# Handbook of Research on Knowledge-Intensive Organizations

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# Section I Learning and Innovation

# **Chapter I**

This chapter questions the clarity of the concepts of "knowledge society" and "knowledge-intensive organization". In particular, the author asserts that the notion that postindustrial society is more knowledge intensive than industrial society is a self-serving proposition made by academics and organizational consultants to emphasize the importance of their own industries. Since all organizations are knowledge-intensive in major ways, the specific meanings of a newly emergent kind of knowledge-intensive organization need to be clarified. The author undertakes this by means of an analysis of research universities.

#### Chapter II

The aims of knowledge management are to create knowledge and stimulate innovation. Knowledge management allows the knowledge of an organization to be located, shared, formalized, enhanced, and developed. The challenges of knowledge management lie in creating environments that support knowledge sharing, knowledge creation, and innovativeness. This chapter examines challenges faced by higher education institutions (HEI) in producing innovations and increasing their external impact on their regions. The most valuable assets of HEIs are the knowledge and skills embodied in human capital. The challenges of innovative HEIs can be derived from their customers' needs, which usually cannot

be met within a single discipline. This chapter explores the multidisciplinary development projects at HEIs and presents implications for the organizational structure supporting innovation and engagement of the institution with its region.

#### **Chapter III**

Continuing professional development (CPD) is usually conceived as a planned and formulated process for individual members of professional associations. This chapter, by contrast, examines professional learning as a collective and distributed process, taking a whole firm, as the unit of analysis. Cultural historical activity theory is used to work with a law firm. The results show inherent tensions and contradiction in a process of knowledge sharing and practice improvement.

# **Chapter IV**

The United States and European economies have witnessed an enormous increase in the amount of specialized business services, which now provide critical inputs to firms in all sectors. It is this area of the economy which has witnessed huge expansion and development. KIBS include traditional professional business services such as accountancy and law, but also a new generation of KIBS such as IT expertise and internet development. Coupled to this growth has been an increase in the level of outsourcing. Outsourcing was originally confined to peripheral business functions and mainly motivated by a cost saving logic, but has now developed into a routine strategic management move that affects not only peripheral functions but the heart of the competitive core of organisations. This chapter analyses previous research and adopts a conceptual perspective in investigating the innovation-related risks to the organisation that can arise from strategic outsourcing. It uses the example of KIBS outsourcing to highlight the increased risks that arise from a move from traditional to strategic outsourcing and discusses some measures that managers can take to attempt to control these risks.

#### Chapter V

A new knowledge management perspective and tool, ANT/AUTOPOIESIS, for analysis of knowledge management in knowledge-intensive organizations is presented. An information technology (IT) research and innovation co-operation between university actors and companies interested in the area of smart home IT applications is used to illustrate analysis using this perspective. Actor-network theory (ANT) and the social theory of autopoiesis are used in analyzing knowledge management, starting from the foundation of a research co-operation. ANT provides the character of relations between actors and actants, how power is translated by actors and the transformation of relations over time. The

social theory of autopoiesis provides the tools to analyze organizational closure and reproduction of organizational identity. The perspective used allows a process analysis, and at the same time analysis of structural characteristics of knowledge management. Knowledge management depends on powerful actors, whose power changes over time. Here this power is entrepreneurial and based on relations and actors' innovation knowledge.

# Section II The Language of Knowledge

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#### **Chapter VI**

This chapter fits the theme, the interplay between creativity and control in organizations. Story is often claimed to be a way to elicit tacit knowledge from people, and their organization. The authors would like to suggest that this is impossibility. To story something is to shape it intuitively and willfully. Story shapes events into experience and into memory. Without story experience is just reenactment. To reenact is to relive the events, to feel the pain, fear, and terror.

# Chapter VII

The central discussion in this chapter is that poetry can be used to provide a bridge between tangible, rational, and explicit knowledge, and tacit or implicit knowledge, providing opportunities to access new organizational knowledge, understandings and learning. A study based on 60 middle and senior United Kingdom public service managers is presented. In this study managers worked together to explore how creative inquiry into their organizational experience might help address some of the problematic issues facing their organizations and learn how to develop new ideas about best practice. The challenge was to generate new knowledge about the organization. Poetry in the form of "haiku" was used as a creative research method to access tacit knowledge, which, when combined with explicit knowledge and understanding, led to new insights and organizational learning.

