UNIVERSITEIT
AMSTERDAM

VU Research Portal

Handbook of Organizational learning and Knowledge [Review of: M. Easterby-smith, M.A. Lyles (2004) Handbook of Organizational learning and Knowledge]

Huysman, M.H.

Link to publication in VU Research Portal

Organization Studies

Book Reviews

Jill Shepherd, Peter van Baalen, Marleen Huysman, Emmanuel Josserand and Filippo Carlo Wezel

The online version of this article can be found at:

Published by:

SAGE

http://www.sagepublications.com

On behalf of:

European Group for Organizational Studies

Additional services and information for *Organization Studies* can be found at:

Email Alerts: http://oss.sagepub.com/cgi/alerts

Subscriptions: http://oss.sagepub.com/subscriptions

Reprints: http://www.sagepub.com/journalsReprints.nav

Permissions: http://www.sagepub.co.uk/journalsPermissions.nav

Citations http://oss.sagepub.com/cgi/content/refs/25/3/481

Book Reviews

In this issue two contrasting books on knowledge are reviewed. The first is a comprehensive, edited handbook, *Organizational Learning and Knowledge Management*, whereas the second is a detailed account of a particular piece of research focusing on *Organizational Knowledge in the Making*. Both books are given positive reviews, yet neither makes dealing with such a difficult concept easy. Knowledge is arguably one of the most complex concepts, is used in everyday managerial language and is part of what can also be argued to be a managerial fashion, Knowledge Management. The complexity of the concept and its parlance in management circles makes knowledge a valid and interesting subject of research. Combined, the books review the field, while also suggesting where it might go from here.

Jill Shepherd, Reviews Editor

Mark Easterby-Smith and Marjorie A. Lyles (eds): The Blackwell Handbook of Organizational Learning and Knowledge Management

2003, Oxford: Blackwell. 676 pages

Peter van Baalen
Erasmus University
Rotterdam, The
Netherlands

Marleen Huysman
Vrije Universiteit
Amsterdam, The
Netherlands

The publication of the *Handbook of Organizational Learning and Knowledge Management* defines an important step in the professionalization of two rather young management disciplines. The collection of 32 papers in this handbook reflects upon the things that have been achieved, while carefully attempting also to stretch the scope and deepen the subject areas. This is no easy task to accomplish. Organizational Learning (OL) and Knowledge Management (KM) are both emerging and ambiguous fields of practice and theory. As the editors of this voluminous handbook point out, the fields have developed quickly over the last decade and have demonstrated increasing diversity and specialization. The editors wanted a handbook that would cover the full range of literature on OL and KM.

According to Karl Weick in his foreword, the strength of the volume lies in the fact that the contributors explicitly stand on the shoulders of giants. They even step down from their shoulders and, without stamping on the faces of those giants, reconstruct their chosen points and move forward in (slightly) different ways. In this sense, the handbook serves as a boundary object between the past and future of scholarly work in OL and KM and enacts a community of practice. This is clearly an important strength of the handbook. It is a source book which covers the most important research issues in the

fields of OL and KM. Instead of republishing the classics, the editors decided to collect papers providing descriptions of particular subfields by focusing on current debates, developments of prior work and future directions. The result is a handbook covering discussions of topics related to OL and KM such as absorptive capacity, stickiness, tacit knowledge, social learning, IT and KM, communities, networks, social identity, emotions, MSN learning, learning across borders, learning as a fashion, and dynamic capabilities. Most papers in the handbook are conceptual and of high quality, in the sense that they succinctly and critically reflect on the origins of particular theoretical concepts within the OL or KM fields, and in the way current and future research issues are discussed.

An important question is, of course: is the handbook more than just a source book of insightful and reflective papers? Does it provide a coherent and insightful picture of the directions in which research in KM and OL is moving? In the opening chapter, the editors provide two classification schemes: one developmental, the other structural. The developmental classification consists of a distinction between classic works, foundational works and popularizing works. On the basis of this classification the editors successfully present an overview of the historical development of the subject areas. This distinction provides students in OL and KM with a sense of history, preventing them from jumping onto the bandwagons of hype too easily.

Apart from this developmental classification, the editors also propose a structural classification based on two dichotomies: process versus content and theory versus practice. This exercise results in a two-by-two framework, which divides the knowledge and learning subject areas into four subfields: organizational learning (OL) (process and theory), learning organization (LO) (process and practice), organizational knowledge (OK) (theory and content), and knowledge management (KM) (practice and content). This framework serves as a comprehensive structure for the papers in Part II and in Part III. Papers in Part II address several issues in the fields of OL and LO, whereas Part III contains OK and KM papers. Part I is dedicated to disciplinary perspectives on OL and KM; Part IV is called 'Problematizing Organizational Learning and Knowledge'. We briefly discuss the papers in the four parts of the handbook and follow up with some concluding remarks.

