



## Review

## ITIL perspective on enterprise social media

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## ABSTRACT

Enterprise Social Media (ESM) services have been largely considered in the literature as a new innovation; and thus a number of academic and industrial interests have been overlooked. This paper provides a new perspective of ESM literature, one that supports the claim that this research field should be considered as sustainable and no longer emergent. Based on ITIL framework for service lifecycle management, a total of 45 articles, spanning from 2010 to 2016, were analyzed to evaluate the current state of ESM literature. While summarizing and tabulating the literature findings for easy reference, the proposed taxonomy highlights that the main focus of researchers is on the stages of strategy and transition. It also highlights the remaining issues at each lifecycle stage and suggests future research directions.

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## 1. Introduction

In the last ten years, especially since 2006,<sup>1</sup> organizations in all industries have been increasingly deploying social media for their employees' communication (Bernoff & Schadler, 2010; Curtis et al., 2010). The promise of these new IT services has encouraged the shift from traditional forms of computer-mediated communication (Alfaro, Bhattacharyya, & Watson-Manheim, 2013; Silic, Back, & Silic, 2015).

At the time of their emergence, Enterprise Social Media (ESM) services were considered as experimental (Bughin, 2008). Early studies about these services mainly focused on describing their functionalities and potentials risks. Recent scholars now seem to give more attention to other aspects of ESM, such as their characterization, deployment, use, etc. However, many challenges in ESM research remain, and a misalignment exists between the research focus and business needs. A number of these challenges are revealed in the survey of Williams, Hausmann, Hardy, & Schubert (2013). Largely considered as a new innovation, the authors reveal how ESM research has been mainly focused on the adoption and the use of these services, while significantly overlooking a number of industrial interests related to ESM control and governance. Williams et al. argue that the rising phenomenon of ESM has reached the point of sustainability and thus scholars must turn their focus away from its description and exploration to the empirical large-scale examination of established cases. Similar implications are also provided in James Baxter and Connolly (2014) and El Ouiridi, El Ouiridi, Segers, and Henderickx (2015), however, within a narrower scope. The two literature reviews highlight the need for further quantitative studies, based on theories and empirically tested results.

This state of ESM research echoes the state of Enterprise Resource Planning (ERP) systems when, like in any new innovation, theories and evidences were lacking at the early stage of their rise. Hence, ERP researchers of that era significantly contributed to ERP research by identifying and categorizing the research issues around product lifecycle processes (Esteves & Pastor, 1999). In fact, ESM services are software packages, just like any other IT service that need to be managed within an enterprise. As in ERP systems (Nazemi, Tarokh, & Djavanshir, 2012), ESM services also have a structured lifecycle that represents the phases through which an ESM project passes in the deploying organization. To our knowledge, their deployment processes have never been examined and evaluated as other standard enterprise IT services. However, the need for such evaluation has become very important, as it allows identification of the stages of the lifecycle that need to be improved.

This paper acknowledges the findings of the cited surveys and complements their work by providing a technical inspection of the literature. Our motivation is to address the lack of theoretical structure in the ESM research field. We therefore investigate these services from an IT Service Management (ITSM) perspective. We argue that ESM services are deployed in enterprises to enable simpler ways of exchanging information. These new IT services allow

their users to create, access, and manage common sources of information with the aim of achieving a targeted flexibility of enterprise processes (Daft, 2012). Thus, ESM services need to be managed and evaluated as part of an enterprise's IT services in order to ensure that they are allowing the enterprise to meet its goals. Hence, we rely on a globally recognized standard of ITSM known as the ITIL framework to perform this evaluation. Contrary to other management approaches, ITIL-based management ensures a full alignment between the deployed services and business needs while covering the major stages of an IT service lifecycle. We thus use ITIL to analyze and categorize the literature while addressing the following research question: What are the gaps that could be identified in the ESM literature if these services were evaluated in the same way as other established enterprise IT services?

The rest of the paper is organized as follows. The concepts of ESM and ITIL are elaborated in Section 2. In Section 3, we offer our methodology. The distribution of the literature based on ITIL is presented in Section 4. Section 5 discusses the remaining gaps and Section 6 provides conclusions.

## 2. Theoretical foundations

### 2.1. ESM concept in the literature

Leonardi, Huysman, and Steinfield (2013) provide a broad definition of the social media used for communication and interaction within the workplace: ESM services are “web-based platforms that allow workers 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 others; and (4) view the messages, connections, text, and files communicated, posted, edited and sorted by anyone else in the organization at any time of their choosing”.

Building knowledge is at the core of ESM (Gardner, 2013). In terms of functionality, ESM services specifically promote the social networking enabled through their platforms (Ellison, 2007) and the role of established online social connections in organizational communicative activities (Turban, Bolloju, & Liang, 2011).

