

Chapter 2

The Relevance of Organizational Knowledge

Before exploring how organizational knowledge is applied (Chap. 3) and created (Chap. 4) we will develop a general view on organizational knowledge as grounding of organizational concepts. Hereby, we are going to outline a “strong view” which makes knowledge the basis for human action. As such its central relevance is given in all social fields, including of course organizations.

2.1 A Strong Sense of Knowledge in Social Fields

Our inquiry will opt for a “strong sense” of knowledge, which locates knowledge not only at the sphere of abstract cognition but at the origin of action. In its most basic form, this view was articulated by the social theorists Peter Berger and Thomas Luckmann (Berger & Luckmann, 1969). In their pioneering work “The social construction of reality” they define knowledge as something that “guides conduct in everyday life” (Berger & Luckmann, p. 21). Humans draw on knowledge in order to be able to make sense of situations, to communicate, and to act. Our life is a conglomerate of various situations whereby knowledge helps us to interpret (to “typify”) these situations, and guides action. Actors draw on a “stock of knowledge” which preserves specific ways of action for specific situations. Furthermore, knowledge is not mere subjective because it can be “objectified” to “signs”. This allows knowledge to transcend the mere internal and subjective mind of “here & now” (Berger & Luckmann, chapter 1.3). By signs (and whole “sign-systems”) I am able to externalize knowledge, as well as to bring external knowledge into the situation. Hereby, language is the most capable sign-system and therefore plays a central role in any society. Complex social systems (like today’s modern societies) are very much dependent on “objectifications” because they allow to integrate and align shared stocks of knowledge. Communicable knowledge of norms, values, and ways of

“problem-solving” is necessary to provide a more or less stable social world. This presupposition is at the heart of a strong sense of knowledge which emphasizes the crucial relation between a social field and knowledge (and consequently also that between organizations and organizational knowledge).

2.1.1 Interdependence of Ontology and Knowledge: Theory (Giddens and Bourdieu)

Social fields are locked into a dialectical relation which will turn out to be crucial to understand the connection between knowledge and organizing. A social field consists of social norms and structuring principles which affect the behavior of actors in that field. At the same time social norms are not given, but created by the actors of the field. Hence, a social field is being created in a circular process which the sociologist Anthony Giddens calls “structuration”: the structure is producing actors while the actors produce the structure (Giddens, 2008). Just as in M.C. Eschers “Drawing Hands” (Fig. 2.1), social fields are structured dialectically by separate poles being mutually dependent on each other. This implies that the social has no stable foundation on which its existence is based on:

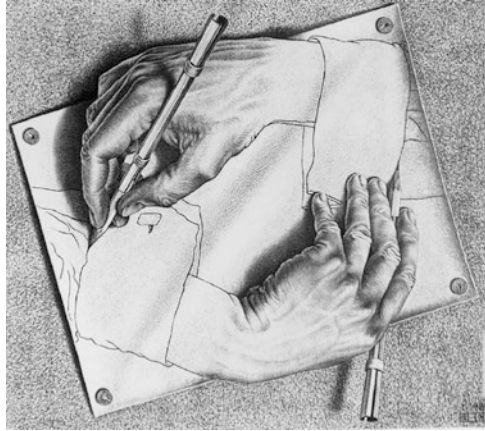
(S)ocial structure is not a noun but a verb. Structure is not free-standing, like scaffolding on a building-site, (...) it is a relational effect that recursively generates and reproduces itself. (...) It means, for instance, that no version of the social order, no organization, and no agent, is ever complete, autonomous, and final. (Law, 1992, p. 386f.)

According to another social theorist, Pierre Bourdieu, this is possible because the structure of the objective social field is coupled to the “perception- and distinction-principles”¹ of its actors (Bourdieu, 1998, p. 141). These distinction-principles are manifest in the actors’ mental perceptions as well as they are inscribed physically (“incorporated”) into the actor’s behavior. Actors are driven by their “habitus”, says Bourdieu; but the habitus of an actor is basically “practical knowledge” (Knoblauch, 2003) which comprises skills and competencies, cognitive and incorporated knowledge, both “brain” and “body”. Practical knowledge enables actors to make distinctions, to interpret their world, and to construct meaning. Consequently, it is the ultimate source of action, though a source which is not (always) consciously reflected.

The specific practical knowledge of an actor is dependent on the actor’s position within the social field. For example, a laborer uses different distinction principles than a CEO. This leads not only to the fact that these two persons know different things and that they act differently. According to their specific “perception- and

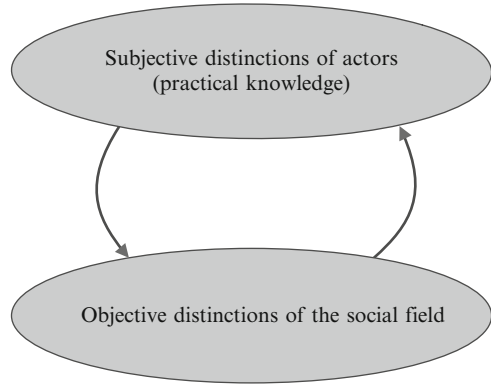
¹ Author’s translation; original citation: “Wahrnehmungs- und Gliederungsprinzipien”

Fig. 2.1 “Drawing Hands”:
M.C. Escher 1948 (Copyright
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distinction-principles”, they also construct their world differently: the worker in metal production constructs the smelting furnace as a complex technical artifact which requires specific operational steps; for the CEO, on the other hand, the furnace is a complex economical factor which requires to be integrated in the process of strategy planning. The differences are determined by their particular positions within the social field of the company and of society in general. What a furnace “is” and how to deal with it depends on which distinction-principles (which theoretical and practical knowledge) are at place. These distinction-principles are relative to the subject: a worker’s sensemaking is different to that of the CEO’s. Both have been running through different socialization processes within the company as well as in their life in general. In the course of his life the worker participated in a shared practice of other workers and learned how to view the world as well as how to act in it. From the tiniest distinctions like how to sit, eat, or greet (Bourdieu, 1986), all the way up to how to operate machines and how to interpret the work environment. All this is inscribed into the social field and behavior of a shared habitus. Hence, epistemic distinctions (knowledge) and the ontological field (social practice) are bound together. According to Bourdieu, social reality, habitus, distinction-principles, knowledge, and so forth cannot be separated from each other. Based on their position in the social field, actors are equipped with practical knowledge guiding their daily interactions with others and with themselves; thereby they create and actualize the very social field which in turn again will be their source for practical knowledge. It is a circular process: a social field gains its ontological manifestation (its objectivity) by the epistemological structuring of its actors (its subjectivity), whereby in turn the ontological structure influences epistemological structures. This circular dependency, which Giddens called

Fig. 2.2 Mutual feedback and circularity of social fields



“structuration” (Giddens, 2008; Walgenbach, 2006), seems to be a central aspect of social fields (see Fig. 2.2). There seems to be an “ontological consensus” (Bourdieu, 1998, p. 144) between knowledge of actors and their objective, inter-subjective, and social world.²

2.1.2 *Interdependence of Ontology and Knowledge: Examples*

Let us take a look at two cases which will hopefully exemplify and clarify the interrelation between epistemological and ontological distinctions of a social field.