Part I

It is clear that OL and KM have different disciplinary origins and maintain disciplinary orientations. Part I of the handbook comprises papers that take disciplinary perspectives on knowledge and learning issues. DeFillippi and Ornstein, starting from a psychological perspective, observe that psychological theory perspectives are incorporated by OL theories more as background assumptions than as systematic underpinnings for their theories. In a critical paper, Elkjaer compares individual learning theories with social learning theories, arguing that the main difference is that the latter, influenced by American pragmatism, encompass both an epistemology and ontology of

learning while the former deal only with epistemology. Elkjaer is in fact pointing to the most critical issue in OL and KM: how should we conceptualize and operationalize knowledge? This critical theme recurs in the paper of Hayes and Walsham, where they discuss the role of ICTs in knowledge sharing. They criticize the dominant content view in KM literature and practice. In this content view, knowledge is treated as a largely cerebral and tradable entity, which can easily be captured, processed and shared by ICTs. The authors take an alternative, relational perspective in which knowledge is conceived as being relative, provisional, and primarily context-bound. Instead of viewing ICTs merely as enablers, as is usually the case in content view approaches, in the relational perspective the focus is on the implications these new technologies have for work practices, roles and skills, and the interaction between groups of professionals within the organization. In their paper on the information technology dimension of KM, Alavi and Tiwana systematically discuss the key KM processes and some critical KM applications (e-learning, knowledge repositories, communication support systems, and expert systems). The interesting aspect of this paper is that the authors found that the ICT dimension of KM is, as yet, understudied.

According to Foss and Mahnke, KM lacks a disciplinary foundation. The underpinnings are a mixed bag, ranging from eastern philosophical traditions to ideas of organizational behaviour and notions taken from information science. The authors argue that if KM is to contribute to competitive advantage, rather than sliding down the slope of hype, it needs to embrace the discipline of organizational economics. The costs and benefits of KM activities should be taken into account in order to assess the contribution of those activities to the competitive advantage of the organization. The critical proposition of Foss and Mahnke is very challenging, reminding scholars and practitioners in the fields of OL and KM to take the economic, competitive context of organizations into account.

In the last chapter Vera and Crossan courageously propose an integrative framework for studying KM and OL. The objective of this paper is to reduce the conceptual confusion in and between the two fields and to provide researchers with a framework as an instrument to facilitate communication.

Part II

This part of the book covers seven chapters, all of which discuss a particular aspect of organizational learning and the learning organization. Not all chapters discuss both images of learning, although the first half of Part II covers some interesting attempts. For example, DiBella introduces the concept of learning portfolios or the different learning styles organizations engage in. By doing so, he brings the concept of OL closer to that of 'the learning organization'. Plaskoff offers the view of a community as a component of the OL toolkit which can also be considered as the link between LO and OL. As a practitioner at Eli Lilly & Co., he gives an account of his experiences in building communities and in particular with creating shared understanding

or intersubjectivity. Another important condition for OL is the degree of psychological safety. Edmondson has in the past insightfully demonstrated how psychological safety influences team learning. In this handbook she (together with Williams Woolley) discusses its influence on OL interventions. Their case study forms an exemplar for doing case study research.

The second half of Part II covers chapters that focus on learning between organizations or at least between organizational units, which the authors label as 'global organizational learning', 'MSM learning', 'collaborative learning', 'cross border learning' or 'interfirm learning'. Taylor and Osland look at 'global organizational learning' from an intercultural communication perspective and point at the problems related to intercultural barriers to communicate and learn. Their perspective on learning relates to the communication/conduit metaphor of learning in which learning can be seen from a sender–receiver approach (in line with the work of Daft and Huber 1987, for example): learning as a message transmission and interpretation process. Makino and Inkpen look at cross border learning from the viewpoint of foreign direct investment (FDI), showing the complexity of learning when situated in an ecology of learners. In the chapter that follows, Salk and Simonin provide an encompassing and very rich meta-framework, which helps to position one's own and other research in the field of learning and alliances. Another recurring theme within the literature of 'cross border learning' is 'absorptive capacity' which, as the editors observe in the concluding chapter, might become less popular in the future. The popularity of the topic is illustrated by the fact that the seminal work of Cohen and Levinthal on this topic is cited in nearly half of the chapters of this book. It is a topic of which the origins and dynamics are still not well understood. The review article by Van den Bosch and his colleagues is therefore an essential chapter in the handbook.

Part III

According to Nonaka, theories of organizational learning do not address the critical notion of externalization, which refers to the process of conversion from tacit to explicit knowledge. This might be why KM became so popular and even cannibalized the popularity of LO and KM in recent years (Scarbrough and Swan 2001). Most KM theories suggest that knowledge can be managed separately from the owner of that same knowledge. Most papers in Part III nuance this notion carefully by acknowledging the complex and intricate nature of tacit knowledge.

