



# A Sensemaking Model of Knowledge in Organizations – Theoretical Foundations

Dubravka Cecez-Kecmanovic

School of Information Systems, Technology and Management

Faculty of Commerce and Economics, UNSW

Sydney, NSW 2052, Australia

Tel. +612 9385 4735

Fax +612 9662 4061

E-mail: [dubravka@unsw.edu.au](mailto:dubravka@unsw.edu.au)

## ABSTRACT

*The objective of the paper is to propose a sensemaking model of knowledge in organizations that identifies different types of knowledge at four sensemaking levels: i) personal knowledge at the intra-subjective level of an individual; ii) collective knowledge at the inter-subjective level; iii) organizational knowledge at the generic-subjective level; and iv) knowledge embedded in culture at the extra-subjective level. Characteristics of each knowledge type are described, together with the ways knowledge is continuously (re)produced and used at a particular sensemaking level as well as constituted by knowledge types from other levels. The paper briefly refers to the application of the model in two empirical studies of knowledge management which demonstrated its relevance in practice and from which new research questions have been raised.*

## INTRODUCTION

To create and provide products and services organizations utilize their various resources. Different organizations use their resources differently, with varying market success and economic and social outcomes, depending on the knowledge they draw upon. A view of organizations as knowledge systems focuses on the ways organizations draw upon their knowledge and create new knowledge so as to best utilize their resources in providing distinctive products and services (Penrose, 1959; Nonaka and Takeuchi, 1995; Spender, 1996). The most interesting insight from such a view is that there is no limit in an organization's utilization of its resources: "the more practitioners *invent* new ways of using their resources (themselves included), the more services they can potentially derive" (Tsoukas, 1996, p. 13; emphasis in the original). The key difference that makes a difference is the *knowledge* organizations draw upon and their knowledge generating capacity.

That knowledge makes a difference to performance has been realized by many organizations worldwide. In order to 'manage knowledge' better they undertake various knowledge management programs, appoint chief knowledge officers (CKO), and implement Knowledge Management Systems (KMS) (Alavi and Leidner, 2001). Managing knowledge is considered of key importance for sustained competitive advantage. However, despite the abundance of literature on knowledge management in Information Systems (IS), management, organization studies, cognitive science, sociology, and other disciplines, practitioners do not find many applicable or useful concepts, frameworks and models (Earl, 2001). Interestingly enough there aren't satisfactory answers to fundamental questions: What is the nature of knowledge that organizations try so hard to manage and what does it actually mean 'to manage' knowledge?

This paper addresses these questions by drawing on sensemaking views of organizations (Weick, 1995) and the levels of sensemaking reflecting Wiley's (1988, 1994) semiotic theory of self. Knowledge is understood as both a subject and a product of sensemaking. The objec-

tive of the paper is to propose a *sensemaking model of knowledge in organizations* that identifies different types of knowledge at four distinct sensemaking levels: the intra-subjective level of an individual, the inter-subjective, the generic-subjective (or organizational) and the extra-subjective (or culture) level. By explaining characteristics of these knowledge types and relationships (and especially tensions) between the types, the paper demonstrates how the sensemaking model of knowledge describes the richness and dynamics of knowledge in organizations and complexity of its management. Based on the model and its limited empirical testing (two field studies) the paper identifies several important problems that need to be researched if organizations are to actually manage their knowledge.

Next section briefly discusses knowledge-based approaches to organizations, followed by a presentation of the assumptions and basic concepts of a sensemaking view of knowledge. A sensemaking model of knowledge is presented in section four. The paper concludes with a suggestion for a research agenda in knowledge management.

## ORGANISATIONS AS KNOWLEDGE SYSTEMS

Knowledge-based approaches to organizations seek, on one hand, to classify the different types of organizational knowledge and, on the other, to explain the nature of knowledge in organizations (Tsoukas, 1996). Several taxonomies of knowledge have been proposed out of which we'll mention only two. Spender (1996) classifies knowledge along two dimensions: a) knowledge held by an individual or by a collective; and b) knowledge articulated explicitly or manifested implicitly. As a result knowledge, according to Spender, can be i) conscious (explicit, held by the individual); ii) objectified (explicit, held by the organization); iii) automatic (preconscious, individual) or iv) collective (manifested in organization practices). Tsoukas (1996) rightly questions the rigid and artificial distinction between individual and social knowledge implied by this taxonomy.

