SOCIAL MEDIA UTILIZATION IN B2B NETWORKS' ORGANIZATIONAL LEARNING – REVIEW AND RESEARCH AGENDA PROPOSAL

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Knowledge management (KM) in a business-to-business (B2B) network is a different task than intra-organizational KM. Therefore this conceptual paper searches for an answer to the question of what we should re-search in this more demanding KM environment. We suggest that the social media provides a variety of vehicles for performing organizational learning via KM in B2B networks. Since this is relatively novel research area, we have done a literature review and propose a research agenda in this article.

Keywords: B2B, knowledge management, paradoxes, social media, organizational learning

1 Introduction

Businesses and organizations are far more complex than the current management theories suggest. The rise of professional organizations, the emergence of the Internet and social networks, the use of value-based inter-firm co-operation and so forth have led to the multidimensionality and opening up of the organization. An open organization challenges all members of the organization with new demands on their capabilities to work together with outsiders, and employees find themselves managing their own work processes and innovating new practices. Supervisors and managers lack the expertise, power and time to control the manifold operations and the decisions made. Existing leadership approaches have been noticed to be lacking in this era of fast changing knowledge. As a result, companies find it difficult to innovate and adapt to changes effectively in a complex environment.

Knowledge management research has provided theoretical grounds for knowledge sharing and learning phenomena in a networked B2B context. Vehicles for such tasks as open innovation, organizational learning, crowdsourcing and knowledge sharing in networked B2B are focal in knowledge management. Therefore social media is included in this discussion.

Social media utilization in enterprises is a current and popular research topic. Despite the popularity of the topic, social media research is very limited, and focuses largely on the consumer in the business-to-consumer (B2C) domain [85] . Even though anecdotal evidence about the importance of social media for business-to-business (B2B) companies exists, the interest in and adoption of social media by B2B organizations has been slow compared to B2C organizations [85]. Both the theoretical and

empirical research on social media in the B2B domain is quite fragmented and the empirical research is mainly based on individual cases, which are often not reported very systematically or analytically [65][61]. Furthermore, the use of social media in different specific contexts, such as the business-to-business domain and in different types of industries, is not well understood [66].

In order to find out the existing research gap in this area and to be able to suggest a research agenda to fill this gap, we introduce the following literature review. As the research area of social media utilization in B2B is relatively novel, we have searched for results from the last five years. First we introduce the key concepts already studied in academia, secondly we illustrate the review process, and finally we make a suggestion for a research agenda for a world knowledge society. We hope that the agenda introduced here will be found interesting by society and will raise further collaborative research projects in the context of the E.U., for example.

2 Theoretical Framework

2.1 Knowledge management in networks

Networks form a significant part of our lives, both at work and in our personal lives. Networks provide organizations with access to information about knowledge, resources and technologies, thus being the key source of competitive advantage [55]. The scientific community agrees that effective business networks can promote economic development in a region [111], act as a catalyst for innovation [100], stimulate new product development [14], and foster network-wide learning [71].

Knowledge and the ability to integrate individual knowledge in the context of common task fulfilment are essential for the creation of competitive advantage [120][20]. Operating in a network environment requires the sharing of knowledge. For that purpose companies develop knowledge sharing tools and procedures, which often stem from the need of the focal company and are based on the organizational level network. Knowledge networks describe how relationships contribute to the creation of knowledge, its distribution within the organization and networks of organizations, how it is diffused and transferred, how people find information, and the collaborative relationships that link people in Communities of Practice [58].

Culture is the most significant enabling factor of knowledge creation and sharing both in general knowledge management literature [43] and, more recently, also in project management literature [78]. According to Lindner & Wald [78], a knowledge culture is the willingness to share knowledge and to trust knowledge shared by others. It is affected by factors such as tolerance towards making mistakes, top management commitment, positive company culture, and informal networks and communication (personal networks). Strong cultures, or boundaries between professionals, have been found to both slow and restrict the flow of knowledge within a network, and also to improve the efficiency of the network by delineating roles and contexts [34][58].