Chakravarthy, McEvily, Doz and Rau point out that not knowledge *per se* but knowledge management is at the source of a firm's competitive advantage (accumulation, protection and leverage). Their main argument is that competitive advantage can be achieved by carefully managing the (tacit) knowledge base (by protecting) and by accumulating and leveraging new knowledge.

Knowledge conversion processes are not value free. They are directed and influenced by people who are engaged in those processes. Bettis and Wong

focus on the relationships between dominant logics in top management teams, learning and core competences. Gaining insights in those relationships might help to gain insights into the *Realpolitik* of KM practices.

Building on the knowledge-based view of the firm, Almeida, Phene and Grant attempt to relate KM processes (search for external knowledge, sourcing and transfer of knowledge, and integrating knowledge) to firm-specific capabilities. It is argued that future research should be directed towards the design and performance of KM practices in innovation processes.

The concept of OL suggests the accumulation and storage of new knowledge in an organizational memory. De Holan and Philips direct their attention to the opposite process: organizational forgetting, the process by which organizations forget what they want to forget, and avoid what they do not want to forget. This process is, as the authors point out, at least as important as the process by which organizations acquire new knowledge.

Calhoun and Starbuck present a similar argument when they discuss barriers to creating knowledge. In contrast to what is generally believed, they claim, knowledge creation can block discovery, as it suffers from many dysfunctions. As the authors argue, knowledge can only exist where there is consensus. This consensus makes it difficult for new knowledge to develop and to find its way to innovation projects.

Many problems may arise in the process of transferring organizational knowledge. Bartel and Garud introduce the concept of 'adaptive abduction' to describe how individuals generate and apply knowledge and action from narratives. These narratives can serve as boundary objects that can act as common information spaces, which facilitate interaction and coordination without consensus or shared goals.

Von Krogh's contribution concerns an intriguing KM processes: knowledge sharing. One of the most important prerequisites for this highly complex KM process, Von Krogh proposes, is intrinsic motivation. The second issue Von Krogh discusses is how opportunity structures (e.g. communities) and social norms of care and authenticity positively influence knowledge sharing.

The community is just one kind of opportunity structure. Networks and markets are other forms that are discussed in Part III. Van Wijk reviews the literature on knowledge and networks, focusing on how these networks facilitate the management and organization of knowledge. He discusses three types of networks: social networks, internal networks, and external networks. Cross and Prusak view organizations as knowledge markets. They discuss how market mechanisms can be applied to this new type of market. It is an interesting perspective as it moves away from KM initiatives in traditional organizational structures with traditional incentive structures.

Having discussed all kinds of KM processes and organizational forms, the ultimate question is still: what is (tacit) knowledge? Tsoukas vehemently criticizes management studies that treat tacit knowledge as 'knowledge-not-yet-articulated', knowledge awaiting 'translation' or 'conversion'. The author is very clear: these studies ignore the ineffability of tacit knowledge and are thus reducing it to what can be articulated. Tacit knowledge can only be displayed and manifested in what we do.

Part IV

A book on OL and KM cannot cover so many popular topics without a critical reflection on the production and consumption of these same topics. Scarbrough and Swan discuss KM and LO discourses from the perspective of management fashion and analyse fashion queens and victims within the four areas of OL, LO, OK and KM. At the end of the book, the editors state that 'the major future trends seem to be an increasing emphasis on social capital, cognitive approaches, networks and communities'. It would thus be very interesting if the authors could continue their research and study these latest concepts on fashions.

Apart from this first chapter in Part IV, it is rather unclear why the rest have been positioned in the 'problematizing' part of the book (although each chapter discusses a relevant topic and does need to be included somewhere).

Like the topic 'absorptive capacity', discussed in Part II, 'stickiness of knowledge' is a recurrent theme in the OL and KM literature. Szulanski and Cappetta offer an excellent review of the writing on this topic as well as its future. Another interesting topic is the concept of social identity in relation to learning, a subject to which this book devotes two chapters. Child and Rodrigues limit their discussion to occupational and national identities, while Corley and Gioia focus on identity from the perspective of semantic learning or learning based in meanings. As is the case with identity, learning related to emotions seems to be an emerging field of research in the area of KM and OL. For example, at the 5th international conference on OLK, Lancaster, June 2003, participants were asked what important issues were still being ignored by OL and KM authors, and many replied 'emotions'. In this handbook, Fineman sees emotions as both the core of learning and its product. His thoughts on consequences for new organizational forms, such as the virtual organization, are also interesting. In the chapter on learning from experiences, Child and his colleagues draw on three case studies on learning from experience in nuclear power plants and chemical plants to illustrate these problematic aspects of learning. Based on these insights, the authors introduce a stage model within a two-by-two matrix. Zollo and Winter focus on learning from an evolutionary point of view. Whereas Child's model contributes to the LO literature, this evolutionary model clearly stands on the shoulders of those authors, James March in particular, who perceive learning as an adaptive, problematic and evolutionary process. It was a good decision of the editors to republish this article. The godfathers of the OL and their offspring still have important things to say about the learning capabilities of organizations.

