact between our partner and my colleagues is by email.*” (Light contributor). Such communication imperatives enabled by email explain why its use remains prevalent in these specific cases, once again reinforcing the millefeuille effect.

- **Email overload effect**

Email is the main media used in the organization we studied, which explains why many users struggle to cope with the huge amount received. The problem of email overload is an obstacle to ESM use and reinforces the millefeuille effect.

ESM is perceived as a new layer that exacerbates the challenges of media overload. Users are overwhelmed by the number of emails they receive and have little time for any other form of media, as indicated by this quote: “*I think, as I already said, the*

*main problem for me is that I get 99.9% of communications via email and I get an inordinate amount of email every day. It could be between 100 and 150, sometimes 200 emails a day. When you already have that volume of emails containing a lot of information to process, classify, store and redistribute, it’s just too much to have to go to another point where there’s even more information, particularly if the information isn’t 100% essential to whatever project I’m working on.*” (Light contributor)

This email overload can be exacerbated by the domino effect. Managing a huge number of messages can be a hurdle to extensive ESM use as well as to further exploration of its features. When faced with email overload, users tend to limit their use of other media tools.

Thus, email overload is an obstacle to ESM use, and this is particularly true when users are short of time and ESM is perceived as a gadget, not necessarily useful for work. We thus argue that the challenges raised by email overload reinforce the millefeuille effect.

### 3.2.2. Norm and communication routine lens

This is the communication routines effect. Employees are so accustomed to using email that it is hard for them to change their routine and switch to another media. Both scholars and practitioners agree that email is the main IT tool used in business since it is anchored in employees’ everyday job-related tasks. It is hard to imagine a day without checking one’s emails: “*I don’t really know. Maybe it’s just a habit... normally you get answers pretty fast with email, so perhaps it’s just a question of doing what you’ve always done... not changing your work habits. I think maybe that’s part of it... I think it’s just as easy to use my email because I already have it open and usually*

it's faster to just send messages that way.”  
(Light contributor)

Because email use is so anchored in communication routines, it is challenging for employees to change their habits and get used to another medium: *“I've tried to introduce it and get them to use it more, but unfortunately they much prefer email because it's far more convenient and it's just a routine at work to check your email. They're used to checking emails from the other side of the company... It's not that they're afraid of it, they just feel it's extra work for them. They're so used to sending emails and they don't really find it as easy as email”* (Champion). This quote illustrates the extent to which people find it difficult to substitute email by ESM since they are so accustomed to it: *“When I read something that I think is interesting, I send it to my colleagues by email. I just don't have the reflex to send it by ESM”* (Top executive).

Our data analysis indicates that some users find it complicated to switch to another medium. They have been using email for many years and have developed communication routines which are tough to break, making the substitution of email by another medium harder. The millefeuille effect is thus created by employee resistance to changing to the newly added medium, as email use is anchored in their everyday communication routines, making the millefeuille effect even thicker.

### 3.2.3. Context-of-IT-use lens

This refers to the role of management in promoting or resisting ESM use, and the extent to which it may impact on the millefeuille effect. We also highlight the extent to which partial adoption of ESM reinforces the millefeuille effect through a media redundancy effect.

- **Management engagement effect**

Our findings indicate the extent to which management noninvolvement can exacerbate the millefeuille effect. While ESM use was initiated by top management, few senior managers used it or contributed very much to the tool. Very few of them use ESM on a regular basis and this lack of interest by top managers does not motivate employees to use it or to explore its features. One consultant pointed out that: *“One of the main problems we encountered before the project's rollout was that one of the top managers was criticizing the project in front of his team. This made it very complicated to persuade them that the new tool was useful”* (Senior consultant). This difficulty was also reported by one of the champions who underscored the challenges encountered trying to convince employees to use ESM when their managers resisted: *“If people don't see their superiors using the platform, they tend not to use it either”* (Champion).

Our interviews highlighted the extent to which a lack of involvement in promoting ESM can discourage employees from using the system, as noted by the community manager: *“There's little adoption in some subsidiaries like () and (). ESM adoption is very hard, even though you have a lot of motivated employees, but there are a lot of problems getting their colleagues on board because there's no push from top management...”* (the community manager).

