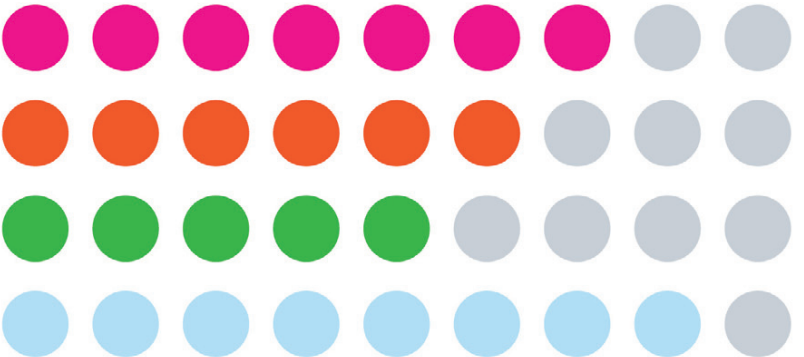
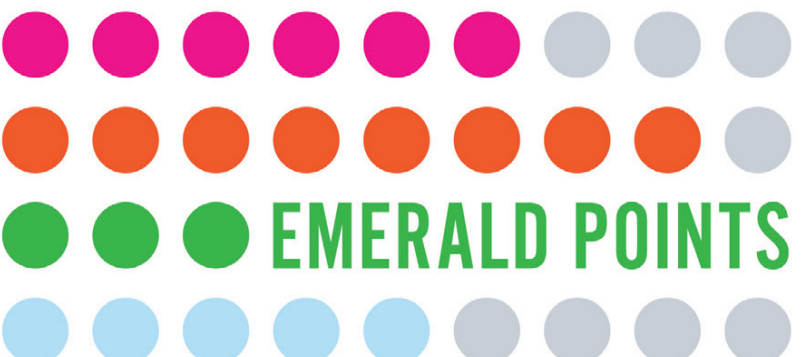


KNOWLEDGE MANAGEMENT AS A STRATEGIC ASSET

An Integrated, Historical Approach

Jon-Arild Johannessen



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KNOWLEDGE MANAGEMENT AS A STRATEGIC ASSET: AN INTEGRATED, HISTORICAL APPROACH

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First edition 2019

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN: 978-1-78769-662-4 (Print)
ISBN: 978-1-78769-659-4 (Online)
ISBN: 978-1-78769-661-7 (Epub)

ISOQAR certified Management System, awarded to Emerald for adherence to Environmental standard ISO 14001:2004.

Certificate Number 1985
ISO 14001

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PREFACE

When in this book we use the concept of a historical introduction to knowledge management, we here mean the period from around 1980 to 2018. This is because it is in this period knowledge management became a central business concept. Therefore we deliberately have used many references from the 1980s and 1990s in this book.

Our knowledge philosophy is that without an understanding of the history of a knowledge field of inquiry, we cannot understand, describe, and analyze the now or predict the future. Even if it may be hard or impossible to predict the future, it may be possible to create it, but only if we know something about the history of what we are about to create.

Creating the future of the company, social systems, etc., is the philosophy of thinking we use here, not the concept of adapting to what others have created. It is not the survival of the fittest, but the survival of those who are able to create their own future which is the foundation of the knowledge philosophy in this book. This may be understood as a way from red ocean strategy and Darwinism in social systems, over blue ocean strategy, to the strategy of creating our own future. This new strategy can only be successful if we know the history of what we are about to create.

In this book, we use a systemic perspective to come to grip with what has happened in the past, what happens now, and how to create and predict the future.

Many of the concepts used in this book are explained in the chapter on concepts (Glossary).

Jon-Arild Johannessen

1

A HISTORICAL INTRODUCTION TO KNOWLEDGE MANAGEMENT

INTRODUCTION

Accelerating technological development, a rapid change in consumer requirements, and a dramatic increase in product development, paralleled with a reduction of previous protective economic boundaries, have led to a globalized marketplace, characterized by turbulence, uncertainty, and complexity. Within these new realities, old prescriptions do not appear to provide the necessary cure. Hence, we have seen a shift in the strategic management literature from the industrial organization (IO) perspective toward the resource base perspective, the dynamic capability approach, and the activity-based perspective.

Teece, Pisano, and Schuen (1997, p. 509) argue that the dynamic capability approach is: "...especially relevant in a Schumpeterian world of innovation-based competition, price/performance rivalry, increasing returns, and the creative destruction of existing competencies." Following this path, we have also seen that knowledge has emerged as the strategically

most important resource for companies. Consequently, we have seen renewed interest for organizational learning and innovation. Much of the strategic attention has focused on the question of how to apply resources in order to generate, organize, and utilize knowledge to trigger innovation. Hence, a natural consequence of this development has been an increased emphasis toward innovation as crucial in the development of firm's sustainable competitive advantages.

However, although these new paths have provided us with a deeper understanding of factors and processes conducive to innovation and eventually to sustainable competitive advantages, little attention has been focused toward the social mechanisms which trigger innovations.