There is no doubt that this handbook offers a rich picture of the state of the art in the fields of OL and KM. There is much commonality in concepts and terms, and there are many cross-references in the papers. However, to some extent this rich picture is disappointing. Almost every chapter comes up with a new definition of knowledge and/or learning, each chapter distinguishes its own knowledge and learning processes, each chapter uses its own indicators and measures, and no chapter refers to other chapters in the book. How can

we assess, given this expanding diversity and fragmentation, the cumulative contribution to theories on OL and KM over time? The editors' attempt to bring some order to this increasing diversity by introducing the two-by-two framework is appealing, but is to a certain extent concealing the theoretical and practical complexities in the four subfields. There are only a few papers in the handbook that fit perfectly into one of the four quadrants of the framework. If there is any management discipline that should be very cautious with, and stay aloof from, working with those dichotomies it should be OL and KM. The framework is imposed, enforcing cleavages in the multi-faceted nature of knowledge and learning, giving way to incommensurability in the subject areas. The editors themselves acknowledge this weakness of the framework in the opening chapter: 'we hope that those who get to the end of the book will become very clear about the inadequacies of such dichotomies!' The handbook shows perfectly what has been achieved in the field of KM and OL, but also clearly demonstrates the gaps in our research and the need to start a dialogue, to fight and unite, to build bridges between old and emerging management disciplines.

References

Daft, R. L., and G. P. Huber
1987   'How organizations learn: A communication process' in *Research in the sociology of organizations*, 1–36. Greenwich, CT: JAI Press.

Scarbrough, H., and J. Swan
2001   'Explaining the diffusion of knowledge management: The role of fashion'. *British Journal of Management* 12/1: 3–12.

Gerardo Patriotta: Organizational Knowledge in the Making: How Firms Create, Use and Institutionalize Knowledge

2003, Oxford: Oxford University Press. 232 pages

Emmanuel Josserand
CREPA, Université Paris-Dauphine, France

Knowledge management, an enduring fad. Enduring because it is everything but a fad, that is if we adopt a sound perspective; often designed as a fad because of the wave of utopian technical developments it led to. If the attraction for knowledge and learning as a key research and managerial concern has resisted the impressive number of failures due to the hasty development of useless 'information junkyards', it is certainly because most of the questions about knowledge are still to be answered. When one asserts that knowledge is the key resource to organizational performance or even that knowledge management implies a change in behaviour, one only writes the first line of an agenda for research on more fundamental questions such as: what is knowledge? What is its place within the organizing phenomenon?

Patriotta's book is certainly of the enduring kind; it offers us some brilliant developments that really start to address the fundamental question of knowing in the dynamic of organizing, of 'organizational knowledge in the making'. Grounded in an insightful analysis of the literature and the development of original methodological tools, the research analyses the process of knowing within two different plants of Fiat Auto.

The first part of the book describes the research question, reviews the literature and describes the epistemological stand and methodological lenses. The introduction sets the research agenda by underlining the inconsistency of the mainstream concepualization of manageable knowledge: its tendency to reify knowledge, the difficulties in measuring quantitatively the linkage between knowledge and performance, its de-contextualized objectivist perception of knowledge and its reliance on static epistemologies. In breaking free from this approach, Patriotta's book focuses on 'knowing in the context of organizing' (p. 10). A general presentation of the context, the automobile industry in Italy, is followed by a useful overview of the book and its content.

We enter the core of the subject with a thorough and illuminating review of the literature (Chapter 2). Patriotta exposes, and then critically analyses, the contribution of four major currents: the cognitive approach and its articulation with sense-making activities, the knowledge-based view of the firm, the situated approach linked to practice, and the techno-science approach, especially actor-network theory. We immediately understand that Patriotta is at no risk of being trapped in an objectivist, commodity, a-contextual or structural individualist conception of knowledge. Sometimes he is even somewhat carried away by the rhetoric of his critical remarks. He is especially severe about the risk of functionalism within the resource-based view of the firm and its description of the cognitive approach as restrictive. I regretted the absence of debates on learning following, among others, the contribution of Piaget (1954) and the constructivists, those of the socio-constructivists or Varela's en-action perspective. Nevertheless, the result is a message of reconciliation and a wish to adopt a balanced approach to knowledge, building on the complementarities of the four theoretical currents. My interpretation, though, is that Patriotta deliberately selected three approaches: 'Weickian' sense-making, situated perspective, and actor-network theory. This choice is completely justified considering his purpose of investigating knowing as a situated relational process.