### **Chapter VIII**

Vagueness: The Role of Language in the Organizing Process of Knowledge Intensive Work ....... 116 Ester Barinaga, Copenhagen Business School, Denmark

"How do we define our project goal?" "How are we going to coordinate our independent national studies?" "Who is responsible for what?" "How are newcomers introduced to the project?" During the first year of co-operation among researchers from a variety of disciplines (labor law, sociology and organizational theory) and countries (Sweden, Spain, The Netherlands, UK, and United States) all efforts went to answer those, apparently simple, questions. Inspired by the late Wittgenstein's ideas on the performative character of language, the chapter follows the process by which an international and multidisciplinary group of researchers agree on a research goal, coordinate their work, distribute responsibilities, and socialize newcomers. That is, the process of organizing knowledge intensive work is approached from a performative view of language.

## **Chapter IX**

Stephen Sheard, Bradford University, UK

In this chapter the author offers an argument towards the resurgence of a proto-alphabetic imagination in electronic and mobile communications. It is suggested that contemporary trends in mobile telephony which encapsulate the earlier advances in PC development are shifting electronic media – not towards a mythic culture of the aural (McLuhan) but towards an admixture of the aural and visual, aslant the controlling trope of the alphabetical. It is argued that this separation of technologies resembles the predecessors of writing technologies of a "proto"-alphabetic nature. This infuses the literature of management with a metaphysical animism, which is redolent of the faded animism, which marked the initial confluence of the pre-alphabetical sensibilities of Eye and Voice in the pre-alphabetic emergence of mankind. This is suggested as a fresh Symbolic form towards which mankind is advancing. The confluence of ideological tensions preceding these developments is traced; including debates as to conflicts of Word and Sacred (Ricoeur); or Postmodern aversion towards contemporary ocular dominance. This debate leads towards an evaluation of the role and significance of kinds of knowledge which underpin our knowledge society and the knowledge which we take to constitute "knowledge management".

# Section III Managing Knowledge

#### Chapter X

The chapter discusses the role of IT Research & Analysis firms in the diffusion of knowledge management. The research is based on content analysis of reports and research notes concerning knowledge management, issued by the most influential analyst firm Gartner in years 1997-2003. It identifies three predominant roles of analysts: agenda-setters (focusing the public discourse on selected issues), oracles (offering ambiguous promises) and judges (selecting concepts, technologies and vendors). While critically evaluating the influence of IT Research & Analysis firms, the chapter documents important passages in the history of knowledge management.

# **Chapter XI**

This chapter analyses the implementation of knowledge management strategies (KMS) in technologyintensive firms. Firstly, a review of KMS in the knowledge management (KM) literature is carried out in order to conceptually establish the focus of the chapter. Next, some key factors for successful KM implementation, such as corporate culture, technological systems, ethical leadership, human resources management practices and organizational flexibility are identified and explained. After that, the case study of two firms which have successfully implemented a KMS in innovation-intensive sectors, such as electronics and information technologies, is shown. Finally, and based on the results of the case study, some suggestions are extracted and recommendations are made from a managerial perspective in order to implement a KMS effectively.

# Chapter XII

Developing a Corporate Knowledge Management Platform in a Multibusiness Company...... 193 Arla Juntunen, Helsinki School of Economics, Finland

This chapter focuses on the development of the knowledge management (KM) platform, and, more generally, the knowledge- and resource-based view (RBV) of the firm. The knowledge is seen as a source of a competitive advantage. In high-velocity markets, like the ICT-sector, the knowledge is crucial in creating a long-term competitive advantage over the competitors. The study claims that corporate performance was improved when the case company simultaneously exploited a balanced set of related knowledge resources of the corporate KM Platfrom across its business areas.