2.1.2.1 The X-Ray Student

Tsoukas and Vladimirov (2001) provide an example of a medical student who is about to learn how to read and understand X-ray pictures (Fig. 2.3):

Think of a medical student attending a course in the X-ray diagnosis of pulmonary diseases. He watches in a darkened room shadowy traces on a fluorescent screen placed against a patient’s chest, and hears the radiologist commenting to his assistants, in technical language, on the significant features of these shadows. At first the student is completely puzzled. For he can see in the X-ray picture of a chest only the shadows of the heart and the ribs, with a few spidery blotches between them. The experts seem to be romancing about figments of their imagination;

² In fact, Bourdieu’s notion of “habitus” connects society and individuals (Knoblauch, 2003). The interdependence between subjective and objective, between social field and habitus, or between structure and construction, forms a “structuralist constructivism [struktureller Konstruktivismus]” (Bourdieu, 1992, p. 155) which is very similar to Giddens “structuration”. The inner relation between the theories of Giddens and Bourdieu (and to that of Actor-Network-Theory which will play a crucial role in Chap. 4) is also claimed by John Law (1992, p. 386).

Fig. 2.3 Chest X-Ray photo
<http://www.sxc.hu/browse.phtml?f=download&id=262068>. Licensed for free use by HAAP Media Ltd., see <http://www.sxc.hu>)



he can see nothing that they are talking about. Then as he goes on listening for a few weeks, looking carefully at ever new pictures of different cases, a tentative understanding will dawn on him; he will gradually forget about the ribs and begin to see the lungs. And eventually, if he perseveres intelligently, a rich panorama of significant details will be revealed to him: of physiological variations and pathological changes, of scars, of chronic infections and signs of acute disease. He has entered a new world. He still sees only a fraction of what the experts can see, but the pictures are definitely making sense now and so do most of the comments made on them. (Tsoukas & Vladimirou, 2001, p. 977)

Notice the link between epistemology and ontology, and the centrality of knowledge. The actor is constantly developing new knowledge emerging from the flow of information provided by the other experts. Knowledge allows him to make finer and finer distinctions in order to *understand*; and later on, as practicing doctor, in order to *act*. With the application of new knowledge “he has entered a new world”. He may say that he “sees the world with other eyes”, but in fact, what happened was that equipped with these new distinctions, he was able to participate in the construction of an ontological field he shares with others and which enables him to act differently.

2.1.2.2 The Customer and the CRM

Similarly, also typical organizational actors are dependent on epistemological distinctions which enable them to construct their world and act in it. Consider this following brief use-case³:

The IT department in an organization establishes a new CRM (customer relationship management) software, which allows the company to store information about customers in a much

³ Inspired by (Hatch & Cunliffe, 2006, p. 123ff.)

more detailed and sophisticated way (this enables the system e.g. to automatically prioritize important customers from not so important ones). Once set up, and after being integrated with organization workflows and policies, this new system is a “real” materialized part of the organization - it is part of the ontological field. Consequently, this new software equips organizational actors with a whole new set of distinctions. It reconstructs the way, sales people or account managers recognize, understand, and act upon their customers. As such, the CRM is an ontological artifact influencing the epistemology of the field, i.e. the distinction-capabilities of its actors. After full rollout these distinctions are not only ontologically manifested as data in the system but also epistemologically in the practical knowledge of organizational actors. As such it gets ontological again, because knowledge results in real action and shapes the social field.

Here again, knowledge enables world-construction: as practically relevant distinction, knowledge actually *defines* the customers and constrains the way organizational actors deal with them. And again, knowledge—this time provided by an organizational expert-system—is the underlying capability of actors in making distinctions and grounding action. Take the new feature that calculates the priority of customers: when successfully internalized by actors and inscribed to the structures of the organization, the calculated priority will not only be an attribute of the customer record in the digital database but will become a distinctive attribute of the customer itself. Informed by the system’s data output, the account manager now is capable to see something which literally did not *exist* before. Just as the medical student, also the account manager “entered a new world”.⁴ In this case, again knowledge of actors provide distinctions to construct their organizational field (e.g. the priority of customer X) and serves as basis for action (e.g. next meeting will be scheduled for customer X and not for customer Y). And again, epistemology and ontology are linked together structuring the social field: organizational actors apply their knowledge in order to construct their customers as well as their organization.

2.1.3 Interdependence of Ontology and Knowledge: Entry Point of a Strong View

The correlation between the ontological and the epistemological structure of social fields marks the entry point of a “strong sense” of knowledge. Such a view dissolves to a certain extent the separation between knowing actors (epistemology of a social

⁴ Of course this says nothing about success or failure of the new distinctions. Say, the CRM would allow only a very inflexible prioritization of customers leading to dysfunctional effects and non-acceptability by the sales persons. The system then would be too “rigid” and not adaptable to the flexible context of its application. These drawbacks would be challenged with *new* distinctions: if the system is too inflexible (but still has to stay in place) presumably new distinctions will be developed and informal “workarounds” developed. This may in a longer term evolve to new formal procedures, e.g. to an updated version of the CRM system.

field) on one side, and an independent, “external” world (ontology of a social field) on the other side. This is to understand distinctions of a social field as connected to the cognitive and pragmatic distinctions of its actors. As such, knowledge has to be seen as a vehicle which enables actors to make distinctions and to construct their world (Tsoukas & Vladimirou, 2001, p. 979). Knowledge is then not only a “resource” which is produced mainly by, say, “knowledge-intensive” organizations (Schreyögg & Geiger, 1997), but it is *the epistemological grounding of any organization*. Starting from the insight that organizations are social fields which are marked by a *correlation between their ontological and the epistemological dimension* knowledge gains more relevance than it may seem in the first place. Knowledge then not only is something that can be found *in* the organization, but something that *constitutes* the organization. This relevance of knowledge can be revealed, if we show how knowledge is not only the mere representation (of an objective world) but inherently connected to meaning and action. This “strong sense” of organizational knowledge as well as its inner structure will be further developed in the next chapters.