Chapter 3 describes the general research approach and design. Acting as an anthropologist, the author proposes to give us a phenomenological perspective on knowledge by providing us with 'thick' descriptions extracted from the field. Nevertheless, in order to overcome the lack of structure of the anthropologist's approach, Patriotta utilizes three methodological 'lenses'. These lenses are conceived to capture the tacit or 'background' dimension of knowledge by offering a focus on discontinuities on the ordinary use of tacit knowledge. The first case is studied through the observation of change in time during the building of the Melfi factory. The second lens is the study of breakdowns, discontinuities in action, which reveals more institutionalized knowledge after Melfi has been running at full capacity. The third lens, the

collection of narratives used by actors to make sense of disruptive occurrences on the shop floor, helps to grasp institutionalized background knowledge in a more classic factory. Even though the presentation of the research design is very clear at this stage, I regret that Patriotta does not give us more information about the way these lenses are operationalized on the breadth of data collection. I would have liked to know more about how much time was spent in the field for the three cases and also about the kind of access and status he had during this period. That said, clues suggest the conditions for data collection were rather liberal.

The second section of the book presents, in more detail, the context of the study (Chapter 4), the first and second case studies at Melfi (Chapters 5 and 6) and the third case study at Mirafiori (Chapter 7).

The first case study tells us the saga of the conception of the revolutionary Melfi factory. *Tabula rasa* is the principle for this greenfield plant: the personnel are new to the sector, the location has no pre-existing industrial history and the new principles of lean production are applied. More striking is the fact that the future personnel are in charge of building their own factory. The transition is natural from conception towards exploitation. At an intermediary stage, the workers start to assemble and disassemble cars, a process courtesy of which they gain both practical knowledge and a systemic representation of the processes. This first case study is an astonishing reminder of the importance of the appropriation of knowledge, a result which learning by doing is more likely to achieve. The factory thus becomes a collective good and the cornerstone of collective identity.

Chapter 6 presents a 'second' case, or rather the follow-up to the Melfi saga, specifically its evolution towards full production capacity. A follow-up, because the 'green' approach, partly self-organized, is clearly one of the roots of the very specific way knowing occurs in the factory. Through the observation of actors' reactions when breakdowns and bottlenecks disrupt the smooth functioning of the automated assembly line, Patriotta is able to describe the capacity of the actors to focus on the task rather than on the production line. When the mental reconstruction/deconstruction of the car being assembled is not enough to explain the practical difficulties encountered, the actors rely on the physical disassembling of the defective car in order to find the cause.

The third case describes problem-solving activities at Mirafiori. Patriotta uses the metaphor of a detective story to account for the process by which actors trace the origin of a disturbance in the production system. The particularity of the detective story is that it procures closure by providing a culprit. Learning thus occurs through a precise and meticulous sense-making activity. Patriotta also describes narratives that circulate on the shop floor and represent key elements of identification for the workers. Even though both elements are linked to identity, the role played by narratives in learning might have been more clearly established by the quotations of the actors.

The three case studies form a very rich set which leads to interesting insights, but, once again, I felt somewhat frustrated because the theoretical insights do not flow naturally from the quotations and narrations of the

workers in their knowing activities. For instance, we have to trust Patriotta on the fact that:

'the D/A [Disassembly/Assembly] template provides a sort of "skill without a place" that can be applied to almost any problem arising on the shop floor. The detective story's template, on the other hand, incarnates a way of capturing knowledge in a narrative form, stressing the role of the human element and of experience.' (p. 165)

The stories chosen in the Mirafiori case do not show this lack of abstraction and generalization. In the same vein, it is hard to figure out the quintessential difference between the processes of physically disassembling a car at Melfi and that of systematically collecting evidence at Mirafiori. The result would have been more striking and convincing if we had been led to the conclusion through the quotes or stories of the actors. In my opinion, the true protagonist could have been more present in the story.

