

Framing Skilful Performance to Enact Organizational Knowledge: Integrating Data-Driven and User-Driven Practice

EVA GATARIK

Masaryk University, Czech Republic

eva.gatarik@econ.muni.cz

Pointing out flaws and errors can be a risky pastime for employees, particularly when the information therein conflicts with rules, routines and theories held dear by management. However, skilful performance is not about strictly adhering to such established rules, routines and theories when seeking ways out of problem situations. This contribution argues that skilful performance arises out of the practice of shared meaning rather than punctiliousness. Especially in the event of uncertainty, equivocation and doubt, people in organizations should not just apply given rules, but also jointly classify, interpret and transform observed data into new knowledge that feeds back, so that subsequent action and its justification can tap into the prevailing business climate, reduce ambiguity, and offer prospects that are more exciting. A holistic approach is proposed that may also assist in the construction, processing and justification of knowledge, establishing meaning within an organization in order to improve organizational performance in the long term. Finally, a specific case of redevelopment in an SME illustrates the argument.

Key words: skilful performance, organizational knowledge, organizational learning, sense making, Language-Information-Reality framework

Introduction

Organizational performance may suffer from the fact that decisions within organizations often rest upon more or less incomplete information and misrepresented knowledge (Tsoukas 1997; 2005). Organizational knowledge, however, is usually assumed to be based upon computationally collected, processed, stored, retrieved, and communicated decision-relevant information. Organizational success is then explained and assumed to be reproduced in a controlled manner via explicit rules for action (Kogut and Zander 1992). Organizational success is thus assumed data-driven. This means that it

may rest upon well-chosen documentation. However, data in such records or guidelines may change. Procedures assumed to explain and reproduce organizational success are usually tested, or rather evaluated, with respect to the results of their application, by persons assumed to have expertise in certain areas of practice. There appears to exist an implicit presupposition that the operationalisation and application of rules, once they have been explicated, do not need to draw further upon the extra knowledge of experts (Kogut and Zander 1992). However, this is erroneous, since an *understanding of the meaning* of calculated results, necessary to their evaluation, and the *selection* of those found acceptable might be faulty or absent. In 1969, Karl Weick suggested that this situation be addressed with the concept of *sense making*, which has led to an explanation of the success of *high reliability organizations* (Weick and Roberts 1993). The concept of sense making tallies largely with a user-driven approach to explain organizational success.

The aim of this contribution is to examine the interplay between the data-driven and user-driven approaches necessary to understanding of, and support for, the enactment of organizational knowledge with a view to long-term organizational success via skilful performance. A holistic framework will be introduced, concerning – primarily but not exclusively – the relation between language, information and carefully selected parts of reality. The use of this framework *for the analysis, guidance and evolution of actions* to be taken with respect to the production and reproduction of skilful performance, and thus organizational success in the long term, will be discussed. To illustrate the matter in question, the initial situation in an Austrian SME, for which redevelopment was later analyzed within the framework outlined immediately above, follows.

Some years ago, the management of Beham Techn. Handels GmbH, an Upper Austrian SME specializing in the production of precision metal parts, realized that the company was no longer able to settle all its payments. Few people were aware that serious liquidity problems had been in existence for some years before the management was forced address the situation. Among these were, naturally enough, the accountants who lived daily with the liquidity difficulties. The main reason that this information did not penetrate to management sooner is that the employees believed that they might turn the situation round by working harder. However, the more they strove, the more clearly they realized that the threat to the company was increasing.

The solution to this case reconstructed below will *portray* (Shotter

and Tsoukas 2007, 21) the argument, developed within the framework provided, that skilful performance manifesting itself in organizational success does not stem from strictly and stubbornly adhering to established rules or best practices. Instead, people in organizations should be able to step out of such a given system and jointly classify, interpret and transform observed data into new knowledge that feeds back, so that subsequent action and its logical justification can offer prospects that are more exciting for them and their organization.

A review of related research traditions is provided to frame the argument. After that, hypotheses are developed to demonstrate their impacts on skilful performance, and thus organizational success: first, strictly and unreflectively adhering to rules is examined and second, overruling rules via the practice of seeking and sharing meaning within organizational environments. The impacts are examined within the holistic framework of analysis and in terms of prediction. Finally, the prerequisites for an appropriate actualization of the suggested approach within an organization are discussed.

