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A framework for dealing with fundamental knowledge problems through social media

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A FRAMEWORK FOR DEALING WITH FUNDAMENTAL KNOWLEDGE PROBLEMS THROUGH SOCIAL MEDIA

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Abstract

This paper argues that the value of social media in knowledge (KM) can be evaluated on the basis of how social media helps to overcome four generic knowledge problems – i.e. uncertainty, complexity, ambiguity and equivocality. Drawing upon the relevant KM and social media literature, the paper discusses the four knowledge problems surrounding the knowledge management and presents a framework for overcoming them through social media. A literature synthesis involving inductive interpretation of qualitative research was used. The paper shows how different knowledge problems can be approached through social media: i) uncertainty can be reduced by decent problem formulation and effective information acquisition, ii) complexity can be simplified by increasing knowledge process capacity and decomposing problems, iii) ambiguity can be dissipated by sensemaking, iv) equivocality can be encountered by creating trust and allowing polyphony of perceptions. The paper contributes to the KM research by providing theoretically founded framework which illustrates the relationship between social media and knowledge problems. The framework can be used not only for identifying and understanding epistemological differences between knowledge problems but also for developing social media guidelines for KM purposes. Social media means not only new possibilities but also new threats to organisations' KM practices. The paper establishes the association between social media and the management of fundamental knowledge problems not previously discussed.

1. Introduction

The first step to knowledge was recognition of one's ignorance – Socrates (469 BC–399 BC).

As the importance of knowledge has increased, we have witnessed the rise of knowledge management (KM) to become as one of the top priorities in many organisations. KM academics and practitioners have adopted a practical view of knowledge as a “serviceable truth” (cf. Jasanoff, 1990). The most valuable form of knowledge is judged as knowledge that works (Demarest, 1997). Logically KM and related research have focused on producing numerous frameworks for managing knowledge resources. They include, to name a few, knowledge exploration and exploitation (March, 1991), information management cycle (Choo, 1994), SECI-model (Nonaka, 1994) and value chain of knowledge (Davenport and Prusak, 2000). There is also distinctive knowledge management systems (KMS) approach focusing on various information technology-based tools developed for enabling information and knowledge flows within and across organisations (Maier, 2004). Above-mentioned and many other approaches build on the elegant argument that knowledge plays a central role in economic processes (Simon, 1999, Van den Berg, 2013).

Although numerous studies have shown the benefits of KM in leveraging knowledge and fostering productivity and innovation, however, the real business value of KM is yet debatable – especially when considering the role of information technology in KM. Several researchers have identified major challenges in adoption knowledge management systems (KMS). The reasons for problems in adopting KMS are numerous and include, among others, technological barriers, such as poor interface and search functionality (Abdullah, 2005, Inganas *et al.*, 2006); individual barriers, such as lack of motivation and change resistance (Bock *et al.*, 2005, Kankanhalli *et al.*, 2005, McAfee, 2006);

and organisational barriers, such as lack of trust and cultural differences (McDermott and O'Dell, 2001; Bock *et al.*, 2005; Kankanhalli *et al.*, 2005, Rosen *et al.*, 2007).

Presumably the challenges related to the role of technology in KM are increasing and complicating due to the emergence of *social media*. It seems that social media – as many other organisational artefacts (Cameron, 1986) – involves a paradox, it is simultaneously both a solution and problem. When applied to social media, the paradox arises, for example, from the fact that while social media expands the information pool from which to draw decisions, it also simultaneously generates contradictory information that makes it difficult to achieve consensus. Depending on one's perspective, social media involves potentiality to improve knowledge productivity, or contrary, it may yield to the loss of productivity if workers fall down to virtual hanging around. The business value of social media is nothing but obvious. McKinsey Global Institute (2012), for example, reports that 90 per cent of companies using social media have gained some business from it, whereas, Gartner Research (2013) sees the situation quite opposite saying that 80 per cent of social business efforts will not achieve intended benefits in the near future.

