



## COMPLEX KNOWLEDGE

'*Complex Knowledge* is a thought-provoking, insightful, and deeply engaging exploration of the nature of knowledge in and about organizations. Not only does it offer a compelling critique of contemporary ways of understanding organizational knowledge, but it articulates a powerful alternative vocabulary grounded in such notions as situated practice, enactment, mutual constitution, improvisation, temporality, and creativity. Most importantly, it forces us – as researchers and practitioners – to take seriously the inherent reflexivity of our ongoing actions in the world.'

*Wanda J. Orlikowski, Eaton-Peabody Chair of Communication Sciences and Professor of Information Technologies & Organization Studies, Massachusetts Institute of Technology*

'*Complex Knowledge* shows just how important and rich is the emerging insight that organizations are systems of knowledge. Hari Tsoukas' deep, accessible probing of ways in which organizations construct, process, and justify their knowledge is a defining moment in organizational scholarship. It vaults the idea of organizational knowing to the top of the stack of explanations that work. An extraordinary mind is at work in this marvellous volume!'

*Karl Weick, Rensis Likert Distinguished University Professor of Organizational Behavior and Psychology, University of Michigan*

'Providing a comprehensive collection of Prof. Tsoukas' work, this book is an eye-opener for anyone who studies knowledge in organizations. Prof. Tsoukas demonstrates with clarity and brilliance, that knowledge is a complex construct that gives rise to new ways of understanding the very phenomenon of organizing. Highly recommended!'

*Georg von Krogh, Professor of Management, University of St.Gallen*

'The long conceptual journey undertaken in the organizational sciences from a simple robotized view of man – a cog in a machine – to something more intelligent, more complex, and altogether more human, has been a long one. The studies described in Hari Tsoukas' exciting new book shows us that we may at last be nearing the end of the journey. The new world of organizations is one of complexity and change rather than one of order and stability – one that pays homage to Heraclitus rather than to Parmenides. In this dynamic and evolving setting knowledge is at a premium as never before. But what kind of knowledge? Tsoukas' exploration of this question leads him to link issues of organizational epistemology to the new theories of complexity. In doing so, he develops an ecological approach to the nonlinearities that characterize most of organizational life and that have been so neglected by more traditional treatments of organization. Tsoukas' book will be essential reading for those wishing to understand where the new science of organizations is heading for in the twenty-first century.'

*Max Boisot, Professor of Strategic Management, Open University of Catalunya*

'Not all of us can grasp the what and the why of the philosophical bits of the emerging knowledge management conversation – even though we know 'knowledge' is a profoundly obscure term. Hari Tsoukas is one of a small handful capable of illuminating how whatever we might mean by knowledge and its management hangs from our epistemological assumptions. The chapters in this book are clear-cut jewels, accessible and practical, grounded in deep philosophical study, and wide reading of the new literature on knowledge in organizations. We are fortunate to have Tsoukas to guide us – his incisive thinking and impish style shine brightly through the gloom and confusions of our theorizing about knowledge.'

*J. C. Spender, Visiting Professor of Management, Open University Business School, UK*

# Complex Knowledge

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Studies in Organizational  
Epistemology

Haridimos Tsoukas

OXFORD  
UNIVERSITY PRESS

**OXFORD**  
UNIVERSITY PRESS

Great Clarendon Street, Oxford OX2 6DP

Oxford University Press is a department of the University of Oxford.  
It furthers the University's objective of excellence in research, scholarship,  
and education by publishing worldwide in

Oxford New York

Auckland Cape Town Dar es Salaam Hong Kong Karachi Kuala Lumpur  
Madrid Melbourne Mexico City Nairobi New Delhi Shanghai Taipei Toronto

With offices in

Argentina Austria Brazil Chile Czech Republic France Greece  
Guatemala Hungary Italy Japan Poland Portugal  
Singapore South Korea Switzerland Thailand Turkey Ukraine Vietnam

Oxford is a registered trade mark of Oxford University Press  
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Published in the United States  
by Oxford University Press Inc., New York

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First published 2005

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British Library Cataloguing in Publication Data  
Data available

Library of Congress Cataloging in Publication Data

Tsoukas, Haridimos.

Complex knowledge : studies in organizational epistemology / Haridimos Tsoukas.  
p. cm.

Summary: "In this book Haridimos Tsoukas examines the nature of knowledge in  
organizations, and how individuals and scholars approach the concept of knowledge" –  
Provided by publisher.