Another, and quite influential taxonomy was proposed by Nonaka and Takeuchi (1995). They also start from a distinction between explicit and tacit knowledge, based on their interpretation of Polanyi's work (1962, 1966). They propose that translation and conversions that take place between explicit and tacit knowledge are essential for knowledge creation and use in a company. They identify four types of knowledge conversion (explicit-to-explicit, tacit-to-explicit, explicit-to-tacit and tacit-to-tacit) based on which they propose a model for knowledge creation in a company. While Nonaka and Takeuchi's theory has been widely used and cited, its assumptions regarding the nature of tacit knowledge have been called into question. Namely, Tsoukas and Vladimirou (2001) and Tsoukas (1996) criticized Nonaka and Takeuchi's adoption of Polanyi's theory (1962, 1966) and demonstrated that their interpretation of Polanyi's notion of tacit knowledge is erroneous. Tacit and

explicit are not two separate types of knowledge, but are mutually constituted. Explicit knowledge is always grounded in a tacit dimension, Polanyi (1966). Tacit knowledge, as Tsoukas explains, “is the necessary component of *all* knowledge; it is not made up of discrete beans which can be grounded, lost or reconstituted” (1996, p. 14).

A good example of investigations aiming at explanation of the nature of knowledge in firms is one by Tsoukas (1996). He extends the view of organizations as knowledge systems (Grant, 1996) and examines a concept of a firm as a *distributed knowledge system*. Inspired by Hayek’s (1945) (re)formulation of economic problem of society, Tsoukas argues that firms are inherently decentered systems and that the knowledge they need to draw upon is indeterminate and emerging, and cannot be known by a single mind. He also provides a well-grounded explanation of a distributed nature of a firm’s knowledge. Tsoukas (1996) explains social practices as consisting of three dimensions: role-related normative expectations; dispositions (formed in past socializations) and interactive situations (involving local knowledge of particular circumstances, time and space). While firms may have more or less control over normative expectations, they have no control over its members’ dispositions nor could they determine the use and creation of knowledge in social interactions in which members’ normative expectations and individual dispositions are instantiated.

The approach adopted in this paper draws from both streams of research in that it aims to classify types of knowledge and also to contribute to the understanding of knowledge in organizations. The theoretical foundation of our work, however, is different from approaches in either of the streams: it originates from the sensemaking perspective of knowledge in organizational context.

## A SENSEMAKING VIEW OF KNOWLEDGE IN ORGANIZATIONS

Sensemaking is an everyday activity, briefly described as “The reciprocal interaction of information seeking, meaning ascription, and action” (Thomas, Clark, and Gioia, 1993, p. 240). Whenever we encounter an event that is surprising, puzzling, troubling, or incomprehensible, we try, more or less consciously, to interpret it, to assign meaning to it, that is, to make sense of it. In the process of interpretation and explanation we typically draw from our experience and from our background knowledge of a context within which the event occurred. We also often talk to other fellow colleagues (workers, citizens, friends), share our experiences, test and co-create our assumptions and beliefs in an attempt to “structure the unknown” and assign the meaning to the surprising event. The interpretation and understanding of the event, achieved either individually or collectively, is an outcome of the sensemaking process (Louis, 1980, p. 241) the importance of which is usually more appreciated if it triggers or enables an action.

Several aspects of sensemaking are relevant for exploration of knowledge in organisational contexts. First, an individual makes sense of her/his work environment, tasks and activities, and also more broadly of organisational processes and events. In this process, the individual both uses and re-creates her/his personal knowledge. Second, members of an organisation interact, informally and formally, to explore problematic situations, share their assumptions and experiences, and co-create inter-subjective meanings. In this collective sensemaking process problematic situations are named and framed, the boundaries of intervention are set, and a coherent ‘structure’ imposed allowing an intelligible action (Schon, 1983). Key components of this process – knowledge sharing, achieving mutual understanding, inter-subjective meaning making and knowledge co-creation, as well as taking action – are all entangled in social interaction in an undistinguishable manner. Only by engaging in and observing social interaction, can we as researchers make sense of them and learn about collective knowledge formation and use.