Skilful Performance, Organizational Learning and Sense Making

What explains skilful performance and how it is created is a question dating all the way back to Plato. Somewhat more recently, Taylor (1911) maintained that if there were an answer to this question; one would know what to concentrate upon and what to do to enhance the performance at individual, group and organizational levels. In fact, research into skilful performance is now among the most prominent subjects for organization and management studies (Vogel 2012) and consists of several intertwined streams of investigation. These various approaches address skilful performance by means of conceptualizing the various manifestations of knowledge: capabilities, competence/skills, and expertise (Fauré and Rouleau 2011; Rouleau and Balogun 2011; Sandberg and Pinnington 2009; Attewell 1990; Ingold 2000; Sennett 2008; Danneels 2010; Collins and Evans 2007; Dreyfus 2005; Dreyfus and Dreyfus 1986). Thus, there is no shortage of ideas about what can characterize particular types of knowledge. However, there is significantly less understanding about how these manifestations of knowledge are enacted in the kind of skilful performance that underlies organizational success in the long term (Danneels 2010; Sandberg and Targama 2007; Tsoukas and Vladimirov 2001; Tsoukas 2005).

Skilful performance, however, is tightly interwoven with individ-

ual and organizational learning (Brown and Duguid 1991; Gherardi 2006; Nicolini, and Yanow 2003; Tsoukas 2005). According to Argyris (1976), learning in and by organizations may be understood as a process of tracking down and eradicating discrepancies. When this process enables an organization to apply its present rules or to achieve its goals, the process may be termed *single-loop learning* (Argyris and Schon 1974), which can be understood to correspond to the data-driven perspective upon explanation of skilful performance, and thus of organizational success as such. Single-loop learning may be compared to a thermostat, in that it is said to *know* when it is too hot or too cold in the room; it is then instructed to turn the heat on or off: ‘The thermostat is able to perform this task because it can receive information (the temperature of the room) and therefore take corrective action’ (Argyris 1977, 116). However, if the thermostat could question itself about whether it should be performing in the room at all, it would be *capable* not only of tracking down a discrepancy in temperature, but of questioning the underlying theory and its own rules, or rather algorithms for action, too. That is learning of a second order, famously labelled *double-loop learning* by Argyris and Schon (1974), and it can be interpreted as corresponding to the user-driven approach to the explanation of skilful performance in and by an organization, and thus of organizational success.

When the employees in the introductory case became aware of the liquidity problems within their company and simply attempted to work harder or, put differently, to apply established rules or processes ever more diligently, in order to save their company, this exemplified single-loop learning. If they, jointly with the management, had begun to confront the causes of the company’s imminent non-liquidity, it would have constituted double-loop learning, since they would have questioned the underlying theories and rules their organization was built upon.

Mezias and Starbuck (2003), Winter (2003), Weick, Sutcliffe, and Obstfeld (2005) implicitly parallel the points made by Argyris (1977), maintaining that slavish obedience to rules arising out of a data-driven approach inhibits organizational performance in the long run. On the other hand, if employees can act upon ‘making sense of circumstances’ (Weick, Sutcliffe, and Obstfeld 2005, 415) and in a context where there are incentives to reach general long-term goals, success in the organizational performance may pursued (Weick and Roberts 1993).

Organizational sense making as introduced in Weick (1995) is about the question: ‘What does a situation mean?’ When people then

ask: 'What should I do in this situation?' this additional question is capable of bringing meaning into existence, meaning that allows action into the future, continuation of action, and maintenance of a sense of remaining in touch with the continuing flow of experience.