### Chapter XIII

Success in new product development (NPD) can be considered a general aim for any company wishing to survive in the 21<sup>st</sup> century. It has been found that positive effects can result from the existence of formal "blueprints" and "roadmaps" of the NPD process. This chapter discusses numerous NPD processes which can assist a company to capture what it does, and follow a structured development route, from which it is possible to gain a better understanding of how to improve the development process, and thus reap the potential and tangible benefits. This chapter's focus is at organisations that are considering implementing a new product development (NPD) process in order to improve repeatability and ultimately sustainability of their innovative capabilities, a necessary and vital component for survival. It aims to bring an understanding of the underlying characteristics that may contribute to a potential and successful outcome during the development process within organizations, through the adoption of a structured NPD process.

# Section IV Management and Control

#### **Chapter XIV**

The ambition of this chapter is to pay some attention to more obvious, as well as more subtle, methods for organizations to become independent of the individual's subjective knowledge, from the employees' point of view. Terms such as "knowledge sharing", "knowledge transfer", and "learning for all" are almost always seen as being positive for both employers and employees. However, this chapter will critically examines those terms. Three popular management ideas relating to knowledge and/or learning have been analysed from a "knowledge control" perspective: knowledge management, organizational learning, and the learning organization. The main conclusion of this conceptual and elaborating chapter is that the more current and less academic ideas of the learning organization and knowledge management contain the same tools as the idea of "old" organizational learning as regards gaining control over knowledge, but that these two ideas additionally contain other knowledge control measures, which are more refined, in the sense that they are less obvious as knowledge control measures. The idea of "new" organizational learning, however, is less suited to knowledge control, since it implies that knowledge is not storable. In other words, the chapter's contribution is an analysis of some of the most popular management ideas that deal with knowledge and/or learning relating to the organizational/employer independence of subjective knowledge from the employees' point of view, something which is rarely seen.

#### **Chapter XV**

Knowledge-intensive firms are composed of various communities, each characterized by specialized knowledge. These communities operate as critical agents in the organizational action because the relevant processes and the variety/variability of environment and technology are too complex for a single individual to understand in their entirety. They generate new models for interpreting reality and responding to customer needs thanks to the integration of knowledge taking place within and between them. The objective of this chapter is to provide some criteria for evaluating the comparative effectiveness and efficiency of combinations of control mechanisms in the regulation of these knowledge integration processes. On the basis of the characteristics of knowledge (level of complexity and diversity), a different set of control mechanisms is proposed, with a variation in their specific features to guarantee that the resulting modes of communication and cognition can guarantee the required level innovation, without however preventing a certain level of stability.

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# **Chapter XVI**

Aino Kianto, Lappeenranta University of Technology, Finland Jianzhong Hong, Lappeenranta University of Technology, Finland

Nowadays knowledge and competencies are the key productive factors, and the organizational capability for continuous learning, development and renewal has become the main driver of competitiveness. In this chapter the authors explore how organizational measurement should change in order to remain relevant in the face of the recent increase in the knowledge-intensiveness of work, organizing and value creation. First they argue that, while traditionally measurement has mostly been used for control purposes, recent changes in the nature of work have brought on new challenges which can no longer be met with old mindsets and measures. Then they focus on two novel approaches, intellectual capital and competence development, and examine the current state of the art. Finally, the authors construct foundations for a knowledge-based approach to organizational measurement and set some future directions in which measures should be developed in order to portray and enable knowledge work and knowledge-based value creation.

# **Chapter XVII**

In knowledge management literature, common information spaces (CIS) are believed to be instrumental in the development and sharing of knowledge. These information spaces provide the arena to facilitate knowledge creation, knowledge management, boost multidisciplinary collaboration and therefore increase the performance of the organization. In a global oil and gas industry an increasing part of the communication in day-to-day operations takes place in specially designed videoconferencing and collaboration rooms. This chapter addresses the role such information spaces play and some of the implications for practice when it comes to knowledge-intensive work: diversity, work relations and identity. What is regarded as "common" or "shared" among heterogeneous groups of professionals working within such information spaces is challenged.

# **Chapter XVIII**

| Creativity and Control in IT Professionals' Communities | . 295 |
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| Agnieszka Postuła, Uniwersytet Warszawski, Poland       |       |

This chapter presents and discusses two factors – creativity and control – which correspond to every organizational reality. IT specialists' professional communities are used as an example because of characteristic relationships between their members and their attitude to work. The chapter describes how combination of these two phenomena may build or destroy organizations. There is also an explanation of specific relations between IT professionals and beginning of further discussion based on these relationships, as well as analysis of consequences of inappropriate management practices. Creativity and

control are presented as features of every common company with their special roles in organization. Also, main characteristics of well-organized practical communities are shown.

