

Knowledge Management: The fad that forgot time

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Abstract

Knowledge management currently emphasizes efficiency of information processing through IT, speed and acceleration. Often the importance of time as context of knowledge processes is neglected. Knowledge management thus is bound by the standard concept of time: clock time. This impedes knowledge management to promote innovation. Innovation needs dynamic contexts that integrate multiplicity of time. This paper analyzes the contextual dimension of time to promote knowledge processes.

Clock time has dominated management thinking on time. Following reengineering knowledge management attempts to increase time- and cost-efficiency in a similar way by emphasizing explicit knowledge and information systems, measured time, abstraction and independence of context. This reductionism and decontextualization through clock time destroys ontological contexts that contain tacit knowledge and afford the co-creation of knowledge.

This paper examines the emergence of knowledge through multiple time experiences. Analogue, digital and hybrid time concepts show the variety of different time experiences. Different time concepts can promote different organizational knowledge processes. Four time experiences are developed along two dimensions: subjectivity and visibility. Besides the digital concept of clock time three other concepts emphasize the analogue or hybrid nature of potential time experience. The organizational capabilities to provide these experiences and to manage simultaneous or sequential synthesizing processes are important to manage knowledge creation.

The framework of multiplicity of time is grounded on knowledge creation theory and multiple-in-depth case studies. Selected cases of design consulting companies show how organizations use polychronicity to explore and exploit creative capabilities of employees to foster innovation.

1. Introduction

In the 1990s reengineering turned into a fad that forgot people. Now knowledge management is in danger to end as a fad because it forgets time. New knowledge is the source of innovation [1]. However, current management of knowledge does not explore or exploit this source effectively and efficiently. Knowledge management faces three fundamental problems [2] (1) Current knowledge management stresses efficiency of information processing through IT (digitalization). (2) It is limited to "quick fixes" and speed (acceleration). (3) Knowledge management eliminates the ontological contexts necessary for quality experience, multiplicity of time (decontextualization) [3].

Knowledge emerges in contexts where improvisational relationships between beings and contexts concentrate [4]. However, space and place dominate the context perspective. Time is marginalized as independent variable.

The multiplicity of temporal is a key to successful management of knowledge creation [5]. Knowledge management needs to explore the contextual dimension of time to define, create, share, and protect proprietary knowledge to synthesize innovation capabilities.

2. Current Developments in Knowledge Management

Research and practice in knowledge management includes economic analysis of intangible assets, knowledge management and intellectual capital. The economic perspective examines the macro effects of knowledge on competitiveness of industries and firms [6]. In economic analysis time is used as a measure and implicitly as a proxy for causality. In knowledge management, companies try to manage knowledge by relying on Information Technology (IT) systems, such as enterprise systems, Intranets and Internet for sharing and transferring knowledge [7]. Such IT focused knowledge management aims at speed and efficiency in processing existing knowledge to achieve or sustain cost advantages. Intellectual capital is closely related to finance and accounting practice [8]. Intangible capital is measured over time to justify decisions on resource allocation, or to convince stakeholders.

An ontological understanding of knowledge and time provides new insights for knowledge management. This paper focuses on time as context for conversions of tacit and explicit knowledge of knowledge creation theory [9]; experience of time in specific occasions that are analyzed to help to create and exploit knowledge effectively.

Environmental concepts such as communities of practice, clusters, place or Ba (Japanese for place) are implicitly based on time [10]. But time remains a residual factor that is integrated into space. Scruton agrees with Whitehead that the practice of spatializing time is “one way of not taking time seriously.” [11] An perspective of time needs to complement the concept of place to facilitate management of knowledge creation. The paper uses the concept of polychronicity to provide temporal contexts (ontology) for knowledge management (epistemology) [12].

4. Time Theories: Dichotomies and Dominant Thinking about Time

Thinking about time has been largely thinking in dichotomies, such as objective – subjective, continuous – discrete, absolute – relative, succession – duration, reversible – irreversible, or individual – social [13]. Aristotle who defined time as the metric between “before” and “after” is supported and rejected simultaneously for stressing the metrics and relational perspective of “now”. Despite existing dichotomies researchers of all traditions and specialties have continued to pursue the notion of time from a variety of perspectives.

Time has been analyzed and exploited to gain competitive advantage mostly by stressing speed and velocity to ultimately reduce costs [14]. This notion of ready-made knowledge on demand stresses abstraction, the independence of context and measured time. Since Einstein’s evidence showed that time depends on contexts, concepts of time have changed towards multiplicity. Polychronicity, including social time, quantitative and qualitative duration [15], needs to be considered to unlock the innovative potential of knowledge management.