As the complexity of networks increases and boundaries between organizational networks and between personal and business networks become blurred, new methods of management are needed. Each of us has his or her own interests, the interests of the people that surround us, the companies we work for and the companies our organization works in a network with. In such a complex web of knowledge there are many possibilities for contradicting interests and knowledge cultures, mistrust, lack of credibility and disturbances of knowledge diffusion and flow [3]. In this setting, are companies

able to fully exploit the personal knowledge networks of the individual employees or the knowledge networks of the network companies?

2.2 Network paradoxes

The world of networks is, however, full of paradoxes for both individuals and organizations in terms of knowledge management. Network paradoxes centre on the tension between individual action and collective interaction [47][46]. There are three paradoxes [36][46] i.e. how existing relationships enable and constrain development; influencing counterparts and being influenced in order to maintain and develop existing network positions; and the extent of cooperation and control within a network. On the individual side, an employee has to make decisions on sharing individual knowledge or the knowledge of a personal network, which leads to issues of loyalties, empowerment and involvement in the organization. On the organizational network side, traditional competitive strategies aim for the good of an individual company, including protecting its intellectual property. Networked operations, however, are based on striving to reach a common goal, combining resources and intellect and aiming for the good of the whole community. Also, the traditional, hard competitive strategies [99] do not support the diffusion of innovations and knowledge in a network of companies.

Striving for a common goal requires a common understanding of the goal and the knowledge needed, willingness of all levels of networks to share knowledge (culture) and the management of paradoxes, such as conflicting interests of participants, their absorptive capacity, and their viewpoint constructed of prior knowledge and ties to other networks. One paradox of knowledge management lies in the fact that the more cohesive the knowledge networks become, the less creative the organization or network is. Cohesion also grows self-censorship and the risk of false consensus [16][53]. Also, there are very compelling reasons for organizations to promote ignorance. This creates a paradox for structuring knowledge networks as sometimes promoting ignorance is more useful than transfer of knowledge. The more people communicate, and the more they converge on a common attitude, the less creative the organization is [58]. Consequently, the peripheral members of the organizational networks are the most creative in their perspectives [96]. This paradox poses the need for active management of knowledge networks in order to integrate the knowledge networks of individuals and organizations in such a way that allows the knowledge flow and diffusion needed for efficiency, but without stifling the creativity of the network. Linking the individual perspective of knowledge to the organizational level, organizational knowledge creation theory is concerned with the processes that make individual knowledge available to the organizational knowledge system [92].

Dealing with dilemmas and paradoxes is increasingly a central concern of management [80], and the awareness of this and the often multiple, conflicting goals of the actors in a network is important for organizational learning and performance [106][118]. Work performance in today's knowledge-intensive organizations is closely tied to the ability to make the connections to gain the necessary knowledge at the right time, to solve the KM paradoxes and to create and transfer knowledge efficiently [23][105][136]. New collaborative strategies are needed in order to develop the competitive advantage of a network [136] and to integrate the knowledge of the personal networks of the people involved in the decision-making situation in a way that serves the needs of the network.

The paradox of network management contains both proactive and reactive elements [108]. In other words, an individual firm still needs to act, to try to control, coordinate and influence, to suggest ideas and initiatives, to set limits and to seek opportunities. Harrison et al. [48] have suggested a matrix to describe the different strategizing methods that organizations use when managing their way in

networks. Each of the strategizing methods chosen has its pros and cons, which can affect the outcome. Brought into the knowledge management context, the strategizing methods could be described as i) strategizing based on the prior understanding of a partner without direct interaction (i.e. based on the "presumption of knowing the other's point of view"), ii) introducing network partners to strategizing at its final stage for informing purposes, iii) inviting partners in the middle of the strategizing process in order to take their plans into account for revising the strategy, iv) inviting partners to partake in strategizing from the very beginning and seeing counterparts as valuable contributors, and v) waiting for others to develop strategies that the focal firm can fit in with.