# Section V The Culture of Knowledge

#### **Chapter XIX**

Knowledge is one of the basic production factors owned by enterprises, and knowledge management is one of the main dynamic capabilities on which enterprises can base their competitive advantages. The creation, transfer, and later use of knowledge have become increasingly important, and multinational corporations (MNCs), being scattered in various places, constitute the appropriate environment to implement knowledge management processes meant to maximize their intellectual assets. This chapter has as its aim to answer three questions: (a) what actions do MNCs undertake in order to set knowledge management processes in motion; (b) what main variables impact on their knowledge creation capability; and (c) what main variables impact on their knowledge transfer capability? A qualitative research work based on a multiple case study has served to achieve that aim, allowing us to carry out an exploratory study of six MNCs which have shown their proactivity in the knowledge management area. The results of the analysis have led to eight propositions which highlight the most relevant variables facilitating the processes for the creation and transfer of knowledge within a MNC.

# **Chapter XX**

The chapter addresses a central dilemma from the viewpoint of dynamic capabilities and the resource based view of the firm: how to manage creativity within New Product Development without sacrificing financial control. The empirical evidence examined concerns 3M's NPD activity in the United Kingdom from a holistically viewed management control perspective at the organizational level, and a study of the development and launch of a highly successful and radically new product, Genesis. It is concluded that NPD processes within 3M in the United Kingdom display a large measure of coherence juxtaposed with flexibility through the manner in which controls, holistically viewed, are embedded within organizational routines. Using case evidence clear distinctions can be made between dynamic capabilities, resources and product outcomes, and the elements of 3M's capability can be discerned. The authors conclude that a dynamic capability can consist of both replicable elements, and elements embedded in the culture and routines of the firm that are difficult to imitate.

### **Chapter XXI**

| Cultural Issues, Organizations and Information Fulfilment: An Exploration towards |     |
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| Maria E. Burke, University of Salford, UK   |     |

The purpose of this chapter is to consider an original way of improving knowledge management relationships. This is done within the context of an aspect of Information behaviour, known as Information Fulfillment. The chapter presents the cultural results of a three-year study into the concept of information fulfillment, and considers the impact of culture on levels of information fulfillment. Ethnographic studies were undertaken within higher education institutions in four countries and the social and symbolic meanings that underpinned the culture of information in the chosen institutions are presented followed by a section of "raw data" from the ethnographic field. Culture impacted significantly in all the studies, and each study had its own unique character and provided rich insights into the culture and contexts of the fields. The relationships between the cultures and the levels of information fulfillment are reported with suggestions re helping build KM systems that deliver higher levels of information fulfillment.

## **Chapter XXII**

| Engineering Design at a Toyota Company: Knowledge Management and the |
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| Innovative Process   |
| Darius Mehri, University of California, Berkeley, USA                |

The author worked in the research and design department at a large Toyota company in the late 1990s and experienced an innovative process where engineers worked in tightly knit groups where monitoring, the informal hierarchy and dependence resulted from an emphasis on collective work. In the approach to innovation during the design process, the Toyota engineers were found to engage in an inductive process that placed an emphasis on the concrete and an orientation toward the field as a result of an approach that relied on experience based knowledge. The use of tacit and explicit knowledge is discussed within the context of the design process and the author finds that explicit knowledge dominates the improvement of productivity and organizational learning. The latest research in the sociology of culture and cultural psychology is used to highlight the cognitive approach to problem solving during the innovative process.

#### Chapter XXIII

The shift towards a knowledge based economy is at the core of the debate of contemporary management and accounting literature and organisations are challenged by the need of managing their knowledge resources. Several national and international institutions have produced authoritative "guidelines" to facilitate the management and reporting of KR. Many of these guidelines are the result of co-operation between researchers, companies, industry organisations and consultants and have, therefore, been informed by practice. However, to date, there has been no serious critique of these guidelines. The main objective of this chapter is to provide an in-depth analysis of six contemporary guidelines. By reviewing these guidelines, this chapter explores how each of these addresses the MKR and therefore facilitates the management and reporting of KR. Therefore, this chapter will establish some of the key issues involved in understanding MKR. It will also provide an overview of how these issues are addressed or otherwise in the six guidelines. Two key messages of this chapter are the followings: first, MKR and its elements are embedded in various ways into the international guidelines examined; second, that a key policy issue is international harmonisation.