Our analysis also revealed the extent to which employees are sensitive to their managers' use of ESM. Employees pay special attention to the likes and comments they receive from the management, as illustrated in the following quotes: *“When our general director writes things there, when they write things in Chatter, people notice, and they say, oh, look, Maria, she's our manager, our director - she pressed Like for*

*my post. And people feel very good about it, and notice when they take part in things in Chatter.*” Another added: *“Getting likes from managers values us, we feel we’re being listened to. It’s very rewarding.”* Unlike other media used in the workplace, ESM is not mandatory in the work process. Management engagement in ESM fosters greater use and more contributions. In contrast, managers’ resistance or lack of engagement are obstacles to ESM use compared to email, making the millefeuille effect more pronounced.

- **Media redundancy effect**

This refers to the fact that ESM use can increase and reinforce email use by systematically duplicating messages via ESM and email to ensure they are received. This is explained by the fact that some employees still resist ESM or do not use it on a regular basis. Thus, senders systematically duplicate emails, while others wait for an answer before duplicating. The following two quotes illustrate how ESM increases email use: *“...and then they’re not really often logged into ESM, so even if we send a message or a comment via ESM, well we don’t really hear anything back from it. But we try, and if the answer doesn’t arrive, then we send it by email”* (Champion), and *“Yes, even though you share information through ESM, you need to write an email to tell your recipients to go and look for information on ESM or send the same information by email”* (Champion).

This duplication of media use is intended to cover the risk of the recipient not receiving the message. Our findings indicate that media redundancy can be hard to manage, and even a source of overload, as in this quote: *“What’s getting complicated for me is that I receive lots of emails and I receive information via ESM, and getting it from both sides makes the information exchange*

*much more complicated.”* By duplicating messages through ESM and email, users reinforce the millefeuille effect and may complicate the use of ESM. Receiving the same message via email and ESM may make some users question the practicality of continuing to use the new medium. The community manager explained how this media redundancy could be harmful to the new medium: *“It’s killing the tool (Chatter). You can either say that the information is in Chatter; or you’re reluctant to use Chatter and then you send the information by email. You can’t be in between.”*

By strengthening the millefeuille effect, the media redundancy effect reinforces overload issues and calls into question the need to continue using the ESM, since messages are also received by email.

#### 4. DISCUSSION

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The major theoretical contribution of this paper is a grounded theoretical revision of the millefeuille effect that is permeated by the transformational technology of enterprise social media in the workplace. We thus explained how the ESM tool overlays the email layer, at the same time providing a set of effects that explain why it occurs. We also gave insights into the way the millefeuille effect can be reinforced, highlighting in particular the role of communication norms as well as the context-of-IT-use.

The revised version of the millefeuille theory contributes to previous research on the topic (Boukef & Kalika, 2006; Kalika *et al.*, 2007; 2008) by introducing new theoretical lenses that integrate the affordances perspective to explain the millefeuille effect. Using these new lenses enables us to extend the focus from users’ individual negotiation of the recently added medium to a consideration of the entire media-in-use portfolio.

In the next section, we discuss the extent to which our revised version of the millefeuille effect provides further insights into the existing rationale suggested by the earlier work of Kalika *et al.* (2007; 2008), as well as the new lenses we proposed to explain the millefeuille effect.

#### **4.1. Updated explanation of the millefeuille effect**

Our work investigates the millefeuille effect more than ten years after it was initially introduced (Kalika *et al.*, 2007; 2008). The findings provide original insights to deepen our understanding of the layering process that characterizes the millefeuille effect. More specifically, our results revealed new effects and called into question some prior assumptions about the millefeuille effect. Our work also provides empirical validation regarding norms of communication and context-of-IT use.

The differences between the previous research by Kalika *et al.* (2007; 2008) and our own work can be explained by the features of the media involved, as well as the extent to which employees gain experience from using the media and their capacity to negotiate their features.