ISBN 0-19-927557-2 (alk. paper) – ISBN 0-19-927558-0 (alk. paper)

1. Organizational learning. 2. Knowledge management. 3. Organizational change.  
I. Title.

HD58.82.T76 2005  
658.4'028-dc22

2004024137

ISBN 0-19-927557-2 (hbk.)  
ISBN 0-19-927558-0 (pbk.)

1 3 5 7 9 10 8 6 4 2

Typeset by Kolam Information Services Pvt. Ltd, Pondicherry, India  
Printed in Great Britain  
on acid-free paper by  
Biddles Ltd., King's Lynn, Norfolk

In memory of Tom Lupton and Stafford Beer, and for  
Alan B. Thomas and Richard Whitley, all of whom  
were my teachers at the Manchester Business  
School, University of Manchester, in the late  
1980s—Thank you, gentlemen

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# ACKNOWLEDGEMENTS

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THIS book would not have come into existence had it not been for OUP editor David Musson's support and encouragement. I cannot thank him enough. I would like to acknowledge publishers' permission to reprint or draw on papers of mine that first appeared in other sources (the original source of the papers is indicated at the start of each chapter). Thanks also to the co-authors of the jointly written papers, who gave me permission to include or draw upon material jointly published: Robert Chia, Mary Jo Hatch, Christian Knudsen, Demetrios B. Papoulias, and Efi Vladimirov. I would like to acknowledge the help of Jane Wheare, who did a splendid job in meticulously editing the manuscript and saving me some embarrassing errors. Thanks to Sophia Tzagaraki for her assistance with the preparation of the manuscript and her unfailing willingness to help, and to my wife Efi for tolerating my antisocial retreat into my cave when I needed it.

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# *Introduction: Professor Bleent, the Floon Beetle, and Organizational Epistemology*

It is the mark of an educated man to seek in each inquiry the sort of precision which the nature of the subject permits

(Aristotle, *Nicomachean Ethics*)

Science *probes*; it does not prove

(Gregory Bateson, *Mind and Nature*)

*Life* is a *process*, not a justification

(Stafford Beer, *The Heart of Enterprise*)

The *ethical* imperative: Act always so as to increase the number of choices. The *aesthetic* imperative. If you desire to see, learn how to act

(Heinz von Foerster, 'On Constructing a Reality')

[W]e are actually at the beginning of a new scientific era. We are observing the birth of a science that is no longer limited to idealized and simplified situations but reflects the complexity of the real world, a science that views us and our creativity as part of a fundamental trend present at all levels of nature

(Ilya Prigogine, *The End of Certainty*)

Our first intellectual obligation is to abandon the Myth of Stability that played so large a part in the Modern age: only thus can we heal the wounds inflicted on Reason by the seventeenth-century obsession with Rationality, and give back to Reasonableness the equal treatment of which it was for so long deprived [ . . . ] The ideals of practical thinkers are more realistic than the optimistic daydreams of simple-minded calculators, who ignore the complexities of real life, or the pessimistic nightmares of their critics, who find these complexities a source of despair

(Stephen Toulmin, *Return to Reason*)

Alongside [ . . . ] the experience of repetition, humans have a second experience, that of creativity. These two experiences are not incompatible, nor a matter of choice. We have both experiences, and both

## 2 Introduction

experiences are part of reality. Science, in its most universal form, has to be the search for 'the narrow passage' between the determined and the arbitrary

(Immanuel Wallerstein, *The End of the World as we Know It*)

THERE is a cartoon by Don Martin in Karl Weick's classic *The Social Psychology of Organizing* (1979) that I find myself often thinking about. Professor Bleent, an entomologist, sets out, along with his assistant, Miss Fonebone, to search for a rare insect, the Floon Beetle, which lives in the desert. This is a very rare insect: only one Floon Beetle lives at a time, and it comes out from the sand every 1300 years to lay just one egg! Having spotted this valuable beetle in the desert, Professor Bleent runs expectantly towards it, waving his magnifying glass, full of joy at being so unbelievably lucky as to have the chance to study this rare insect. As soon as he approaches the Floon Beetle he kneels in the sand, eyes wide open with excitement and curiosity, and puts his magnifying glass over the beetle. Alas, as soon as he starts examining it with his magnifying glass, under the scorching desert sun, the Floon Beetle is burnt. Professor Bleent's investigation has come to a sad end. His very object of study, the extremely rare Floon Beetle, disappears with a sizzling sound. The method of his investigation destroyed what he had long been looking forward to studying with such enthusiasm.