ESM usually take the form of features integrated into a single platform (e.g. social networking platforms). However, they can also exist as individual stand-alone tools. Technically, they constitute a combination of Web 2.0 technologies that reveal a strategic integration into the various organizational processes (Bughin, 2008). No specific set of ESM services has been explicitly provided in the literature. However, tracing the chronological evolution of services mentioned in the research articles suggests that there is a current consensus about some key ESM types. The overall set of ESM types involves the following: web services (i.e., software facilitating the communication between systems), peer-to-peer (P2P) networking (i.e., a technique for efficiently sharing files within a closed set of users), collective intelligence (i.e., any system attempting to reach a decision-making made by a group rather than an individual), social networking (i.e., any system allowing users to create profiles and learn about other members' profile information), podcasts (i.e., multimedia forms (audio or video recording) of a blog or other content), blogs (i.e., online journals or diaries hosted on a website), micro-blogging (i.e., a service enabling sub-

<sup>1</sup> The use of social media services in organizational contexts was firstly described by Andrew McAfee and referred to as Enterprise 2.0. However, we adopt the term ESM as it reflects the social aspect of these services.

**Table 1**  
Key ESM types as found in the literature.

Contributions	Early stage		Current						Key services
	Bughin, 2008	Andriole, 2010	Burégio et al., 2015	Gardner, 2013	McAfee, 2013	Schubert & Glitsch, 2015	Treem & Leonardi, 2015		
ESM services									
Web services	◦	●							
P2P networking	◦	●							
Collective intelligence	◦	●	●	●	●	●	●	✓	
Social networking	◦	●	●	●	●	●	●	✓	
Podcasts	◦	●							
Blogs	◦	●		●	●	●	●	✓	
Microblogging	◦	●	●			●	●	✓	
RSS feeds	◦	●		●	●			✓	
Wikis	◦	●	●	●	●	●	●	✓	
Mash-ups	◦	●							
Social bookmarking	◦	●	●	●	●	●	●	✓	
Virtual worlds		●							
GTDware				●					
Social CRM			●						

scribers to broadcast messages to other subscribers), Really Simple Syndication (RSS) (i.e., a method allowing people to subscribe to online distribution of information such as news), wikis (i.e., systems for collaborative editing and publishing), mash-ups (i.e., the creation of new services that aggregate contents from different online sources), social bookmarking (i.e., sharing, editing and tagging web bookmarks with subscribers), virtual worlds (i.e., simulated environments wherein users participate in activities and communicate with others using created personal avatars), Getting Things Done software (GTDware) (i.e., a lightweight project management functionality), and Social Customer Relationship (CRM) management (i.e., services engage with customers using social features).

Table 1 shows that five ESM types are frequently referenced by researchers in the current literature. These key types are: social networking, blogs, microblogging, wikis, and social bookmarking (Andriole, 2010; Bughin, 2008; Burégio, Maamar, & Meira, 2015; Gardner, 2013; McAfee, 2013; Schubert & Glitsch, 2015; Treem & Leonardi, 2012). We highlight that this list of key types may continue evolving according to the enterprise requirements.

Nevertheless, for the rest of this paper, we do not distinguish between different services; instead, we use ESM services to refer to social networking platforms integrating the mentioned types as features.

### 2.2. ITIL: a framework for service management

First published in 1989, the Information Technology Infrastructure Library (ITIL) has grown to be the most popular and complete ITSM framework containing a series of best practices that align IT services with business needs (Marrone & Kolbe, 2011). In its latest edition of 2011, ITIL provides a revolving flow of five core stages that cover and manage the lifecycle of IT services (Meijer, Smalley, Taylor, & Dunwoodie, 2013) (see 3.2 for details). Implementation of ITIL can be applied to all businesses and environments. It plays a critical role in the deployment of enterprise systems such as ERP systems (Parvizi, Oghbaei, & Khayami, 2013) and hence, in improving the organizational performance (Iden & Eikebrokk, 2013).

## 3. Survey methodology

This study examines the current state of ESM literature. Our purpose is to address the following research question: Considering that ESM research has become a stable field ten years after its emergence (Williams et al., 2013), does the research within this field completely cover all aspects of the entire lifecycle of ESM? To answer this question we evaluate the literature within a holistic

context of organizational IT services lifecycles relying on the ITIL framework for delivering valuable IT services to businesses. Our methodology encompasses two main phases as elaborated below.

### 3.1. Identifying the relevant literature

We follow a structured and iterative process built on Webster and Waston's (2002) approach and Okoli and Schabram's (2010) guidelines to search, identify, and analyze the relevant literature. Our scope considers the social media platforms used in the workplace for corporate objectives. As this field only emerged in 2006, we deliberately excluded from our scope all scholarly works that appeared in the three years following its introduction to avoid the bias of exploratory and descriptive literature (Williams et al., 2013). We searched among peer-reviewed articles published in major scholarly journals and conference proceedings from 2010 to 2016. In addition, since publications on ESM belong to various disciplines, instead of directly mining specific journals, we followed Webster and Waston's guidance and searched for articles in online access databases. The following four libraries were selected based on their impact evaluation and wide coverage: Wiley Online Library, SpringerLink, IEEE Xplore, and Science Direct. To obtain our dataset, we, firstly, performed a keyword-based search using the following query: "enterprise" AND "social media" OR "enterprise 2.0". This step returned 298 articles. Secondly; based on a comprehensive lecture of the abstracts; we manually selected the relevant articles which returned 35 articles. Citations of each article were then reviewed which added 8 articles. Finally; a second search was performed to review the citations of the added articles but no relevant articles were detected. The resulted dataset of 45 articles was then analyzed and mapped to the ITIL framework.