##### **4.1.1. New effects highlighted**

Investigating the millefeuille effect in the specific case of email vs. ESM, we identified new explanations that trigger this layering process in addition to those initially ascertained by Kalika *et al.* (2007; 2008). Our work reveals new constraints linked to the newly added layer (ESM in our case). More specifically, the gadget effect reflects the problem of sensemaking related to ESM, with some employees viewing ESM less as a working tool and more as a public social media platform, suggesting that ESM is

perceived as an unnecessary gadget when it comes to everyday work-related tasks. As Leonardi and Vaast (2017) noted, unlike other media, employees frequently used ESM in their personal life before adopting it in the organizational context. This shift from private to work-related use can lead to misinterpretation and, in some cases, confusion with public social media. Such confusion is reinforced by the fact that ESM was initially used to share general information not necessarily embedded in work. The project team's aim in this respect was to promote adoption. However, the impact on employees' perceptions ultimately promoted non-work-related use. Our findings indicate that ESM is seen at times as a non-work-oriented gadget, which can help explain why some employees prefer to use email instead of ESM. This type of misunderstanding may interfere with the latter's use and thus reinforce the millefeuille effect.

We also noted that users may set the ESM notification feature in such a way as to reinforce email use. By sending notifications, users try to improve their management of ESM use. However, enabling notification settings lead to a significant increase in email flow, thereby reinforcing the millefeuille effect. Through their interactions with ESM, employees negotiate its related features, which can either enable or constrain their actions.

In addition, our results highlighted two different effects related to email use that strengthens the millefeuille effect, in other words, email overload effect and communication needs effect. The difference between our results and previous research on the millefeuille effect is explained by the specific characteristics of media in-use in the two studies, as well as the extent to which these features are negotiated by employees. In our case, email enables communication opportunities (communication needs effect) but also creates new constraints

(email overload effect), thereby reinforcing the millefeuille effect.

#### **4.1.2. Inaccuracy of some previously identified effects**

The research by Kalika *et al.* (2007; 2008) highlighted the extent to which the layering effect is intensified by the risk of misinterpretation arising from the use of electronic communication (this spiral effect amplifies the millefeuille effect). More specifically, while the spiral effect was expected to explain the millefeuille effect in the case of email use vs. meetings, it did not appear to impact the layering process in our case. This could be explained by the fact that as email has become ubiquitous, the learning experience enabled by its use (Van den Hooff, 2005) has prevented the spiral effect from developing. In other words, as employees become more experienced with electronic communications, the risk of misinterpretation is no longer an issue.

Moreover, as expected, the representation of work effect and social needs effect did not appear to impact the layering process in our case where two electronic forms of communication were studied.

#### **4.1.3. Empirical validation and updates of some effects**

Despite the above-mentioned differences related to the characteristics of the media studied (Boukef and Kalika, 2006; Kalika *et al.*, 2007, 2008), we show that communication norms and context of IT use still impact the layering process, but in different ways. More specifically, we demonstrate that managerial engagement in ESM plays a crucial role in the layering process by fostering use of the newly added medium. We show that in the specific case of ESM, managers need to be actively engaged in ESM use. Their Likes on employees' contributions

were found to be a key element in changing employees' sensemaking of the tool.

As our findings indicate, ESM use may be misinterpreted and not necessarily perceived as a working tool. In this case, management engagement through comments and liking employees' contributions can encourage the latter to adopt ESM as a resource for work purposes. Management involvement is thus an important factor in the bid to change employees' interpretation of ESM use. Initially perceived as a gadget and unnecessary for work, managerial engagement can help promote ESM as a working tool, actively encouraging employee contributions on the platform. In other words, by liking employees' contributions, management galvanizes its adoption by demonstrating the extent to which it can be useful. Leonardi (2017) argued that receiving acknowledgement from co-workers is likely to encourage employees to make more contributions. This is particularly true if the acknowledgement comes from their boss.

We also demonstrated that partial ESM adoption triggers email duplication. The systematic duplication of messages through email and ESM creates media overload that reinforces the millefeuille effect. The media redundancy effect was not previously noted by Kalika *et al.* (2007; 2008).

In Table 4, we summarize our contribution by comparing the millefeuille effect delineations in the case of email use vs. meetings (Kalika *et al.*, 2007; 2008) with the case of ESM use vs. email.