This is an insightful cartoon. Weick (1979: 27–9) refers to it to argue that it helps to 'know what you are doing'. He makes this point in the context of his critique of those obsessive quantitative investigators who, being so fixated on counting, are determined to get the organization into a countable form and, consequently, strip it 'of what made it worth counting in the first place' (ibid. 29). The broader issue, I think, is the extent to which our forms of knowledge and methods of investigation respect the complexity of the phenomenon at hand (Wallerstein 1999: chs. 10, 14). To put it differently, what are the forms of understanding and modes of knowing that will do justice to the object of study? How can organizational researchers avoid ending up in the position of Professor Bleent, whereby they oversimplify, caricature, and even destroy the phenomena they wish to know about? How can researchers' and practitioners' thinking *ac-knowledge* the complexity of a phenomenon without being paralysed by it? What are the complex forms of thinking and acting in organizations?

These epistemological questions have always been important, in one way or another, in organization and management studies (and the policy sciences at large), but they are particularly so today since, thanks to a number of technological, economic, and cultural changes in the last couple of decades, the idea that organizations can be usefully seen as *knowledge systems* has gained credence (Boisot 1998; Choo and Bontis 2002; Easterby-Smith and Lyles 2003;

Grant and Spender 1996; Newell et al. 2002; Tsoukas and Mylonopoulos 2004a). It is not only organizational and management researchers who, as professional enquirers, are concerned with knowledge, but organizational members too, at least if we take a knowledge-based view of organizations. Epistemology is the domain of all those concerned with knowledge, in all its forms.

Viewing organizations as systems of knowledge highlights the crucial role of human interpretation, communication, and skills in generating effective organizational action. Moreover, it enables us to move beyond the individual to explore the broader social basis—the social practices, forms of interaction, values, routines, power structures, and the organization of work—upon which individual knowledge and action in organizations draw. Seen from a knowledge-based perspective, the locus of individual understanding is not so much in the head as in *situated practice*. Accordingly, such a view opens up possibilities to explore how individuals, in concrete contexts of work, make use of tools, communicate with others in authoritative systems of coordination, and draw on institutionalized beliefs and cognitive schemata to carry out their tasks.

From a knowledge-based perspective, questions of epistemology—What is knowledge, how can it be obtained, and how can knowledge claims be justified?—are no longer the prerogative of philosophers and social scientists alone but of organizations too. If we see epistemology in Bateson's sense (1979: 246), namely as a branch of science concerned with 'the study of how particular organisms or aggregates of organisms *know, think, and decide*' (emphasis in the original), it makes good sense to want to study how organizations construct, process, and justify knowledge (Churchman 1971; Daft and Weick 1984; Krogh and Roos 1995; Mitroff 1990). An enquiry into organizational epistemology would be concerned, *inter alia*, with the following questions: What is organizational knowledge and what forms does it take? What are the forms of life within which different kinds of knowledge are embedded? How is new knowledge created? How do individuals draw on different forms of organizational knowledge, with what effects? What are the representational and social practices through which organizations construct and communicate their forms of knowledge? How are knowledge claims justified and legitimated within organizations?

An enquiry into organizational epistemology would, however, be incomplete without looking at organizations not only as users of knowledge but also as makers of knowledge claims put forward in the public arena. While it is important that we look at organizations from 'within' to examine how they construct different forms of knowledge and how they draw on them, with what effects (Tsoukas and Mylonopoulos 2004b), it is also important to look at organizations from 'outside' to explore how the knowledge claims they make are justified to external audiences, with what effects. This is especially important in the 'semiotic' (or 'digital') economy (Brynjolfsson and Kahin 2000; Lash

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and Urry 1994) and the 'risk' and 'network' society (Beck 1992; Castells 1996), since, in such a sign-rich, high-connectivity environment, organizations not only produce knowledge-intensive products and services, or draw on sophisticated forms of knowledge and expertise along their value chain, but put forward explicitly knowledge claims for public adoption. A company, for example, that claims its products or waste do no harm to the environment or, even stronger, that its products conform to certain standards of excellence, values, and ethical work practices, or that its policies are informed by certain conceptions of human rights and the common good is in the business of, among other things, putting forward certain knowledge claims, which, like all knowledge claims, invite further questions of justifiability. How are organizational knowledge claims justified to outside stakeholders? What conceptions of the public good do they assume? How are they rhetorically articulated and organizationally supported? How are competing organizational knowledge claims decided upon?