2.2 A Strong Sense of Knowledge in Organizations

2.2.1 Data – Information – Knowledge

A conceptual vehicle which has widely been used in knowledge-management literature is the triad of “data”, “information” and “knowledge”.⁵ Hereby, *data* is mostly characterized as combination of items—e.g. written words, sentences, or bits and bytes. “Raw” data is then transformed to *information* if it is successfully connected with meaning—e.g. when an actor is able to interpret (i.e. to “understand”) a sentence. And finally, information becomes *knowledge* when meaning is linked to its use—e.g. when an actor is able to carry out action upon the meaning of the sentence.

Take, for instance, the sentence “The stock market price of OMV is 42.33”.⁶ First, we could analyze that string as constituted by items like letters and words which have been combined to a proper sentence. This view is regardless to the meaning of the sentence: it is “pure” *data*. But when a person interprets and understands this sentence s/he attaches meaning to it—it becomes *information*. For instance, an average adult in modern Western society with average English language skills, and so on, would very likely be able to understand the meaning of “stock market” or “company”; i.e. the

⁵ See—among many others—(Boisot, 1995; Nonaka & Takeuchi, 1995; Probst, Raub, & Romhardt, 2002)

⁶ This example is inspired by students of the class “Elektronisch gestütztes Lern- und Wissensmanagement” supervised at the Vienna University of Economic and Business Administration in winter term 2008.

person would be able to relate objective words to subjective meaning. More sophisticated interpreters would additionally understand “OMV” being an Austrian based company in the energy business. Here again, objective data becomes subjective (and inter-subjectively exchangeable) information. Finally, a stock floor trader *knows* the significance of that information related to his *context of action*. For him the sentence does not only transport information about a specific price of a specific stock, but also *knowledge* about what to do with that kind of information; for instance, that the price “42.33” is too low to keep the stock in the portfolio and therefore should be sold. It is this kind of knowledge which enables the stock floor trader to act accordingly towards his goals.

Let us look at another example. Think of an organization that measures its employees satisfaction related to further education on a 10-point scale. The average result is 8.9 points. According to the data-information-knowledge approach, first of all there is raw *data*. This would be the number “8.9”, or its representation in a graphical chart. *Information* comes up, if someone interprets that number as being the result of a specific survey which lies on a 10-point-scale, is the aggregation of specific questions x, y, z, and so forth. Here, just like in the former example, information is about bringing data into relation with (background) assumptions and other information, i.e. information is *meaningful contextualized data*. Interpretations may be distinguished differently (or even contrarily) by different actors. One actor may interpret the result as pretty good as it lies much higher than the half of possible points, i.e. higher than 5. Others may relate the result to a (to them available) benchmark value of, say, “9.3”, concluding the result as being not satisfying. *Knowledge*, finally, is about how to integrate that information into specific action contexts, i.e. knowledge is *action-related contextualization*. A human resources department, for instance, generates knowledge if the resulted information flows into the organization’s strategical decisions. The actor “human resources department” *knows* what to do with the information that the result of the survey is 8.9. Different grades of distinction making is possible here as well. A very basic distinction making would be given if the department followed simple routines like “if the result is satisfying, action x, if not, action y is carried out respectively” (notice, the relation to information as the latter defines what actually is to be understood as “satisfying”). Finer distinctions would allow more detailed (re-)actions, like to define different strategical activities for different result ranges.

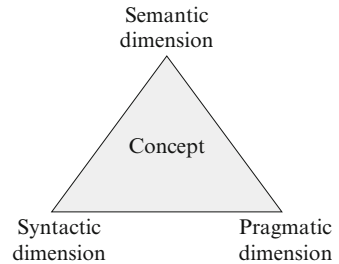
2.2.2 Syntactic – Semantic – Pragmatic

The data-information-knowledge triad seems to be based upon a more general distinction which can be found in semiotics and philosophy of language. According to semiotic theory, signs can be depicted along a triangle with three different dimensions



Fig. 2.4 Saussure's "sign": a relation between the signifier, e.g. "arbor"; and the signified, e.g. the conception of a tree (Saussure, 1959, p. 78)

Fig. 2.5 Semiotic triangle



(Chandler, 2007)⁷: a *syntactic*, a *semantic* and a *pragmatic* (see Fig. 2.5). Syntax is about how the sign is constructed, semantics is about what a sign means, and the pragmatic dimension refers to how the sign is related to action. For instance, the sentence "I now pronounce you husband and wife" is a sign which is grammatically built correct (syntax), transports a specific meaning (semantics) and has real world implications within the ceremony of a wedding (pragmatics).

Let us now consider that there are different ways in constructing concepts which we use to establish relations to the world. Remember Sect. 1.3 which introduced an epistemological stance based on the claim that there are no given "things" passively "perceived" by minds, but rather conceptually constructed relations to things and events. We will now try to describe such "concepts" using the three-dimensional categorization from above. The *syntactic dimension* refers to the outward appearance of a concept—e.g. a written or spoken sentence. According to specific syntactic rules and principles, we build words and sentences, draw pictures, and so forth. That dimension may be identified as the "signifier" of a concept. Such a signifier, for instance, a word, is characterized by the fact that it points to something else: it is *representational*. But it points not directly to things in an "external" world. It points to the *meaning* of something. From the viewpoint of linguist Ferdinand Saussure, the (written or spoken) French word "arbor" is a "signifier" which represents and points at the "signified" meaning of a tree (see Fig. 2.4). This second level marks the *semantic*

⁷ The concept goes back to Aristotle's "On Interpretation" (Aristotle, 1984) and was further developed by the pragmatist tradition, e.g. by Charles W. Morris (1946) or Charles Sanders Peirce (1913).

dimension which refers to the meaning of a concept, for instance, the subjective perception of a sentence, or an inter-subjectively shared meaning of a sentence.⁸

The *pragmatic dimension* relates the meaning of a concept to its use and its context-dependent application. This context is the “practice” (Wittgenstein, 1953/2006) or “consensual domain” (Maturana & Varela, 1987) in which a concept is used.