Seemingly social media is not a panacea which by itself automatically translates information flows into 'serviceable knowledge'. Although social media promises novel possibilities for organisations, it is still a poorly understood phenomenon. Particularly, this is the case in the KM context (Hemley and Mason, 2013). Social media is a double-edged sword because it does not only improve knowledge processes, but also complicates them. Therefore, this paper argues the need to explore fundamental knowledge problems faced by organisations. It is argued that the value of social media in KM should be evaluated on the basis of how social media helps to overcome four generic knowledge problems – i.e. *uncertainty*, *complexity*, *ambiguity* and *equivocality*. Until this is explored and defined, organisations run the risk of addressing symptoms rather than causes. Using a literature synthesis involving inductive interpretation and reflecting the practices found in literature and practice, the paper aims to establish associations between social media and KM not previously known. Particularly the paper focuses on knowledge problems which are seen as the *raison d'être* of KM (cf. Zack, 2001).

2. Social media promises for knowledge management

KM is traditionally defined as a process which consists of several activities, such as knowledge creation/construction, knowledge storage/embodiment, knowledge transfer/dissemination and knowledge exploitation/use (e.g. Alavi & Leidner, 2001). Management of these knowledge processes are typically divided into two approaches leading different management strategies (Hansen *et al.*, 1999). Some organisations rely more on technical solutions aiming to put organisational knowledge into a form that makes it accessible to those who need it (Davenport and Prusak, 2000). Techno-centric approach leads to *codification strategy* which is applicable when dealing with explicit knowledge – i.e. knowledge that can be easily captured, organised and communicated (Firestone, 2001). Newell *et al.* (2002) has found that organisations applying codification strategy tend to reward employees using and contributing to information systems. Other organisations emphasise people-oriented approach building on interaction between people (Hansen *et al.*, 1999). People-oriented approach leads to *personalisation strategy* which is applicable when dealing with tacit knowledge – i.e. knowledge that cannot be extracted from individuals (Nonaka, 1994). According to Newell *et al.* (2002) organisations using personalisation strategy encourage knowledge and experience sharing. Information technology in personalisation strategy is used as a means to locate knowledgeable people and enable efficient communication (Hansen *et al.*, 1999).

The promise of social media is not confined to technology, but involves cultural, societal and economic consequences (Gurteen 2012). A widely acknowledged view is that social media has and will transform the ways of communication, collaboration and networking. Social media provides a context for new ways of creating, searching, sharing, and applying knowledge. The increase of social media has led some authors to suggest the convergence of codification and personalisation strategies. Hong *et al.* (2011), for example, have argued that the evolution of technology may yield to a paradigm shift from conventional KM to conversational KM, whereas Bock *et al.* (2005) and Bechina and Ribiere

(2012) have supposed the increasing importance of ‘soft’ dimensions of KM initiatives. At the heart of conversational KM is the knowledge network infrastructure and collaboration for knowledge creation among knowledge workers. For organisations’ KM practices social media offers several tempting opportunities: it can be used for refining information and knowledge (Vuori and Okkonen, 2012), engaging with customers and other stakeholders (Mangold and Faulds, 2009, Berthon *et al.*, 2012), improving knowledge workers’ productivity (Ferreir and du Plessis 2009) and fostering organisational innovation (Kohler *et al.*, 2009, Standing and Kiniti, 2011, Jussila *et al.*, 2012).

Seemingly social media is leading us towards a social economy which manifests itself as a new way of doing business based on a new kind of collaboration within and across organisations. Presumably, this means new challenges to organisations’ KM practices. The paper builds on the idea that social media has blurred the borderlines between the codification and personalisation strategies creating a need for questioning established KM practices and exploring new ones. The remainder of this paper discusses the knowledge challenges (uncertainty, complexity, ambiguity and equivocality) and the role of social media in ‘resolving’ them.

3. A problem-based view of knowledge management

Problems can be divided into two extremities, known as tame and wicked problems (Rittel and Webber, 1973). *Tame* problem refers to a problem whose information needs, and hence also, information gathering process and end result can be predicted and defined a priori. Tame problems are easy because there is an identifiable criterion whether suggested solutions are true or false. *Wicked* problems, in turn, may have multiple possible solutions and the ‘goodness’ of each solution always depends on one’s approach. As wicked problems have no definitive formulation, either their information needs or information gathering processes cannot be planned a priori. Rittel’s and Webber’s typology has moulded the ways of thinking not only in planning but also in management in general. Several other typologies have also been suggested. Glouberman and Zimmerman (2002), for example, have made a distinction between simple, complicated and complex problems. A problem is *simple* when both the process and results are generalisable. The solution for a simple problem can be condensed into a recipe (cf. baking a cake). *Complicated* problem requires formulaic and expert-knowledge approaches (cf. sending a rocket to the moon). Complicated problems can be broken down into component parts which can then be analysed based on experts who utilise the proven methodologies of their disciplines. Complicated problems differ from simple ones in that they do not lend themselves to a recipe approach because they may include surprises. *Complex* problems are unique problems whose success cannot be known or predicted in advance (cf. raising a child). Although past experience and expert knowledge may help when dealing with complex problems, the formula that worked before is not a guarantee for the further success.