### 3.2. ESM implementation according to the ITIL framework

The generic terminologies and processes of ITIL are adapted to the particular case of implementing ESM at the workplace. The client is referred to as the company's employees who are becoming users of the ESM service to be deployed; whereas the term enterprise management indicates the IT organization. For simplicity reasons, we consider the enterprise management as responsible for (1) selecting an appropriate ESM from the market's service provider offerings or, developing a private solution; (2) deploying and managing the ESM and coordinating with the company's top management to establish a strategic planning and vision. During the implementation, some practices should be ensured at each of the five lifecycle stages of the service as follows.

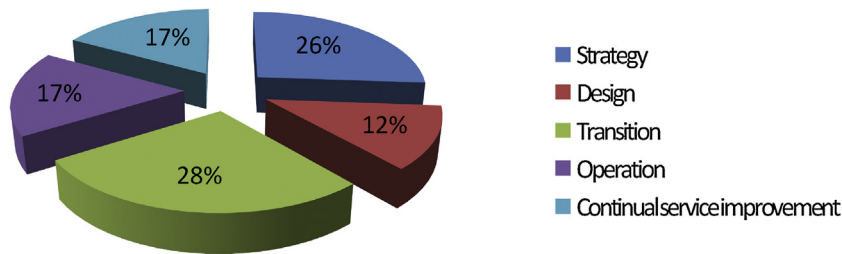


Fig. 1. Distribution of ESM literature on the ITIL lifecycle stages.

- During the *service strategy* stage, the enterprise management decides on a strategy aligning its employees needs to the company's strategic objectives. The organizational requirements should be well-defined at this stage, taking into account the capabilities of the offering of ESM service provider's in the market.
- The *service design* includes all actions related to the design of the ESM. The enterprise management decides whether to develop a new private ESM or to select and customize a market offering. The requirements, having been defined and recorded in the service strategy, are analyzed and agreed to produce an ESM architectural design that conforms to the strategy's constraints. The design should also ensure compliance with the company's IT infrastructure as well as its corporate and IT policies.
- Deploying ESM is achieved at the *service transition* stage. The enterprise validates the deployment and the utility of the ESM as it has been designed and documented at the design stage. It ensures the employees' acceptance and the realization of the desired outcome while controlling the risks of failure.
- The *service operation* stage is responsible for technical, applications and operational management. The enterprise management ensures all the activities and processes that should be applied and coordinated to deliver service support at agreed-upon levels.
- *Continual service improvement* is an ongoing process in which the enterprise focuses on the value to its employees while ensuring that the service is continually updated to address future needs. This stage combines methods of quality management and capability improvement.

We use these implementation guidelines as a reference to evaluate the literature on ESM by mapping it onto the service's lifecycle stages. The five obtained categories of contributions, corresponding to each stage, were then grouped by theme into sub categories as elaborated below.

#### 4. Literature categories based on ITIL lifecycle stages

Fig. 1 shows the distribution graph of the selected articles on the five lifecycle stages of the ITIL. A summary of these findings is provided in Table 2.

##### 4.1. Strategy

17 studies are investigating this stage of the ESM lifecycle. Three main themes are identified as follows.

###### 4.1.1. Guidelines for a successful ESM deployment

The literature provides best practices to succeed in the deployment of ESM. A market analysis is required to establish the awareness of the service's benefits and possible risks (Burégio et al., 2015). The clear enterprise strategic vision should be translated into functional and non-functional requirements that assist in selecting the appropriate solution (Burégio et al., 2015; Louw & Mtsweni, 2013; Turban et al., 2011). The financial benefits and costs asso-

ciated with the use of the chosen service should be calculated (Turban et al., 2011). Also, the necessary IT infrastructure must be identified, including the company's current security systems, in order to determine the feasible level of mixed infrastructure for this deployment. The organizational culture and the readiness of its top management to support the deployment should be examined. An organization should then indicate how, according to its policy and regulations, it allows its employees to manipulate the service while defining the nature of content to be exchanged. Finally, a promotion, maintenance, and risk management plan should be defined (Burégio et al., 2015; Turban et al., 2011). The training programmes should be aligned with younger employees' goals and interests, the use should be kept professional, and the privacy should be maintained in a transformational leadership style (Shirish, Boughzala, & Srivastava, 2016).

###### 4.1.2. Identifying the opportunities of ESM

Being aware of the capabilities of ESM and the opportunities they offer is a key factor behind a company's decision to select and adopt the new service (Turban et al., 2011; Louw & Mtsweni, 2013; Burégio et al., 2015). The opportunities ESM provides are thus explored on two levels: collective and individual.