From a semiotic viewpoint concepts would be describable on three levels: *syntactical* constructions (like words, sentences, or other types of signs) are representing meaning on a *semantical* level, and are integrated into human (inter-) actions on a *pragmatic* level. The latter is important because we “do things with words” (Austin, 1962). Words and sentences do not only refer to subjective (internal) meaning, but also have “performative” power, i.e. they enable action. Based on the ideas of semiotics, we could say that actors (individual persons but also collective actors like organizations) use concepts which become visible on the three levels of syntax, semantics, and pragmatics (Fig. 2.5).

At least two important remarks have to be made here.

First, a concept is not a (material or non-material) “thing”, but rather an *effect* of relations. This correlates to our non-essentialist epistemology presented in Chap. 1. A car, a stock price, a new organizational rule, a story, or a feeling, does not simply exist out there and then is perceived by us. “Something” rather is a construction which can take place at different dimensions, i.e. on a syntactic, semantic, and pragmatic level. This is also why “things” do not even have to exist in a material sense. A unicorn, for example, can be expressed by the syntactically correct notion “unicorn” or as a picture; it has a semantic dimension (many persons know what is meant by a “unicorn”), and it very well may be related to a pragmatic use (e.g. as way for bringing kids to bed). If a concept (here the unicorn) “is” anything at all, it is the interconnection of the three dimensions of syntax, semantics, and pragmatics⁹: it is rather a relation than an entity.

⁸ Saussure expresses the relation between syntactic and semantic level via the notions of “signifier” vs. “signified” (Saussure, 1959). A similar distinction has been proposed by Charles S. Pierce who distinguishes between “representamen” and “interpretant” (Peirce, 1913).

⁹ My proposed structure actually does not take the problem of objective reference into account. Peirce recognized this additional dimension and called it the “object” vs. the mere “interpretant” – i.e. the object vs. its meaning. For Peirce the “object” marks the entity to which an “interpretant” refers (Peirce, 1897/1932). Note that what we call “concept” is *not* such an “object”, but much more the integrative relation of correlating representation (syntactic), meaning (semantic) and practice (pragmatic). My account therefore is more similar to Saussure’s dyadic approach which subsumes “sign” as the unification of “signifier” (as the linguistic *form* a sign takes) and “signified” (as the meaning, or “idea”, the signifier refers to). Whether that idea is related to an object, i.e. claiming ontological status or even truth, is not relevant to Saussure’s sign theory. The only thing that may claim some sort of ontological status is the *signifier*: written or spoken words have to exist in order to be interpreted (Saussure, 1959). However, our account extends Saussure’s as we add the pragmatic dimension which was later emphasized by Ludwig Wittgenstein (1953/2006).

Second, not all three dimensions have to have the same relevance. For example, a feeling has a strong meaning and pragmatic dimension but is difficult to put into words. An organizational rule, on the other hand, is very easily fleshed out in its syntactic dimension (e.g. as written directive) but may not that easily be integrated into the actor's actual practice. In fact, as we will see in the next chapters, one main challenge of organizations and management is to establish organizational concepts on all three levels.¹⁰

2.2.3 Representation – Meaning – Action

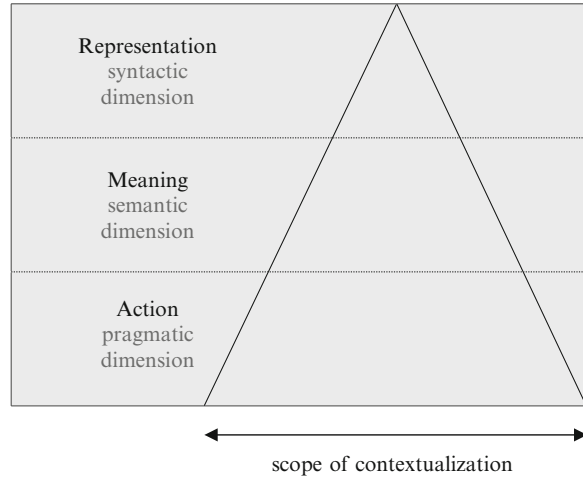
According to the insights from Sects. 1.3 and 2.1, knowledge is to make distinctions as basis for the construction of social reality. Organizational knowledge then subsumes all distinctions which actors use to represent and understand the organizational field, as well as to act in it. With the semiotic triad from above this organizational distinction-making can be located in *representations* (the syntactic dimension), in *meaning* (the semantic dimension), and in relation to *action* (the pragmatic dimension). This is what we have seen at the use-cases above: actors used and created knowledge which enabled them to make syntactical distinctions (words, visuals, explanations in textbooks, computerized information), semantical distinctions (what does this trace on the X-Ray mean?, what is a customer?), and pragmatical distinctions (how to look at the X-Ray? how to act upon specific customer attributes?). Knowledge provides different ways of distinction-making and enables organizational actors to make a practical sense of the world.¹¹ Hereby, representation, meaning, and action are *transitional facets on a continuum*. A continuum which is marked by the scope of contextualization of distinction making (see Fig. 2.6).

The more we move down to the pragmatic dimension, the more distinction-making is contextualized to the practice of the actor. Remember the stock market example. The possibility of constructing the *representational* distinction “OMV 42,33” is pretty universal, although still dependent on basic skills like reading and counting. To make *meaningful* distinctions it becomes more specific as actors need to contextualize the

¹⁰ The challenge for organizational studies then, of course, is how to understand and conceptualize organizational knowledge on all three levels, which is also one aim of our inquiry.

¹¹ But notice that although pragmatical distinctions relate knowledge to action, knowledge does not equal action. Knowledge does not determine its real-world application to concrete organizational practice. Hence, organizational knowledge provides the *possibility*, not the *necessity*, for actors to construct specific representations, meanings, and actions in their organizational practice. Instead to support a “too strong” sense of knowledge where simply “knowledge is action” we will rather position knowledge as concept with a distance to its concrete application to practice: knowledge is *related* to action, it *not is* action (see next Sect. 2.2.4).

Fig. 2.6 Broader term of knowledge (Inspired by (Tsoukas & Vladimirou, 2001, p. 976))

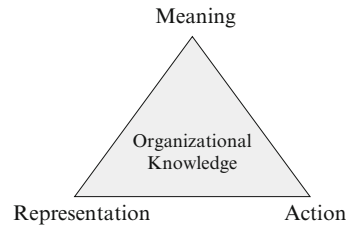


representations towards a specific cultural background (like knowledge about economical basics of Western economies, stock markets, etc.). Finally, the *pragmatic* distinction is even more contextualized because actors need to relate knowledge not only to, for instance, a shared idea of stock markets but to their own specific field of action: the floor trader needs to contextualize pragmatic distinctions (which allow a relation to action) to his very specific organizational context of floor trading.