From this paper’s perspective, both above-mentioned classifications are a bit too general as they do not address particularly to KM challenges. Therefore, this paper adopts the categorisation provided by Zack (2001). Zack has divided knowledge problems into four categories: uncertainty, complexity, ambiguity and equivocality. *Uncertainty*, by definition, means lack of information and knowledge about facts (Daft and Lengel, 1986). Information refers to a situation or a phenomenon which exists irrespective of people involved with it. Uncertainty is a gap which opens between information required in a certain task and information possessed by an individual or organisation (Galbraith 1977). *Complexity* arises from connections between situations or phenomena. Complexity refers to situations and phenomena interacting in a nonsimple way (Simon, 1962). Complexity also means that the direction and strength of the development of situations and phenomena are difficult, but not necessarily impossible, to predict (e.g. Zack, 2001). The amount of information that is needed to describe a phenomenon on a certain scale can be used as a measure of complexity (Gershenson, 2011). *Ambiguity* means difficulty in interpreting a situation or phenomenon. Zack (2001) has distinguished two levels of ambiguity, which are surface and deep ambiguity. In surface ambiguity, the interpreter has got relevant interpretative knowledge which is difficult to use because available information does not trigger the process of construction of meaning, where individual information hints are arranged as part of a larger framework of interpretative knowledge (Weick, 1995). In deep ambiguity, the interpretation difficulties arise from the lack of relevant interpretative knowledge. *Equivocality* manifests itself as different interpretations of a situation or phenomenon.

Equivocality means a situation where the actors look at the phenomenon at hand through different 'lenses' (Daft and Lengel, 1986). Even if each interpretation was unambiguous and logical as such, when combined with the interpretations of others, the end result is typically a contradictory explanation of things and phenomena, and it contains mutually exclusive views (Weick, 1995).

Zack's (2001) framework has similarities with the classifications provided by Rittel and Webber (1973) and Glouberman and Zimmerman (2002). Tame and simple problems are basically dealing with uncertainty. If one suffers from uncertainty on how to bake a cake, his/her uncertainty can be rather easily removed by providing a recipe. A cake will be predictable end result if the baker strictly obeys the advice given to him/her. In other words, the solution for uncertainty is the increase amount of information. Complexity arising from connectivity and interdependencies, in turn, is congruent with tame and complicated problems. As noted, the challenge of sending a rocket to the moon does not lend itself a recipe approach. However, the probability of success can be improved by carefully analysing bit by bit the components which originally make up the complicated problem. Complexity can be reduced by breaking things into simpler parts (Zack, 2001) and then assigned to knowledgeable experts who utilise the proven methodologies of their disciplines (Glouberman and Zimmerman, 2002). The solution for complexity is the decomposition of complicated problems into analysable components by expert knowledge. Ambiguity, in turn, stands for difficulties in understanding the situation at hand. This results not from lack of information but from lack of framework of interpretative knowledge. Ambiguity hints that the problem may be complex (Glouberman and Zimmerman, 2002) but not necessarily tame by its nature (Rittel and Webber, 1973). As an example of a problem of ambiguity is the difficulty in understanding contradictory customer feed-back. It is a problem which can be "solved" satisfactory, albeit not easily. The adequate consensus about customers' opinions on organisations' business can be reached by systematically gathering information and elaborating it. The solution for ambiguity is the construction of interpretative knowledge frames for individual fragments of information. Finally, equivocality is a characteristic of complex and wicked problem. In equivocal cases, even the formulation of the problem divides the opinions. Logically, also the suggested solutions are based on mutually exclusive views. Think, for instance, the example of raising a child suggested by Glouberman and Zimmerman (2002). Depending on one's view, the pedagogical approaches can take various forms. Either the success of dealing with the issue is nothing but predictable. Although the problems characterised by equivocality cannot be solved literally, however, they should and can be met by ensuring the emergence of interpretation which addresses multiple meanings.