At the *collective level*, several studies have explored ESM and characterized their platforms from aspects including the communicative, collaborative, and so on. We, therefore, analyze these studies and aggregate their outlined opportunities into one list aiming to provide an overall guide of potentials and benefits of ESM. Table 3 offers an overview of this list indicating the studies revealing each opportunity. More specifically: (1) ESM services provide an information-sharing channel that motivates information dissemination and transfer; (2) they capitalize on the social relations and enable users to communicate informally and expand their relationships; (3) they increase the awareness and transparency as their behaviors and knowledge are made visible to others; (4) they are editable as they enable users to craft and re-craft a communication act before it is viewed by others; (5) their communicative activities remain accessible after the end of the communication which makes them persistent; (6) they promote users' participation and collaboration and provide a space for collective intelligence, crowd-sourcing ideas and innovating; (7) they support the orchestration of workflows and coordinate activities; (8) their ease of use facilitate learning and training such as in wikis and blogs; (9) they enable knowledge management where digital contents can be collectively created, organized, and monitored by users; and finally, (10) they can be a place for finding expertise and solving problems.

At the *individual level*, as different types of ESM are observed, some scholars are further investigating the variance of capability support between types of ESM. Burégio et al. (2015) describe the key capability supported by each type while highlighting its possible risks. For example, wikis co-create knowledge through shared content, but require strong commitment to keep content updated. From the same lens, both Turban et al. (2011), and Treem and Leonardi (2012) highlight the degree to which one ESM is

**Table 2**  
Identified themes and contributions at each ESM lifecycle stage.

Themes at ESM lifecycle stages		nb	Contributions
Strategy	Guidelines for deployment	4	Burégio et al. (2015), Louw and Mtsweni (2013), Shirish et al. (2016), Turban et al. (2011)
	Identifying opportunities	15	Andriole (2010), Burégio et al. (2015), Cleveland (2016), Evans et al. (2015), Fulk and Yuan (2013), Gardner (2013), Holtzblatt et al. (2013), Louw and Mtsweni (2013), Mäntymäki and Riemer (2016), Ooms et al. (2015), Richter et al. (2013), Riemer and Scifleet (2012), Treem and Leonardi (2012), Turban et al. (2011), Williams and Schubert (2011)
Design	Identifying enterprise requirements	2	Schubert and Glitsch (2015), Williams and Schubert (2011)
	Design and limitations	3	Komarov et al. (2014), Leonardi et al. (2013), Mathiesen and Fiel (2013)
Transition	Architectural considerations	5	Burégio et al. (2013), Burégio et al. (2015), Cross et al. (2010), Dhara et al. (2010), Maamar, Burégio, Sellami (2015)
	Adoption approaches	7	Guinan et al. (2014), Louw and Mtsweni (2013), Mathiesen and Fiel (2013), Meske and Stieglitz (2013), Richter and Riemer (2013), Riemer and Scifleet (2012), Turban et al. (2011)
Operation	Challenges facing the deployment	13	Almeida (2012), Andriole (2010), bin Husin and Swatman (2010), Braun and Esswein (2013), Haefliger et al. (2011), Hanley (2013), von Krogh (2012), Louw and Mtsweni (2013), Oostervink et al. (2016), Poba-Nzaou et al. (2016), Riedl and Betz (2012), Trimi and Galanxhi (2014), Turban et al. (2011)
	Promoting users' participation	5	Hanley (2013), Kuettner et al. (2013), Louw and Mtsweni (2013), Meske and Stieglitz (2013), Schubert and Glitsch (2015)
Continual improvement	Roles and responsibilities	6	Bhatti et al. (2013), Burégio et al. (2015), De Hertogh et al. (2011), Louw and Mtsweni (2013), Maamar, Burégio, Faci et al. (2015), Mathiesen & Fiel (2013)
	Identifying performance indicators	3	Andriole (2010), Burégio et al. (2015), Turban et al. (2011)
	Evaluating user's perception and feedback	5	Holtzblatt et al. (2013), Mettler and Winter (2015), Richter and Riemer (2013), Shirish et al. (2016), Treem et al. (2015)
	Analyzing data generated from usage	3	Cao et al. (2013), Lin et al. (2012), Riemer and Scifleet (2012)