Another concern is the idea of a selective anthropologist. I think that the three lenses developed by Patriotta are very appropriate for capturing knowing as a process. When I started to read the third chapter, I was thrilled by the amazing potential of such a set of tools used together for the same case. The choice to restrain the study of a case to the use of a single lens and subsequently to observe only one level of institutionalization of knowledge in each case, introduces a form of epistemological hiatus in the research design. How can an anthropologist restrain his or her scope of observation in such a drastic manner? Some of the evidence presented in the case studies tends to show that this is not what really happened. The observations of problem-solving and detective stories at Mirafiori seem to correspond to discontinuities in action, the foundation of the theoretical lens that the author claimed he used for Melfi. Reciprocally, the saga of Melfi as it is presented in the second case study definitely generates narratives, a theoretical lens that was normally only used at Mirafiori. There might thus be some form of managerial syndrome in the way the data are reported. This does not undermine the validity of the results, but I think it prevents the author from exploiting completely the potential of the case studies. It leads him to overlook the constant questioning of the degree of institutionalization of knowledge by the reality of the organization. Another consequence of this tendency to rationalize is the risk of decontextualization of the results. There is indeed an interplay of two major differences in the context of the cases studied that could have been explored: first, Melfi is postmodern, Mirafiori is modern; second, Melfi is an assembly line, Mirafiori a stamping plant. I would have liked to see the interrelations between these two elements discussed further in order to provide a more contextualized reading of the results.

This ambiguity can also be found in the concluding section (Chapter 8), where the very simple concluding conceptual framework does not do justice to the richness and depth of the analysis. A more thorough discussion of the articulation between various organizational levels, individual, unit, organization, might have been very useful at that stage. Patriotta adopts a point of view that could have been enriched by simply building on classic works such as Nonaka and Takeuchi (1994). This book might also have represented an

opportunity to develop Wenger's (1998) work on identity and to discuss the articulation between the community and the organizational levels. Nevertheless, the discussion of the linkages between knowing and organizing is insightful. The essence of the book is probably captured when the author argues: 'I contend that organizational knowledge springs from the processes through which organizations appropriate order from disorder. Knowledge arises through controversies and is subsequently crystallized into stable structures of signification by processes of inscription and delegation of human agency to organizational devices' (p. 176). The importance of appropriation linked to learning by doing is also magisterially demonstrated and is certainly a direct hit on the mainstream conception of knowledge. Patriotta concludes by suggesting a new vocabulary for knowledge (Chapter 9): 'from abstract knowledge to action-based knowing', 'from being to becoming', 'from tacit/explicit to background/foreground', 'from commodities to controversies', and 'from creation to institutionalization'.

Structurally, the book contains useful systematic summary introductions and conclusions, which allow the reader to browse easily along the pages depending on his or her purpose. Readers can thus adapt their reading according to whether they are more interested in theoretical or practical insights. The target of the book is definitely academics or advanced research and PhD students. The style of the book is vivid and rich, even though we are sometimes driven away from its main purpose by numerous metaphors. I laughed alone in my office when I read that 'Even inanimate objects are summoned up as witnesses' (p. 159). Not that the sentence was really funny in itself but because I started to wonder if Callon (1986) would have dared to summon the scallops of his study in order to obtain more explanations about their resistance to domestication in St Brieuc Bay; how would the 'actants' have answered the summons? Despite the critical tone of this review, I think that Patriotta's book constitutes a real contribution to a renewal of the mainstream conception of knowledge in management. It is rooted in solid theoretical ground and could be the first stone upon which a process theory of knowing can be built.

References

Callon, M.
1986 'Some elements in a sociology of translation: Domestication of the scallops and fishermen of St Brieuc Bay' in *Power, action and belief*. J. Law (ed.). London: Routledge.

Nonaka, I., and H. Takeuchi
1994 *The knowledge creating company*. New York: Oxford University Press.

Piaget, J.
1954 *The construction of reality in the child*. New York: Basic Books.

Wenger, E.
1998 *Communities of practice: Learning, meaning, and identity*. Cambridge: Cambridge University Press.

Alessandro Lomi and Erik R. Larsen (eds): Dynamics of Organizations: Computational Modeling and Organizational Theories

2001, Menlo Park, CA and Cambridge, MA: AAAI Press and MIT Press. 352 pages (inc. index). $39.95/£25.95, ISBN 0262621525 (pbk)

Filippo Carlo Wezel
Tilburg University,
The Netherlands

As social scientists, we are all aware that the objects of our theorizing manifest themselves at different levels of analysis. Several prominent scholars have investigated the process through which individual decisions influence collective behaviours and vice versa. Adopting a backward approach from macro to micro, sociologists like Durkheim (1897) have shown how suicide rates can be interpreted in the light of macro-structural forces such as the decline of mechanical solidarity and the rise of organic solidarity due to industrialism. By the same token, embracing a forward-looking perspective from micro to macro, economists like Schelling (1978) have illustrated how local interactions among agents, following simple behavioural rules, give rise to aggregate regularities.

Nevertheless, the micro–macro transition is complicated by the inherent recursive dynamics of social processes (Coleman 1990). Markets, for instance, can be envisioned as complex adaptive systems, consisting of large numbers of agents involved in multiple simultaneous local interactions. These local interactions, however, shape macro-economic regularities which in turn affect the dynamics of local interactions. The notion of intricate two-way feedback, linking micro-behaviors to macro-structure, was present in the work of prominent social scientists a long time ago (Hayek 1948; Olsen 1965).