Third, in any organisation there are commonly accepted ways of seeing and doing things. There are organisational (work, management) roles, processes and structures, meaning of which is shared among its members without them participating in their creation. The meaning ascribed to organisational roles (normative expectations), processes and structures persist while individuals performing them are changing (though

not completely). Sensemaking involved in creating and maintaining such generic meanings is called ‘generic subjective’. This is so-called social structure level at which “concrete human beings, subjects, are no longer present. Selves are left behind at the interactive level. Social structure implies a generic self, an interchangeable part—as filler of roles and follower of rules—but not concrete, individualized selves” (Wiley, 1988, p. 258). While inter-subjective meaning making through social interaction is a source of innovation, encouraging change, generic subjectivity enforces control, securing stability. In this dialectic relationship Weick (1995) sees the essence of organisation.

Fourth, involved in all sensemaking processes described above, are customs, norms, habitual behavior, rituals, myths, metaphors and other language forms, etc., that fall under the general rubric of culture. This realm of abstract symbolic reality underpins all other sensemaking levels. Referring to Wiley (1988), Weick calls culture an ‘extra-subjective’ level of sensemaking which provides a reservoir of background knowledge allowing and constraining meanings at other levels.

Given the four sensemaking levels, organizations can thus be seen as continuous interplay between interacting subjects with their intra-subjectivity, their inter-subjective and generic subjective (social structure) sensemaking, all embedded in organisational culture.

## THE SENSEMAKING MODEL OF KNOWLEDGE

By taking this four-level sensemaking view of organizations as our point of departure, we explore the nature of knowledge at each level and processes by which such knowledge is created and used. Studying the nature of sensemaking processes at each level should help us understand not only the nature of knowledge and knowledge management processes at these levels, but also the continuous interplay and knowledge dynamics between the levels.

*Individual knowledge* is acquired through personal experiences and reflects past socializations. It involves a person’s values, beliefs, assumptions, experiences, skills, formal training, etc. that enable the person to interpret and make sense of the environment, his/her own actions and the actions of others. In other words, individual knowledge is created, maintained, used and recreated through social interactions, involving intra-subjective sensemaking. By being involved in particular organisational processes and work practices, by interacting with other members, an individual gains new experiences, faces problems and makes sense of them, which usually trigger revisiting and updating his/her personal knowledge.

When individuals have a history of working together, that involves cooperative interpretation of situations and development of mutual understanding, their individual knowledge are exposed and challenged in social interaction out of which *inter-subjective* or *collective knowledge* emerges. In such a process, not only inter-subjectively created meanings are assigned to situations and events, but also a particular ‘level of social reality’ is formed and maintained. Inter-subjective knowing or ‘collective mind’ transcends individual knowledge. It does not reside within but between and among individuals and is manifested in their coordinated acting. Inter-subjective knowledge is possible due to a collective sensemaking process in which participants interrelate heedfully and individual selves get transformed from ‘I’ into ‘we’ (Weick and Roberts, 1993). In any social setting, this process is ongoing within groups and among groups, leading to a multiplicity of pockets of collective knowledge that are in a permanent state of flux, with shifting focus and indeterminate ‘boundaries’.

Unlike collective knowledge, *organizational knowledge* has more visible forms, is typically subject to legitimation and is thus more easily identifiable. Organisational knowledge involves *generic* meanings and social structures shared by and transmitted to organisational members irrespective of their participation in their creation. Typically it includes notions of organisational structure, roles, policies, norms, rules and control mechanisms, social networks, scripts or patterns of activities and actions. Tsoukas and Vladimirou (2001) call it ‘organizational knowledge in a strong sense’. Generic meanings emerge through sensemaking processes involving institutional role-holders and following the norms and rules (that specify authority and legitimacy, due process etc.). At

the same time generic knowledge emerges from a continuing transition from inter-subjective meanings to generic-subjective meanings (Weick, 1995, p. 71).