Thus, sense making focuses constructively around equivocality, since the latter gives priority to the search for meaning as a way of dealing with uncertainty (Mills 2003). Weick, Sutcliffe, and Obstfeld (2005) assume that explicit efforts at sense making can be found whenever the current state of the world is perceived to be different from its expected state. Sense making may thus arise out of the question: *the same or different?*

Thus, Argyris and Weick correctly highlight the dynamic character of rules and their underlying theories. However, it still has not been made clear how it is possible for people to *recognize the difference* and to act upon it in ways that appear to move towards general long-term goals (cf. Polaroid's flawed foray into digital photography in Tripsas and Gavetti 2000, or, more generally, organizational boundaries of identity in Santos and Eisenhardt 2005). Moreover, Weick, Sutcliffe, and Obstfeld (2005) do not explain the causal relationships between applying the rules and sense making explicitly enough, thus rendering it impossible to predict either failures or successes in organizational performance. Further, while it is acknowledged that meaning becomes embedded in organizations, proper development of how it may arise is lacking, as is any explanation of how individuals can, or do, draw upon it.

Framing Skilful Performance

As indicated above, literature related to skilful performance primarily comprises descriptions and even prescriptions, leaving everything as it is. What seems to be missing is a dynamic theory that firstly deals with the system (organization) together with its environment, secondly allows for endogenous change of the system (organization), thirdly makes room for creative action, and finally, acknowledges the roles of historical accident and chance (Porter 1991). However, a dynamic theory of skilful performance is unlikely to be developed if researchers persist in merely recording social regularities or seeking allegedly immutable laws by which skilful performance may be explained and predicted.

Out of this impasse arose the Language-Information-Reality (LIR) multidimensional systemic-semantic framework of analysis (Born 1982; Born and Gatarik 2013; 2014; Gatarik and Born in press). This may not only provide a chance to *explain and predict* both the failures

and successes of an organization in dealing with its environment (first desideratum), but also highlight in which way the *creation of meaning* could produce or reproduce, in a controlled manner, *creative action* considered as an *example of skilful performance* (third desideratum). This means that it may become possible to show how to overcome established organizational presuppositions, assumptions, and rules whenever necessary in order to move toward general long-term goals (second desideratum). Put differently, with the help of the LIR framework, a holistic organizational epistemology could be established, which would assist in the construction, processing and justification of knowledge establishing meaning within an organization to improve organizational performance in the long term (fourth desideratum).

To illustrate the matter in question, the LIR framework will be employed below to examine the following two hypotheses:

- H0 *Skilful performance arises out of a strict and unreflective application of routines. These are explicable as norms/rules (data-driven approach to organizational performance). Mistakes, interruptions or unintended results are then understood and investigated as the result of an inefficient, improper or inexact application of the explicated routines by their users.*
- H1 *Skilful performance does not arise out of strictly adhering to routines and rules when seeking ways out of problem situations. It is driven by the continuous search for, and sharing of, meaning within organizational environments. Thus, instead of investigating the misapplication of theories, routines and rules, their formal incompleteness is to be reconsidered and replaced by reflecting the limits of their application. A dialogical culture as a way of thinking together and learning from each other is, therefore, essential to provoke this kind of reflection and develop an understanding of the limits of the application of established theories, routines and rules to ensure and support innovation and progress.*

The Language-Information-Reality (LIR) Framework

The analytical basis for the examination of the hypotheses introduced above, the LIR (Language-Information-Reality) framework, appears in figure 1.

The right side of the framework combines both experiential knowledge/expertise E (expertise) and cultural knowledge/capabilities F (folk knowledge) as commonsensical knowledge C, realized and nat-

duced problem solutions Q , since when applying either expertise E or just lay/folk knowledge F to certain routines/rules at K , different solutions Q, Q^* may emerge.

Sense making (Weick 1995) organizes the meaning, stipulating interaction between the knowledge components expertise (E), user/folk knowledge (F) and rules/routines (K).

As previously mentioned, a dynamic theory must acknowledge historicity. Thus, a dynamic theory of skilful performance should aim to outline the processes or generative mechanisms that have previously produced specific empirical events (Hedstrom and Swedberg 1998). A process approach should replace the standard variance approach (Mohr 1982).