## **4.2. New lenses to explain the millefeuille effect**

Our findings shed new light on the millefeuille effect by following the affordance perspective as a theoretical lens in investigating the different effects of the layering

**Table 4: The Millefeuille theory revised**

The Revised Millefeuille Effect Lenses		Email Use vs. Meetings (Kalika <i>et al.</i> , 2007; 2008)	ESM vs. Email (this paper)
Media portfolio features lens	Affordances and constraints related to the added layer	The spiral effect	The gadget effect The domino effect
	Affordances and constraints related to the existing layer	Representation of work effect Social needs effect	Email overload effect Communication needs effect
Norm and communication routine lens		Bureaucratic effect Communication norms effect	Communication routines effect
Context-of-IT-use lens		Involvement of management effect Efficiency effect	Engagement of management effect Media redundancy effect

process that result from the use of ESM over email. Our findings suggest that the different effects can be grouped within three lenses: a media portfolio features lens, a norm and communication routine lens and a context-of-IT-use lens.

These media portfolio lenses refer to the affordances enabled and the constraints imposed by the newly added medium (ESM), as well as those of the already existing medium layer (email). In particular, our paper singled out two constraints related to the existing layer – email communication properties and email overload – that encroach on users’ perceptions of ESM affordances and thus reinforce the millefeuille effect.

Recently, Leonardi and Vaast (2017) emphasized the importance of exploring ESM features to show the ESM transformative effects in the workplace. While we also embrace this approach, our findings extend this perspective. We argue that ESM affordances and constraints should not be considered in isolation from existing media that form a given employee’s media portfolio. We posit that the millefeuille effect results from the sensemaking of the

different features of the media used within individuals’ portfolios, while taking their existing communication norms and context of IT use into account.

Compared to previous research on the millefeuille effect (Kalika *et al.*, 2007; 2008; Boukef & Kalika, 2006), we explicitly acknowledge the need to consider the entire media portfolio to explain the layering process. We posit that through their use of email and ESM, users interpret different features of these media, which can either be perceived as affordances or constraints, and which will inevitably impact the millefeuille effect. We argue that the media portfolio features lens encompasses the affordances/constraints arising from the newly added medium as well as the already existing media. Through their interactions with the different media available in their portfolio, employees interpret various features of the medium with respect to their own communication norms and routines. These features can either be seen as affordances if they enable employees to perform their work, or constraints if they restrain their actions (Leonardi, 2012). The millefeuille effect arises from the sensemaking of the affordances enabled, as well as the

constraints imposed by the newly added medium, but also those of the existing media, taking communication routines and norms into account. We showed the extent to which the constraints imposed by the existing media reinforce the millefeuille effect, making use of the newly added medium even more complex. This form of millefeuille effect is “constrained” in the present case (Boukef & Kalika, 2006). Different forms of the millefeuille effect can thus be distinguished depending on users’ sensemaking of the features of the portfolio of media in use. In particular, we demonstrated that users’ negotiation of the added medium’s features does not occur in a vacuum but is largely influenced by the way the features of existing media layers have been negotiated.

## MANAGERIAL RECOMMENDATIONS

Based on the insights derived from our case study analysis, we put forward both operational and strategic recommendations for organizations and CIOs (Chief Information Officers) that wish to benefit from the opportunities offered by ESM while continuing to enjoy the use of existing media portfolio.

From a strategic standpoint, we know that organizations persistently try to be agile by implementing innovative sets of media (Tallon *et al.*, 2018) in such a way as to endow its workforce with new desirable affordances. We argue that such agility needs to be strategized if employees are to make sense of the utility of the new medium in relation to their core jobs. Such a strategy puts the onus not only on CIOs but also

on business line managers. Ideally, these managers should consider or even formalize the aspects of their employees’ jobs that can benefit from the affordances of the new medium (ESM) and the other aspects that can be satisfied by the affordances of the existing medium (email). For instance, a given manager can consider that all conversations on strategic topics move to ESM to facilitate the emergence of the wisdom of the crowds and benefit from better-informed creativity. At the same time, the same manager can consider that one-to-one interactions need to continue through the use of a different medium (email) in order to avoid duplication of efforts.

