New Perspectives on Information Systems Modeling and Design

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Chapter 5
Enterprise 4.0:
The Next Evolution of Business?

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ABSTRACT

Enterprise 4.0 is already referred to as the next stage of the evolution of global business and the global economy. This wave is achieved by technology enablers often referred as digital transformation (DT). Social media represent a subset of these technologies which contribute to organizational transformation. However, the adoption of social media does not imply such a transformation; changes in the organization's culture and behavior are also needed. While the technology enablers allow the production, sharing, and management of information and knowledge within the organization they also require the updating of the supporting information systems (IS). Thus, using technologies in organizations requires an exercise in understanding how to demonstrate their usefulness in relation to the creation, access, and sharing of contents and IS improvements in a safe way. To this end, this chapter envisages a new context of labor faced within DT of organizations, largely boosted by the organizational adoption of social media, and which the authors propose to be implemented through the m_CSDIT framework.

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INTRODUCTION

Enterprise 4.0 is the next stage of the evolution of global business and the global economy. This parallels Industry 4.0 that relates to factory automation but goes beyond the factory concept into all aspects of the global economy.

This wave of digital transformed enterprises is achieved by technology enablers often referred as digital transformation (DT) enablers which include (1) cloud, (2) mobile, (3) social, and (4) big data – analytics (Uhl and Gollenia, 2016; IDC, 2018). Innovation accelerators like IoT, Robotics, Artificial Intelligence, Augmented and Virtual Reality, Cognitive Systems and Next Generation Security are often also playing part of this process of digital transformation Kane (2017).

It is, therefore, widely acknowledged that organizations have suffered a large transformation at the social, economic and technological levels, where the traditional barriers of transferring information and knowledge have been progressively eliminated. This evolution allowed the elimination of silos, the breaking down of hierarchies, the connection of internal and external stakeholders and the empowering of employees (Berkman, 2014). According to Bear (2015), Social Business has contributed to this end, and has proved its value across nearly every business function, from marketing and commerce, to product development and human resources, to internal collaboration and intelligence.

Social Business (Yunus, 2007; Bear, 2015) can be defined as the ability of an organization to share information, produce knowledge collaboratively, manage knowledge, eliminate communication and sharing barriers, accelerate business processes, approaching the business partners, namely suppliers and customers, and create innovative products, services and business models. It is thus essential that such products, services and models are created and properly documented, managed and shared.

Information systems and technologies (IST) are the essence of up-to date organizations, and changes in this field are occurring at an uncontrollable pace, interrupting traditional business models and forcing organizations to implement new models of business. These changes need to be accompanied by new modeling methods that, for instance, drive the evolutionary changes of requirements, as argued by Gustas and Gustiene (2012). A change of paradigm in what comes to the use of IST in the day-to-day life of every citizen, by itself, does not sustain such a transformation; it is also necessary a change of culture and behavior. On the one hand, the use of IST in an appropriate and integrated way with the organization's processes will depend on an individual and collective effort, which may be called "collective leadership" (Paunova, 2015). On the other hand, the younger generation, accustomed to sharing, often through mobile devices, personal information on Facebook, Twitter, among others, enters the job market looking for similar tools. These new "social tools" allow the production, sharing and management of information and knowledge within the organization between peers and other stakeholders, allowing the barriers elimination of the communication and sharing.

Therefore, we may infer that Social Business is much more than just collaboration and sharing, since the IST that are currently available allow the organizations' processes to be more dynamic, more "social".

Following these developments, and according to the European Commission report "*A Roadmap for Advanced Cloud Technologies H2020 under*", the environment of IST (market research, industry, education, training, etc.) is undergoing constant changes. These changes originate, typically from the conflict between the technical restrictions and the "new" needs experienced by users. Thus, it is necessary to identify the major changes that can be expected in the next years and can, or will, affect the environment of IST. It is expected, for example, storage for all and the internet of and for things (World Economic Forum, 2015).

The growth of social media is already happening at a tremendous rhythm (Schultz, et al., 2015). The arrival and development of mobile internet applications has set to double the intensity of social media use (Gulbahar and Yildirim, 2015).

The arrival of mobile internet has fully democratized the World Wide Web. Yesterday's non-internet users now only need a smartphone and a location with free *wifi* access to go online. In the past, it was needed a workplace, a computer and an internet subscription, which was too expensive for many people. This barrier has now, however, disappeared. As discussed in Van Belleghem (2012), the situation in the United States proves this beyond doubt. The highest smartphone penetration levels are to be found in the poorer Hispanic and Asiatic sections of the community. In 2011, the research company Nielsen found that in the traditionally more affluent white community only 27% had a smartphone. These figures are the reverse of what would be rationally expected, and they mean that all target groups in all social classes will soon be approachable on a large scale via social media.

The combination of internal and external conversations is well suited to take advantage of the changes ushered by mobile internet. If the company staff makes great use of online media, they will be ready and waiting to pick up customer feedback, so that they can avoid or solve possible problems and fully take advantage of conversation potential. If the company's culture and service are good, this will result in positive conversations. Consumers who are looking for online information while they are out shopping will find these conversations in their search results and will be influenced by them. The fact that the internet has been democratized means that organizations have no other option: they must integrate the use of social media into their activities, if they wish to survive. Social media therefore connects the organization, its staff and its customers to each other.

The impact of these developments on the demand has been immense. In the United States, 27% of smartphone users use their phone while they are out of shopping, to find out more about the products they are thinking of buying. They also compare prices and look for promotion offers in other stores. From now on, it is clear that people always have the internet with them, wherever they go and whatever they do. This means they have instant access to all the information in the world. The impact for, namely, the retail industry is, therefore, phenomenal.

Taking advantage of these technologies for organizations within the context of Social Business, in particular nomadic workers, requires a comprehension exercise in how to demonstrate usefulness with regard to the creation, sharing and documentation of information and knowledge in and out of an organization, the organization improving (business processes) and, the education and training of organizational workers and ad-hoc discussion, in a safe way. In this paper, we further develop the m_CSDIT approach early described in Ferreira, et al. (2014; 2015). The Case Study approach (Yin, 2009) will be used as the research method.

We argue that Social Business, supported by different ISTs including mobile devices that comply with the m_CSDIT approach will contribute in a particular way for the organizational well-being (Di Stefano, 2017) raising indicators of the collective intelligence (Barlow & Dennis, 2016) and agility (Lowry& Wilson, 2016) dimensions.

The intelligence dimension, on its different indicators is achieved through "collective leadership", since it is more efficient than hierarchic management, for certain types of tasks, allowing the internal relations of cooperation to increase and improving the flow of knowledge. Broad participation is usually more effective and leads to more information that can be processed and used in decision-making.

The agility dimension is achieved, through collaborative work, supported mainly by nomadic workers, allowing a systemic perception, especially taking advantage of the interconnections between the organization's capabilities and market opportunities.

As a result, this paper will provide a comprehensive view of a new context of labour faced within Digital Transformation of organizations, which we term Enterprise 4.0, largely boosted by the organizational adoption of social media, and which we propose to be implemented through the m_CSDIT framework.

THE DT ENABLER: SOCIAL BUSINESS

The Social Business Concept

The concept of social business was firstly associated with Yunus´ work (Yunus, 2007). According to Yunus, the concept involved both economic and social perspectives: social business is supposed to solve a social problem and to achieve financial sustainability rather than to generate profits.

A new perspective was introduced by Kim (2012) in a blog post where the concept was applied to evolutionary marketing and technology strategies. Social Business, also called Social Enterprise and Enterprise 2.0 (Berkman, 2014; McAfee, 2006; McAfee, 2009) and more recently Enterprise 4.0 (Valentin, 2017), is a recent but popular trend that is revolutionizing organizational work and generating value for all of its elements, i.e. employees, customers, partners and suppliers. It means that all departments in an organization integrate their social capabilities into traditional business processes (Dorn et al., 2007) to change the way of working in order to create value. A Social Business organization uses social software technology to communicate with its rich ecosystem of customers, business partners and employees (Tajvidi & Karami, 2017). More than just a technological concept to Wood & Khan, G. F (2016) social business is also a "*business culture of collaborative innovation and engagement at all levels of business functions*".