We argue that it is social mechanisms among individuals and companies that initiate and sustain processes related to innovation in organisations. The problem presented in this chapter is: *Which social mechanisms influence those processes affecting innovation in social systems*. The purpose is to uncover processes and the corresponding social mechanisms promoting innovation in organisations. In the present chapter, it is the systemic angle of incidence which will be used.

A system is defined by elements related to each other, and to other systems. By social system is here meant a system "composed of people and their artefacts" (Bunge, 1996, p. 21). Social systems are (in systemic thinking) kept together by dynamic social relations and social actions. Bunge (1997, p. 414) says: "...a mechanism is a process in a concrete system, such that it is capable of being about or preventing some change in the system as whole or in some of the subsystems." The concept social mechanisms is controversial in social science, and there are also "remarkably few studies of social mechanisms" (Bunge, 1997, p. 411) in social science. Hence, those social mechanisms developed in this chapter must be regarded as tentative and will have to be tested empirically.

The chapter is organized in the following way: First, we develop a conceptual model where organizational learning, the internal knowledge base, the external knowledge base, and innovation constitute the main components. Then we will be discussing each of the first three elements in relation to the effect they represent in unleashing the innovation potential in social systems. In conclusion, we present a conceptual model, which represents a synthesis of the social mechanisms which influence those processes affecting innovation in social systems.

INNOVATION AND KNOWLEDGE: A HISTORICAL JOURNEY

During the last three decades (1988–2018)[1] we have observed an explosive attention, both in the popular press and among academics, on innovation as a means to create and maintain sustainable competitive advantages.

Innovative output is contingent on previous accumulation of knowledge, enabling innovation to assimilate and exploit new knowledge. Hence, it could be argued that there is a strong link between knowledge and innovation (Bleuer, Bouri, & Mandada, 2017). Consequently, we have also seen an explosive arguing for the importance of knowledge, and there are an increasing number of researchers arguing that knowledge constitutes the principal source of economic rent (Bratianu, 2015).

The focus on knowledge and its importance may be seen as an extension of the efficiency-based approach. On the historical and theoretical level, we have seen the emergence of the

1 The fall of the Berlin Wall in 1989 and the Chinese entrance into the capitalist economy of the West in 1988.

knowledge-based theory (Grant, 1996a, 1996b), the theory of organizational knowledge creation (Nonaka, Umemot, & Senoo, 1996), and the diamond theory (Porter, 1990, 1998, 2002). The underlying assumption of these approaches is that knowledge and innovation are the principal productive resources of the firm (Brynjolfsson & McAfee, 2014). We define knowledge here as systematizing and structuring information for a specific purpose. This definition is also consistent with Drucker (1994, p. 38), who argues that: "Knowledge is systematic, purposeful, organised information."

Knowledge can be divided into two different categories: explicit and tacit knowledge. Lei (1997, p. 213) stated that "explicit knowledge is that which can be written down, encoded, explained or understood by anyone with a basic understanding of the technology or phenomenon at hand—inside or outside of the firm." Hence, explicit knowledge can relatively easily be formulated by means of digits and symbols and thus be digitalized. This knowledge can, in other words, easily be transmitted to others by means of, for example, information technology. Lei (1997) further argue that although explicit knowledge can be protected by patents and thus remain an intellectual property, such knowledge is "transparent" in the sense that anyone with a comparable knowledge or skill base can understand the relevant technology and decipher it. Moreover, explicit knowledge is not embedded or enshrouded in the firms' organizational routines or practices.

Tacit knowledge is defined by Howells (1966, p. 92) as: "non-codified, disembodied know-how that is acquired via the informal take-up of learned behavior and procedures." Fleck (1996, p. 119) describes tacit knowledge as: "a subtle level of understanding often difficult to put into words, a trained recognition and perception, a good feeling for the

technology. This form of knowledge is wholly embodied in individual, rooted in practice and experience, expressed through skilful execution, and transmitted by apprenticeship and training through watching and doing forms of learning."

In spite of the substantial interest in knowledge processes in organizations in the last three decades, the link between knowledge and innovation has not been extensively elaborated on. This is especially the case for tacit knowledge, which until fairly recently has been ignored and toned down in terms of its competitive importance, both by academics, managers, and policy-makers.

However, this development has recently changed toward increased attention to this part of the company knowledge base and is now "recognised as playing a key role in firm growth and economic competitiveness" (Howells, 1996, p. 91). For the relationship between tacit knowledge and innovation, Sobol and Lei (1994, p. 170) make the following statement: "…the skills required to compete and develop new products…have become tacit, human embodied and organization-embedded." This is also underlined by Marabito and Sach (2017) as a pathway to innovation leadership.