The impacts of the strategizing methods chosen may be significant in terms of collaboration and the feeling of involvement and significance of the skills of an employee. How to develop strategy management in an inter-organizational network towards more collaborative strategy building and involvement? This is again a paradox, as companies may not be enthusiastic about sharing strategic knowledge, especially if the network is not stable and does not have a long-term history of cooperation. Thus the nature of the field of business the network is in may affect the willingness to engage in a more collaborative type of strategy building, with simple supply chains being distinctly different from complex project networks.

2.3 Social Media

Social media and Web 2.0 are often used as interchangeable terms, but many researchers associate social media with the social aspects (participation, openness, conversation, community, connectedness) of Web 2.0 applications [21]. Social media can be then defined as a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and sharing of user-generated content [64]. Taking this one step further, social media are often referred to as applications that are either fully based on user-generated content, or in which user-generated content and the actions of users have a significant role in increasing the value of the application or the service [63].

Social media are certainly not a unified and well-defined set of approaches, and therefore this should be taken into consideration when studying the use and potential of social media in selected contexts, such as in our study. From a technology perspective, the platforms and their functionality vary (e.g. Twitter tweets/posts can be no more than 140 characters), and in turn, there is variation in how people use these platforms and/or associated applications (e.g. bloggers tend to post at most once per day, and their posts tend to be up to one page in length) [61]. A large number of different generic types of social media related applications can be identified [77][22] [135] such as wikis (e.g. Wikia, Confluence), blogs (e.g. WordPress), microblogs (e.g. Twitter), social networking sites (e.g. Facebook, LinkedIn, Yammer), content-sharing sites (e.g. YouTube, SlideShare, Flickr), social bookmarking (e.g. Delicious), and virtual social worlds (e.g. Second Life).

Lietsala and Sirkkunen [77] suggest using social media as an umbrella term, under which various and very different types of cultural practices take place related to the online content and the people who are involved with that content. Some of the practices are relatively stable, such as participating in wikis, blogging, and social networking, and some are still developing, such as microblogging.There are, however several challenges in using social media in globally distributed knowledge management tasks [98][97] and business-to-business context [65][85][60][59].

2.4 Characteristics of the Business-to-Business Sector

Markets, products and product development exhibit significant differences between the business-to-business and consumer product sectors [52][69][128][137]. For instance, generally speaking, products produced by business-to-business organizations are more complex, the development of new products takes significantly more time, and the customers are large organizations instead of single persons, which is the case in the consumer (business-to-consumer) product sector [67]. In industrial business-to-business markets, there are normally fewer customers compared to consumer markets [39][40], and the co-operation with customers is generally more direct and more intense than in the consumer sector [40]. Recognizing who is the user is not unambiguous in the business-to-business sector, because the customer and user are not necessarily the same actors, but can for example represent different organizational levels, where the former might be the decision maker and the latter the operational user [93]. Furthermore, in many contexts the users compete against other [93], which affects the willingness to share information and can lead to knowledge protection. In addition, there is still a strong culture in most companies in relation to securing patenting rights and revealing new ideas only after the IPR process has been initiated [93].

3   Literature Review and Results

For the literature review on social media and business-to-business, the following five databases were consulted: ABI Inform, ACM Digital Library, Emerald, EBSCOhost and ScienceDirect. The search was limited to journal articles using the keywords "social media" and "b2b" in any field of the article. As social media in business-to-business only emerged as a trend in 2008, only the articles published in the last 5 years were considered. The information search resulted in 241 articles (Table 1), which were skimmed by their relevance and implications to social media use in the business-to-business context.

Table 1. Literature review on social media and business-to-business.

Database	2008	2009	2010	2011	2012	last 5 years
ABI Inform	9	10	16	33	40	108
ACM Digital Library	1	2	1	5	1	10
Emerald	0	1	7	9	22	39
EBSCOhost	2	4	3	5	7	21
ScienceDirect	0	7	8	19	29	63

For the literature review on paradoxes and knowledge sharing in networks, the same databases were consulted: ABI Inform, ACM Digital Library, Emerald, EBSCOhost and ScienceDirect. The search was limited to journal articles using the keywords "paradox" and "knowledge sharing" in any field of the article. The information search resulted in 423 articles (Table 2), which were skimmed by their relevance and implications in the business-to-business context.