The LIR framework outlines the following mechanisms generating organizational performance. The first mechanism of the LIR framework allows the user to analyze and explain both the success and the possible failures in real-life enterprises, viewed as projections of certain organizational structures. This leads to the *three aspects* depicted in figure 1 at knowledge components $\{E, F, K, M\}$ and problem solutions Q on the one hand, and the causality of practical production cycles (in signs: $P \rightarrow Q$) on the other hand. These three aspects are:

1. *Applying expertise* E in an enterprise to specific and well-selected problems P , in symbolic terms: $E(P) \Rightarrow Q$ [read as expertise E applied to a problem (P) causally yields/produces some solution Q].
2. *Enacting expertise* E via the bureaucracy of established routines of production procedures K , manifesting itself in the competence of a firm, and leading to algorithms, in symbolic terms: $\langle K|E \rangle (P) \rightarrow Q'$ [read as rules/routines under the condition expertise E applied to a problem (P) causally yields/produces some solution Q'].
3. *Enacting capabilities* F , i.e. replacing expertise E by folk knowledge F to reproduce the success of enacted expertise (2.) in a controlled manner, in symbolic terms: $\langle K|F \rangle (P) \rightarrow Q^*$ [read as rules/routines under the condition folk-knowledge F applied to a problem (P) causally yields/produces some solution Q^*].

The second mechanism of the LIR framework concerns the identification and selection of organizational units in a real-life enterprise in accordance with their knowledge roles as actualizations of the interaction of explanatory knowledge components $\{E, F, K, M\}$ that are, via LIR, considered to be explanations of the practical suc-

cess of an enterprise in dealing with its environment. In this sense, the LIR framework can be used to guide the reorganization of an enterprise according to identified knowledge roles realized (actualized or incorporated) in organizational units.

The third mechanism of the LIR framework, in organizational practice relevant especially with respect to decision-making and decision support, allows the analysis of managerial decisions and justifications, as well as of any persuasive arguments for the measures to be taken in practice, e.g. by employees: see the top level of the framework: $H = \{E, F, K, M\}; S \rightarrow R$.

Finally, the fourth mechanism of the LIR framework allows understanding and evaluation of the relation between explanation, in symbolic terms: $H = \{E, F, K, M\}; S \rightarrow R$, and enactment or description, in symbolic terms: $E(P) \Rightarrow Q$ in general, $\langle K|E \rangle(P) \Rightarrow Q'$ due to experts, $\langle K|F \rangle(P) \Rightarrow Q^*$ due to lay people, and thus insight into the limits of the application of theories insofar as they rest upon over-simplifying classifications, incomplete information and knowledge, and the dynamics of an ever-changing world.

Case Study

A case study may serve to illustrate the point. As indicated above, it was developed at Beham Techn. Handels GmbH, an Upper Austrian SME specialising in the production of precision metal parts since 1948, in the course of its redevelopment. The LIR framework is here employed as the main means of analysis in a description of re-modelling Beham's processes in such a way as to enhance skilful performance in terms of creativity, flexibility and innovation in the long run.

INITIAL SITUATION

Some years ago, Beham encountered massive financial difficulties. Their budget was simply unable to cover future payments (problem situation P represented in S as *red numbers* in figure 2). On the basis of his own experience, the CEO, himself a layman (F) to the special issues of tax law and business economics, thought (in symbols, $H = \{F\}; S \rightarrow R$) that his tax adviser could contribute to solving the liquidity problem with his special expert knowledge (E). It would therefore be possible to reach the target state (represented as R , the response/result of a certain solution Q in figure 2), i.e. the capacity to settle all payments, by developing a liquidity plan that involved increasing the credit limit on the current account to accommodate immediate requirements. Moreover, this solution Q was to have been

endorsed as a future routine or *rule* K (determining the transition from P to Q), thus: 'If you are no longer able to service current debts, a liquidity plan will be prepared and, if necessary, the credit limit of your current account will be increased.' However, Beham did not have sufficient credit guarantees to do so; the *rule/routine* proposed as solution Q could not be realized.

In quest of a fresh solution, reasons for the lack of liquidity were first sought by investigating cash flow from: (a) business activities that lay outside the ordinary course of business, (b) extraordinary processes (such as severance payments, settlements with partners), and (c) currently unprofitable fields of business. A solution now appeared to be calculable and accessible to plausible representation, after which it could be realized simply – close down divisions not belonging to the core business, abandon unprofitable branches, and avoid extraordinary, inherently *one-off* processes. In the light of such plausible solutions, the credit institution might be more likely to finance a short-term *surge of liquidity*, as an immediate local optimization.