Organizational knowledge is a vehicle for human distinction making and active on all three levels. The more we move down towards “action”, the more contextualized human activity is involved in the generation of distinctions which enable actors to make sense of their world and to act in it. Notice that this view does not define *knowledge* as being totally different from terms like *data* or *information*. We have seen this at the CRM example: a CRM system provides generalized *representations* which, internalized by the actors, gives them the capability to construct certain views (*meaning*) of their customers. It also enables new ways of specific *action* towards their customers. Organizational knowledge here is a concept which allows distinction-making on all these different levels.

Note also that the triad does not necessarily imply a hierarchy. For instance, the attributed meaning of a concept, i.e. its *semantical* dimension, does not necessarily precede its *pragmatic* use. There is no definite one-way road from representation, to meaning, and then to action. Authors like Ludwig Wittgenstein claim that the meaning of a concept is determined by its use and not vice versa (Wittgenstein, 1953/2006), i.e. we *know* things only because we *know how* to use them. Contrary to that, authors like John Law argue for the importance of representations (Law, 1992, p. 387). To order the world, social relations and knowledge are to be “translated” into a “durable” form:

Fig. 2.7 Epistemic attributes of organizational knowledge: representation, meaning, and action



Imagine a continuum. Thoughts are cheap but they don't last long, and speech lasts very little longer. But when we start to (...) embody them in inanimate materials such as texts and buildings they may last longer. Thus a good ordering strategy is to embody a set of relations in durable materials. (Law, 1992, p. 387)¹²

Meaning is intertwined with action, says Wittgenstein; and meaning is only made relevant when materialized in representations, says Law. Views like that of Wittgenstein or Law indicate that distinctions like data, information, and knowledge are analytical concepts which cannot be distinguished in that clear-cut way in real life. It is hard to see how we would refer to a concept as “pure” data without any appreciation of its meaning (or vice versa). Or how we can refer to things only pointing to their meaning while blocking out their relation to action. In human life all three dimensions converge. This is why we placed the three modes of distinction-making on a continuum.

According to our understanding so far, *knowledge management* is the organization's activity of re-actualizing, re-constructing, and integrating *representations*, *meaning* and *action* (see Fig. 2.7).¹³ The aim of knowledge management is to support distinction-making on these three levels, and to provide successful dissemination and application to organizational practice. Knowledge ought to flow through the veins of the organization, and to manifest itself in *objective representations*, *subjective meaning* and *inter-subjective action*. Managing that flow of knowledge is a core issue of post-modern management (Nonaka, Toyama, & Hirata, 2008).

¹² Another noteworthy position is held by Sybille Krämer who emphasize the material and representational dimension of human mind and thinking (Krämer, 2008, forthcoming 2011). See also the position of Klaus Krippendorff who highlights “meaning” as intersubjective “distinction-making” within the domain of (also organizational) design (Krippendorff, 1984, 1989, 2011; Krippendorff & Butter, 2007).

¹³ This integrative systematization is very much inspired by JC Spenders distinction of “knowledge-as-data”, “knowledge-as-meaning” and “knowing-as-practice” (Spender, 2008)

2.2.4 *Strong, but not too Strong: The Pitfall of Holistic Constructivism*

Again, we should note that knowledge as foundation of meaning and action does not necessarily terminate in successful or efficient organizational action. Knowledge *enables* actors to make distinctions. But if and how this is actually happening in the concrete organizational practice is up to the practice. Of course, a CRM system provides distinctions on all three levels, for example, on the level of action it calculates and provides a priority on which customers have to be called (Sect. 2.1.2). But this does not mean that these distinctions are actually applied in that way in organizational practice; it may, for instance, happen that customers are called in the old way. In such a case the new distinction-making capability offered by the new technology would be ignored (a fate shared by many new technologies in organizations). The X-Ray student (Sect. 2.1.2) may construct specific distinctions which are related to meaning (“this shadow means x”) or to action (“the proper treatment would be y”), but in concrete practice this may be exposed as being wrong. Finally, the nurse (Sect. 1.3.3) made correct meaning-distinctions (the symptoms are x, y, z) but wrong action-distinctions (physician x has to be informed in way z). These distinctions were applied to practice and terminated in unsuccessful results. Consequently, knowledge needed to be modified and again applied to practice. In all three examples the knowledge-flow between representation, meaning, and action did not turn out as coherent and smooth transition but was subject to disturbances, and sometimes lead to unsuccessful and non-desired results.

Our constructivist stance, which has been developed from the beginning of this inquiry, should not make us blind for the simple fact that knowledge and the world are different. We should be careful and avoid the pitfalls of a too holistic constructivism. Just as Kant stated that on one side it is impossible to describe “things-in-themselves”, it is on the other side equally impossible not to presuppose their existence. Knowledge needs a counterpart even if that counterpart cannot be fully “known”; for *organizational knowledge* that counterpart is the *organizational practice*. Hence, although we acknowledge the “strong sense”, i.e. that via knowledge the organizational field is constructed, our sense of knowledge should not be *too* strong. We should avoid to understand the interdependence between the epistemological and the ontological dimension of the organization as a 1:1 determined relation. Of course, knowledge enables actors to make distinctions in order to construct their world and give meaning to its objects. And of course knowledge empowers actors to act since it equips them with the needed distinctions to relate representations and meaning to organizational action. But just as my thoughts of something does not make that thing real, organizational knowledge is not automatically successfully applied and realized to practice in the intended way. Epistemic distinctions of actors do not 1:1 map the ontological field of the organization. Knowledge is *related* to meaning and action but if and how

knowledge becomes relevant within a shared practice is dependent on the concrete use of knowledge, not on knowledge alone. Organizational knowledge creation is a critical selection process determining which distinctions remain in the stock of knowledge and which do not. Not all possible distinctions are always integrated into the practice of the organization. For example, the CRM system may simply not be used, although (at least some) actors would be able to relate representations and meaning to action, i.e. to make pragmatic distinctions. In this case, the offered distinctions became non-relevant to the shared organizational practice, although knowledge was theoretically available and relatable to action.

To summarize, organizational knowledge is related to action, but this does not mean that knowledge simply equals practice. There is a gap between both, a gap between epistemology and ontology of the social field. This is not a flaw in the relation between both but, rather contrary, constitutive for the relation itself. The gap makes possible that new knowledge can be created which is not already integrated in practice, i.e. new distinctions aiming at to change practice. Without that gap, knowledge and practice would be fully synchronized and no knowledge creation or application would be possible. There could be no dynamic interrelation between epistemology and ontology of a field. Ultimately, if both would be equal, the separation would not be necessary at all.