**Table 3**  
Opportunities offered by ESM services.

Opportunity	Contributions
(1) Information dissemination	Fulk and Yuan (2013), Richter et al. (2013), Riemer and Scifleet (2012), Turban et al. (2011)
(2) Communication and social networking	Andriole (2010), Fulk and Yuan (2013), Gardner (2013), Mäntymäki and Riemer (2016), Ooms et al. (2015), Richter et al. (2013), Riemer and Scifleet (2012), Treem and Leonardi, (2012), Turban et al. (2011), Williams and Schubert (2011)
(3) Visibility	Richter et al. (2013), Treem and Leonardi, (2012)
(4) Editability	Treem and Leonardi, (2012)
(5) Persistence	Treem and Leonardi, (2012)
(6) Collaboration and innovation	Andriole (2010), Evans et al. (2015), Holtzblatt et al. (2013), Mäntymäki and Riemer (2016), Richter et al. (2013), Riemer and Scifleet (2012), Turban et al. (2011), Williams and Schubert (2011)
(7) Coordination	Mäntymäki and Riemer (2016), Ooms et al. (2015), Williams and Schubert (2011)
(8) Training and learning	Andriole (2010), Turban et al. (2011)
(9) Knowledge management	Andriole (2010), Gardner (2013), Turban et al. (2011); Williams and Schubert (2011)
(10) Expertise finding and problem solving	Fulk and Yuan (2013), Mäntymäki and Riemer (2016), Richter et al. (2013), Riemer and Scifleet (2012), Turban et al. (2011)

supporting a number of capabilities provided in each of their works. For example, wikis support a high degree of collaboration and innovation and communicative capabilities, but a low degree of management activities and problem solving. Cleveland (2016) explores features of microblogging and demonstrates its positive impact on knowledge processes which enables, thus, knowledge creation.

#### 4.1.3. Identifying enterprise requirements for ESM

The correlation between the organizational requirements and the capabilities of the researched ESM is a key success factor in ESM implementation process. Schubert and Glitsch (2015), provide a guiding framework based on an established overview of activities (business processes and use cases). While arguing that business activities that have a non-sequenced ad-hoc structure cannot be

modeled, the authors propose describing these types of activities through use cases which is more flexible. The framework uses the activities' descriptions to identify candidate areas for collaboration scenarios. These scenarios are then matched with features of the tools. The authors finally propose to establish a generic catalogue of predefined collaboration scenarios that frequently occur in companies.

Williams and Schubert (2011) empirically examine the companies' main motivation to implement the new service. In addition to the collaboration aspect, companies are also requiring mechanisms to manage their collective knowledge to improve the benefit diffusion of their own expertise and better manage its innovation. A key required functionality in these solutions is therefore identified as managing content creation.

## 4.2. Design

The eight contributions at this stage are grouped into two themes.

### 4.2.1. Design and limitations of current ESM products

The range of features and functionalities of ESM platforms can be distinguished by the underlying business models that are deployed by the service providers. Several components of these models are explored in the literature. [Leonardi et al. \(2013\)](#) provide a historical description of the delivery of ESM. Since their emergence, ESM have been delivered to the organization following one of three forms. The first form exists in the enterprises as public services, not particularly specific to the enterprise, such as publicly available microblogs and online social networking sites (e.g. Facebook). This form enables the employees' interactions with external customers. The second form exists as private services exclusively for internal audiences, implemented and hosted either by the company itself or as cloud-based services. A wide variety of such products exist in the market and provided by leading IT service providers such as Salesforce's Chatter, Microsoft's Sharepoint, and Jive from Jive Software. Finally, the third form is implemented in enterprises as in-house developed proprietary solutions, often built as research prototypes. Lessons learned from such prototypes are then incorporated into new commercial products. For example, Beehive system which launched in 2007 as a Facebook-like social network for the internal use of IBM employees. Beehive was then discontinued in 2011 and had many of its features incorporated into a new product called SocialBlue.

In addition to the delivery of ESM, a wide perspective of analysis is also provided in ([Mathiesen & Fielt, 2013](#)) based on the several elements of their business models. ESM products are here grouped into three distinct archetypes as follows: (1) Consumer model which is community driven (e.g. Facebook) providing access to either open or private networks and integrated into a wider set of consumer applications (e.g. sign in with a Facebook identity); (2) Corporate model, tightly integrated with organizational processes and technologies (e.g. Microsoft SharePoint). This model is primarily focused on the employee and is funded by service licensing; (3) Hybrid model, which blends the corporately focused models with the packaging of a consumer model making use of the community driven benefits (e.g. Jive).

Looking into these models from [Leonardi et al.](#)'s perspective, we infer that the consumer model exists in enterprise in the form of public services whereas both the corporate and the hybrid models are implemented as private services customized for the enterprise's objectives.

Nevertheless, challenges are facing the design of today's products. ESM users are reporting the following features as crucial in the design of ESM: Security, ease of use, price, design and interface, and finally, user support and file management ([Komarov, Kazantsev, & Grevtsov, 2014](#)). [Mathiesen and Fielt \(2013\)](#) raise the question about the ability of corporate providers to shift towards more consumer based approaches and the consumer providers to serve the corporate market.

### 4.2.2. ESM ecosystem architectural considerations

Beyond their specification and business models, literature on ESM contains guidance and technical discussions related to their architectural design. The integration of ESM within the company's activities and operations is critical to the success of their initiatives ([Cross, Gray, Cunningham Showers, & Thomas, 2010](#); [Burégio et al., 2015](#)). Regarding its communicative activities, [Dhara, Krishnaswamy, and Singh \(2010\)](#) reconsider the architecture of the company's communication service to integrate views from several online social network platforms. Their proposed architecture

builds on application views that use APIs from the desired social networking platforms and combine them in a SIP communication process.