Such calculable steps might have made it possible to achieve short-term, at best medium-term, prospects of survival, but no sustainable existence and development for Beham GmbH would have been guaranteed, by any means.

ENACTING ORGANIZATIONAL KNOWLEDGE IN PRACTICE

It was clear that sustainable solutions in this case could not rest upon one-dimensional, monetarily justified selection of knowledge. In other words, the management realized that partial (e.g. financial) explanations and suggestions for action derived from the former in a non-reflective way needed to be overcome, indeed overruled, and replaced by fresh practical problem-solving ideas ($H; S \rightarrow R$), based upon a sort of enactment of a joint meta-reflection (M) of problem situations (P) in the concrete organizational context ($P \Rightarrow Q$): see figure 2.

Therefore, the CEO first commissioned an external economic management consultant to prepare a solution that would go beyond the original suggestions. In the end, it was decided that an eight-person management team be created, which could be seen as a mode of enactment of knowledge component M.

The team members were individually supplied with all the necessary information available. Everyone was encouraged to present their ideas unreservedly, then determine reorganization steps collectively and in advance, while remaining capable of initiating all

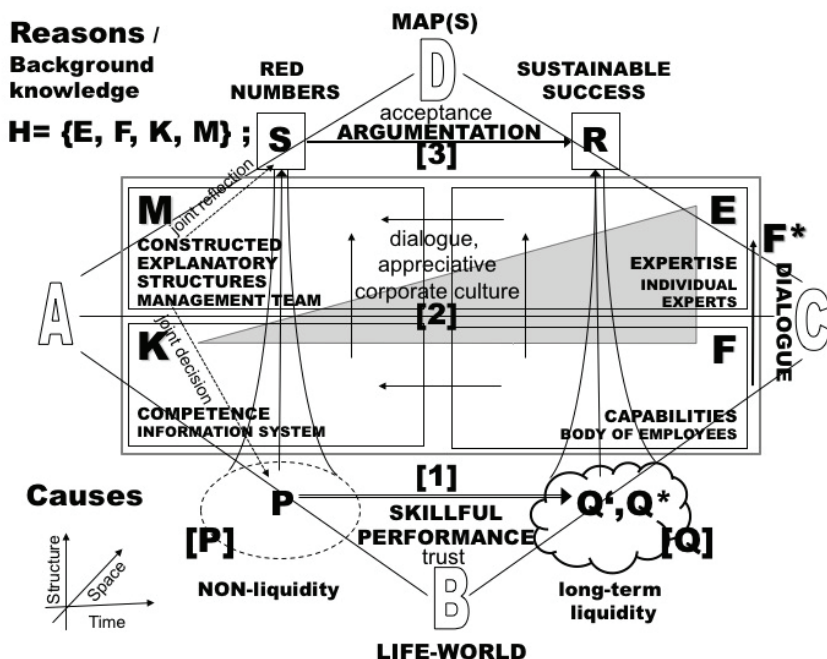


FIGURE 2 Enacting Expertise, Competence, and Capabilities via Joint Meta-Reflection at M in the Interests of Skilful Performance at Beham GmbH, Depicted in LIR

managerially relevant decisions. How this step could be used to develop creative, innovative solutions and maximum flexibility appears in figure 2.

Figure 2 shows the enactment of expertise, competence, and capabilities via joint meta-reflection at M towards skilful performance at Beham GmbH. This employment of organizational knowledge is embedded into a mode of knowledge and meaning transfer supportive of corporate culture and characterized by dialogue and appreciation.

Further, figure 2 indicates the three levels of reflection: At the first level [1], the proposed or produced *solutions* Q' Q^* via E and F are evaluated. At the second level [2], the means are reflected upon, i.e. the rules, structures, expertise, etc., that produce results. Level [3] is the process of contemplation of the justifications for what is proposed by the decision-makers and their selection of the measures/actions to be taken to generate sustainable results.