The editors of this book, Lomi and Larsen, make use of the introductory essay to position their volume within this research tradition and to clarify their way of conceiving simulations as a theoretical laboratory to explore multi-level, recursive social phenomena. As stated on p. 9, 'by focusing on the multiple connections that confound or, as the case may be, decouple different levels of action, computational organization theories invite reinterpretation of forward and backward views as complementary strategies'. The wide reach of theory-building based on computational modelling is illustrated by the nature of the problems the volume discusses, by the substantial variety of literatures utilized, and by the heterogeneous background of its contributors, economists, sociologists, and computer scientists. Throughout the book the imagination of the reader is stimulated by the illustration of multiple parallel, although equally possible, theoretical worlds. The afterword by Burton cements the *file rouge* of the volume: simulations represent 'a versatile laboratory where we can specify relations that are complex, path dependent and involve feedback to do experiments, generate different new and plausible worlds and explore what might be for organizations' (p. 443).

Although simulations are only implicitly discussed in the introductory essay, in subsequent chapters the reader becomes aware of them as a method placed at the intersection between induction and deduction (Axelrod 1997).

Like deduction, simulations are developed from a set of theoretical assumptions, but without demonstrating theorems or forming generalizations. On the contrary, they are designed to inductively analyse data generated from behavioural specifications rather than from empirical measurements. Thus, as an inductive method, simulations can be used to infer general patterns, but, as deduction, they represent meaningful ways of investigating the implications of behavioural assumptions. The foreword by James March reminds us that the study of organizational dynamics involves historical complexity (i.e. multiple interactions) and temporal complexity (i.e. path dependency and feedbacks). Under similar circumstances, simulations represent a plastic methodology for organizational theorists, and 'the rich simulated world can be used to understand the limits of our "real" world; it can be extended to investigate the limits of the possible; it can create the plausible of what might be' (Burton, p. 442).

To avoid superimposing convenient categories, Lomi and Larsen adopt a weak classification to divide the 14 chapters of the volume into 'rediscovering problems', 'reframing arguments' and 'taking views'. According to the editors, the first part of the volume can be viewed as attempts at problem structuring. Chapters 1 to 5 provide compelling evidence on how multiple theoretical concepts can be expressively represented via computational models. Harrison and Carroll's chapter, placed at the junction between organizational demography and organizational ecology, is an insightful contribution. Here the micro–macro link is articulated through a reflection on the dynamics of organizational culture and with respect to its consequences for organizational survival. By elaborating on the link between organizational culture and organizational metabolism (i.e. personnel turnover) Harrison and Carroll speculate on the conflicting perspectives on age dependence (i.e. the effect of organizational ageing on failure) as spuriously related to cultural heterogeneity. In a similar way, and by simultaneously modelling agents, task, and network dynamics, Carley and Hill investigate the mechanisms through which culture is communicated in organizations. The reader particularly interested in organizational learning and network theories will be impressed by the far-reaching implications of this chapter. The contribution by Strang and Macy can be considered a highlight for institutional theorists. Moving from simple behavioural assumption (i.e. limited and biased information) Strang and Macy provide evidence of the two-way feedback linking micro-decisions, i.e. rationality vs suppression of private beliefs, to aggregate-patterns, i.e. the rise and fall of conformity and institutional norms. The contribution of Loch, Huberman and Ülkü addresses the interplay between individual interests and team performance. The sceptic empiricist is challenged by the development of a set of empirically testable hypotheses regarding the variables moderating the relationship between status-based competition and group productivity (i.e. number of status dimensions and group size). The stark but far-reaching modelling technique of Prietula investigates the micro-dynamics of the stabilization and routinization of knowledge in organizations. The chapter succeeds in bridging communication technologies, anthropological theories of communication and social network theories of trust and advice.

The second set of chapters, from 6 to 9, departs from existing organizational theories to provide evidence of how computational modelling improves theory testing and comparison. In this respect, the endeavour of Bothner and White is notable. Building upon 20 years of White's research on markets as social structures, Bothner and White develop a set of formal models in which firm strategies can be envisioned as contingent on the polarization of the market, i.e. in the direction of buyers or suppliers. They also present a set of testable hypotheses. The contribution of David Barron is interesting for three reasons. First, it sheds light on the value of simulations as a fruitful method of theory comparison, in this case between three different perspectives on populations' evolution. Second, it demonstrates the significant value of relying on both actual and simulated data. Last, it is notable for the elegance of its exposition. The chapter by David Krackhardt moves from a set of simple assumptions to investigate the dynamics of diffusion of innovations within a complex system. The thrust of his contribution is to trace the structural conditions under which controversial innovations (i.e. innovations valued through a dynamic social process) propagate. Krackhardt intelligently nudges the reader to consider the social micro-dynamics responsible for the success and failure of innovations. Lomi and Larsen participate in their volume with an interesting contribution. By simultaneously building on Harrison White's research and on recent developments in evolutionary biology, Lomi and Larsen propose a new interpretation of organizational failures as an exit from a social structure of interconnected roles. The chapter discusses the alternative explanations of age dependence (i.e. liability of newness, adolescence and obsolescence) in the light of this perspective. A comparison between the results obtained from synthetic data and empirical estimates is presented.