While many practitioners see ESM as an alternative to existing media – e.g., email – in the workplace (Forbes, 2013<sup>6</sup>; Orange Business Services, 2016<sup>7</sup>), we contend that organizations should not consider ESM as an isolated element from the portfolio of media provided for employees. Organizations therefore need to carefully consider how different media are used and complement each other based on their related affordances and constraints. Thus, managers should collaborate closely with the CIOs to reconsider how the different media can be used in an aggregated manner, and focus on media urbanization in order to avoid overloading subsequent to the millefeuille effect.

From an operational standpoint, our results show that since ESM features are not isolated from email features – example of the domino effect where a new email notification is triggered by a new post on ESM – the affordances and constraints of ESM have to be considered in parallel with the affordances and constraints of email. Consequently, we urge managers

<sup>6</sup> <https://www.forbes.com/sites/scottallison/2013/07/22/email-sucks-embrace-social-in-the-workplace-instead/#269b763d4418>

<sup>7</sup> <https://www.orange-business.com/en/blogs/connecting-technology/collaboration/are-enterprise-social-networks-an-email-killer>

implementing a new medium not only to focus on promoting its use, but also to consider the extent to which the features of the existing media could obstruct it. Management should anticipate and examine the features that can be appropriated by employees and explore the extent to which they provide affordances that outperform those of the existing media or overcome the constraints imposed by the existing layer. Opting for this approach should increase the likelihood of ESM being used in a meaningful and enduring way, where the millefeuille effect is attenuated. In this sense, managers should carefully focus on the benefits vs. the perceived costs associated with the use of the newly implemented media given those of the existing portfolio media.

When it comes to the users, our results show that users should also be held accountable for their perception of the affordances or constraints associated with the integration of ESM in their media portfolio. Users who are already overloaded with the existing medium – email – failed to make sense of the affordances of ESM and perceived it mainly as an additional layer that exacerbated the overload problem. Thus, we encourage organizations to act not only in terms of managerial level but also in terms of individual level by calling on users to take responsibility to avoid email overload situations as it reduces their capacity to envisage the new affordances that emanate from new media such as ESM.

From a technical standpoint, one recommendation to deal with the issue of medium overload is to consider the technical integration of the existing medium with the new medium. CIOs and decision-makers need to opt for an integrative approach where the whole media portfolio is reengineered. We see this as a crucial part of the urbanization efforts of the organization information system. The process needs to

begin with the affordances and constraints of ESM, on the one hand, and the affordances and constraints of email, on the other. One concrete solution is that CIOs, ESM managers and line managers could consider which operational business processes might be reengineered in such a way as to capture the benefits associated with the ESM affordances. A typical example could be to shift the project management repository away from a disconnected media where emails are redundant, decentralized and not backed up. ESM could help to improve project management thanks to the affordances of immediate notification of changes, conservation of change tracking, centralization of conversations and safeguarding of documents. We contend that associating ESM with clearly and unambiguously formalized business processes can help to offset the overload situation and promote its perception as a technology that is concretely associated with operational job-related tasks. CIOs can also deepen their urbanization efforts by weaving ties between all the layers of their employees' media portfolio. Using API applications, CIOs can develop new applications that establish native gateways between email and ESM and even other useful applications for employees' routine job-related tasks. Creating these connections would help employees to make sense of the usefulness of ESM from a business vantage point.

Our findings also draw attention to the risks associated with the spread of ESM in organizations. Originally, this medium became popular outside the realm of business, before organizations actually began to realize the benefits that could be gained from its affordances (Treem & Leonadi, 2012). While, from a theoretical standpoint, ESM affordances sound very appealing, CIOs and ESM managers should not forget that using “private” social media in the workplace was previously considered

as a “non-grata” organizational behavior<sup>8</sup>, and was considered disruptive to concentration and employee productivity in the workplace. Thus, taking into account our findings regarding the nonwork perception of ESM, which was even considered as an obstacle to work, we encourage ESM managers and line managers to eradicate the old widespread prejudices regarding the concept of “social media” in the workplace. Bringing ESM to the workplace without trying to remove these old notions risks creating a paradoxical and unintentional reinforcement of the millefeuille effect. Thus, managers should be aware that encouraging ESM in the workplace without first addressing such prejudice risks blurring the lines between private and professional social media and thus reinforcing the millefeuille effect.