Finally, figure 2 depicts the *scissors of meaning*, used to address the dialogue between experts at E and users at F to move towards enhancing the epistemic resolution levels F to F^* .

However, the quality and innovativeness of the Beham solutions depended on more than just the implementation of knowledge component M in the form of a management team; extended involvement of the influence of the other three knowledge components of the LIR scheme allowed the all-embracing knowledge of the entire enterprise to be taken into account. The precise selection of the members of the management team ensured that they also conveyed to the decision-making process their particular perspectives and the challenges generated by their various departments (in terms of E). In addition to this, these experts provided an excellent interface with other employees, whose aspirations and opinions (knowledge component F) could thus be said to have been represented at team meetings. Finally, through the special use of a sophisticated information system K and the extensive experience of an IT specialist as one of the eight members of the management team, information that is even more significant was shared.

Further, the members of the management team may also perform, and even enact, the various knowledge roles that form the essential theoretical backbone of the LIR scheme. When addressing the topic discussed and the situation, they play a number of parts: they may be specialists/ experts; they may provide general knowledge and life experience; they may think and argue in both procedural and regulatory terms; and they may provide certain reflective external perspectives.

This kind of *thinking together* is explained by, and rests upon, the LIR framework initiated at Beham GmbH as a theoretical backbone for sustainably skilful performance. This framework provides guidance for the actions of the employees. However, although the specific direction the enterprise should take is indicated, the employees themselves are granted local autonomy to find ways of maintaining that course.

DEVELOPMENT AND CURRENT STATUS OF BEHAM GMBH

From the corporate-financial point of view, the positive effects of the re-modelling at Beham GmbH may be selectively summarized after eight years. The company turnover has increased threefold; Beham has been listed as the most successful enterprise of those in which the participating private equity-fund has ever invested (proportional to size) and the capital invested by outside parties has been superseded by internal equity capital generated over the eight years. Moreover, after the re-modelling Beham has been the recipient of several business awards, among them the international Best

Business Award for Sustainable Management, Europaregion Donau-Moldau, in 2014: the rating criteria were economic success, uniqueness, employee status, innovative power, sustainability and social responsibility.

Although space dictates that the Beham case cannot be covered in more detail, the case study may nevertheless be used to highlight that any re-modelling of an enterprise requires, *inter alia*, outstandingly open-minded attitudes on the parts of the managers and employees and an appropriate corporate culture. These are vital to the reflective transfer of the approach to other enterprises.

Reflective Conclusion: Meaning versus Routines

The central aim of this contribution has been to argue that skilful performance originates in a continuous search for meaning, as well as to provide a meta-theoretical foundation that may enhance the search for meaning as a kind of proactive reflection by organizations and within them. It indicates a means of decision support in an explanatory, rather than a merely descriptive (or even prescriptive) way. The general intentions are to facilitate understanding and improve the evolutionary processes that influence the integration of reliability in organizations.

Within the meta-theoretical LIR framework, two alternative explanations of skilful performance, and thus organizational success, have been employed and the *why* and *how* explained, the way in which H1 overrules H0. To portray the argument, a real-life case has served as a counterexample to H0.

The theoretical approach to framing skilful performance suggested here is about the identification, construction, processing and corrective application of organizational knowledge. It explicates the practical idea that *meaning is a means to come to terms with reality*. In the real-life case, at Beham, this was actualized via the establishment of a management team as an enactment of the fourth, explanatory knowledge component M within the LIR framework. However, simple enactment of the meta-theoretical reflection M is not the sole path to success. The importance of the population of M must be considered, together with the way in which it can help give or create meaning to the data, documentation and algorithms at K and to the transfer of knowledge from experience and expertise E into an episteme for decision support.

Recognizing the limits of established organizational rules or algorithms and, if applicable, overruling them, may also involve dialogue, *sensu* Bohm (1996), between experts at E and users at F, lead-

ing to enhancing knowledge F towards F^* . This dialogue can keep background knowledge H dynamic and facilitate understanding of changes in meaning and their creative, flexible and innovative influence upon problem solutions. It may also help to explain, predict and guide action in everyday organizational life, as it allows for *fixing* and establishing reference in the world in a new way.