This marks also the very condition of *knowledge management*. To manage the flow of organizational knowledge is to calibrate the epistemic field which enables its actors to interpret their world and to carry out context-relevant action. But this is to say that knowledge may be changed in order to enable a relevant change in practice. This relevant change is all what knowledge management is about (as well as the definition what “relevant” means in the specific context). And that is only possible if our knowledge is not fully inter-locked with practice. Hence, a theory of knowledge management has to decouple the notion of organizational knowledge (as three-dimensional relation to representations, meaning, and action) from organizational practice.

In the next chapters we will map existing approaches to knowledge management and organizational knowledge and connect them with our framework developed so far. We will explore how all three dimensions of knowledge are compatible with existing knowledge-based literature of organizational studies.

2.3 Managing Flow: Implicit and Explicit Knowledge

In their groundbreaking book “The knowledge-creating company” Nonaka and Takeuchi conceptualized organizational knowledge along the two poles of *explicit* and *implicit* knowledge (Nonaka & Takeuchi, 1995). Explicit knowledge is expressed in representational statements being “about” something: “know-that” or “declarative knowledge”. Implicit knowledge, on the other hand, is internalized knowledge about

how to do things: “know-how” or “procedural knowledge”.¹⁴ Explicit knowledge appears as codified content, for instance, in documents, books, or databases. Implicit knowledge remains inside the actor, for instance, as a skill and as the ability to carry out action. According to Nonaka and Takeuchi, the key process for creating and leveraging knowledge in organizations is to convert knowledge from one form into another. “Conversion processes” have to be in place to let data, information, and knowledge circulate from actor to actor (“socialization”), from internal to external manifestations (“externalization”), within external forms (“combination”), and again from an explicit state back to the actor (“internalization”).

The authors illustrate these conversion processes by giving a famous example about bread baking (Nonaka, 1991, p. 98f.; Nonaka & Takeuchi, 1995, p. 100ff.). To learn how to bake bread one could acquire knowledge about bread ingredients, mixture ratios, techniques, and so forth. This information may be gathered from instruction guides, books, and so forth. Doing so, a person would (at least try to) “internalize” explicit knowledge from the book to his/her internal system, i.e. s/he would convert explicit to implicit knowledge. Of course, it is difficult to learn how to bake bread in that way. In fact, professionals acquire the skill of bread-baking not from books (alone) but learn from other human beings. In this case knowledge acquisition mostly is accomplished in a social setting: from a master to an apprentice.¹⁵ Hereby, the master *shows* something while the apprentice *imitates*: knowledge is acquired through “indwelling” (Nonaka et al., 2008, p. 20). According to Nonaka and Takeuchi, this act of “socialization” transfers implicit knowledge from one person to another. Another type of conversion comes up if someone aims at constructing a bread-baking machine (or at writing a book about bread-baking). In such a case the implicit knowledge which is transferred from the master to the apprentice has to be “externalized” and to be converted into a codified form. This is to convert implicit to explicit knowledge, for example, by linguistically (“metaphorically”) describing all the detailed steps necessary to bake bread. This explicit knowledge then can be “combined” with other knowledge resources like mechanical and electronic features of machine parts in order to finally build a bread baking device (Fig. 2.8).

According to Nonaka and Takeuchi, organizations have to provide purposeful and efficient conversion processes to generate a “flow” of information which enables the creation and application of the organization’s most important resource: useful knowledge. Their approach converges with our strong sense of knowledge as distinction-making, whereby explicit knowledge is situated towards the top and implicit knowledge towards the bottom of the continuum (Fig. 2.9):

¹⁴ The distinction between “know-that” and “know-how” was introduced by the philosopher Gilbert Ryle (1949), that between explicit and tacit knowledge by Michel Polanyi (1967).

¹⁵ Which is the prototype of the “socialization” conversion (Nonaka et al., 2008, p. 20).

Fig. 2.8 Knowledge conversion processes (Nonaka & Takeuchi, 1995)

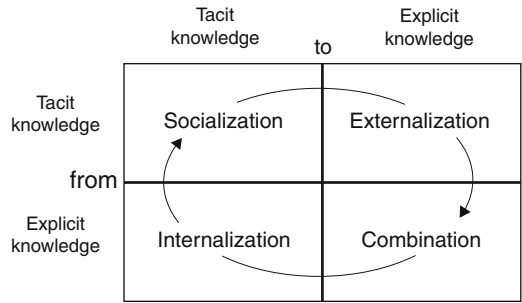
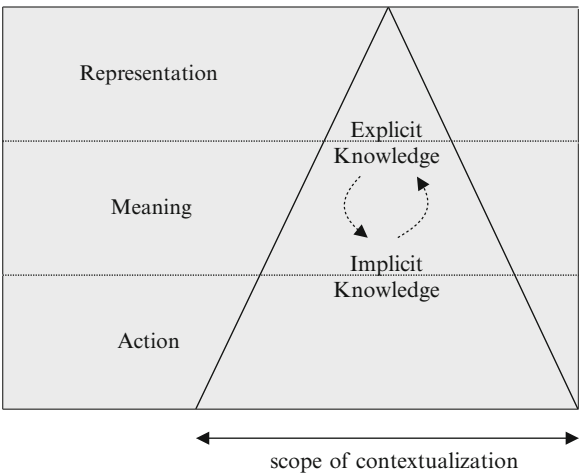


Fig. 2.9 Nonaka and Takeuchis knowledge distinctions applied to our broader term of knowledge



Nonaka and Takeuchi claim that representational distinctions have to be convertible to allow construction of meaning and relation to action. Only through becoming “implicit”, knowledge can be related to action and finally be applied to practice. On the other side, also implicit skills have to be explicable as representations and meaning in order to be distributed and shared throughout the organization.

2.4 Knowledge as Organizational Resource of Individual and Collective Distinction-Making

Other approaches in organizational studies focus on knowledge as being a “resource” of creating results like products, services, money, and so forth. No matter how limited some of these typifications may be—e.g. because they only seem applicable to firms,

or exclusively to the individual level of actors—we will see that every one of them is connected to the 3-level distinction-continuum of our strong sense of organizational knowledge.