Our findings also indicate that managers play an important role in fostering ESM use and underscore the importance of their involvement in promoting its use. Rather than simply sponsor ESM as a working tool, they should be encouraged to use it themselves in their work-related interactions with their subordinates to demonstrate its importance to other employees. ESM offers features that provide the hierarchy with new capabilities, enabling them to value employees’ contributions and recognize their individual and collective performance. As noted earlier, receiving Likes from the hierarchy is highly appreciated. Thus, managerial engagement is strongly encouraged to boost ESM adoption and use. In a similar vein, we demonstrated that managers’ resistance to ESM can be harmful to its use. We therefore encourage companies wishing to benefit from ESM affordances to pay special attention to its managers’ perception of a new medium’s work-related affordances before rolling it out and extending the

use of the new medium to the rest of the organization.

## CONCLUSION

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This paper investigates the millefeuille effect in the specific case of ESM vs. email by focusing on the following research question: “Why does the millefeuille effect unfold in a situation where ESM is used in the organization in addition to email?”

Through an in-depth case study, we came up with different explanations for the millefeuille effect in the specific case of ESM vs. email. Our paper offers a revised version of the millefeuille theory by integrating the affordance lens. Based on a grounded methodology, we propose three lenses, namely, a media portfolio features lens, a norm and communication routine lens and a context-of-IT-use lens. In so doing, the revised millefeuille theory offers a new perspective to improve our understanding of media portfolio affordances and media use in organizations.

We also presented several managerial contributions that offer guidance to managers looking to adopt a new medium to limit the millefeuille effect. In particular, we emphasized the importance of their engagement in ESM use.

Our study nonetheless has some limitations. First, it was conducted in just one company. Thus, the various explanations identified for the millefeuille effect are embedded in the context of use. They are not exhaustive and cannot be generalized to other companies that may have different contexts of use. Moreover, we mainly focused on light and super contributors. While studying extreme cases is a source of enriched information (Flyvbjerg, 2006), it raises the question of the representativeness of our

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<sup>8</sup><https://www.wired.com/2009/10/study-54-of-companies-ban-facebook-twitter-at-work/>

sample. This limitation has little impact on our results since we carefully selected our interviewees with the help of our informant who is knowledgeable in both the context of the organization studied as well as the ESM project. In so doing, we came up with rich insights on how the layering process is grounded in a specific context of use. Future research could look at different profiles as well as different contexts of use and examine whether other explanations can be identified. Second, we investigated the millefeuille effect in the specific case of ESM use vs. email. Despite the interest of the subsequent results, we did not take the diversity of all available media in the workplace into account. This limitation has a limited impact on our results since the two media are those most commonly used in this company in particular, and in organizations in general. Future research on the millefeuille effect could include a broader portfolio of media used by employees in their everyday work, and explore different forms of the millefeuille effect. Third, our study is not longitudinal and cannot capture dynamics of use, even though it was conducted over a 22-month period. We interviewed employees regarding their use of ESM during the post-adoption phase, in other words, we studied the millefeuille effect when employees were already using ESM, relying on their interpretations of use to understand the layering effect and explain it. Thus, we were unable to see how this might evolve as users become more experienced with ESM. Future studies could therefore investigate how the millefeuille effect changes as users gradually appropriate additional media and adopt and/or abandon its features. A longitudinal study that investigates the millefeuille effect both before and after ESM adoption would improve our understanding of the dynamics of the layering process.