# • Section VI The Knowledge Worker

### **Chapter XXIV**

| Strategic Alliance Capability: Bringing the Individual Back into Inter-Organizational |     |
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| Christiane Prange, EM Lyon Business School, France                                    |     |

Internationalisation has accelerated the speed of knowledge generation and innovation. Thus, companies increasingly need to pool and create new resources by engaging in alliances with various partners. However, high failure rates of strategic alliances imply that the degree of a company's collaboration success is related to the level of its alliance capability. While "alliance capability" has largely been conceptualized from within the resource based and the dynamic capability view, one of the major drawbacks is the lack of micro-foundations, i.e. an explanation of individual knowledge and actions, which drive the development of alliance capability. A modified approach to the capability life-cycle is introduced, which aims at filling this gap. Finally, some implications for managerial practice and for future research are addressed.

# **Chapter XXV**

| Automation vs. Human Intervention: Is There any Room Left for the Analyst in the |   |
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| Data Mining Process?   | ŀ |
| Meryem Sevinc, Georgia Southern University, USA                                  |   |
| Lawrence Locker, Georgia Southern University, USA                                |   |
| John D. Murray, Georgia Southern University, USA                                 |   |

In the contemporary context of knowledge discovery, the amount of information and the process itself has increased in complexity. Relevant to the present chapter is the increased reliance on automaticity in knowledge discovery. Although, there are positive benefits of automation, there is reason to believe that a process that emphasizes greater human participation may produce more meaningful results. Through a description of the human information system and its attributes, this chapter discusses why an analyst-centered approach to a knowledge discovery system is a desirable goal. The authors argue that a perspective based on cognitive psychology can serve as a useful guide in achieving a desirable synergy between automated knowledge discovery tools and the human analyst.

# **Chapter XXVI**

| Temporality and Knowledge Work       | 425 |
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| Joanna Shih, Hofstra University, USA |     |

The hi-tech firms that predominate in Silicon Valley contain a large proportion of knowledge workers—employees with high levels of education and expertise. The region is subsequently a useful prism by which to explore the shift in the pace of work and ideologies of labor control. Engineers in Silicon Valley are a prototypical example of "knowledge workers;" they are valued for their ability to contribute to firms' competitive advantage via their expertise and innovation. This chapter reports on fifty four semi-structured interviews of high-skilled, white and Asian men and women engineers who worked in the hi-tech industry of Silicon Valley, focusing on the issue of work temporality. Temporality has long been understood as central to the labor process, and as inextricably linked to the mode of production. Here, I highlight the problematic aspects of the shift from the routinized schedule of "clock time", characterized by rigid temporal boundaries between work and home, and "project time," characterized by an erratic and increasing pace of work that appears to be largely unfettered by boundaries between private and work time.

## **Chapter XXVII**

Knowledge management is often associated with the need for change and related shifts in ontologies, ways of knowing and ways of working. Combine the centuries-old debates about what defines knowledge with proposed paradigm shifts to become knowledge-oriented, focused on inter-relationships, and cognisant of the complex and voluntary nature of knowledge work, and there is bound to be controversy and ambiguity. However, knowledge management research and practice becomes more focused and less ambiguous when set in the context of an urgent need. This chapter describes a study of a Canadian public sector science initiative. The terrorist attacks of 9/11 catalyzed ripples of reflection and innovation over great distances. In Canada, the federal government initiated the chemical, biological, radiological and nuclear (CBRN) research and technology unitiative (CRTI) to enable learning and progress, using what is essentially a communities of practice model. CRTI established a knowledge management office, to help this network of communities generate, share and use tacit and explicit knowledge. Some aspects of the initiative were working better than others, and the author was asked to conduct research to explore how CRTI members understand their work in a complex, knowledge-rich environment.