A Business is created and managed by people. The individual or group who is taking decisions will determine either the success or failure of an organization, i.e. if it will survive or will eventually die in market (Hiriyappa, 2008). In order to achieve that success long term goals are needed to be set, i.e. profitability, productivity, competitive position, employee's development, employee relationships, public responsibility, and technological leadership (Hiriyappa, 2008) that are converted into internal efforts and organizational transformations. However, those organizations often fail due to internal (Kotter, 1995) and external forces (Zakić et al., 2008).

An organization in the 21st century, known as Enterprise 4.0 (Valentin, 2017), to achieve success, must be a connected entity that supports internal and external networks of people and knowledge in order to obtain competitive advantage and to face the constant and mutable external environmental forces. The potential of social business allows this challenge. Hagel et al. (2010) claim that "*each of us, individually and together, are now, for the first time in history, in a position to collaborate in a complete reimagination of our biggest private and public-sector institutions that will eventually remake society as a whole*". Following this imperative, organizations must be open to be supported by social business, which constitutes a shift in how people work, moving from hierarchies to networks. Nowadays, complex work is the most valuable, as well as the type of work that cannot be automated or outsourced. It is work that requires creativity and passion. Doing complex work in networks means that information, knowledge and power no longer flow up and down. They flow in all directions. Brown (2012) claims

that to understand complex systems it is necessary to submerge in them. This requires social learning (Romero-Mujalli, 2017). Complex work is not linear. Social business is giving up centralized control and harnessing the power of networks.

Organizations must be able to share knowledge quicker than before. This requires a shift towards something like a starfish framework that not only allows for independent action but also distributes knowledge through all parts. Social learning is about how organizational knowledge gets distributed.

Undertaking social business is not the same of an organization that just uses a Facebook page or/and a Twitter account. Social business means that all departments of an organization, from human resources to marketing, to product development, to customer service, to sales, use social media in the same way they use any other tool and channel to do their job. It is an organization that uses social networking tools often to communicate inside and outside the organization. It is a strategic approach to shaping a business culture, highly dependent upon executive leadership and corporate strategy, including business process design, risk management, leadership development, financial controls and use of business analytics. According to Abbott (2015), for organizations, the use of mobile devices conjugated with social business allow the following benefits: market and sales are more effective; teamwork and collaboration are empowered; crowd-sourcing is facilitated, ideas and creativity are more easily spread; trends can be sooner spotted; meaningful interactions may be elevated, loyalty and trust can be enforced; performance can be optimized; stronger teams may be built and maintained; personalize motivation, and best of all … organizations can grow better, faster, bigger, stronger, happier – for less time, hassles and costs.

Integrating Social Business Into an Organization

Besides the well-known potential for organizations in the use of social media, most organizations show a paradoxical behavior in the way they perform business and in the way they manage their institutional social media. This paradoxical behavior results most often in the underuse of conversation potential. These issues are discussed in Van Belleghem (2012).

Perhaps the two last issues in the list provided constitute the biggest paradoxes of all the mentioned issues. Organizations keep referring that satisfied customers and satisfied staff are important, but very often their actions do little or nothing to reflect these words. These are the fundamental causes of unused conversation potential. This problem is exemplified in a further section with the discussion of real cases study.

The future of organizational work is social, collaborative and mobile (Streitz, 2003). The introduction of social business into an organization requires important changes in the way its collaborators work in all the organization structure (Cortada et al., 2012). According to Cortada et al. (2012), in order to integrate social business in the core of an organization three key issues must be addressed:

1. Organizations need to consider how to incorporate social metrics in themselves and in their processes;
2. Organizations need to understand and manage the risks associated with the integration of social business; and
3. Organizations need to manage change, which is a fundamental requirement to undertake with success social business practices.

Moreover, in SideraWorks (2013) seven dimensions are proposed that must be questioned and defined: (1) vision and goals; (2) cultural readiness; (3) organizational structure; (4) social strategy; (5) communication; (6) social technologies; and (7) training and education.

In this context, the two last dimensions (social technologies and training and education) should allow knowledge to flow in the organization. The primary function of social technologies and training and educating professionals in the networked organization is to connect and communicate based on three core processes:

1. Facilitating collaborative work and learning amongst workers, especially as peers;
2. Sensing patterns and helping to develop emergent work and learning practices; and
3. Working with management to fund and develop appropriate tools and processes for workers.

According to Zhao & Kemp (2012) employees tend to use blogs, wikis and social bookmarks to search and retrieve information about the organization, to connect with coworkers or to build relationships. Another survey, according to these authors, shows that the main goal of using social media tools, such as Facebook in the workplace is to maintain and develop connections with friends not work-related. The adoption of such tools in the workplace has therefore raised several issues and challenges for organizations. One of the most important issues is the virtual disappearance for employees of boundaries between the personal and professional life, as well as personal and professional connections.

Social Business Contributes for a More Competitive Organization

In a few short years, social technologies have given social interactions the speed and scale of the Internet. Whether discussing consumer products or organizing political movements, people around the world constantly use social media tools to seek and share information. And, in this context, business is changing their behavior and social media becomes an important business tool (Tajudeen, 2018).

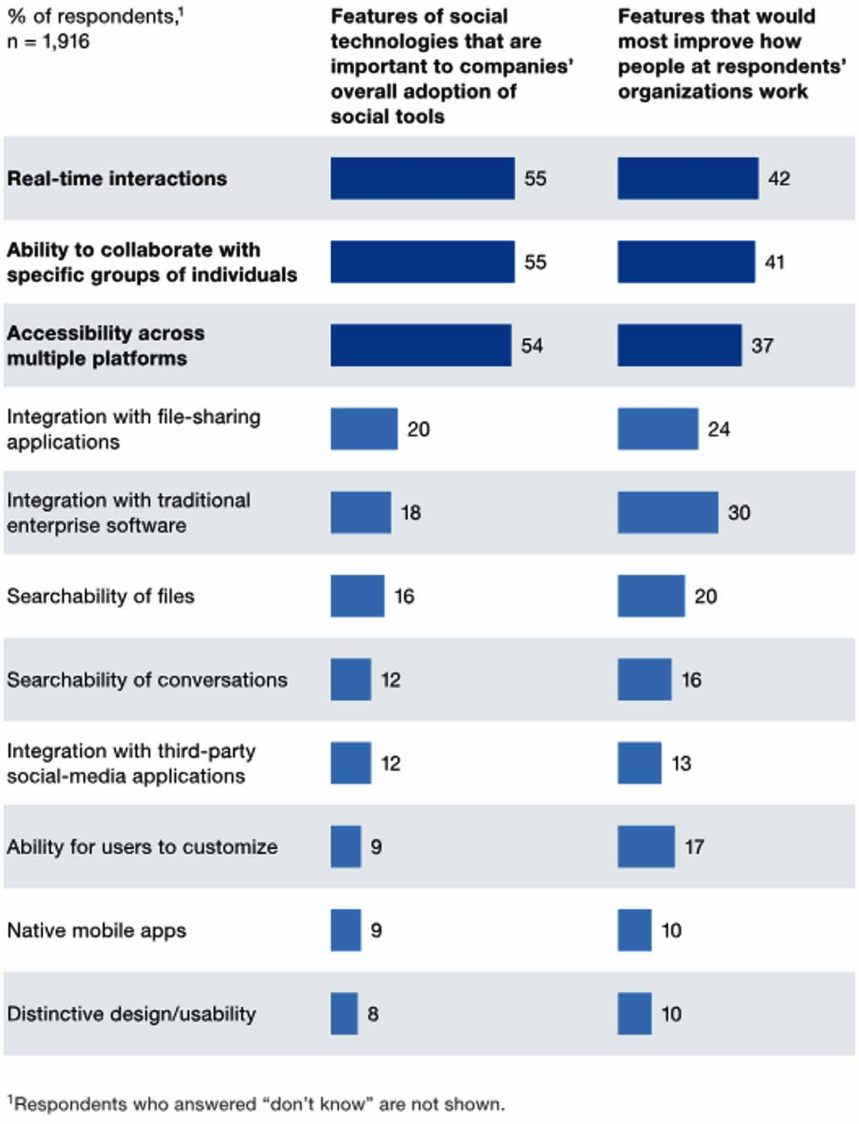
The value of organizations that use social media tools is determined by how they are harnessed to create value for the organization (Majchrzack et al., 2009). Martin & van Bavel, presents a set of a number of potential benefits, i.e., tangible and intangible gains, when the organizations use social media tools, which they classified in terms of a) employ uses of the technologies, b) customer engagement activities, and c) external partner activities (Martin & van Bavel, 2013).