Next, the paper presents the framework for overcoming uncertainty, complexity, ambiguity and equivocality through social media.

4. Overcoming knowledge problems through social media

4.1 Reducing uncertainty by decent problem formulation and effective information acquisition

Since uncertainty refers to a lack of information, it sounds reasonable to suggest that uncertainty can be reduced by acquiring information. Although uncertainty is an annoying situation to find oneself in, however, it is a condition which can be fixed. This is because in uncertainty there is not just a shared view about the existence of uncertainty but also rather congruent understanding about the causes that produce the uncertainty. Overcoming the uncertainty requires two interlinked processes: the explicit problem formulation and acquiring the missing information. The problem formulation refers to the proper identification of the problem to avoid the risk of solving wrong problems (Simon, 1962). Problem formulation involves several steps such as the description of the problem, analysing causes, identifying alternatives, assessing each alternative, and choosing one to be addressed (Goldstein and Levin, 1987). Information acquisition, in turn, refers to the process of collecting and filtering new information (Choo, 2002). Information acquisition reflects to the extent of individuals' and organisations' desire to accumulate information related to the formulated problem. The processes are intertwined meaning that problems cannot be formulated without information acquisition and information acquisition is useless without the problem to be formulated.

Social media helps both processes. It does it in two main ways: firstly social media provides a context for organisational discussion which significantly improves the possibilities of understanding the nature of the problem causing the uncertainty, and secondly, social media increases the connectivity within and across organisation lowering the thresholds of sharing knowledge.

There are several research findings that support the assumption that uncertainty can be reduced, even if not eliminated, through social media. Social media influences the ways problems are formulated. Wagner & Bollojou (2005), Schneckenberg (2009) and Vuori and Okkonen (2012), among others, have found that social media enables employees to participate in collaboration activities and informal discussions within the organisation. Informal discussions are extremely important as they enable the integration of “human factor” (Boddy *et al.*, 2005) into the problem formulation process. This is congruent with the very nature of KM, which is not about “universal truth” but more about “serviceable truth” (Demarest, 1997). Social media complements the problem formulation process’ knowledge base by providing a more multifaceted understanding than what can ever be achieved with static databases (Vuori and Okkonen, 2012).

Following the thoughts of Schumpeter (1934), Moran and Ghoshal (1996) have argued that all new resources, including knowledge, are created through combination and exchange. Applied to social media, the argument proposes that social media can be viewed as a virtual context where knowledge problems based on uncertainty are overcome either by combining elements previously unconnected or by developing novel ways of combining elements previously associated (Cronk, 2012). It is the internal and external connectivity and communication networks which largely determine the success of acquisition and transfer of information, and hence the reduction of uncertainty. This is reported in several studies. Grace (2009), Cronk (2012), Vuori and Okkonen (2012), among many others, have found that wikis, blogs and other social media tools/platforms significantly improve the connectivity within and across organisations. The importance of the connections enabled by social media can be explained by the concepts of ‘strong’ and ‘weak’ ties (Granovetter, 1973; Hansen *et al.*, 1999). Strong ties manifest themselves as relationships between individuals or groups that regard each other as similar, whereas weak ties refer to relationships that connect individuals and groups that usually operate in various social environments. Weak ties enable information variety and promote the combination of elements previously unconnected. Strong ties, on the other hand, improve the distribution of complicated and context-bound knowledge and preface the development of new ways of combining elements previously associated.

At best, social media helps to cope with uncertainty as it enables organisations a new kind of modus operandi (Vuori and Okkonen, 2012). Social media promotes a change process in which individuals transform from ‘passive’ information users to ‘active’ information ‘prosumers’ (cf. Toffler, 1980). Social media supports information behaviour which Grudin (2006) has called as ‘produsage’ meaning that individuals can simultaneously produce and use information. Producing information is important in problem formulation, whereas using implies information acquisition.