*Knowledge embedded in organizational culture* involves a stock of tacit, taken-for-granted convictions, beliefs, assumptions, values and experiences that members of an organization draw upon in order to make sense of situations and actions. As such knowledge embedded in organizational culture serves as a common reservoir of meanings at other sensemaking levels, thus determining the horizon of possible understanding among the members. Such knowledge is transmitted through language, symbols, metaphors, rituals and stories. As part of a symbolic reality, cultural knowledge is *extra-subjective*.

Members of an organization are normally not aware of their cultural knowledge. Only when an element of this knowledge is explicated and brought into a situation can it be thematised, contested, and justified. Only then does it become criticizable knowledge that is part of an explicit stock of knowledge resulting from interpretive accomplishments of actors at other levels.

It should be noted here that while the four types of knowledge identified by the model reflect the different nature of knowledge and knowing in organizational context (resulting from the different nature of sensemaking) they are not, and cannot be separated. These four types of knowledge are mutually constituting. They are intertwined in such a way that they continuously influence and recreate each other.

The sensemaking model of knowledge has been applied in two major empirical studies of organisational change processes, including the organizational restructuring and the use of email and the transformation of Information Systems' operations that led to a crisis (Cecce-Kecmanovic and Jerram, 2001, 2002; Jerram, et al., 2002). The model was used to inform and guide empirical research and to interpret the findings. The model enabled explanation of apparently contradictory findings and deeper understanding of factors that prevented knowledge sharing via email (in the first study) and those that led to a crisis (the second study). The studies confirmed the explanatory power of the model.

More important, however, was further theoretical development based on empirical findings. It is found, for instance, that depending on the degree of uncertainty within which an organization operate some sensemaking levels become more active and essential for an organization's well-being, then others. In times of stability and low uncertainty, organizational knowledge is stable and usually unchallenged by ongoing inter-subjectively created meanings. Social interaction typically follows the habitual patterns defined by social structure in accordance with values, norms, standard patterns and scripts. However, in times of change (such as organizational restructure we observed), the established values, norms and scripts are disturbed, social structure loses its validity and currency, resulting in increasing uncertainty. There is an urgent need to create new generic meanings, new synthesis, and legitimate new social structures and organizational knowledge. This is a knowledge management problem par excellence, albeit not recognized as such in practice. It is found to be especially contentious when actors in power positions exercise undue influence on meaning making and control over organisational knowledge creation, thus disabling or diminishing influences from broad social-interaction processes of its members.

Another interesting insight came from the analysis of the use of email to communicate proposals and concerns of University members to the President of the University during a restructuring process. The idea was that an open communication channel between all interested members (academics and general staff) and the President would democratize the restructure process and help members contribute to the decision-making. While this was technically feasible, and many members took it seriously, including the President, such use of email failed to achieve the objectives. An interesting explanation came from the analysis informed by the sensemaking model: participation in and democratization of organizational decision-making cannot be achieved by concentrating all meaning making at the social structure level irrespective of the individual member input. Knowledge in an organization is inherently distributed and discursive. No matter how well intentioned, concentration of knowledge creation and use at the social structure level to

bear on all local circumstances is doomed to failure. The results from this study confirmed that "the key to achieving coordinated action does not so much depend on those 'higher up' collecting more and more knowledge, as on those 'lower down' finding more and more ways of getting connected and interrelating the knowledge each one has" (Tsoukas, 1996, p. 22).

## CONCLUSION

This paper addressed the question of the nature of knowledge in organizations and what managing knowledge actually entails. The sensemaking model of knowledge is proposed to contribute to the understanding of different types of knowledge – individual, collective, organisational, and cultural – that are in permanent flux, influencing and constituting each other. The sensemaking model of knowledge contributes to the view of organizations as distributed knowledge systems (Tsoukas, 1996). Two field studies completed so far confirmed the explanatory power of the model and demonstrated its applicability and usefulness in the analysis of complex knowledge management phenomena in practice. In the course of empirical studies many new questions are also raised that require further research.