As for its operational activities, [Burégio et al. \(2015\)](#) conceptualize an architecture that bridges between the business and the social worlds through a "meet-in-the-middle platform". The platform consists of connectable building blocks named as social machines ([Burégio, Romero Meira, Souto Rosa, & Cardoso Garcia, 2013](#)). An example of implementing the functionalities of these social machines is illustrated in [Maamar, Burégio, and Sellami, \(2015\)](#), through message-based interactions. "Link" functionality mediates the authentication process of a stakeholder on his/her social network account and establishes a pre-authorized communication channel to let business processes (e.g. launching a marketing campaign) create posts on the social network.

## 4.3. Transition

At this stage, 18 contributions are classified into two themes.

### 4.3.1. Different ESM adoption approaches

Achieving a successful ESM implementation in the enterprise requires the management of the enterprise to adopt a well-defined adoption strategy that takes into account the specific enterprise conditions ([Turban et al., 2011](#)). It must be aligned with the organization's mission, work processes, culture and industry ([Guinan, Parise, & Rollag, 2014](#); [Louw & Mtsweni, 2013](#)). Several adoption approaches are explored in the literature. A bottom-up approach relies on the personal preferences of employees and avoids the management's excessive regulation (e.g. the case of the Deloitte company adopting Yammer for social networking after one year of use initiated by a group of Deloitte consultants ([Riemer & Scifleet, 2012](#))). This approach is best applicable in growing organizations with a critical mass of younger employees or in flatter organizations where younger employees have better visibility to senior management ([Guinan et al., 2014](#); [Richter & Riemer, 2013](#)). A top-down approach is, however, optimal in situations where a rapid adoption is needed to face the challenges of the competitive environment ([Guinan et al., 2014](#); [Richter & Riemer, 2013](#)) especially in small to medium sized enterprises ([Meske & Stieglitz, 2013](#)). Furthermore, a middle-out approach is optimal in larger, globally dispersed organizations where entrepreneurs and middle managers have enough technical knowledge to master these tools and enough influence over the projects and work processes to propagate usage ([Guinan et al., 2014](#)). Nevertheless, a hybrid approach is possibly the most suitable to ESM ([Louw & Mtsweni, 2013](#); [Mathiesen & Fielt, 2013](#)). It combines top-down elements with bottom-up elements to provide guidance and managerial support while allowing a degree of autonomy in usage and content creation by the end-users.

### 4.3.2. Challenges facing ESM deployment

As attention is given to concerns associated with the adoption and promotion of ESM, we provide here the results of our analysis of published guidelines and various frameworks that describe and characterize these challenges. Our results combine overlapping challenges into five categories related to the organization, technology, information and usage. They can be used as a reference summarizing the challenges to be considered at the deployment stage. The categories are elaborated below.

- **Enterprise Structure:** The relationship between the enterprise and the service users (i.e. employees and clients) can influence deployment ([Haefliger, Monteiro, Foray, & Von Krogh, 2011](#)). In large organizations, ESM users appreciate the benefits of the

deployed services better than their managers (Trimi & Galanxhi, 2014).

- **Enterprise culture:** Employees mindset can reject changing established routines and resist using the new service. Thus, the adoption of such technology requires a culture that supports the innovation (bin Husin & Swatman, 2010; Louw & Mtsweni, 2013; Poba-Nzaou, Lemieux, Beaupré, & Uwizeyemungu, 2016; Riedl & Betz, 2012; Turban et al., 2011).
- **Service complexity:** The complex design or use of the new service (e.g. a poor design or a lack of the graphical user interface consistency) and its rapid evolution can result in cognitive constraints and influence user adoption (Hanley, 2013; Louw & Mtsweni, 2013; Poba-Nzaou et al., 2016).
- **Information security and control:** ESM services allow little control over published content, whereas corporations usually aim to control and protect their information to avoid sensitive data leakage (Almeida, 2012; Andriole, 2010; Braun & Esswein, 2013; Haefliger et al., 2011). This loss of control can also influence the company's reputation in case of negative interactions through public communication channels (Braun & Esswein, 2013; Poba-Nzaou et al., 2016). The use of the new service can result in some legal issues related to the intellectual property of the generated knowledge (Poba-Nzaou et al., 2016; Turban et al., 2011). The control of user rights and permissions while maintaining the leadership and empowerment of users communities has a direct influence on the user interaction and contribution (bin Husin & Swatman, 2010; Louw & Mtsweni, 2013). The confidentiality of the enterprise information can also be exposed to malicious attacks in case of service vulnerability. (Braun & Esswein, 2013; Turban et al., 2011). The transferred knowledge over platforms allowing a mixed content (internal and external) risk passing it to competitors von Krogh (2012).
- **Interest:** Employees mindset can refuse the change of its established routine and resist using the new service. The adoption of such technology requires, thus, a culture that supports the innovation. Employees are also confronted with an ambiguity of use as ESM offer an openness that is not specifically limited to the company's boundaries (Braun & Esswein, 2013; bin Husin & Swatman, 2010; Louw & Mtsweni, 2013; Oostervink, Agterberg & Huysman, 2016; Poba-Nzaou et al., 2016; Riedl & Betz, 2012).
- **Resources:** Extensive engagement in the new service is a potential threat as it raises the question of resource management including the waste of productive time, internet consumption, etc. The lack of guiding policies and internal resources also represents a potential threat (Poba-Nzaou et al., 2016; Turban et al., 2011).