Epistemological questions may not always have as dramatic a quality as in the case of Professor Bleent's expedition, but they certainly involve questions related to requisite variety: Are our methods of knowing adequate for the task at hand? This applies both to practitioners and organizational researchers. Epistemological questions are not only social-scientific ones—namely, how organizations use, create, and justify knowledge—but also philosophical: whether methods of knowing employed by organizational members and organizational researchers are good enough. From a knowledge-based perspective, a focus on organizational knowledge is a focus on two levels: on the one hand, how practitioners in organizations use forms of knowledge to carry out their tasks and, on the other, how individuals, be they practitioners or researchers, think about organizational phenomena. At the first level the main question is: How do individuals in organizations know and act? At the second level—the meta-level—the main question is: How do individuals know what they know? How do researchers know what they know?

For Bateson, epistemology is not only a branch of science but also a branch of philosophy. 'As philosophy', says Bateson 'epistemology is the study of the necessary limits and other characteristics of the processes of knowing, thinking, and deciding' (1979: 246). As the study of necessary limits, epistemology involves exploring the limits to dominant forms of knowing—those forms I call, in several places in the book, 'representational' or 'intellectualist'—and how such limits might be overcome. Hence my concern here with investigating what may be called 'complex' forms of knowing.

An object of study is complex when it is capable of surprising an observer, and its behaviour cannot be reduced to the behaviour of its constituent parts (Axelrod and Cohen 2000; Stacey 1996; Taylor 2001). Complex social systems require complex forms of knowing; namely, forms of understanding that are sensitive to context, time, change, events, beliefs and desires, power, feedback loops, and circularity (Tsoukas 1994). Complex understanding is grounded on

an open-world (as opposed to a closed-world) ontology, an enactivist (as opposed to representational) epistemology, and a poetic<sup>1</sup> (as opposed to instrumental) praxeology. A complex form of understanding sees the world as being full of possibilities, which are enacted by purposeful agents embedded in power-full social practices. As Winograd and Flores (1987: 33) point out, aptly summarizing the Heideggerian perspective, 'a person is not an individual subject or ego, but a manifestation of *Dasein* within a space of possibilities, situated within a world and within a tradition' (see also Spinoza, Flores, and Dreyfus 1997).

An open-world ontology assumes that the world is always in a process of becoming, of turning into something different. Flow, flux, and change are the fundamental processes of the world. The future is open, unknowable in principle, and it always holds the possibility of surprise. An enactivist epistemology assumes that knowing is action. We bring the world forward by making distinctions and giving form to an unarticulated background of understanding. Knowledge is the outcome of an active knower who has a certain biological structure, follows certain historically shaped cognitive practices, and is rooted within a consensual domain and sociocultural practice. A poetic praxeology sees the practitioner as an active being who, while inevitably shaped by the sociocultural practices in which he/she is rooted, necessarily shapes them in turn by undertaking action that is relatively opaque in its consequences and unclear in its motives and desires, unreflective and situated in its mode of operation, but inherently capable of self-observation and reflexivity, thus susceptible to chronic change. According to this view, a human agent is similar to a poet, who gives distinctive form to linguistic raw materials in often unexpected ways, but under the influence of past genres and current literary norms and the *Zeitgeist*, without being fully conscious of the process of creation and without controlling how his/her work will be interpreted by others and incorporated into further cycles of poetic creation and language change. A poetic praxeology acknowledges the complicated motives of human action, makes room for the influence of the past and its transmutation into new forms in the present, understands the relatively opaque nature of human intentionality, allows for chance events, influences, and feedback loops, and accepts the inescapable contextuality and temporality of all human action.

The studies published in this book focus on knowledge in Bateson's double sense of epistemology: as social-scientific explorations they address questions of how knowledge is used in and by organizations, and as meta-theoretical enquiries they address questions of how practitioners and researchers know what they know and how they may attain complex forms of understanding. The first sense is epistemology as a social-scientific enquiry, while the latter is epistemology as a philosophical enquiry.