Table 2. Literature review on paradoxes in knowledge sharing.

Database	2008	2009	2010	2011	2012	last 5 years
ABI Inform	28	30	41	44	16	159
ACM Digital Library	3	2	3	3	1	12
Emerald	13	20	21	19	14	87
EBSCOhost	2	1	1	2	0	6
ScienceDirect	19	25	37	44	34	159

Table 3. Literature review on social media and organizational learning.

Database	2008	2009	2010	2011	2012	last 5 years
ABI Inform	2	3	5	6	8	25
ACM Digital Library	2	0	0	0	0	2
Emerald	0	2	1	2	2	7
EBSCOhost	0	0	3	5	5	12
ScienceDirect	0	3	2	1	1	10

Table 4. Classifications of articles about social media and business-to-business in the last five years.

Marketing	Branding	Innovation	Value co-creation	Business benefits or impacts	Business models	Information security
[68]	[13]	[93]	[42]	[27]	[17]	[11]
[88]	[107]	[124]	[70]	[7]	[9]	
[73]	[143]	[5]	[29]	[112]		
[15]	[85]	[132]	[28]			
[72]	[76]					
[4]	[130]					
[56]						
[49]						
[24]						
[19]						
[81]						
[141]						
[94]						
[86]						
[41]						
[114]						
[113]						
[119]						
[12]						
[57]						
[1]						
[109]						

For the literature review on social media and organizational learning, also the same databases were consulted: ABI Inform, ACM Digital Library, Emerald, EBSCOhost and ScienceDirect. The search was limited to journal articles using the keywords "social media" and "organizational" and "learning" in any field of the article. The information search resulted in 56 articles (Table 3), which were skimmed by their relevance and implications in the business-to-business context.

After removing the duplicates from the search results, there were 43 unique articles (Table 4) in total that matched our criteria on social media and B2B, 53 unique articles (Table 5) that matched paradoxes and knowledge sharing criteria, and 11 articles (Table 6) that matched social media and organizational learning criteria. A categorization of articles based on the content was then performed.

In Table 4, the majority of the social media articles dealt with either marketing (including sales and customer relationship management) or branding, and a minority dealt with innovation, value co-creation and the business benefits of social media. In addition, there were two individual articles that dealt with business models and one article that dealt with information security of social media in business-to-business.

Table 5. Categorization of knowledge sharing and paradox in B2B studies (of selected articles).

Networking and relationship building, trust, opportunism	Network cooperation towards innovation	Cultural features (guanxi) in relationships	Supply chain management & knowledge diffusion	Value co-creation & knowledge harvesting	Marketing and information privacy
[127]	[31]	[134]	[50]	[90]	[140]
[101]	[123]	[8]	[121]	[30]	[51]
[116]	[122]	[38]	[138]	[84]	
[89]	[6]	[91]	[83]	[44]	
[103]	[129]	[37]	[116]		
[75]	[133]				
[33]	[110]				
[142]	[82]				
[117]					
[126]					
[125]					
[87]					
[79]					
[74]					
[54]					
[32]					
[26]					
[18]					
[139]					

In Table 5, the majority of articles dealt with networking, relationship building towards an equal network partnership, and the paradox between building trust and partner opportunism. Separated from the general networking articles were several which focused on network cooperation towards open

innovation. A top-down view of knowledge management was discussed in two groups of articles, one concentrating on diffusion of knowledge in the supply chain, the other focusing on diffusing knowledge from the supply chain for innovations and value creation. Marketing articles discussed the paradox of B2B customer information privacy and the willingness to provide accurate information when it can influence the price or terms of a service. Chinese researchers in particular discussed cultural issues affecting knowledge sharing, concentrating on the specific knowledge-sharing norms of Chinese culture and their effect on globalizing business.

In Table 6, the majority of articles dealt with social media as KM strategy and with Interactive crowdsourcing and learning from customers. There was found category of research articles studying the social network theory in general. However this was excluded from this assessment as it does not represent the perspective of networking in social media. There were also numerous studies of social networks and learning in education (schools and academia). However these were also excluded from this study as our focus is on business to business learning. Overall hypothesis seems to be in articles discussing social media utilization in B2B and learning, that there is strong resistance in using social networking tools. Reasons for this are mentioned: Loosing the knowledge power, adoption of new technology is difficult, fear of loosing knowledge rather than gaining it, unwillingness to share knowledge in social media, quality of social contact in social media is reflected to be less important than face to face contact, and the unreliability of information in social media for example.