Firstly, further explorations are required to explain how individuals relate to each other, engage in inter-subjective meaning making (thereby participating in an emerging collective mind) and coordinate their actions (Weick and Roberts, 1993; Tsoukas, 1996). Secondly, how individual knowledge and collective (inter-subjective) knowledge are fundamentally predicated on collectively shared meanings, that is cultural knowledge, and furthermore, how individuals and groups, in turn, through their sensemaking influence cultural knowledge, are among critical questions in the practice of knowledge management. Exploration of these questions would benefit from theoretical concepts such as an individual's *habitus* by Bourdieu (1990) and individual dispositions by Tsoukas (1996), as well as concepts of explicit, focal, subsidiary and tacit knowledge by Polanyi (1962, 1966).

Thirdly, social interaction level of sensemaking is not only about groups and their collective meaning making and action. There are also multiple, ongoing social interaction processes among the groups that may play an important role in both collective and organizational knowledge (as evidenced in one of our studies). The role of group history, group identity and local culture in inter-group relations and knowledge sharing and co-creation should be further investigated.

Fourthly, as findings from the field studies indicate, there is an inherent tension between the structure level (organizational knowledge), on one hand, and social interaction and individual levels, on the other. How can an organization (re)create and maintain its (organizational) knowledge so as to assure stability and consistency of its operations, and at the same time foster creativity, innovation, individual and group responsibility and commitment? How can normative expectations associated with *collective agents* (Wiley, 1988) with corporate responsibility (including organizational knowledge) be reconciled with normative expectations of other agents responsible for the parts (including inter-subjectively created knowledge pertaining to specific situations, processes, or actions)? These are key knowledge management issues for any organization that demand further investigations.

Research agenda proposed here is actually a program for the development of a sensemaking theory of knowledge and knowledge management in organizations.

## ACKNOWLEDGMENT

This research has been conducted as part of the ARC SPIRT grant No C00002546 (2000-2002).

## REFERENCES

- Alavi, M. and D.E. Leidner (2000) Knowledge Management and Knowledge Management Systems: Conceptual Foundations and Research Issues. *MISQ*, 25, 1, 107-136.
- Bourdieu, P. (1990) *The Logic of Practice*, Polity Press, Cambridge, UK.
- Cecce-Kecmanovic, D. and Jerram, C. (2001) Understanding Crisis