What I find so attractive in the knowledge-based view of organizations is that it enables researchers to raise important questions related to knowledge in

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precisely the double sense mentioned above. The benefit is that, by so doing, researchers can show the recursive loop between ways of knowing and knowledge produced—epistemology-as-a-branch-philosophy is connected with epistemology-as-a-science. Moreover, practitioners' use of organizational knowledge can be recursively connected with researchers' modes of knowing. If practitioners are to cope with organizational complexity—how people in organizations interactively know, think, act, create, and change—they must be prepared to complexify their modes of enquiry (that is, complexify organizational epistemology). And if researchers are to acknowledge the complexity of organizational epistemology, they must try to complexify their formal theoretical explorations too. *What* we know and *how* we know are recursively linked. Researchers will not be able to understand and theorize how effective and creative action in organizations arises unless they obtain a nuanced understanding of organizational knowledge. And vice versa: a subtle understanding of organizational knowledge is possible if an open-world ontology, an enactivist epistemology, and a poetic praxeology are adopted. Like the Floon Beetle, the study of how practitioners know, think, and act requires a non-traditional mode of enquiry that embraces creative human agency, and acknowledges its inevitable historicity and its fundamental embeddedness in social practices.

Although the studies published here were written as independent papers, published in journals, as chapters in books, or conference presentations, there are recurring themes throughout them. These are: creative action, incessant change, process, novelty, the complexity of organizational life, the unknowability of the future, complex management, requisite variety, theory development in organization and management studies, complex forms of understanding and theorizing, *phronesis* and practical reason, and the relationship between thinking and acting, theory and practice, reason and praxis in organizations and in organizational research. If you see more than a fair share of references to Bergson, Dewey, Gadamer, Heidegger, James, Lakoff, MacIntyre, Polanyi, Toulmin, Taylor, Rorty, Whitehead, and Wittgenstein, it is because I find the work of these philosophers not only useful but highly inspiring. In pointing out the limits of Cartesian reason, they have helped us obtain, each in his own way, a more reasonable view of reason—reason as *orthos logos*—a view that avoids hubris, is aware of the inescapably social as well as embodied basis of all knowing, is reflexive, accepts agency and novelty, and takes account of the arrow of time.

If you see several references to the work of Bateson, Beer, Foerster, Maturana, and Varela, that is not only because these cyberneticians have provided a holistic account of human knowledge that resonates with interpretativism, but also because, in their search for wisdom, they have endowed us with an ecological understanding of the world. I am neither a philosopher nor a cybernetician but ever since I had the good fortune, at the Manchester Business School, to have Richard Whitley teach me epistemology, Alan B. Thomas

methodology of social-scientific research, Stafford Beer cybernetics, and Tom Lupton socio-technical systems, I can't help thinking about organizations (and social life in general) in philosophical and cybernetic terms.

And if you find Konl Weick popping up on nearly every other page of this book, that is because I regard Weick's work as the epitome of thoughtful scholarship in organization studies, an enviable pursuit of creative explorations into organizations broad-mindedly informed by American pragmatists, European phenomenologists, social and cognitive psychologists, sociological constructivists, and systemic and evolutionary thinkers. It is the ecological, interpretive, process-driven orientation to organizations and organizational research that I find so stimulating in Weick's work and, in so far as I could, I have tried to incorporate it in my own work.

What Toulmin (1990: 193–4) has aptly called the 'ecological style' of thinking is how I would describe the underlying concern of the studies included in this book, and how I would invite readers to judge them. The ecological style seeks to embrace complexity rather than reduce it; it is sensitive to process, context, and time; makes links between abstract analysis and lived experience; is aware of the reality-constituting role of language; accepts chance, feedback loops, and human agency as fundamental features of social life; outlines the social basis of all human knowing and thinking, and the constructed character of knowledge; and highlights the inherently creative nature of human action. In pursuing an ecological style of thinking I have drawn eclectically on strands of ethnomethodology and sociological analyses of modernity, discursive psychology, Austrian economics, post-rationalist and process philosophy, and organizational ethnography. Although I find the pursuit of an ecological understanding of organizational and social behaviour exhilarating, it is for the reader to judge how well this eclectic mix hangs together.

Since this is a collection of papers, most of which were originally published in other sources,<sup>2</sup> there is inevitably some redundancy and several overlaps, although I would like to think this is not necessarily a bad thing, provided new insights are obtained. The extent to which this is the case is, of course, for others to judge. As far as I am concerned, I am not building a theoretical system in this book—I never consciously embarked on such a project in the first place. In retrospect, I realize that what I have spent time doing in the last ten years is to have explored a number of the above-mentioned themes, and now, looking back, I am noticing, and drawing readers' attention to, what has been my main preoccupation all along—complex knowledge.

Part I, 'Towards a Knowledge-based View of Organizations and their Environments', focuses on understanding the different forms of organizational knowledge and the forms of life within which they are embedded, the nature of tacit knowledge, the limitations of a purely information-based understanding of knowledge, and the implications for organizations if the latter are seen as makers of knowledge claims put forward for public adoption. In this part,