4.2 Simplifying complexity by increasing knowledge process capacity and decomposing problems

Complexity cannot be reduced by increasing information, because complexity arises from the intricacy and connectivity of various elements. A knowledge problem is complex one when there are many potential and interrelated variables, solutions and methods (Zack, 2001). Although complex problems are tricky to solve, the complexity they involve is not absolute. Therefore, two approaches are proposed to cope with complex knowledge problems: the one that focuses on the organisation’s knowledge capabilities and the other one which address the decomposition of complexity (Zack, 2001). The improvement of knowledge capabilities is based on developing rules and routines which promote the organisation’s members’ ability to locate, develop and bring appropriate knowledge, expertise, and skills to bear on the issues at stake, while the decomposition of complexity rests on restructuring and redefining the problems to resemble something more familiar (Zack, 2001).

Both approaches can be supported by social media. Firstly, social media enriches and diversifies organisation’s knowledge resources. The richer and more diversified the knowledge resources of the organisation are, the greater complexity the organisation can handle. The argument resonates with the law of requisite variety (Ashby, 1956), which

states that the system's (e.g. organisation) internal diversity should match the variety and complexity of the environment. Several studies have recognised that by increasing the diversity of knowledge, social media potentially lifts organisation's KM practices into the upper level (see Gurteen, 2012). Essential part of this "upgrading" is the way how the organisation's external knowledge resources are integrated into the organisation's KM practices. As social media provides unbounded interaction, collaboration and participation of people (Bebensee *et al.*, 2012), it has created new ways to the internal use of external knowledge. Many researchers have argued that by engaging customers and other stakeholders, organisations are able to increase needed diversity (e.g. Berthon *et al.*, 2007; Gorry and Westbrook, 2011). It has been found, for example, that social media is an appropriate context for customer stories, which can be used for stimulating and challenging organisational "wisdom" (Li and Bernoff, 2011).

Secondly, social media provides new means for decomposing complexity by breaking things into simpler parts (Zack, 2001). Simplifying complexity can be aspired by using different social media tools such as wikis (allowing users to freely create and edit content), social bookmarking (enabling users to add, annotate, edit, and share bookmarks of web documents) and collaborative filtering (determining the relevance of information and knowledge resources according to the actions of individuals). Common for all above mentioned tools are that they help to redefine complex problems "to resemble something more familiar" (Zack, 2001). The understanding of complex issues can be promoted if individuals are encouraged and rewarded to add, edit and comment content (Grace, 2009). Another technique for dealing with complexity through social media is information visualisation. Information visualisation refers to technologies that support visualisation and help in the interpretation of information (Ware, 2004). It is a question of combining the information and the situation into a whole and visualising it in a way that activates the cognitive processes of the mind, i.e. perception, memory, problem solving, comprehension. Visualisation also improves intuitive thinking and the observation of unexpected elements which would otherwise remain undetected. For visualisation purposes, social media can be exploited, for instance, for mapping and graphing organisational knowledge resources whether they are people-based or IT-based (Davenport and Prusak, 2000). The importance of mapping the locus of knowledge within the organisation is increasing due to the proliferation of various virtual working settings. Without understanding of individuals' expertise and interdependences among them, the risk is that the organisation's KM underperforms (Janhonen and Johanson, 2012).

At best, social media enables the organisation to harness collective intelligence and wisdom of crowds (Levy, 1997). Social media includes the potential to create a context where independent individuals can come up with a solution to a cognitive problem in a way that cannot be achieved by isolated individuals. Providing means for enhancing the organisation's knowledge resources and for simplifying complex problems, social media also improves the organisation's absorptive capacity (Cohen and Levinthal, 1990), its ability to adopt and apply new knowledge. The greater the absorptive capacity is, the more likely the organisation can make complexity accessible.

4.3 Dissipating ambiguity by sensemaking

Ambiguity refers to a lack of interpretative knowledge. It represents an inability to make sense of something (Weick, 1995). An ambiguous situation is challenging as it does not lend itself a simple question-answer approach (Daft and Lengel, 1986). Instead of providing an answer to an explicit question, information may stimulate several interpretations. Essential, therefore, is that an attempt is made to meet ambiguity by sensemaking (Weick, 1995). Sensemaking refers to the process of structuring the unknown and placing stimuli into some kind of framework.