2.4.1 Representation: Knowledge as Commodified Resource

Take, for example, the “first stage” of knowledge-management literature which was heavily influenced by the development of information technology (Scharmer, 2009, p. 69). Here, knowledge (or rather the opportunity of knowledge management) was mainly seen in context of the digital infrastructure of the organization. The main challenge of knowledge management was seen as how to store information independently from fluctuating actors and to make it widely accessible throughout the organization, i.e. making implicit knowledge explicit. Knowledge management has to provide technical and social structures to move data to where its “absence has created problems” (Spender, 2008, p. 169). Hence, knowledge is seen as a convertible resource, a “commodity” which has to be distributed optimally.¹⁶ This view certainly focuses exclusively on the representational level of knowledge. Nonetheless, it is a matter of organizational knowledge and not only of “data”. As representational distinctions basically allow to construct meaning and relation to action (remember the CRM example), they form a legitimate dimension of organizational knowledge (management).

2.4.2 Meaning: Knowledge as Individualized Resource

Another approach is to narrow organizational knowledge to “expert knowledge”. Peter Drucker, for instance, describes modern organizations as being unprecedentedly dependent on a “plurality of expert knowledge” (Drucker, 1993, p. 74ff.) which has to be imported mainly through hiring the right people. This view correlates with other definitions which take knowledge to be a “resource” embodied in actors (Patriotta, 2003, p. 25). Organizational knowledge then is reduced to “human capital” which is managed by recruiting activities and “competence management” (Choo & Bontis, 2002). Basically, there is nothing to hold against those views as it is obvious that in today’s fast developing global societies expert knowledge has become an important and central resource. Its contribution to reach organizational goals cannot be underestimated. Analysts, consultants, software developers, and even retail

¹⁶Designing knowledge management systems can be rather “technological oriented”, i.e. optimized towards creation and retrieval of knowledge itself, or “human oriented”, i.e. optimized towards creation and retrieval of knowledge holders (Maier & Hädrich, 2001).

salespersons draw from knowledge as a set of distinctions to make sense of (as well as to act in) their organizational practice. Analysts and consultants may use their expert knowledge (from “know-how” like analytical skills, to “know-that” like knowledge about markets or best practices) to reveal market opportunities and thus to construct action-relevant meaning. Software developers use their knowledge about programming languages, algorithms, or the newest features of digital tools, to understand and solve given problems. In terms of our definition of knowledge the highly-skilled programmer is able to generate finer (or rather different) distinctions than someone who lacks her specific knowledge. Her expert knowledge enables her to analyze a specific problem in a specific way (i.e. a specific way to construct meaning, to turn “circumstances” to “situations”), and to come up with a specific solution (i.e. she constructs relations to possible organizational action). When her knowledge-based distinctions are successfully integrated to practice she ultimately contributes to the achievement of organizational goals (e.g. the goal to provide solutions for the customers). Even retail salespersons use their knowledge about typical customer behavior and past experiences to construct finer distinctions on (future) customer behavior (Nonaka et al., 2008, p. 138ff.).¹⁷ This knowledge then enables them to make more effective item orders in the future.

In all these cases, knowledge enables actors to construct distinctions. These distinctions allow them to understand their world and (directly or indirectly) to contribute to the product, service, or “value” of the organization. Knowledge-based distinction-making equip organizational actors to carry out actions which contribute to the achievement of organizational goals. This is even the case for externally codified and “dehumanized” knowledge like acquirable patents, market reports, program code, books, or imported data in a CRM database. All these “distinctions-as-representations” are organizational knowledge, since they are relatable to meaning and action. *If* and *how* these representations trigger purposeful action depends on its application in organizational practice (what will be discussed in Chap. 3).

2.4.3 Action: Knowledge as Processual Resource

We may also distinguish between knowledge as part of the product or service, and knowledge as guiding the organized process which creates that very product or service. Knowledge then not directly merges into a product but provides a collective “architecture” (Henderson & Clark, 1990), which is available as explicit and implicit “routines and interactions” (Blackler, 1995, p. 1025). Typical examples would be role descriptions, routines, organizational command structures, meeting rules, decision making policies, and so forth.

¹⁷ See also our use-case from Seven-Eleven Japan in Chap. 10.

A similar distinction has been made between “product innovation” and “management innovation” (Hamel, 2002, 2007). Put shortly, product innovation makes the *product* better whereas management innovation makes the *organization* better.¹⁸ To thrive *product innovation*, knowledge about resources has to be created or modified. For example, for an organization to develop and produce MP3 players these resources could be the MP3-encoding algorithms, audio technology, displays, internet-protocols, and so forth, as well as non-technical knowledge about markets, or social structure of customers. To thrive *management innovation*, on the other side, procedures, rules, and policies (“architecture”) have to be created or modified. This results, for example, in realignment of command structures, or in redesigning internal communication. The first type of innovation is directly related to the product or service, the second one deals with the way of how actors and resources generating the product or service are organized.

This is also prevalent in Edith Penroses economical theory of the firm (Penrose, 1959). Penrose argues that the mere availability of resources cannot sufficiently explain a firm’s success. It is much more the way *how* these resources are combined, integrated, structured, and applied which distinguishes the firm from others and generates competitive advantage. The uniqueness of a firm is constituted by how it collectively understands its available resources, the possible services they could render, or the markets in which they could thrive. It is, for instance, one thing to have access to resources like transistor-technology, flash-storages, LCD displays, online-sales-infrastructure, and so forth; but a different thing to assemble them to a holistic service which provides stylish MP3 players seamlessly embedded in an online music store and business model (Fig. 2.10).

Following Penrose, competitive advantage is dependent on organizational knowledge because the latter represents the connecting link between *resources*, i.e. the “input” of the production process, and *services*, i.e. the “output” of the production process. In today’s digitalized and globalized environment with ubiquitous information access and worldwide supplier-networks there are only a few sectors where firms may distinguish themselves only on basis of their used material and non-material resources. As seen in the MP3 use-case, the unique value of a product or service is added in the way of how resources are organizationally combined. This “way” can be understood as collective organizational knowledge which “bridges the gap between the resources acquired and the services (organizations) provide” (Spender, 2008, p. 169). Penrose very early identified that these *differences* constitute the pillar of a firms success as it enables an organization “to put its resources to particular uses—it is a *distinctive way of thinking and acting in the world*” (Tsoukas & Vladimirou, 2001, p. 981).

¹⁸ And consequently of course also aims at making the product better.