In the third part of the volume, the tone of the discussion becomes more epistemological and five chapters are presented to consolidate the relevance of simulations for theory-building. The opening chapter by Miller adopts a simple simulation technique to present a multi-level, interdisciplinary analysis of the evolution of information-processing organizations. A clear contribution of this article is to proclaim the complementarity between computational models and formal results addressing specific theoretical concerns in organizational design, e.g. centralization/decentralization, size. Levinthal's contribution departs from the joint consideration of spatial and temporal complexity (see above) to speculate on the emergence of organizational heterogeneity within industries. The findings of the chapter suggest that adaptation to shifting environments hinges upon the level of epistatic complexity of competitive landscapes, as in the K variable in Kauffman's (1993) NK models. From an epistemological standpoint, the contributions of Malerba, Nelson, Orsenigo and Winter, together with that of Pólos and Hannan, are intriguing. 'History-friendly models' are designed to close the divide between formal models and 'appreciative' theory, i.e. discursive, narrative. Here the potential of computation techniques as complementary tools to mathematical formalizations and verbal theories is fully articulated. The versatility of history-friendly models in linking micro-decisions

(diversification strategies) to macro-dynamics (market concentration) is presented to the reader through a simulation of the evolution of the computer industry. Anjali Sastry stimulates the theoretical imagination of readers by introducing them to the fascinating world of recursive thinking. The performance consequences of delays to environmental feedbacks are elegantly discussed and coupled to heterogeneous organizational features, such as age and size. The results, by and large, provide support to ecological theories of inertia, but a set of under-explored research questions is left as food for further thought. The last chapter of the volume meets the highest expectations. Without recourse to simulation techniques, Pólos and Hannan provide another excellent example of the simplification required by mathematical formalizations. The chapter convincingly argues that divergent fragments of theories, in this case age dependence, can be fruitfully juxtaposed by the use of a new formal language (i.e. nonmonotonic) that relaxes the tight constraints of first-order logic by avoiding binary rules. The elegant qualitative reasoning of Pólos and Hannan sets a new agenda for quantitative research.

Without diminishing the relevance of the editors' categorization, it is fair to argue that several chapters could have been allocated to multiple sections. As a result, the rich composite of insights contained in the volume does not necessarily need to be read sequentially. The reader interested in technical details will not be fully satisfied: most of the chapters do not include the codes of the models presented. Since the relative advantage of computational modelling relies on the ease of replicating existing findings and cumulating them by exploring alternative interpretations, an effective adoption of this method for theory-building purposes renders it imperative to specify the behavioural assumptions behind the models. The accomplishment of this goal is indeed complicated by the heterogeneous modelling procedures adopted by the contributors. The general impression is that Lomi and Larsen deliberately positioned their volume within cutting-edge theoretical debates, privileging the illustrative power of computational modelling to its technicalities. By doing so, they give the impression of emphasizing the *potential* contribution of computational techniques, leaving the reader to further develop the instances discussed.

In summary, Lomi and Larsen's acrobatic exploit is to effectively introduce organizational theorists to the use of simulation techniques for theory-building by offering a set of contributions highly worthy of 'A' rated publications. This is why *Dynamics of Organizations: Computational Modeling and Organizational Theories* represents an insightful contribution destined to whet the appetite both of beginners and more experienced scholars.

References

Axelrod, Robert
1997   *The complexity of cooperation*. Princeton, NJ: Princeton University Press.

Coleman, James S.
1990   *The foundations of social theory*. Cambridge, MA: Harvard University Press.

Durkheim, Emile
1897   *The division of labor in society*.
[1933] Glencoe, IL: Free Press.

Hayek, Friedrich A.
1948   *Individualism and economic order*. Chicago: University of Chicago Press.

Kauffman, Stuart
1993   *The origins of orders*. New York: Oxford University Press.

Olsen, Mancur
1965   *The logic of collective action: Public goods and the theory of groups*. Cambridge, MA: Harvard University Press.

Schelling, Thomas C.
1978   *Micromotives and macrobehavior*. New York: W. W. Norton & Co.