Those potential benefits are quantified in some studies, namely McKinsey & Company (2016, 2017), and Gaál et al. (2015). McKinsey & Company (2016) study emphasizes that the beneficial features of the social tools, point out by the organizations, are real-time interactions, the ability to collaborate with specific groups, and cross-platform availability (see Figure 1).

The study driven by McKinsey & Company (2017) indicates the increasing relevance of social tools also appears at the organizational process level. The use of social tools remains most common in externally facing processes namely PR, recruiting and hiring, and customer relationship management. But processes like procurement, supply-chain management, and after-sales services have been gaining importance (see Figure 2).

These studies show the importance of social business to organizations, not only inside the organization itself, but also in its relations with the outside, i.e., with the organizational ecosystem.

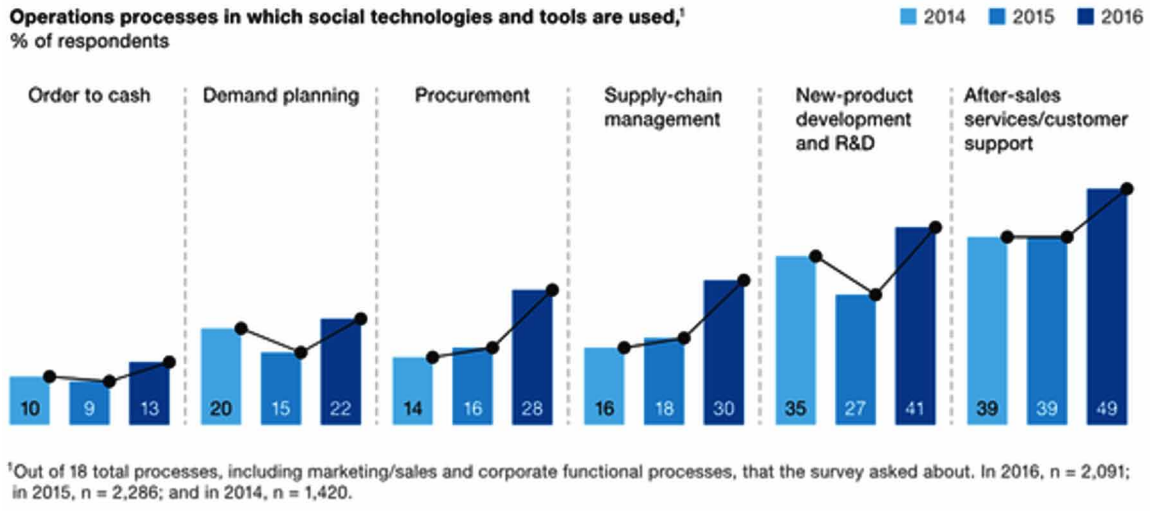
Figure 1. Beneficial features of social tools [From: McKinsey & Company (2016)]



The Contribution of Social Business to the Organizational Well-Being

As referred in previously social business is the creation of an organization that is using social technology to benefit its entire ecosystem by embedding several aspects including collaboration. In this way the core of social business and the activities that it supports will have an impact in the organization through six dimensions (SideraWorks, 2013): adaptability, empowerment, agility, connection, openness and collective intelligence (Malone, et al., 2009). We highlight two of these – the agility and collective intelligence dimensions.

Figure 2. media tools in organizational processes - Comparative analysis [From: McKinsey & Company (2017)



Organizational agility is defined, in the Business dictionary, as the capability of an organization to rapidly change or adapt in response to changes in the market. A high degree of organizational agility can help an organization to react successfully to the emergence of new competitors, the development of new industry-changing technologies or sudden shifts in overall market conditions.

Organizational agility helps balancing speed of response, communication and information sharing with thoughtful coordination and long-term scalability. In this context, according to Charbonnier-Voirin (2011), organizational agility is the organization capacity to incorporate new elements such as innovations or improvements in order to enhance its performance.

Levy (1999) argues that collective intelligence is the "*capacity of human communities to co-operate intellectually in creation innovation and invention*". Levy also adds that collective intelligence is a "*fully distributed intelligence that is continuously enhanced and synergized in real time*" which results in effective mobilization of skills with social business. And in this context, collective intelligence leverages the capacity to listen and use established information as well as new sources of information. Evaluating and analyzing data is not just to track activity, but to actively support business decisions in order to improve products, services, and processes of an organization (SideraWorks, 2013).

Organizational well-being is the process of creating well-being across an organization (Dodge et al. 2012). Therefore if agility and collective intelligence are incremented in an organization, well-being will also be incremented.

The Support of Social Media Tools in Social Business Context

Organizations worldwide are adopting social media (Kaplan & Haenlein, 2010) tools in many critical applications to create, share and documenting. Some industry executives from advertising and marketing consider their use crucial. Despite its growing ubiquity, social media tools are still not well understood from a strategic business perspective, and also regarding its use in education and training in the workplace (Barczyk & Duncan, 2012).

Studies on the organizational impacts of the use of social media tools to date have been mentioned only speculatively (Vannoy & Palvia 2010). According to (Boyd 2008) a possible explanation for this is the growing use of social media tools outside the organization or explicitly social contexts, which are used mostly by youth and students.

According to Jarrahi & Sawyer (2013) the increase in the number and variety of information and communication technologies in the workplace, as well as the practices of knowledge sharing which are becoming increasingly digital allow traditional organizations to benefit from the wide variety of social technologies. The social media tools constitute the subset of social technologies that have allowed new possibilities for sharing organizational knowledge. The use of social media tools offer opportunities for collaboration and social exchange, and are well positioned to increase and prolong the interpersonal social connections (Skeels & Grudin 2009).

Jarrahi & Sawyer (2013) mention that what is known so far on the use of social media tools at work is based on studies focused on the use of a social media technology by itself. These studies provide useful information about some organizational implications of its use, but do not consider how technologies can be used together. However, it is easy to acknowledge that the vast majority of organizations have employees interacting with several technologies.

For a successful organization to have social business, social media must be understood as a means, not an end. Social media is the ideal partner for such an organization. The advantages are obvious: speed, a wide potential reach, a human method of communicating, no hierarchy, full transparency, creation of communities, etc. It is the only channel where feedback from the outside world is transparent and direct. Social media force organizations to be more honest, quicker and clearer in their communication. This trend has allowed organizations to develop in the direction of genuine customer-orientation.

Despite these advantages, the checklist mentality which some organizations use when dealing with social media is not the right way to maximize the company conversation potential. Regarding Facebook pages and Twitter accounts as some kind of magic trick is not the good way of achieving success and will only lead to disappointment. The reality is that, with a few exceptions, any company is likely to have a million fans on the first day. For the vast majority of organizations, it takes time and effort to build up a community of fans and followers. Besides, wide reach on social media is only one of the important criteria. Building up a strong relationship with the customer is just as important. The role of company employees in helping to make the company's culture tangible is another relevant issue to consider. Social media are then the ideal way to spread the company's culture and stories on a wide scale.