#### 4.4. Operation

Formulating and maintaining a governance plan is critical at this stage (Burégio et al., 2015; De Hertogh, Viaene, & Dedene, 2011; Hanley, 2013; Louw & Mtsweni, 2013). In relation to the governance and control of ESM, two themes are identified in the 11 contributions.

##### 4.4.1. Promoting users' participation

Deployed ESM services require a specific approach, relying mainly on promotion, in order to manage the evolutionary socio-technical change that they cause within the companies (Kuettner, Diehl, & Schubert, 2013). Hence, a guiding framework at this stage requires formulating a practical technology roadmap. The roadmap should be developed by a decision making authority. It should involve communication and promotion programmes supported by live training sessions and interactive workshops as well as online training content to gain end-user awareness and participation (Hanley, 2013; Louw & Mtsweni, 2013). Users have to be convinced of the benefits of the selected tool as the act of using it is often

voluntary (Schubert & Glitsch, 2015). This is why considering the employees' mindset is a key factor of a successful implementation, especially in the case of small to medium sized enterprises (Meske & Stieglitz, 2013).

##### 4.4.2. Roles and responsibilities

Researchers suggest empowering the end-user and giving users sufficient autonomy to exploit, contribute and distribute content (De Hertogh et al., 2011; Mathiesen & Fielt, 2013). However, user rights should be defined (Burégio et al., 2015; Louw & Mtsweni, 2013). Bhatti, Gaspard, & Nita-Rotaru, (2013) prove the stability of integrating a role-based access control framework with a system of group communication that allows message exchange in ESM. Maamar, Burégio, Faci, Benslimane, and Sheng (2015)'s approach, however, categorizes the applications' social operations in order to define the proper restrictions of each category's actions.

#### 4.5. Continual improvement

At this stage, 11 contributions are divided into three themes.

##### 4.5.1. Identifying performance indicators

Identifying relevant metrics is critical for the enterprise to determine the tangible benefits of ESM (Burégio et al., 2015). However, few of the studies offer key performance indicators. The derived metrics currently remain at a general level Turban et al. (2011), as they are not derived from each tool's technical specification (e.g. In Andriole, 2010, the ability to share knowledge is derived from the functionality of knowledge management).

##### 4.5.2. Evaluating user's perception and feedback

User's perception, and hence, the usage varies between users. According to Richter & Riemer (2013), ESM services are used as a social tool for task coordination in teams; as a social tool for organizing within projects; or as a networking and crowd-sourcing space at enterprise-wide levels. The intensity of usage also impacts this perception: Only active contributors experience the benefits consistently (Holtzblatt et al., 2013). Also, studies reveal that, contrary to expectations, younger employees resist the use of ESM services as they have concerns about their potential distraction or risks (Shirish et al., 2016; Treem et al., 2015). Similarly, Mettler & Winter (2015) argue that, in regards to sharing information, users are more self-interested and less social in corporate environments than in private contexts.

##### 4.5.3. Analysing data generated from ESM usage

The relationship between users' interactions on their social network and their attributes derived from the company's hierarchical graph is explored in (Cao, Gao, Li, & Friedman, 2013): Peered employees are more interactive with each other or with their direct manager; they interact more when employed in the same country. Riemer & Scifleet (2012) analyze the messages exchanged over the Yammer social platform and propose, therefore, new criteria for collaboration systems' classification: Capturing and storing data, and building relationships and conversation. Lin et al. (2012) gather data not only from the company's social networking platform, but also from other sources, including e-mails and instant message communications. Their findings reveal that mixing genders in teams produce a better financial performance, and that projects with too many managers seem to be less successful financially.

#### 4.6. Overall summary

This Section uses the ITIL framework to critically analyze the literature on ESM. As explained in Section 3, each of the 45 articles is mapped to one or several lifecycle stages of the ITIL. Our findings

suggest that the current ESM literature is covering all five stages, however, at different levels. Fig. 1 illustrates the distribution of the literature on the lifecycle stages.

An observation on the overall lifecycle highlights the need for a broader perspective on the ESM services; a one that also involves the technical considerations of the hosting environment. Apart from the study of the socio-organizational concerns, very little is explored about if or how the ESM services impact the way existing workplace tools operate and are used; whether these IT services are technically capable of replacing the use of existing tools (e.g., email); and further, whether the advantages of the social features of ESM may not be used to enhance the operations of existing tools.