#### **Chapter XXVIII**

Contemporary literature usually views knowledge creation and knowledge sharing as either independent or positively related processes. However, based on the review of the literature on the organizational conditions aimed to support these processes, the author challenges this view at the individual level of analysis and suggests that an individual employee can hardly simultaneously combine features that support both knowledge creation and knowledge sharing and thus can hardly be efficient in both processes at the same time. The data from the survey of 120 employees from 5 knowledge-intensive companies supported this idea, and the author discusses its implications for further research and for management practice in knowledge-intensive organizations.

# Section VII Discussing Knowledge

# **Chapter XXIX**

Knowledge is implicitly assumed to form an increasingly important, or even the dominant source of values for today's knowledge based organizations. It is rare, however, to encounter writings questioning what is "value", enquiring into its provenance, or examining its distribution amongst organization's stakeholders. This chapter asks these very questions, focusing on Marx's (1976) formulation of value theory. Divided into four parts, it begins by giving a basic overview of the labour theory of value, as developed by Marx in mid 19th century, industrialised England. The second part examines Roy Jacques' (2000) critique of Marx, his rejection of the adequacy of "labour" as a concept for analysing contemporary value production, and his call for a "knowledge theory of value". The third section focuses on labour process theorist Paul Thompson (2005) and his challenge to the idea that labour and knowledge are fundamentally different. The fourth part extends this concern with "other" forms of contemporary labour to a more global level by examining De Angelis' (2006) and Retort's (2005) suggestion that the global economy today is driven by acts of enclosure and "primitive accumulation."

# **Chapter XXX**

This chapter discusses the use of media in knowledge-intensive organizations. Media is defined here as the integration of technologies, practices, and institutions serving to record, inscribe and circulate speech, writing, and images. The presence of media in organized activities remains relatively unexplored, even though various media "enframe" the life-world of the organization. New media do not only constitute assemblages of integrated technologies and tools (e.g. the telephone, the computer, pens and pencils) which are used en route in day-to-day work, they also gradually break down the line of demarcation between inside and outside, between embodied and technological matter.

# **Chapter XXXI**

This chapter examines knowledge and innovation as invaluable factors affecting the longevity of large organizations. It presents the history and evolution of the concepts of knowledge and learning within organizations to provide grounds for establishing crucial factors affecting the development and mainte-

nance of competitive advantage for large contemporary organizations. Thus the purpose of this paper is to address the evolution of knowledge management, the meaning and purpose of knowledge management, and the organizational structure that supports such knowledge.

# **Chapter XXXII**

Scholars researching the area of the sociology of professions had earlier predicted that as occupations seek to improve their public image, professionalism would embrace all their incumbents. It is therefore no revelation that call centre agents in India identify themselves as professionals. Using van Manen's hermeneutic phenomenological approach, the authors explored this dimension with 59 call centre agents located in Mumbai and Bangalore, India. The findings demonstrate that neither the trait nor the power approaches drawn from the traditional literature on the sociology of professions explain call centre agents' identification with professional work. Instead, agents' experiences validate the contemporary explanation that emphasizes the appeal of professionalism used by employer organisations as a means to convince, cajole, and persuade their employees to perform and behave in ways which the employer organization deems appropriate, effective and efficient. It is in this context that agents accept stringent work systems and job design elements, techno-bureaucratic controls and the primacy of the customer in return for the privileges bestowed upon them by way of being professionals. While professional identity thus serves as a means of socio-ideological control facilitating the realization of the organization agenda, it is not all-encompassing as agents simultaneously show signs of resistance.

# **Chapter XXXIII**

| Knowledge Management: Fad or Enduring Organizational Concept? |  |
|---|--|
| Dariusz Jemielniak, Kozminski University, Poland              |  |
| Jerzy Kociatkiewicz, University of Essex, UK                  |  |

Knowledge management and knowledge-intensive work are two of today's hot buzzwords, though both already have a history of managerial usage. While some authors claim that knowledge is the most important organizational asset in contemporary society, others retort that much of knowledge management literature and practical solutions are just perfunctory and propagandist and many, if not most, managerial polices rely on manipulation of emotions and identity creation. This chapter aims to capitalize on this fascinating and timely research area. The authors want to present the current business fad of knowledge management as an idea of highly suspect utility, and search for explanations for and possible counterbalances to its ubiquity.

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