The dynamic background of the LIR framework calls for a short summary:

1. Simply adding up the local optimization of expertise, competence, and capabilities is suboptimal to the success of the whole – here, an organization.
2. In many cases, although not all, skilful performance does not depend upon strictly or stubbornly obeying or applying *rules* but on awareness of how knowledge comes about and of the limits of the application of those rules, and thus such performance requires reflective and corrective practice.
3. Reflection upon the limits of *following a rule* might well assist understanding of the constraints and presuppositions about the world we live in and support a more ecological point of view.
4. Understanding the coming about of knowledge via LIR should help to delimit and correct the misuse of bureaucracies in organizations and support or provide freedom for innovation and creativity at all levels; further, it may prevent the digitalization and replacement of innovation and creativity by an *unreflective and mechanical use of routines*.

It may be concluded that the integration of organizational and management practices into the LIR framework can facilitate understanding and controlled reproducibility of those actions that are considered and accepted as examples of skilful performance mirrored in sustainable success, economic or otherwise.

Acknowledgements

This contribution was written at Masaryk University as part of the project Epistemology of High Reliability Organizations, number MUNI/A/1142/2014, with the support of the Specific University Research Grant, as provided by the Ministry of Education, Youth and Sports of the Czech Republic in the year 2014.

This contribution owes a great debt to Rainer Born, University of Linz and Vienna, and Christian Hochrainer, Beham Techn. Handels GmbH, Ried im Innkreis, for their guidance and support. Viktor Kulhavy, Masaryk University, Brno, edited the case study. Tony Long, Svinosice, helped work up the English.

References

- Argyris, C. 1976. 'Single-Loop and Double-Loop Models in Research on Decision Making.' *Administrative Science Quarterly* 21(3): 363–75.
- . 1977. 'Double Loop Learning in Organizations.' *Harvard Business Review* 55 (5): 115–25.
- Argyris, C., and Schon, D. A. 1974. *Theory in Practice: Increasing Professional Effectiveness*. San Francisco: Jossey-Bass.
- Attewell, P. 1990. 'What is Skill?' *Work and Occupations* 17 (4): 422–44.
- Bohm, D. 1996. *On Dialogue*. New York: Routledge.
- Born, R. P. 1982. *Sprache, Information, Wirklichkeit: Bericht über die zweite Conceptus-Arbeitstagung vom 7.-8. September 1981 in Linz (Österreich)*. Vienna: Verband der wissenschaftlichen Gesellschaften Österreichs.
- Born, R., and E. Gatarik. 2013. 'Knowledge Management and Cognitive Science: Reflecting the Limits of Decision Making.' In *Cognition and Motivation: Forging an Interdisciplinary Perspective*, ed. S. Kreitler, 321–51. Cambridge: Cambridge University Press.
- . 2014. 'Against Crowding Out the Meaning of Meaning.' In *Conceptions of Meaning*, ed. S. Kreitler and T. Urbánek, 89–112. New York: Nova Science.
- Brown, J. S., and P. Duguid. 1991. 'Organizational Learning and Communities of Practice: Toward a Unified View of Working, Learning and Innovation.' *Organizational Science* 2 (1): 40–57.
- Collins, H., and R. Evans. 2007. *Rethinking Expertise*. Chicago and London: Chicago University Press.
- Danneels, E. 2010. 'Trying to Become a Different Type of Company: Dynamic Capabilities at Smith Corona.' *Strategic Management Journal* 32 (1): 1–32.
- Dreyfus, H. L. 2005. 'Overcoming the Myth of the Mental: How Philosophers Can Profit from the Phenomenology of Everyday Expertise.' *Proceedings and Addresses of the American Philosophical Association* 79:47–65.
- Dreyfus, H. L., and S. E. Dreyfus. 1986. *Mind Over Machine: The Power of Human Intuition and Expertise in the Era of the Computer*. New York: Free Press.
- Fauré, B., and L. Rouleau. 2011. 'The Strategic Competence of Accountants and Middle Managers in Budget Making.' *Accounting, Organizations and Society* 36:167–82.
- Gatarik, E., and R. Born. In press. 'Managing Network Economies: The Competitive Advantage of Commons as Ecosystems of Innovation.' *Journal of Organizational Transformation and Social Change*.
- Gherardi, S. 2006. *Organizational Knowledge: The Texture of Workplace Learning*. Oxford: Blackwell.
- Hedstorm, P., and R. Swedberg. 1998. *Social Mechanisms: An Analytical Approach to Social Theory*. Cambridge: Cambridge University Press.