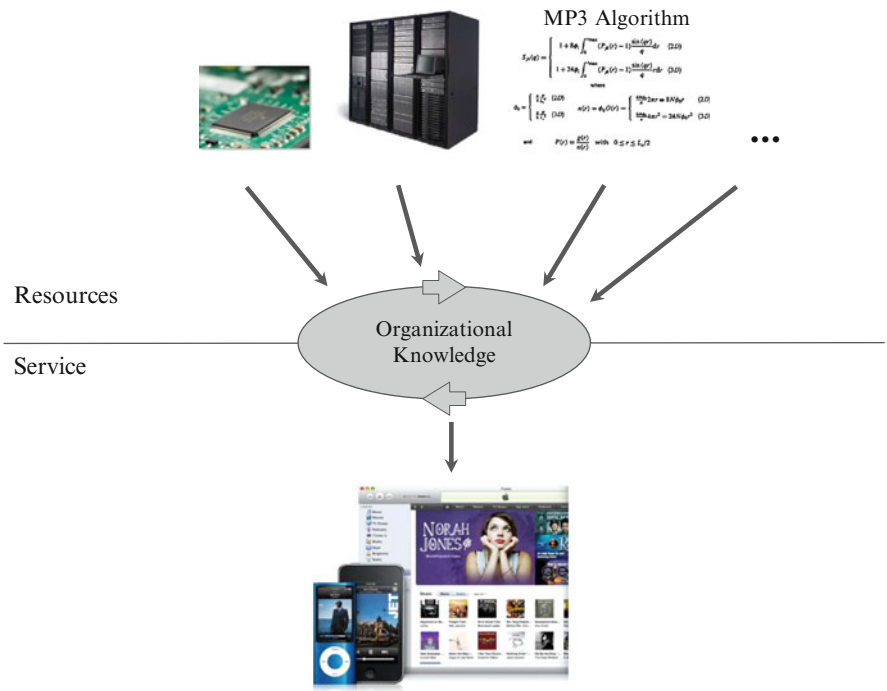


Fig. 2.10 Organizational knowledge according to Penrose (Exemplified along Apple’s[©] Portable Music Service)

It is this type of trans-individual know-how which marks the distinctive *organizational* character of knowledge. Here the focus is directed towards the organizations processes, rules, routines, stories, shared understandings, and collective know-how. Knowledge then is “organizational” not because it relates representations, meaning, and actions only to individuals, but to the organization as such. In fact, individual knowledge is only able to become part of the organizational sphere if its embedded in the trans-individual processes of the organization (Simon, 2007, p. 35).¹⁹

To conclude, the way how organizations organize is accumulated in the shared organizational knowledge actors can draw from to make distinctions (on the three

¹⁹ System theory approaches of organizational research drive this even further. According to an “autopoietic” understanding of organizations, members of the organization are placed to the “environment” of the system (i.e. humans are not “part” of the organization but part of the “environment” of the organization). Members become interchangeable and only relevant insofar as their communications and actions are “coupled” to the organizations processes (Simon, 2007, p. 35). The organization then does not consist of its members but of its own operations: organizations are “closed systems” (Baecker, 1998; Luhmann, 1995; Simon, 2007).

levels of representation, meaning, and action). Which *types* of organizational knowledge are at work on this processual level will be examined in Chap. 3 and connected to the different paradigms in organizational studies from Chap. 1. Hereby, *rationalized* views try to understand processes as a knowledge stock of formal routines or rules (Sect. 3.1), whereby more *socialized* views detect organizational processes as informal narratives and stories circulating within the organization (Sect. 3.3).

2.5 Conclusion

Let us briefly summarize the steps made in Chap. 2:

1. Knowledge constitutes the epistemological dimension of a social field (Sect. 2.1).
2. This is because it enables actors to make distinctions in order to understand their world and act in it.
3. This opens up the possibility of a “strong” knowledge-based view on organizations: organizations are social fields in which knowledge as distinction-making is active on three levels: representation, meaning, and action (Sect. 2.2).
4. The general theoretical framework outlined in (1)–(3) turned out to be compatible with existing approaches to organizational knowledge, like Nonaka’s and Takeuchi’s knowledge classifications (Sect. 2.3), as well as with the idea of knowledge being an organizational “resource” on both individual and collective levels (Sect. 2.4).

Note that our definition of knowledge as distinction-making process which enables world-construction and action is very close to that of organizational concepts from Chap. 1. There, we said that organizational concepts (rationalized and socialized) enable exactly what we said about knowledge in Chap. 2, i.e. distinction-making, understanding of the world, and relation to action. Our further inquiry will be driven by the idea that organizational knowledge (as outlined in Chap. 2) is constitutive for organizational concepts and structure (as outlined in Chap. 1). Hereby, we will follow scholars of organizational studies who recently introduced elaborated approaches to understand both the *application* (Haridimos Tsoukas, Chap. 3) as well as the *creation* (Gerardo Patriotta, Chap. 4) of knowledge in organizations. Outlining their approaches will give us further insights of how constitutional concepts (like rules, roles, stories, resources, skills, etc.) are bound to the epistemological dimension of the organization. In fact, both authors implicitly claim that we could neither understand the application, nor the creation of organizational concepts without the notion of knowledge. As we will see, both Tsoukas and Patriotta propose novel views, reformulating the structuring principles of organizations as organizational knowledge. The “capability” of organizations to draw distinctions, to stabilize meaning, and to act is bound to

knowledge. This culminates in the general definition provided by Haridimous Tsoukas:

“Organizational knowledge is the capability members of an organization have developed to draw distinctions in the process of carrying out their work” (Tsoukas & Vladimirou, 2001, p. 976)²⁰

The next chapters try to reformulate organizational concepts as organizational knowledge, thus introducing a *knowledge-based view on organizations*. This also opens up a new perspective. By interpreting the organization as being constituted by knowledge we will be able to see challenges and problems of organizations in a new light, i.e. to interpret issues in organizations as epistemic issues.

²⁰ Having said that, we should also accept the *limits* of the introduced strong sense of organizational knowledge. Although the crucial importance of knowledge in organization forms both the assumption and the field of this inquiry, we should remember that not all before mentioned concepts, which create the organization (see Chap. 1), can (or should) be covered by and traced back to organizational knowledge. Our inquiry will not opt for some kind of knowledge-centrism which reduces everything in and around organizations to knowledge. I would not even choose to explain, e.g. expert skills or organizational rules by the concept of knowledge alone as other factors like social pressure, power, or culture may be involved as well. However, knowledge in the strong sense is a *necessary condition* for organizations. Trading off limits against importance of a knowledge-based view, we could conclude that on one hand knowledge for sure is not the only constituent of organizations, but on the other hand no organization would be imaginable without it. This is because no social field is imaginable without its epistemological grounding.



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