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## APPENDICES

### APPENDIX A: LIST OF CODES USED

Code	Definition	Verbatims
<b>Gadget effect:</b> ESM is not a working tool and is even an obstacle to work	ESM is perceived by some employees not so much as a working tool but as something that could impede work.	"I think that the most important thing is the perceived link of ESM with my work. I mean questions like: will ESM help increase my sales? Today, I think that this is the main hurdle. Should I add invest my time in actions that will translate into results for me through higher sales figures or invest my time in ESM. Today, there is a need to make a rapid arbitration. For me it's clear I don't want to lose my time on ESM." (Super contributor)
		"There are interesting things and we can learn a lot as we discover things we didn't know before or didn't have access to in the past. So, if we're curious we can spend hours on it and that's what happened to me at the beginning. I could spend two hours talking to various people without noticing the time pass. But we're not here to use ESM. I can't spend a lot of time on ESM while there are so many other things to do on a typical working day." (Top manager)
<b>Gadget effect:</b> ESM is a nice-to-have tool	Lack of perceived job usefulness of ESM. Users can access useful information that is not necessarily for their day-to-day work.	"It's a new tool that's like a gadget. That's how I see it." (Champion)
		"... I won't find anything on ESM that would be critical to my day-to-day work.... I can log onto ESM and I can browse and look around and I can discover things, which may or may not be useful to me in the future for projects that I work on, but which are almost never critical to any project that I might be working on." (Light contributor)
<b>Gadget effect:</b> ESM is perceived as a Facebook-type tool	There is a misinterpretation regarding ESM which may be confused with a private social media tool like Facebook.	"Those who say that ESM is not for them or feel that they're not concerned by its use, they say that it's a kind of Facebook for companies and they're not really interested in such networking tools." (Senior consultant)
		"Then unfortunately the heads of the different areas, the directors and managers, have told me that they sometimes think that it's more like a social network like Facebook, a regular social network. And they haven't found any operational use for it. Not yet." (Champion)
<b>Domino effect:</b> Email notification	Email notification is used to easily access the contents shared on ESM.	"Yes, I <i>get al.</i> notifications by email. That way, I am notified of all the posts that I receive on ESM" (Member of ESM steering committee)
		"ESM is not a must-have every day. So I receive a daily digest of the messages that arrive every day...if there's something interesting, I go to the link from this message and I read it..." (Light contributor)

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Code	Definition	Verbatims
<p><b>Email overload effect:</b> Email overload hurdles to ESM use</p>	<p>As users struggle with email overload, they limit their use of ESM.</p>	<p>"Yes, for me, absolutely (email is killing ESM or encroaching on ESM). That's exactly how I see it. As I say, I already have an overload of information coming at me via email and, with the range and scope of projects I work on and the variety of people that I'm in contact with, the time I have has to be managed very efficiently. For me, the most efficient way of managing my time is through email, and processing, classifying, sorting and prioritizing based on the emails I get." (Light contributor)</p> <p>"I think that it's a question of culture. In some subsidiaries, there is Outlook and we get a lot of emails, so we need to answer a lot of emails. Then, on top of that, adding ESM to the mix, well people don't go there, and I think they don't even see their daily ESM summary." (Top manager)</p>
<p><b>Communication needs effect:</b> One-to-one communication</p>	<p>Email is preferred over ESM use for one-to-one communication.</p>	<p>"I think that email is interpersonal and deals with specific work situations like "Hervé (pseudonym), <i>where are you on this project?</i>", or "<i>can you send me an update?</i>" and this is only for Hervé. But this can't be done on ESM. Emails are going to continue and I can't see how ESM can replace email." (Top manager)</p> <p>"The sole hurdle may be with ESM when we need to have a one-to-one exchange about a project and we don't want the others to know about it. So we continue to use Lotus Notes." (Top manager)</p>
<p><b>Communication needs effect:</b> Private communication</p>	<p>Email is preferred over ESM use for private communication.</p>	<p>"Email isn't going to die with ESM because if I have instructions to give to more than one person or I need to send a message to a sub-contractor, well I won't copy everyone in on that. For me, email is more targeted and this will still be the situation tomorrow. Then, there will be areas where some information can be shared in order to capture new ideas." (Top manager)</p> <p>"I think that email is a little bit different. It's more targeted to a person or a few people with more focused messages. Email will never be replaced by ESM when you have instructions to send to just a few people." (Top managers)</p>
<p><b>Communication routines effect:</b> Habit of use</p>	<p>People are so used to email that it is very hard for them to switch to another medium.</p>	<p>"We don't automatically use ESM. All of us are used to communicating via email." (Light contributor)</p> <p>"It's true that I don't try to get to know ESM better. If I have something interesting to share, I'll send it via email. I don't have the reflex to send messages via ESM at all." (Top manager)</p>
<p><b>Communication routines effect:</b> Email is the main medium used</p>	<p>Email is the main medium used in the company, making it really hard to use a new medium.</p>	<p>"... I can live without ESM and I can't live without email... I can't afford to spend one day without checking my email, but I can spend one or more days without checking ESM." (Light contributor)</p> <p>"Email is still the most widely used media. It's the most useful tool." (Top manager)</p>