Sensemaking builds on several components including identity, retrospection, enactment, social, ongoing, cues and plausibility over accuracy (Weick, 1995). Identity, meaning one's sense of oneself, affects one's behaviour. Sensemaker's identity cannot be detached from the object of sensemaking as they are interdependent recursive relation with each other. Weick (1995) has put this as follows: "Depending who I am, my definition of what is 'out there' will also change. Whenever I define self, I define 'it', but to define it is also to define self." Retrospection is a necessary condition for sensemaking. Adapting Mead (1956), Weick (1995) argues that we can be conscious only of what we have done, never of doing it. As the point of retrospection in time affects what people notice (Dunford and Jones, 2000),

the attention and interruptions to that attention explain a great deal of sensemaking (Gephart, 1993). By enactment Weick (1995) refers to dialogues and narratives which help people to understand their thinking, organise their experiences and even predict events. Sensemaking is a social process meaning that plausible narratives are preserved, retained and shared. It is also an ongoing process as it emerges from simultaneous efforts to create order and to make retrospective sense of what happens. Sensemaking is not dealing with 'facts', but with information cues that are considered relevant and acceptable by their observers. Extracted cues provide points of reference for linking ideas to broader networks of meaning and are "simple, familiar structures that are seeds from which people develop a larger sense of what may be occurring" (Weick, 1995). The interpretation of information cues is based on the principle of plausibility over accuracy. For Weick (1995) plausibility means the avoidance of obsession with accuracy which he judges as fruitless and impractical in a postmodern world infused with conflicting interests.

All of the above mentioned components are strongly influenced by social media. It has been suggested that social media changes the process of identity formation. Identity becomes visible to others through the conscious or unconscious 'self-disclosure' of subjective information such as thoughts, feelings, likes, and dislikes (Kaplan and Haenlein, 2010; Kietzmann *et al.*, 2011). As social media increases the speed and volume of information flows, it simultaneously provides more points for retrospection. Many studies have shown that social media increases organisations' ability to respond quickly to changes in their environment (e.g. Constantinides and Fountain, 2008; Yates and Paquette, 2011). Loosely adapting Mead (1956), it can be thought that social media improves organisations' 'sensory processes'. Social media also supports the enactment of the environment. It does it by providing a social context for ongoing dialogues and narratives to be preserved, retained and shared. Kietzmann *et al.* (2011), Hanna *et al.* (2011), to name a few, have argued that social media have engendered radically new ways of interacting within and across organisations. This, in turn, has meant new possibilities for the extraction of information cues. By increasing the number of information cues, social media improves the possibilities to get insight what may be occurring. Finally, social media also affects the plausibility of information as it provides a collaborative space for negotiation between different views inhabited by people with multiple shifting identities (Kietzmann *et al.*, 2011).

Social media underpins the organisation's KM enabling to handle with ambiguity. Social media is an organisational boundary element providing reciprocal interaction with its environment (cf. Maula, 2006). In a way social media acts as the organisation's 'senses' enabling interactive openness. By enabling the context for individuals' interpretations become evident through narratives which convey the sense they have made of events, social media also creates common knowledge (Grant, 1996). Common knowledge refers to those "elements of knowledge common to all organizational members" (Grant, 1996). Manifesting itself as "intersection of their individual knowledge sets", the common knowledge "permits individuals to share and integrate aspects of knowledge which are not common between them" (Grant, 1996). Common knowledge is required as no actor alone has the capacity to solve epistemic problems manifesting themselves as ambiguity.

4.4 Encountering equivocality by creating trust and allowing polyphony of perceptions

Equivocality arises from contradictory points of view. Equivocal problems are wicked in a sense that they do not lend themselves to answers that can be accepted by all involved (Rittel and Webber, 1973). Equivocality involves political and ethic-moral tensions and contains mutually exclusive views. Therefore, instead of "solving" problems including equivocality, this paper argues that, it should be a matter of how to encounter them. In encountering equivocal knowledge problems it is essential to accept the fact that one and the same event can be interpreted in different ways and from different starting points. Whether multiple views yield to potentially useful "polyphony of perceptions" (Hazen, 1993) or definitely harmful "social deadlock" (Brunsson, 1985) depends on trust between individuals. Trust is tested first, only after that the organisation has the ability to process meanings (cf. Luhmann, 1995). Trust promotes interaction processes, which, in turn, may help to encounter and exploit the polyphony of perceptions. Trust acts as a kind of social adhesive, which provides the necessary coherence in which different actors can express their views based on their interests and values. Trust is based on imperfect knowledge manifesting as a belief that "others will not knowingly or willingly harm us" (Valenzuela *et al.*, 2009).