Knowledge, both explicit and tacit, is, however, not developed in a vacuum with the individual person or company. It is mainly a process where the company is part of a larger social system. Antonelli (1996, p. 285) says: "In sum, the capability to innovate successfully appears to be strongly conditioned by learning opportunities and by the accumulation of specific knowledge that is both internal and external to the firm." Hence, in studying knowledge in the individual companies it will be essential to consider external systems with which the company is interacting (the external knowledge base). Antoneli (1996, p. 283) expresses it in the following way: "…technology has a strongly systemic character so that each unit of technological knowledge can be created and

traded only within a larger framework including the array of complementary and interrelated units of knowledge generated by firms." Hence, the entire knowledge base of the individual company is developed in a social and cultural context, where the interaction between companies and between companies and external systems constitute major elements for both the development and transfer of knowledge, both tacit and explicit (Case, 2016). This is very clearly expressed with Sweeney (1996, p. 59): "in the past, organizational innovation tended to be the force driving technological and social change. The indications are that social forces will determine technological and organizational change in the next long wave." Stejskal, Hajek, and Hudec (2018) too elaborate on this line of argument, by particularly arguing in favor of the link to the market as an important factor in knowledge spillovers.

A natural place to search for a more profound understanding of the link between knowledge, particularly tacit knowledge, and innovation is to be found within the research theme "organizational learning." As the marketplace increasingly has been characterized by profound social, economic, and technological changes, where we have an increasing demand for more knowledge both in companies and in the society as a whole, organizational learning has received growing attention. The reason is quite simply that knowledge is closely linked to learning and could be understood to the effect that knowledge is the result of learning encompassing cognitive development and behavioral change.

Antonelli (1996, p. 284) underlines the link between organizational learning, knowledge, and the link between systems when he expresses: "…the generation of localised knowledge is viewed as the outcome of a collective undertaking strongly influenced by the availability of information and communication channels among learning agents." The assumption of a link between "firm-specific skills and

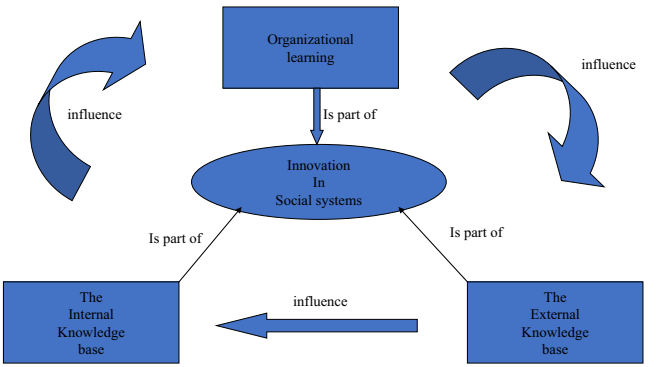
capabilities has made learning a focal point of concern" (Pisano, 1994, p. 85). Pisano's statement suggests a clear link between tacit knowledge and organizational learning. This link has also been expressed by a number of other authors.[2] The ability to develop, design, produce, and market involves the ability to learn (Anderson & Jefferson, 2018). This also links innovation and organizational learning.

Organizational knowledge processes, innovation, and organizational learning are integrated in a process, and the one element cannot be studied independently from the two other elements. This is clearly underlined by Nonaka (1994) and Marabito and Sach (2017). Furthermore, Pisano (1994) emphasizes the necessity of, and increased attention to, the study of tacit knowledge and organizational learning. What particularly links tacit knowledge to organizational learning is perspectives linking the concepts "situated learning" (Lave & Wenger, 1991), "contextual learning" (Chaiklin & Lave, 1993; Østerlund, 1996), and "implicit learning" (Reber, 1993). The point of these three constructs is that they, through "learning by doing," "learning by using," "learning by experimenting," and "learning by interaction," constitute the processes that develop, transfer, and integrate tacit knowledge in the organization.

Knowledge and tacit knowledge in particular, in a time with increasing hypercompetition will be focused on companies' ability to learn and to innovate. Hence, we argue that knowledge becomes the most important resource, learning becomes the most important process, and the interaction between the various actors and the systems influencing or participating in the process becomes the most important

2 For example, Leonard-Barton (1995), Dosi (1988), Nelson (1987, 1988, 1990), Nelson and Winter (1982), Cohen and Levinthal (1990), Nonaka (1991, 1994), Nonaka and Takeuchi (1995), Dosi, Teece, and Winter (1992).

Fig. 1.1. Innovation in Social Systems.



prerequisite for innovation in social systems. It is the three entities – organizational learning, the internal knowledge base of the system, and the external knowledge base – which make up the conceptual model for this chapter (see Fig. 1.1). The model will be used to isolate those social mechanisms affecting innovation in social systems.

KNOWLEDGE MANAGEMENT: INNOVATION IN CLUSTERS

Most of the widely used definitions of innovation focus on novelty and newness. We follow in the footstep of Zaltman, Duncan, and Holbeck (1973, p. 10) which defined innovation as: "any idea, practice, or material artifact perceived to be new by the relevant unit of adoption."

The literature on innovation research differentiates, both at the macro and micro levels, between two main models; the linear model with its theoretical foundation in neoclassical