A Sensemaking Model of Knowledge in Organizations – Theoretical Foundations

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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 is 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 objective 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 Vladimirirou (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 con-
stituted. 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 knowl-
edge they need to draw upon in indeterminate and emerging, and cannot
be known by a single mind. He also provides a well-grounded explana-
tion 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 cir-
cumstances, time and space). While firms may have more or less con-
tral over normative expectations, they have no control over its mem-
bers’ dispositions nor could they determine the use and creation of
knowledge in social interactions in which members’ normative expecta-
tions 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.

ASSENSEMAKING 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 en-
counter an event that is surprising, puzzling, troubling, or incomprehen-
sible, 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 back-
ground 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 sense-
making 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 prob-
lematic 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 inter-
vention are set, and a coherent ‘structure’ imposed allowing an intelli-
gible action (Schon, 1983). Key components of this process – knowl-
dge 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 indistinguishable 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 rela-
tionship Weick (1995) sees the essence of organisation.

Fourth, involved in all sensemaking processes described above, are
customs, norms, habitual behavior, rituals, myths 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 knowl-
dge 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 struc-
ture) 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 dynam-
ics between the levels.

Individual knowledge is acquired through personal experiences and
reflects past socializations. It involves a person’s values, beliefs, as-
sumptions, experiences, skills, formal training, etc. that enable the per-
son to interpret and make sense of the environment, his/her own ac-
tions and the actions of others. In other words, individual knowledge is
created, maintained, used and recreated through social interactions, in-
volving 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 per-
sonal knowledge.

When individuals have a history of working together, that in-
volves cooperative interpretation of situations and development of
mutual understanding, their individual knowledge are exposed and chal-
lenged in social interaction out of which inter-subjective or collective
knowledge emerges. In such a process, not only inter-subjectively cre-
ated meanings are assigned to situations and events, but also a particular
‘level of social reality’ is formed and maintained. Inter-subjective know-
ling or ‘collective mind’ transends 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 heed-
fully 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 collec-
tive knowledge that are in a permanent state of flux, with shifting focus
and indeterminable ‘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 knowl-
dge 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

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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 organisational restructuring and the use of email and the transformation of Information Systems' operations that led to a crisis (Cecez-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 Bourdieau (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.

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