Social media helps to deal with equivocality in two main ways: firstly, social media enhances reciprocal trust building within and across organisations by enabling individuals to share and check each other's identities before they engage with others, and secondly, social media promotes "polyphony of perceptions" by allowing different individuals get a voice.

Correlation between trust building and social media can be explained in terms of identity. In the social media setting, identity refers to information that portrays individuals in certain ways (Kietzmann *et al.*, 2011). Social media changes the ways of how we deal with identity. It allows individuals to learn "detailed information about their contacts, including personal backgrounds, interests and whereabouts" (Valenzuela *et al.*, 2009). This information, in turn, reduce uncertainty about other individuals' intentions and behaviours, helping to develop norms of trust and reciprocity, which Putnam (2004) and Valenzuela *et al.* (2009), among others, have deemed a necessary condition for developing norms of trust and reciprocity. It is to say that trust carries on when the knowledge ends. For the organisation's KM the message is explicit: social media helps to build trustful atmosphere within the organisation, which, in turn, enables individuals to share different – including conflicting – insights (cf. Wagner and Bollojou 2005; Schneckenberg, 2009; Vuori and Okkonen 2012).

Drawing on language-based approaches to organisation studies, Clegg *et al.* (2006) have suggested that management is enactment through language. It means that the organisational discourse not merely mirrors or represents the world, but it enacts the organisational reality (see also Weick, 1995). Clegg *et al.* (2006) argue that "discursive enactment of reality affects and is affected by organisational power relations, since the position of having voice is powerful in itself in that it can set the frame for how further arguments might be evaluated". To avoid the situation in which power is tied up with language that constitutes organisational realities, Clegg *et al.* (2006) proposes a polyphonic perspective. Organisational polyphony is more than just "simple assertion that everyone has their own point of view" as it "alerts attention to the play of multiplicities, the relations of power that operate between them and the unfinalisability of truth as it is enacted through different people" (Clegg *et al.*, 2006). Organisational polyphony opposes the singular voice whether it belongs to a manager or someone else. Social media represents itself as the context of organisational polyphony enabling the voice for different individuals. By creating, searching, sharing and applying knowledge through social media, people engage in discursive moves, which Clegg *et al.* (2006) call 'translations' required "in order to make sense of past events and to seek legitimacy for future action". From the organisation's KM perspective, the polyphony argument requires the sensitivity to different voices including the 'quiet' ones. If the organisation fails to hear or silence the different voices, it risks its sensemaking capability.

Social media improves the organisation's KM ability to encounter equivocality. The usage of social media increases trust between individuals, which, in turn, may yield to higher level of social capital – i.e. intangible resources available to people through their social interaction (Putnam, 2004; Valenzuela *et al.*, 2009). It allows individuals to access information that is otherwise unavailable (Lin, 2001). Instead of seeking 'truth', social media enables the discussion about issues that are not sure and verified (Vuori and Okkonen, 2012).

5. Conclusions

This paper has discussed four knowledge problems, their manifestations and possible solutions supported by social media. The paper concludes that social media can be used for easing knowledge problems whether they manifest themselves as uncertainty, complexity, ambiguity and equivocality. The paper shows how different knowledge problems can be dealt with social media: i) uncertainty can be reduced by decent problem formulation and effective information acquisition, ii) complexity can be simplified by increasing knowledge process capacity and decomposing problems, iii) ambiguity can be dissipated by sensemaking, iv) equivocality can be encountered by creating trust and allowing polyphony of perceptions.

The paper contributes to both the KM research and practice by providing theoretically founded framework which illustrates the relationship between social media and knowledge problems. The framework can be used not only for identifying and understanding epistemological differences between knowledge problems but also for developing social media guidelines for KM purposes.

The paper speaks to the studies which argument for paradigm shift from conventional KM to conversational KM and the convergence between codification and personalisation KM strategies. However, more research needs to be done. One possible avenue for further research is to study what differences there are between different social media platforms in terms of knowledge problems. Essentially, this study can be understood as a “springboard” for further empirical research. Further research should be carried out to validate the framework.

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