Social media tools refer to social networks (Facebook, Google+, LinkedIn, Twitter), in addition to sharing videos platforms (YouTube), blogging platforms, platforms of communication (Skype, etc.) and visual media (Instagram, Pinterest, Tumbir and Snapchat) (Drell and Davis 2014).

Social media tools provide their users a profile, a list of friends, a chat room and the ability to send public or private messages, create events, comment, get feedback, etc. From a general perspective we can say that they have in common the ease of use, and free use, for good or for evil, representing the day-to-day lives of young people, mostly.

THE USE OF CONVERSATION POTENTIAL

Social media can enable and significantly increase the collaboration and learning from customers in various ways, for instance by novel social ways of providing and receiving feedback of a brand, an orga-

nization's products or services and practices. Today's consumers want an organization that is open and receptive to their opinions, an organization that puts the customer first, in a central position.

Thanks to social media, organizations can get their information out to the public faster than ever. However, social media can spread bad information about a business just as fast as it can spread good information, due to its powerful amplifying effect. Social media builds brand awareness in ways that no other form of media can and reaches customers who would be otherwise unreachable. The conversation potential and the reach provided by the use of social media can lay the foundations for an organization's future growth or damage of reputation or brand image.

Designing a social strategy for the organization and learning from the interaction with customers so as to re-design strategy or improve organization procedures and practices should allow the right balance for an organization to ensure success in engaging with social media. The two case studies provided in this section describe real stories of how organizations can use the conversation potential enabled by social media and the consequent impact on the businesses' brand image in both cases.

The 'KLM' Case

This case describes a complete change in how KLM (Haar, 2015; Koetsier, 2015; Mcculloch, 2015) found novel ways to leverage social interactions with customers and improve business processes.

Background

KLM Royal Dutch Airlines has operated, for more than 90 years, flights throughout the world. With more than 32,000 employees serving more than 133 international destinations, KLM is one of the largest international airline companies. Moreover, KLM is dedicated to providing more than a reliable and cost efficient mean of transportation. The company has also taken the initiative for Corporate Social Responsibility involving customers, employees and society.

Since 2009, KLM had only just started exploring this new world with a Facebook page, a Twitter account and, like most companies taking their first steps in social media. At that time, KLM started its contribution to social platforms by posting some pictures of planes and launching a campaign Indeed, the airline company found novel ways to leverage social interactions and improve business processes.

Problem

Few people had ever heard of the so called "Eyjafjallajökull" volcano until 14 April 2010. That was the day this Icelandic volcano erupted, causing most airline traffic to grind to a halt and creating a huge ash cloud above Europe, making plane travel impossible for about five days.

Around 10 million travelers were affected, forcing KLM to seek new ways of communicating with its passengers, and at that moment the company was starting using social media tools. KLM has become a leader in using social media progressively. Ironically, the genesis of its work was more happenstance than a grandiose plan, as already referred. This phenomenon overwhelmed KLM's phone lines, email, and ticket counters. At the time, the company was using social media on a small scale, dabbling with Twitter and Facebook. Willing to get in touch with the airline, thousands of customers were desperately waiting for a response. Within an hour, KLM had created a social media room where company volunteers (about 100 employees used social media) took turns answering questions. Some would arrive at

4am wearing their business suits, so that they could do their shift and head straight through to an 8am meeting. Managers became service agents and some of them experienced direct customer contact for the very first time.

Solution

Because KLM customers used Facebook and Twitter to keep their friends and family updated on their lives, KLM had to be there as well. Hence, the KLM social customer service was born. This service has 150 people dedicated to serving clients via social. And each of them represents almost $170,000 in annual revenue.

Recognizing the potential power of social media, KLM committed to the new communication channel and expanded its efforts. Currently, the airline handles about 75,000 queries a week, 24/7, across a variety of social platforms including Facebook, Twitter, and LinkedIn. The company communicates in 14 languages and recently began tinkering with country-specific social tools, like Sina Weibo, Tencent Weibo, WeChat, and Renren in China and VKontakte in Russia. No automated answers, but a personal reply from one of the KLM service agents. The KLM social media policy is based on the one-stop-shop principle. If someone approaches the company on Twitter, they give them a tailored reply, not just a link to other channels.

KLM answers more questions than any other company on Facebook. There is no other brand that has higher social care demand on Facebook than KLM. Based on the analysis of their Socially Devoted Q4 data, KLM receives 40% of all queries addressed to Dutch companies, and nearly 30% of all queries in the airlines industry globally.

However, it was necessary to 'put the pieces together' in order to use social media to help customers book flights and to address the payment phase of the process. The problem arose as the airline could not easily and safely transmit credit card details through social platforms. Acknowledging the fledgling nature of these tools, the company searched for a payment solution to fix the problem, but could not find one. Thus. the airline had to work with one of its payment service providers and build the platform itself.

The KLM booking system, which costed €3,500 to develop, allowed its social media representatives to offer a quick payment link and stay with the customer from booking to ticket issue. The social media booking application is generating more than €100,000 each business day and the number has been rising every week. In 2014, the system contributed €25 million to the company's year-end revenue.

Customers will get desired flight details, timing, and information on pricing, and, if the transaction proceeds, there is a direct link to a payment page. As soon as the customer credit card is processed, KLM agents are notified and inform the customer that his ticket is booked.

KLM has also put satisfaction measurements in place for its social contact center. The agent enters the measurements at the start and end of each contact center conversation, so as to monitor how customer sentiment changed during the interaction.

The data collected by KLM feeds into its social CRM efforts via Salesforce, where it ties Twitter handles or other social media data to customer records. Customer service agents can see the contextualized data in real time, and air crews can see these in mid-flight. All these data is increasingly being used by KLM's marketing in order to personalize communications and offers.

The 'Become the Doritos Guru' Case

This case describes a complete change in how the Canadian based chips brand Doritos (StuzoGroup, 2013) got through to its teen audience, and the success the organization had with a totally re-imagined, user-generated campaign based on the use of social media. The campaign was based on the proposition: "name the new Doritos flavor, create a 30-second commercial for it and in return we will pay the winner, who will be declared "The Doritos Guru", $25,000 cash and 1% of the flavor's Canadian net sales, forever". Although the effort was centered on the mystery flavor, the impact lifted overall Doritos sales. The case also showed excellent results for brand health and engagement through the use of social media.

Background

In early 2009 Doritos released a new chip flavor and wanted to use this as an opportunity to drive brand awareness and engagement through an innovative promotion that leveraged social media. Working with multiple partners, Doritos decided to pursue a cross-platform promotion focused on a viral video.

The campaign, called "Become the Doritos Guru", was a video upload contest wherein users were tasked to create a catchy TV spot and name for the new chip flavor. Doritos was prepared to offer a prize of $25,000 and 1% of future consumer sales to the winning commercial and name for the new flavor. At the outset of the campaign, Doritos identified the ideal business outcomes for the promotion:

- Reach consumers across multiple social channels to create high brand awareness and engagement;
- Launch brand presence on Facebook and build out a Facebook fan base and Social CRM;
- Drive sales of the brand and the new flavor.

The Solution

The social promotion experts at Stuzo Group (StuzoGroup, 2013) conceived and developed the interactive components of the program. A first of its kind, the Stuzo Group proposed a solution which would launch an interconnected promotion on Facebook, YouTube, and a standalone website using Facebook Connect.

Consumers were able to engage with the promotion in the environment of their choice. Facebook and the Doritos Guru microsite served as the interfaces for video uploads and related promotion interactions, while a branded YouTube Channel was used to host the videos and provide additional exposure. Data such as number of votes, comments, and video views was transferred seamlessly between the three sites. The platform's administrative controls allowed Doritos to screen and approve video submissions before publishing them simultaneously to all three channels. Using the many tactical component features of the platform, users could vote, comment and share submissions, greatly encouraging viral spread. The winning video was based on votes from other users, showing the power of social media.