Table 6. Categorization of social media and learning organization studies (of selected articles).

Social media gaming for learning	Building social networks for knowledge sharing and learning (Change management)	Social media as KM strategy (what to use and how)	Managing the risks of social media implementation	Interactive crowdsourcing and learning from customers	Market learning by social media mining
[104]	[35] [102]	[2] [10] [62]	[131]	[95] [45] [115]	[25]

4 Research Agenda Proposal

Regarding different business functions, there was especially a lack of studies of social media use in innovation in business-to-business context. The four studies found that did discuss research implications of innovation are outlined next.

Based on a literature review, Tickle et al. [124] summarized that virtual communities are an emerging research topic and that significant benefits can be achieved from adopting virtual communities, particularly in support of open innovation principles. Nordlund et al. [93] reviewed existing literature from the viewpoint of the openness of innovation and proposed a future research agenda in order to better understand and capitalize on the 'user as the innovator' approach in the business-to-business context. Awa et al. [5] concluded that designing user involvement is crucial and different kinds of firms benefit from different forms of user interaction, subject to their environment. Vuori [132] explored uses of social media in a global corporation and, as further research, proposed

that in terms of network-based innovation, the impact of crowd-sourced knowledge on a company's innovation process should be investigated in closer detail.

From the KM angle, the willingness to share all information for self-protection leads to information asymmetry in insurance situations (legal obligation to tell all vs. self-protective willingness to hide past incidents). Thus, paradoxically the aim to build closer contacts leads to strong dependence [140]. On the other hand, open knowledge sharing can be seen as a new norm for non-profit partnership building [127]. Several interesting aspects in KM have been flagged by numerous researchers. These include for example: knowledge monopoly protection vs. supply chain knowledge sharing; governance of supply-chain knowledge transfer [50]; the limits of quanxi as the way to do business; changing towards a more international China [8] [134]; open innovation vs. leaking know-how to competitors [31]; the paradox of sharing too much information without joint sense making [116]; customer value co-creation [30]; information sharing vs. opportunism or wrong information and trust in a relationship [89]; internal and technological antecedents are most important in enhancing knowledge sharing in the supply chain [83]; possible problems of knowledge sharing [51].

4.1 Research proposals

To summarize previous research regarding social media in business-to-business innovation, four areas of further research are proposed: 1) the adoption of online communities in open innovation, 2) the roles of the customer in business-to-business innovation, 3) different customer interaction forms in innovation, and 4) the impact of crowdsourced knowledge on a company's innovation process.

Furthermore, four more knowledge management research areas concerning the utilization of social media in B2B networks' learning are proposed: 5) willingness and motivation to use knowledge sharing in open innovation (what do people get out of it?), 6) the roles of personal and group agendas in knowledge sharing (culture, personal networks), 7) the effects of incorrect or impartial information gained from the customer or via crowdsourcing (information asymmetry), and 8) managing joint sense making.

5 Concluding Remarks

Social media literature is fragmented into several streams of topics. Majority of social media studies can be found from marketing and networking research area. Less literature could be found from the angle of value creation, risk management, and information security in social media in B2B contexts. Social media as learning method and learning tool in education is well research area. However utilization of social media in KM tasks and organizational learning is less studied area.

This literature review was conducted in order to find out what we as researchers should re-think and re-search in KM regarding B2B relationships. Intra- organizational KM has been well studied, so KM in networked organization structures does face more demanding management tasks and a need for new tools. Therefore, we suggest KM research on the context of social media utilization in B2B. Our literature review gave evidence that there is a research gap in academia to fill with novel research. Based on the literature review, the theoretical contributions from many-to-many marketing, service-dominant logic and service science offer new ways of thinking about B2B networks and should be further investigated in the proposed research context.

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