Code	Definition	Verbatims
<p><b>Engagement of management effect:</b> Resistance from the hierarchy impacts employees' use</p>	<p>The resistance of hierarchy to use ESM impacts employees' use.</p>	<p>"...the directors, they don't use it very much. And that's something that, well, here we look up to them. You follow the example of your director, and you feel it. And here in Venezuela, in the executive positions, they don't really use ESM..." (Champion)</p>
		<p>"I was confronted with employees' resistance to ESM as well as their managers who were not convinced..." (Champion)</p>
<p><b>Engagement of management effect:</b> Lack of management support for ESM use impacts employees' use</p>	<p>Lack of management involvement to boost ESM adoption limits its use.</p>	<p>"And also we need stronger use, I guess, that's it, by the higher ranks of the company, for me anyway, because if they start to use Lisa and they give it some formality, then the lower ranks in the company will also take it into consideration. But if the higher ranks still manage everything by email, which I think is pretty much the case in most of the—not in all but in most cases, then of course the subordinates will always respond by email." (Champion)</p>
		<p>"One manger told me, "I'm not on ESM, I won't use it and neither will my team," and it's true, not one of his team members uses the tool." (Member of the Project team)</p>
<p><b>Engagement of management effect:</b> Managers' value contribution through Likes and comments encourage use</p>	<p>By liking and commenting contributions, managers encourage use.</p>	<p>"I know that my subordinates are happy when I like their contribution. They tell me that it's great...that they were happy when they saw my Like which means that I saw their contribution..." (Light contributor)</p>
		<p>"It helps to have a small comment of two words to congratulate or to say that it was a great idea or to post something on ESM. It also creates confidence that encourages people to go back on ESM." (Top manager)</p>
<p><b>Engagement of management effect:</b> Managers involvement boosts use</p>	<p>Active involvement of managers to boost ESM adoption, facilitates its use.</p>	<p>"When it comes to your group, you have the HR Director, the Director of Strategy and Development and the General Secretary who boosted the adoption of ESM." (Community manager)</p>
		<p>"I'm a light contributor, my managers encourage me to use ESM. I have to confess that this is necessary to boost use." (Light contributor)</p>
<p><b>Media redundancy effect:</b> Email duplication</p>	<p>The systematic duplication of email and ESM use reinforces the millefeuille effect.</p>	<p>"I have to say that we depend a lot on email use, and it's just a habit I guess, in all countries that the formal way of communication is by email. Because right now, they think it's some—not all, but some of them, they think it's a burden that they have to communicate twice. They have to communicate through email, and they also have to communicate through ESM." (Champion)</p> <p>"Yeah, maybe a little bit confused because you have two different tools that do almost the same thing. Because it's also important I think if you use ESM you need to be online maybe all the time and normally right now I go in when I see that something is posted on it, then I log on. I don't just go in and check things out. I sort of wait until I get an email telling me that something has happened and then I log in." (Light contributor)</p>

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Code	Definition	Verbatims
<b>Media redundancy effect:</b> Partial adoption of Chatter explains email duplication	Since not all employees use ESM, communication is systematically duplicated.	"Our counterparts are not really frequently logged in to Lisa, so even if we send an email or post a comment on ESM, we can't really hear anything from them. So we try, and then if the responses don't come, then we do it by email." (Champion)
		"The danger that continues to occur is that I post on ESM and then I send an email because I'm not sure that everyone saw it. This approach doesn't encourage ESM adoption." (Community manager)

**APPENDIX B: CODES STRUCTURE (FROM CODES TO EFFECTS TO LENSES)**