Campaign Results

This innovative promotion crushed all expectations set by Doritos and its agency partners. The campaign' participants took the opportunity to name the new flavor and to momentarily embody the Doritos brand. Furthermore, massive consumer engagement was achieved. Viewers came out in full force to express their opinions driving an enormous amount of traffic to all three channels. Overall, 75,000

people participated. 4,000 clever and well-produced ads were submitted, 570% more than the original goal. The Doritos YouTube channel became the #1 Subscribed Channel with 2.1 million video views. Viewers spent an average of 6 minutes on the sites, 2 minutes over the original goal. Viewer participation was exceptional with 560,000 votes and 188,000 comments. In one week after its official launch, Doritos' Facebook page gained 31,000 fans. Throughout the campaign, over 900,000 consumers visited the page. As a result of the integrated marketing program, Doritos sales increased dramatically in just two months. In particular, Doritos sales including the new flavor increased by an unprecedented 23% during the campaign period.

ENTERPRISE 4.0: THE DIGITAL TRANSFORMED ENTERPRISE

Digital transformation in organizations is already a reality that needs to be implemented and even, in some cases improved, as already discussed. Acknowledging this context, the m_CSDIT framework was formerly proposed in Ferreira et al. (2014a, 2015) at that stage, the framework was used to introduce and/or systematize social business in organizations. We now propose an extension of the framework to accommodate digital transformation leading to the Enterprise 4.0.

The following subsections present the updated approach, renamed as mobile Create, Share, Document, Improve and Training (m_CSDIT) and the rationale for its use, under a context of organizational DT.

Mobile_Create, Share, Document, Improve, and Training: m_CSDIT

The relevance of conducting Digital Transformation supported by the four technology enablers - Big Data and associated analytics, Cloud Computing, Mobile Connectivity, and Social tools is widely acknowledged and recognized by the scientific community and organizations, as discussed throughout the previous sections. However, there is a lack of approaches that allow the systematization and that guide its implementation within an organization, while improving IS and organizational processes.

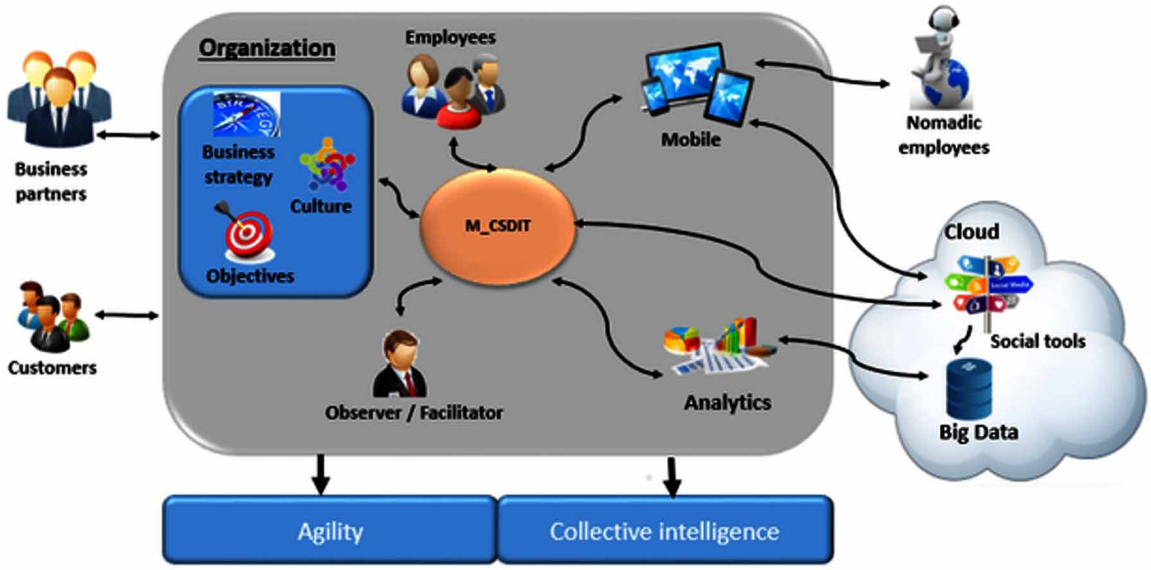
To address this end, we propose the m_CSDIT approach as a three-layer framework targeting the following issues:

1. Creation, sharing documentation of information and knowledge in and out of an organization, and improvement of organizational processes based on information and knowledge;
2. Training of organizational workers – driven by the ToOW model Ferreira et al. (2017);
3. Promotion of ad-hoc discussion.

As shown in Figure 3, a context for an Enterprise 4.0 implementation can be settled through the use of the four pillars of digital transformation, so as to achieve the well-being of the organization considering the agility and collective intelligence dimensions. Thus, emphasis is given in the production of value for the organizational ecosystem.

Creating value often occurs in different social contexts. This approach includes individual and organizational contextual factors. It identifies the crucial role that an organization plays in promoting a culture of lifelong learning, collaboration and innovation, in order to achieve the organization's strategic objectives. The model identifies and presents the relationships and interactions namely between employees, technology and tools, the business strategy and business processes.

Figure 3. The m_CSDIT approach



The approach highlights the collaboration issue and its relation with the accomplishment of the organizational goals. The employees are at the centre of the collaboration and are mostly members of social networks. Figure 1 illustrates the nature of the proposed collaboration in the workplace, where mobile devices are used, IS and underlying processes are largely organized and conducted by the organization, and which is based on the social context.

The approach may be briefly described as the collaboration in the workplace based on the four pillars of digital transformation. This means that the organization learns through the participation and involvement of its stakeholders, namely employees, through a network, connecting, interacting and collaborating to obtain or share information and / or knowledge, in order to improve its organizational processes/IS. We propose that the collaboration in the workplace is achieved through the integration of suitable social media tools to the needs of organizational development and learning. To that end, we suggest a mixed form of peer tutoring with an instructor who acts as observer / facilitator. To achieve the potential benefits of collaboration, we recommend that the organization supports rather than restricts the adequate use of tools in the workplace. Thus, organizations have to define the best long-term strategies and implement action plans to take advantage of collaboration based on the DT pillars.

m_CSDIT 1st Layer: Monitoring the Use of Social Media

The effective and full use of social media by organizations, as advocated by the first layer of the m_CSDIT approach, require that these organizations are able to monitor and analyze the high volumes of heterogeneous data that are produced by the use of social media, so as to obtain relevant information and valuable insights for decision making and for conducting their business. This task should be accomplished through the use of social media monitoring tools.

Social Media Monitoring Tools

Janssen (2014) defined social media monitoring as "*a process of using social media channels to track, gather and mine the information and data of certain individuals or groups, usually companies or organizations, to assess their reputation and discern how they are perceived online"*. He also adds that *"Social media monitoring is also known as social media listening and social media measurement*". Rouse (2013) puts forward the following definition of the concept: "*Social media listening, also known as social media monitoring, is the process of identifying and assessing what is being said about a company, individual, product or brand*".

Social media monitoring tools are useful in the discovery of what is happening in online environments, in which the organization operates. Furthermore, these tools can also be used to measure the usefulness of the efforts made on interaction with customers and potential customers. Indeed, it can be quite difficult to fully understand the effectiveness of these efforts, only by analyzing subscriptions of customers and answers.

Today's organizations tend to use modern strategic marketing plans to promote their products and services by using social media tools. Hence, organizations can measure customer responses or potential customers' attraction regarding their interactions with social tools. This evaluation can only be carried out efficiently, if it is performed through the use of monitoring tools of the target social media. The results obtained can be used in defining new marketing strategies, address issues and problems identified by customers, etc.