- Hess, C., and E. Ostrom. 2007. *Understanding Knowledge as a Commons*. Cambridge, MA: MIT Press.
- Ingold, T. 2000. *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*. London: Routledge.
- Kogut, B., and U. Zander. 1992. 'Knowledge of the Firm, Combinative Capabilities, and the Replication of Technology.' *Organization Science* 3 (3): 383–97.
- Mezias, J. M., and Starbuck W. H. 2003. 'Managers and Their Inaccurate Perceptions: Good, Bad or Inconsequential?' *British Journal of Management* 14 (1): 3–19.
- Mills, J. H. 2003. *Making Sense of Organizational Change*. London: Routledge.
- Mohr, L. 1982. *Explaining Organizational Behavior*. San Francisco: Jossey-Bass.
- Nicolini, D., Gherardi, S., and D. Yanow. 2003. *Knowing in Organizations: A Practice-Based Approach*. New York: Sharpe.
- Porter, M. E. 1991. 'Towards a Dynamic Theory of Strategy.' *Strategic Management Journal* 12 (s2): 95–117.
- Rouleau, L., and J. Balogun. 2011. 'Middle Managers, Strategic Sense-making, and Discursive Competence.' *Journal of Management Studies* 48 (5): 953–83.
- Sandberg, J., and P. Pinnington. 2009. 'Professional Competence as Ways of Being: An Existential Ontological Perspective.' *Journal of Management Studies* 46 (7): 1138–70.
- Sandberg, J., and A. Targama. 2007. *Managing Understanding in Organizations*. London: Sage.
- Santos, F. M., and K. M. Eisenhardt 2005. 'Organizational Boundaries and Theories of Organization.' *Organization Science* 16(5): 491–508.
- Sennett, R. 2008. *The Craftsman*. London: Yale University.
- Shotter, J., and H. Tsoukas. 2007. 'Theory As Therapy: Towards Reflective Theorizing in Organization Studies.' Paper presented at the Third Organization Studies Summer Workshop, Crete, 7–9 June.
- Taylor, F. W. 1911. *The Principles of Scientific Management*. New York: Harper.
- Tripsas, M., and G. Gavetti. 2000. 'Capabilities, Cognition and Inertia: Evidence from Digital Imaging.' *Strategic Management Journal* 21 (10–11): 1147–61.
- Tsoukas, H. 2005. *Complex Knowledge: Studies in Organizational Epistemology*. Oxford: Oxford University Press.
- . 1997. 'The Tyranny of Light: The Temptations and the Paradoxes of the Information Society.' *Futures* 29 (9): 827–43.
- Tsoukas, H., and E. Vladimirou. 2001. 'What is Organizational Knowledge?' *Journal of Management Studies* 38 (7): 973–93.
- Vogel, R. 2012. 'The Visible Colleges of Management and Organization

- Studies: A Bibliometric Analysis of Academic Journals.' *Organization Studies* 33(8): 1015–43.
- Weick, K. E. 1969. *The Social Psychology of Organizing*. Reading, MA: Addison-Wesley.
- Weick, K. E. 1995. *Sensemaking in Organizations*. Thousand Oaks, CA: Sage.
- Weick, K. E., and K. H. Roberts. 1993. 'Collective Mind in Organizations: Heedful Interrelating on Flight Decks.' *Administrative Science Quarterly* 38 (3): 357–81.
- Weick, K. E., K. M. Sutcliffe, and D. Obstfeld. 2005. 'Organizing and the Process of Sensemaking.' *Organization Science* 16 (4): 409–21.
- Winter, S. 2003. 'Mistaken Perception: Cases and Consequences.' *British Journal of Management* 14:39–45.



This paper is published under the terms of the Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0) License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).