## 5. Discussion and limitations

Fig. 1 shows that a high number of the studies can be classified by two stages: strategy and transition. The reason for this is probably because that the majority of organizations are currently at the phase of testing a new deployed ESM service or planning to do so. Nevertheless, more empirical methods are now used in today's literature. Empirical case studies are now more available for exploration, researchers are thus prompted to give further focus on the three additional stages: the operation monitoring of deployed ESM platforms, as well as their evaluation, in order to improve their design based on the issues and pitfalls detected in current deployments.

Through comparing the current research themes with ITIL's key processes that should be executed at each stage, we can highlight the following issues:

- **Strategy:** According to the ITIL, the process of considering the right fit between companies expressed needs and the market's offerings is still missing. Evaluating the variation of company sizes between small and large, which influences a company's requirements and financial capacity, needs to be considered within strategic planning to initiate an optimal ESM implementation. Research also needs to consider the trade-off between safe practices with strict control and risky reliance on employees' discretion that achieves greater innovation.
- **Design:** Several issues remain here starting from linking between the strategic planning achieved in the first stage and the proposed design. The architectural design needs to be more developed to cover technical details related to its consistency and compliance with a company's processes, infrastructure, policies, etc. The influence of the corporate context on the design of these ESM should also be considered. Typically, for private or in-house services, enterprise services reach much fewer users than in the public world, which leads to the creation of much smaller social graphs. From that perspective, the social networks design analyses, such as identifying advantages and challenges of their interaction patterns or developing their content clustering mechanisms, etc. should be reconsidered for ESM.
- **Transition:** The impact of this deployment on existing enterprise services having similar functionalities is not addressed. The question of whether ESM services should substitute existing tools such as email remains problematic (e.g. the case of adopting a zero email approach based on the use of a social networking platform (Silic et al., 2015)). Also, none of the risk analysis frameworks is comparing the identified challenges with the risk of not implementing ESM services.
- **Operation:** The literature's focus on promotion is systematic, as newly introduced services can always be met with users resistance to change. However, research is also needed to bring into

focus the risk mitigation techniques in addition to other aspects of ESM control. For example, the issue of controlling and protecting the privacy of the generated knowledge while empowering users participation and initiatives remains problematic.

- **Continual service improvement:** Measuring the returned value of ESM services and providing a proof of their Return On Investment remain ambiguous. Also, the definition of appropriate Key Performance Indicators (KPIs), able to evaluate employees participation and engagement, is still needed. Furthermore, as the usage of ESM is gradually moving towards sustainability in enterprises, more focus on their usage and the analysis of their generated big data becomes indispensable especially to predict risk breaches (Wahi, Medury, & Misra, 2015).

Finally, we highlight the essential need to integrate the ESM with the enterprise's existing mechanisms of IT governance (e.g., Enterprise Architecture (EA)). IT governance is about "specifying the framework for decision rights and accountabilities to encourage desirable behavior in the use of IT" (Weill, 2004). Our survey here outlines how companies are relying on ESM to promote new desirable behaviors such as the collaboration and innovation (cf., Table 2). However, according to our findings, the integration of these new required behaviors into a comprehensive enterprise-wide framework seems necessary. EA frameworks are designed to facilitate an enterprise-wide alignment between the business needs and IT solutions. Hence, a deep integration of ESM into the EA frameworks would be worth investigation. This integration may be achieved by formalizing the new needs (e.g., collaboration, or coordination) as a set of business processes that will be implemented via ESM tools. This usual IT governance method enables, firstly, to work at the business process level (i.e. before the deployment) to clearly assess the objectives along with an accountability framework, and secondly, to define the expected indicators.

## 6. Conclusion

This paper evaluates the literature on ESM within the holistic context of any IT service lifecycle relying on the ITIL framework for delivering valuable IT guidance to businesses. 45 research articles are analyzed and grouped into categories corresponding to the ITIL stages. While summarizing and tabulating the literature findings for easy reference, our taxonomy highlights that the main focus of researchers is on the stages of strategy and transition. The main remaining issues at each stage are also highlighted.

Certain limitations however remain. As we particularly focus on the introduction of ESM platforms to work organizations, research related to the blend of social features with a company's existing business processes is excluded from the paper's scope. Also, the present review limits its focus to publications appearing in academic journals while overlooking practitioner and academic-practitioner journals. However, evidence has been produced that academics usually succeed in capturing and addressing the practitioner interests (Straub & Ang, 2011).

Our findings may interest both academics and practitioners. For practitioners, the findings suggest maintaining a complete vision of the overall lifecycle stages, starting from the enterprise's strategic objectives. For example, ESM developers should ensure the correlation between their provided design and the organizational needs expressed by corporate implementers. The defined KPI should be able to evaluate the achievement of the company's objectives. These objectives should be specific and measurable, not vague terms, such as "bringing agility" or "transforming ways of working". For researchers, these findings act as a foundation providing an overview of current research streams and new research ideas.



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