Thus, by using social media monitoring tools, organizations can make better informed decisions about where improvements can be made, spot opportunities and strengthen any weaknesses that they may have in their social media output.

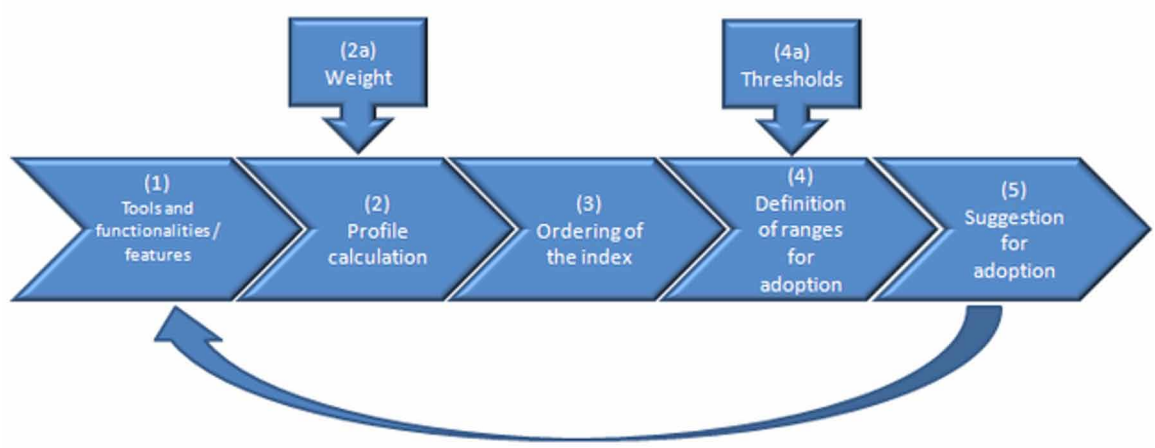
There are a large number of social media monitoring tools. Hence, depending on the goal to be achieved, the right tool may be a series of free Google Alerts or an expensive software suite, including ad hoc analysis and full integration with legacy customer relationship management applications. These tools transfer the desired words and phrases from unstructured to structured database data, for analysis with traditional data mining techniques.

In the private and/or public sector, social media monitoring tools can mine text for specific keywords on social networking websites, blogs, discussion forums and other social media. For example, in the private sector, these tools are useful as companies aim to hear and analyze the complaints about their own products or services, or those of competitors, to help to attract customers; in the public sector, "observing" online conversations may be a way of collecting opinions from people who may not want to fill in a formal survey form.

Classification and Adoption of Social Media Monitoring Tools

Due to the diversity of social media monitoring tools available and wide range of features offered, we envisaged a framework to classify and guide the process of adoption of such a tool (or set of tools) by an organization. The framework called FCASM^{2}T (Framework for classification and adoption of social media monitoring tools) is described in (Moreira et al., 2015) and is composed of five phases as illustrated in Figure 4: (1) Tools and functionalities/features; (2) Profile calculation; (3) Ordering of the index; (4) Definition of ranges of adoption and (5) Suggestion for adoption.

Figure 4. The FCASM²T framework



In the first stage (1) tools are collected from the repository of available tools, and their functionalities and features are identified. After building the matrix (tools – functionalities/features), in step (2), weights (2a) are assigned to each of the functionalities, according to the degree of importance that the feature is perceived to have. Subsequently, the profile of each tool is calculated. In step (3) the ordering of the sorting index is performed. This ordering is made based on the profiles calculated for each tool in step (2). In step (4) thresholds are set (4a) so that intervals of choice may be defined. By using step (5) and based on the defined thresholds, it is possible to have as an outcome the suggested tool or tools most suitable for an adoption. At this stage, the following three types of adoption are allowed: (i) full adoption; (ii) conditional adoption, and (iii) should not to be adopted.

The process is iterative, as new tools and functionalities may be considered, and need to be evaluated in the process.

m_CSDIT 2nd Layer: The Training of Organizational Workers (ToOW) Model

The ToOW, originally named EToW (Ferreira et al., 2014b), addresses the 2nd layer of the framework, and is presented in Figure 5 as a cyclic sequence of stages, aiming to use the four pillars of DT in the definition of training strategies for the organizational workers, aligned with the organizational strategy.

As depicted in Figure 5, the ToOW model is designed to train organizational workers supported by social media tools (3) (see section 3). The training strategies of the organization (2) are aligned with the organizational strategy (1) and analytical tools are used to evaluate the employees training, on the basis of their performance, according to the defined organizational strategy (4).

In order to enable a more flexible training scheme, the model also considers training actions proposed by employees; however, training attendance will always be compulsory according to the defined training strategies (2). The definition / adjustment of the training strategies (2) should be made in a periodical basis, so as to pace with the evolution / needs of the organization.

Regarding the use of social media tools, the model considers a complete set of tools to be used within the training activities, which can be used inside and outside the organization, that is, in different learning contexts. The model is designed in such a way as to enable training in the classroom, at distance or in

Figure 5. The ToOW model

workplace context, in a formal or informal way. In the case of informal training there will always be, as shown in Figure 1, an Observer / Facilitator, who will have a role of moderator on the ongoing training.

As cloud is one of the pillars of DT and social is one of the others, the use of social media tools located in the cloud, will allow to consider the ToOW approach as collaborative learning, as it enables internal training (Figure 3 – Employees) as well as external training (Figure 3 – Nomadic employees), enabling the interaction and collaboration among the participants and, thus, the sharing of information and/or knowledge.

All the training sessions carried out have to be evaluated so that it can be understood if the investment made in training employees meet the needs of the organization and the impact it may have on organizational processes' improvement. Hence, analytics tools – one of the pillars of DT – will be used to monitor and compare training results with the defined metrics goals to improve organizational processes.

The absence of a training culture embedded in the organization's ecosystem may lead to the failure of training strategies set for the employees and for the organization in general. In order to avoid this failure scenario, the model hereby proposed aims to promote the development of a culture of lifelong training, adding value to organizational development and being central to achieve the objectives defined in the alignment of the organizational strategy with the organization training needs.

A Scenario for the Model Usage

In this section, we outline an application scenario for a training plan that uses the ToOW model proposed in this paper. The scenario targets a real estate agency which seeks to be more agile in its interactions with customers and sellers, in order to better promote its properties, while enhancing its selling staff training procedures and staff performance assessment system (Stage 1, Figure 5).

The corporate website is the main institutional platform of communication of the agency with its customers, by advertising the properties offered and providing further sellers contact information; it is also from the website that it is possible to access social media platforms, newsletters and blogs. For internal communication and training purposes, the agency sets up an intranet based on cloud computing technology (e.g. DropBox; Google Drive) for training of its selling staff (Stage 2, Figure 5). In the intranet, there is a folder for each property with the property full description and promotion images, and a video for guiding the seller with the highlights that should be focused on the property visits' with the potential customers. Virtual reality and/or augmented reality applications may also be considered for that purpose. The entire promotion plan for the property (advertisement in the corporate newsletter, web site promotion, social media campaigns, special events, etc.) is also available so that the seller is aware of the agency sales and marketing strategy regarding that property; hence, the seller can record what was the trigger of contact of a customer with the agency regarding a given property. This folder is shared by all the sellers in charge of the property's promotion. After each property visit or customer interaction, the seller uses his/her mobile device to fill a spreadsheet record with the main features of the visit/interaction and results achieved, which may also involve updating the property status. After each visit, the customer is invited to fill an online questionnaire so as to assess his/her satisfaction on the service level provided by the seller and agency. The results of all the questionnaires filled regarding a property are saved into a spreadsheet available in the property folder.

There is also an institutional blog for the real estate agency (accessed from the corporate website) where customers may establish a chat conversation with the sellers and post comments and questions about the property as a result of the contacts or visit they did or even discuss further meetings (Stage 3, Figure 5).