- from a Sense-Making Perspective: An IS Operation Change, *Proceedings of The Twelfth Australasian Conference on Information Systems ACIS 2001*, Coffs Harbour, NSW, Australia, 103-112.
- Cecez-Kecmanovic, D. and Jerram, C. (2002) "A Sensemaking Model of Knowledge Management in Organisations", *ECIS 2002*, Gdansk, Poland, 894-904.
- Earl, M. (2001) Knowledge Management Strategies: Toward a Taxonomy, *JMIS*, 18, 1, 215-233.
- Grant, R.M. (1996) Prospering in Dynamically-Competitive Environments: Organizational Capability as Knowledge Integration, *Organization Science*, 7, 375-387.
- Hayek, F.A. (1945) The Use of Knowledge in Society, *American Economic Review*, 35, 519-530.
- Jerram, C., Cecez-Kecmanovic, D., Treleaven, L. and Sykes, C. (2002) Email and Assumptions: a study in electronic (mis)understandings, *Proceedings of the Thirteenth Australasian Conference on Information Systems ACIS 2002*, Melbourne, Australia, Vol. 2, 509-521.
- Louis, M. (1980) Surprise and Sensemaking: What Newcomers Experience in Entering Unfamiliar Organizational Settings, *Administrative Science Quarterly*, 25, 226-251.
- Nonaka, I. and Takeuchi, H. (1995) *The Knowledge-Creating Company*, Oxford University press, New York.
- Penrose, E. (1959) *The Theory of the Growth of the Firm*, Wiley, New York.
- Polanyi, M. (1962) *Personal Knowledge*, University of Chicago Press, Chicago, IL.
- Polanyi, M. (1966) *The Tacit Dimension*, Routledge & Kegan Paul, London.
- Schon, D.A. (1983) *The Reflective Practitioner*, Basic Books, New York.
- Spender, J.-C. (1996) Organizational Knowledge, Learning and Memory: Three Concepts in Search of a Theory, *Journal of Organizational Change Management*, 9, 63-78.
- Thomas, J.B., Clark, S.M. and Gioia, D.A. (1993) Strategic Sensemaking and Organisational Performance: Linkages among Scanning, Interpretation, Action and Outcomes, *Academy of Management Journal*, 36, 239-270.
- Tsoukas, H. (1996) The Firm as a Distributed Knowledge System, *Strategic Management Journal*, 17 (Winter special issue), 11-25.
- Tsoukas, H. and Vladimirov, E. (2001) What is Organizational Knowledge?, *Journal of Management Studies*, 38, 7, 973-993.
- Wiley, N. (1988) The Micro-Macro Problem in Social Theory, *Sociological Theory*, 6, 254-261.
- Wiley, N. (1994) *The Semiotic Self*, Polity Press, Cambridge.
- Weick, K.E. (1995) *Sensemaking in Organizations*, Sage.
- Weick, K.E. and K.H. Roberts (1993) Collective Mind in Organizations: Heedful Interrelating on Flight Docks, *Administrative Science Quarterly*, 38, 357-381.



0 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/proceeding-paper/sensemaking-model-knowledge-organizations-theoretical/31992](http://www.igi-global.com/proceeding-paper/sensemaking-model-knowledge-organizations-theoretical/31992)

## Related Content

---

### Tradeoffs Between Forensics and Anti-Forensics of Digital Images

Priya Makarand Shelkeand Rajesh Shardanand Prasad (2017). *International Journal of Rough Sets and Data Analysis* (pp. 92-105).

[www.irma-international.org/article/tradeoffs-between-forensics-and-anti-forensics-of-digital-images/178165](http://www.irma-international.org/article/tradeoffs-between-forensics-and-anti-forensics-of-digital-images/178165)

### A Holistic Approach for Understanding Project Management

Theresa A. Kraftand Annette L. Steenkamp (2010). *International Journal of Information Technologies and Systems Approach* (pp. 17-31).

[www.irma-international.org/article/holistic-approach-understanding-project-management/45158](http://www.irma-international.org/article/holistic-approach-understanding-project-management/45158)

### A Case of Academic Social Networking Sites Usage in Malaysia: Drivers, Benefits, and Barriers

Maryam Salahshour, Halina Mohamed Dahlanand Noorminshah A. Iahad (2016). *International Journal of Information Technologies and Systems Approach* (pp. 88-99).

[www.irma-international.org/article/a-case-of-academic-social-networking-sites-usage-in-malaysia/152887](http://www.irma-international.org/article/a-case-of-academic-social-networking-sites-usage-in-malaysia/152887)

### A Systemic, Participative Design of Decision Support Services for Clinical Research

Alexandra Pomares Quimbaya, Rafael A. González, Wilson Ricardo Bohórquez, Oscar Muñoz, Olga Milena Garcíaand Dario Londoño (2014). *International Journal of Information Technologies and Systems Approach* (pp. 20-40).

[www.irma-international.org/article/a-systemic-participative-design-of-decision-support-services-for-clinical-research/117866](http://www.irma-international.org/article/a-systemic-participative-design-of-decision-support-services-for-clinical-research/117866)

### An Efficient Server Minimization Algorithm for Internet Distributed Systems

Swati Mishraand Sanjaya Kumar Panda (2017). *International Journal of Rough Sets and Data Analysis* (pp. 17-30).

[www.irma-international.org/article/an-efficient-server-minimization-algorithm-for-internet-distributed-systems/186856](http://www.irma-international.org/article/an-efficient-server-minimization-algorithm-for-internet-distributed-systems/186856)