As the history of all the interactions and engagements of the seller with customers about a property is stored, loading a data warehouse of sellers-customers interactions, analytic tools may easily be used to monitor the KPI's set by the real estate agency regarding the performance of the seller (Stage 4, Figure 5). Hence, KPI's like the number of property visits promoted, the visits conversion rate, sales growth, blog engagement, top sellers in sales revenue, website traffic lead ratio, newsletter signup conversion rate, customer satisfaction, customer retention may be measured and contribute to the seller's assessment. Depending on the organizational strategy, some of the KPI's related with the sellers performance may be shared among the sellers team, so as to improve the collective intelligence, generate useful sales and marketing insights and stimulate organizational goals achievement. If the assessment results of sellers are not satisfactory, the reasons may be analysed and the alignment of organizational strategy with the training needs may be resettled, generating a new cycle of application of the ToOW model.

CONCLUSION AND FURTHER WORK

This paper aimed to give an overview of the state-of-the art of the issues underlying the undertaking by organizations of social business supported by social media tools. Then it described our extended m_CSDIT approach, consisting in a three-layer framework that covers the systematization of (1) the creation, sharing and documentation of information and knowledge in and out of an organization and improvement of organizational processes based on information and knowledge, (2) training of organizational workers and (3) promotion of ad-hoc discussion.

The main difference between a traditional organization with and without social business is the involvement of the customers, business partners and employees in the life of an organization. Both visions present benefits and drawbacks. In particular, it is envisaged that the m_CSDIT approach will allow the implementation of social business in an organization. The approach is focused on the production of value for the customer, reducing whatever does not add value from his point of view as well as to the organization itself. Therefore, the involvement of the organization ecosystem is of paramount importance to achieve this goal. On the contrary, traditional approaches allow the conduction of business within an organization in a closed way.

Despite the successes and progress made to date, many important topics remain open for investigation with respect to providing appropriate approaches to undertake social business in organizations supported by the use of social media tools.

Many of the results achieved so far in social business supported by social media tools have come from joint work between researchers and organizations. Awareness, education and systematization remain three of the biggest issues to develop for those working in social business.

Researchers need to have practical experience as well as a sound theoretical foundation. Practitioners need to be equipped with a variety of approaches to use where appropriate depending on what is best suited to a given situation. Customers need to understand the importance of the process, believe in it, and support the efforts involved in doing it right. That was the context for the proposal of the m_CSDIT approach.

We envisage that the m_CSDIT approach will allow the implementation of a new context of labour, which we term Enterprise 4.0, largely boosted by the organizational adoption of social media, offering a new context to the traditional way of doing business - the context of DT. The approach promotes the organizational well-being considering the agility and collective intelligence dimensions.

Even though we have progressed in the conceptualization of the m_CSDIT approach, the framework needs to accomplish a greater degree of formalization, as well as validated and implemented in an organizational context.

REFERENCES

Abbott, S. (2015). *The Co+Factor - The Exclusively-For-Everyone, Not-To-Be-Kept-Secret Ingredient/ Benefit For Helping You and Your Organization Create, Engage and Prosper*. Retrieved April 2, 2018, from http://bemobileworksocial.com/wp-content/uploads/2015/02/The-Co-Factor-E-Book.pdf

Barczyk, C. C., & Duncan, D. G. (2012). Social Networking Media: An Approach for the Teaching of International Business. *Journal of Teaching in International Business*, *23*(2), 98–122. doi:10.1080/08975930.2012.718703

Barlow, J. B., & Dennis, A. R. (2016). Not As Smart As We Think: A Study of Collective Intelligence in Virtual Groups. *Journal of Management Information Systems*, *33*(3), 684–712. doi:10.1080/07421222.2016.1243944

Bear, M. (2015). Survival of the fittest: Using social media to thrive in the 21st century. *Journal Of Brand Strategy*, *4*(2), 106–113.

Berkman, R. (2014). The social enterprise: where does the information professional fit? *Online Searcher*, (6), 45-48.

Boyd, D. (2008). *Taken out of context: American teen sociality in networked publics*. Berkeley, CA: School of Information, University of California-Berkeley.

Boyd, D. M., & Ellison, N. B. (2008). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, *13*(1), 210–230. doi:10.1111/j.1083-6101.2007.00393.x

Brown, J. S. (2012). *Learning in and for the 21st Century.* National Institute of Education.

Charbonnier-Voirin, A. (2011). The development and partial testing of the psychometric properties of a measurement scale of organizational agility. *M@n@gement*, *14*(2), 119-156.

Cortada, J. (2012). *The Business of Social Business: What works and how its done*. IBM Institute for Business Value. Retrieved January 28, 2018, from http://www.ibm.com/midmarket/common/att/pdf/IBV_2012_The_business_of_social_business.pdf

Di Stefano, G., Piacentino, B., & Ruvolo, G. (2017). Mentalizing in Organizations: A Psychodynamic Model for an Understanding of Well-Being and Suffering in the Work Contexts. *World Futures*, *73*(4-5), 216–223. doi:10.1080/02604027.2017.1333851

Dodge, R., Daly, A., Huyton, J., & Sanders, L. (2012). The challenge of defining wellbeing. *International Journal of Wellbeing*, *2*(3), 222–235. doi:10.5502/ijw.v2i3.4

Dorn, J., Grün, C., Werthner, H., & Zapletal, M. (2007). A Survey of B2B Methodologies and Technologies: From Business Models towards Deployment Artifacts. *Proceedings of 40th Hawaii International Conference on Systems Science*.

Drell, L., & Davis, J. (2014). Getting started with social media success metrics. *Marketing Research*, *26*(5), 22–27.

Ferreira, M.J., Moreira, F. & Seruca, I. (2014a). A traditional organization towards a new dimension of labour – social business. In *Information systems and Technology for Organizational Agility, Intelligence, and Resilience* (pp. 180-204). Hershey, PA: Information Science Reference (IGI). doi:10.4018/978-1-4666-5970-4.ch009

Ferreira, M. J., Moreira, F., & Seruca, I. (2014b). Social business – a new dimension for education and training in organizations: The ETOW model. *Proceedings Of 16th International Conference on Enterprise Information Systems (ICEIS)*, 420-427.

Ferreira, M. J., Moreira, F., & Seruca, I. (2015). Social Business: A Way to Promote Organizational Transformation. *International Journal of Information System Modeling and Design, 6*(4), 57-81. Doi:10.4018/IJISMD.2015100104

Ferreira, M. J., Moreira, F., & Seruca, I. (2017). Organizational training within digital transformation: The ToOW model. *19th International Conference on Enterprise Information Systems (ICEIS*).

Gaál, Z., Szabó, L., & Obermayer-Kovács, N. (2015). The Power of Social Media in Fostering Knowledge Sharing. *Proceedings of the European Conference on Intellectual Capital*, 114-121.

Gulbahar, M. O., & Yildirim, F. (2015). Marketing Efforts Related to Social Media Channels and Mobile Application Usage in Tourism: Case Study in Istanbul. *Procedia - Social and Behavioral Sciences, 195*, 453-462. doi:10.1016/j.sbspro.2015.06.489

Gustas, R., & Gustiene, P. (2012). A Graphical Method for Conceptual Modelling of Business and Software Scenarios. *Proceedings of 11th International Conference on Intelligent Software Methodologies, Tools and Techniques*, 238-253.

Haar, G. (2015). *What Has KLM Learned From 5 Years of Social Media Service?* Retrieved February 03, 2018, from https://blog.klm.com/what-has-klm-learned-from-5-years-of-social-media-service/

Hagel, J., Brown, J. S., & Davison, L. (2010). *The Power of Pull: How Small Moves, Smartly Made, Can Set Big Things in Motion*. New York: Basic Books.

Hiriyappa, B. (2008). *Strategic Management for Chartered Accountants*. New Age International Pvt Ltd Publishers.

IDC. (2018). *Digital Transformation*. Retrieved march 03, 2018, from https://www.idc.com/promo/thirdplatform/fourpillars

Janssen, C. (2014). *Social Media Monitoring*. Retrieved February 03, 2018, from http://www.techopedia.com/definition/29592/social-media-monitoring

Jarrahi, M. H., & Sawyer, S. (2013). Social Technologies, Informal Knowledge Practices, and the Enterprise. *Journal of Organizational Computing and Electronic Commerce*, *23*(1-2), 110–137. doi:10.1080/10919392.2013.748613

Kane, G. C. (2017). The evolutionary implications of social media for organizational knowledge management. *Information and Organization*, 2737–2746. doi:10.1016/j.infoandorg.2017.01.001

Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of social media. *Business Horizons*, *53*(1), 59–68. doi:10.1016/j.bushor.2009.09.003

Kim, P. (2012). *The definition of social business*. Retrieved February 05, 2018, from http://dachisgroup.com/2012/06/the-definition-of-social-business/

Koetsier, J. (2015). *KLM's 150 social media customer service agents generate $25M in annual revenue*. Retrieved November 05, 2015, from http://venturebeat.com/2015/05/21/klms-150-social-media-customer-service-agents-generate-25m-in-annual-revenue/

Kotter, J. P. (1995). Leading Change: Why Transformation Efforts Fail. *Harvard Business Review On Point*, 60-67.

Levy, P. (1999). *Collective Intelligence: Mankind's Emerging World in Cyberspace*. Perseus Books.

Lowry, P. B., & Wilson, D. (2016). Creating agile organizations through IT: The influence of internal IT service perceptions on IT service quality and IT agility. *The Journal of Strategic Information Systems*, 25211–25226. doi:10.1016/j.jsis.2016.05.002

Majchrzack, A., Cherbakov, L., & Ives, B. (2009). Harnessing the Power of the Crowds with Corporate Social Networking "How IBM does it". *MIS Quarterly Executive*, *8*(2), 103–198.

Malone, T. W., Laubacher, R., & Dellarocas, C. N. (2009). *Harnessing Crowds: Mapping the Genome of Collective Intelligence.* MIT Sloan Research Paper No. 4732-09. Retrieved February 05, 2018, from http://ssrn.com/abstract=1381502

Martin, A., & van Bavel, R. (2013). *Assessing the Benefits of Social Networks for Organizations.* Retrieved November 06, 2015, from http://ftp.jrc.es/EURdoc/JRC78641.pdf

McAfee, A. (2006). Enterprise 2.0: The Dawn of Emergent Collaboration'. *MIT Sloan Management Review*, *47*(3), 21–28.

McAfee, A. (2009). *Enterprise 2.0: New Collaborative Tools for Your Organization's Toughest Challenges.* Harvard Business Review Press.

Mcculloch, A. (2015). *KLM: Putting Social Customer Care First*. Retrieved November 08, 2015, from http://www.socialbakers.com/blog/2374-klm-putting-social-customer-care-first

McKinsey & Company. (2015). *Transforming the business through social tools*. Retrieved February 05, 2018, from http://www.mckinsey.com/insights/high_tech_telecoms_internet/transforming_the_business_through_social_tools

McKinsey & Company. (2016). *How social tools can reshape the organization*. Retrieved from April 05, 2017 from https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/how-social-tools-can-reshape-the-organization

McKinsey & Company. (2017). *Advanced social technologies and the future of collaboration*. Retrieved April 05, 2017, from https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/advanced-social-technologies-and-the-future-of-collaboration

Moreira, F., Seruca, I., & Ferreira, M. J. (2015). Towards a Framework for Classification and Adoption of Social Media Monitoring Tools. *Proceedings Of 2nd European Conference Social Media (ECSM 2015)*.

Paunova, M. (2015). The emergence of individual and collective leadership in task groups: A matter of achievement and ascription. *The Leadership Quarterly*, *26*(6), 935–957. doi:10.1016/j.leaqua.2015.10.002

Romero-Mujalli, D., Cappelletto, J., Herrera, E., & Tárano, Z. (2017). The effect of social learning in a small population facing environmental change: An agent-based simulation. *Journal of Ethology*, *35*(1), 61–73. doi:10.100710164-016-0490-8

Rouse, M. (2013). *Social media listening*. Retrieved February 05, 2018, from http://searchcrm.techtarget.com/definition/Social-media-monitoring

Schultz, M. D., Koehler, J. W., Philippe, T. W., & Coronel, R. S. (2015). Managing the Effects of Social Media in Organizations. *SAM Advanced Management Journal*, *80*(2), 42-47.

Sideraworks. (2013). *What Is Social Business?* Retrieved November 11, 2015, from http://www.sideraworks.com/wp-content/uploads/2012/03/WhatIsSocialBusiness_SideraWorks.pdf

Skeels, M. M., & Grudin, J. (2009). When social networks cross boundaries: A case study of workplace use of Facebook and LinkedIn. In GROUP'09. Sanibel Island, FL: ACM. doi:10.1145/1531674.1531689

Streitz, N., Prante, T., Röcker, C., Alphen, D. V., Magerkurth, C., Stenzel, R., & Plewe, D. A. (2003). Ambient Displays and Mobile Devices for the Creation of Social Architectural Spaces. *The Kluwer International series on Computer Supported Cooperative Work*, *2*, 387-409.

StuzoGroup. (2013). *Doritos-Become The Doritos Guru*. Retrieved November 08, 2015, from http://www.stuzo.com/case-studies/Stuzo_CaseStudy_Doritos_BecometheDoritosGuru.pdf

Tajudeen, F. P., Jaafar, N. I., & Ainin, S. (2018). Understanding the impact of social media usage among organizations. *Information & Management*, 55308–55321. doi:10.1016/j.im.2017.08.004

Tajvidi, R., & Karami, A. (2017). Full length article: The effect of social media on firm performance. *Computers in Human Behavior*. doi:10.1016/j.chb.2017.09.026

Uhl, A., & Gollenia, L. (2016). *Digital Enterprise Transformation: A Business-Driven Approach to Leveraging Innovative IT*. Routledge Taylor & Francis Group.

Valentin, B. A. (2017). Methods of Assessment and Training of a Company Towards the Enterprise 4.0. *Annals of DAAAM & Proceedings*, *28*, 1065-1073. doi:10.2507/28th.daaam.proceedings.148

Van Belleghem, S. (2012). *The Conversation Company, Boost your Business Through Culture. People & Social Media*. London, UK: Kogan Page.

Vannoy, S. A., & Palvia, P. (2010). The Social Influence Model of Technology Adoption. *Communications of the ACM*, *53*(8), 149–153. doi:10.1145/1743546.1743585

Wood, J., & Khan, G. F. (2016). Social business adoption: An empirical analysis. *Business Information Review*, *33*(1), 28–39. doi:10.1177/0266382116631851

World Economic Forum. (2015). Deep Shift - Technology Tipping Points and Societal Impact. *Global Agenda Council on the Future of Software & Society.* Retrieved November 13, 2015, from http://www3.weforum.org/docs/WEF_GAC15_Technological_Tipping_Points_report_2015.pdf

Yin, R. (2009). *Case Study Research: Design and Methods*. London, UK: SAGE Publication, Inc.

Yunus, M. (2007). *Creating a World Without Poverty: Social Business and the Future of Capitalism*. New York: PublicAffairs.

Zakić, N., Jovanović, A., & Stamatović, M. (2008). External and Internal Factors Affecting the Product and Business Process Innovation. *Facta Universitatis Series: Economics and Organization*, *5*(1), 17–29.

Zhao, F., & Kemp, L. (2012). Integrating Web 2.0-based informal learning with workplace training. *Educational Media International*, *49*(3), 231–245. doi:10.1080/09523987.2012.738015