Two dimensions visualize the variety of concepts of time and connect to knowledge management. The first dimension describes the possible degrees between quantitative and qualitative understanding of time. Where physicists as Einstein, Hawking, or Heisenberg describe time in quantifiable, mathematical ways, philosophers or psychologists deal with the social interactions, importance of contexts and constructions that do not allow quantification.

The second dimension that helps to systemize the concepts is the continuum between homogeneous and heterogeneous time. Kant understood time as an a priori given for all human perception therefore as shared universal time, independent from place [16]. Others such as Leibniz or Newton understood time as homogeneous, either as a universal principle that orders things or as an abstraction. On the other end of the continuum we find time as heterogeneous, changing, subjective, social, relative concept as proposed by philosophers and sociologists suggests that the concept of time be subject to change according to environmental circumstances [17]. The dominant concept of time is that of quantitative, homogeneous time (Fig. 1). While the other perspectives used to understand time (hybrids, analogue) are existent, they are subordinate to Newton's notion of objective time that became paradigmatic with industrialization, the concept of clock time.

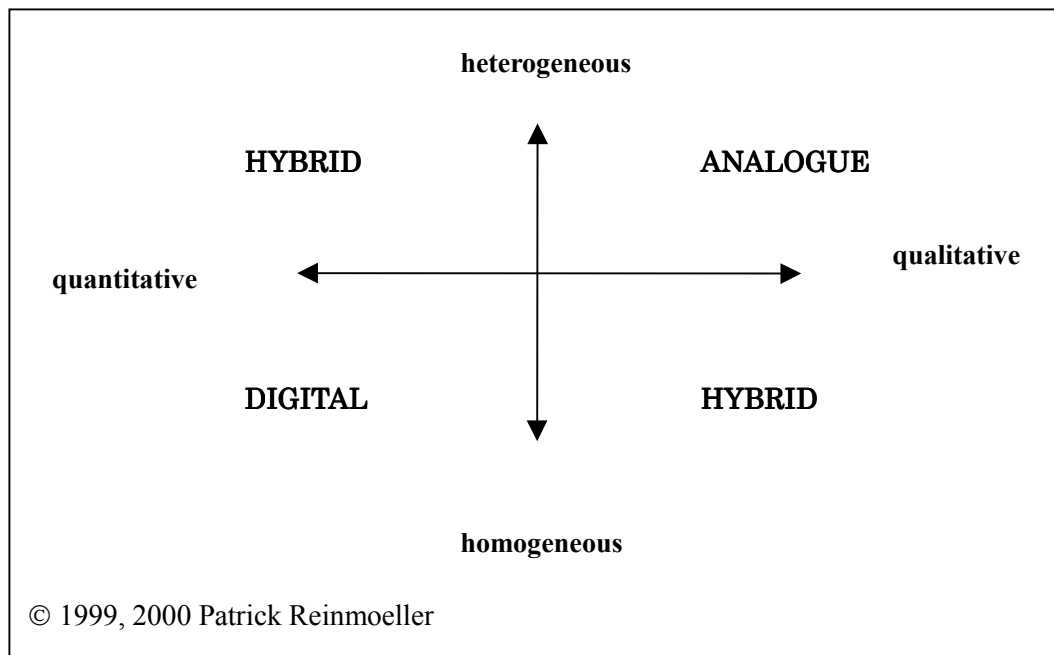


Fig. 1 Time Concepts

This modernist understanding of time dominates also knowledge management. It has been rejuvenated by digital technologies (digital time concept), but it has not fundamentally changed. The field of application for modernist understanding and usage of time has expanded drastically, including 24-hour trading, instant communication and data transmission. In such a sense, digital technologies are to the age of globalization what analogue chronometers have been to industrialization. The standard, digital concept needs to be utilized and refined further. However the digital concept alone is not enough to create knowledge.

Epochs of discrete meaning constitute life experience as being in time; the duration as a whole, with epochs of distinct experience is a key to understanding human knowledge processes [18]. Organizations need to explore and exploit polychronicity to understand and to facilitate knowledge creation. Digital time and speed have limits, such as focus on explicit knowledge or decontextualization. Therefore organizations have to beyond these limits by creating temporal contexts for time experiences. Analogue experience of high quality of tacit knowledge is the key to breakthrough innovations.

5. Polychronicity: Occasions for Knowledge Conversion

]The multiplicity framework of time with distinctly different occasions, such as creative leisure (Latin: otium), defining moment (Greek: kairos), velocity and seasonality (Fig. 2). Privacy spans from personal (high) to public (low). Individuality is shown as a continuum between individual and social. Time experiences, such as the highly personal experience otium and more publicly visible defining moments are rather individual. The following tend towards being social occasions. High speed is a public and diffused experience of time in the modern world. Seasonality is a personal interpretation of social dynamics.

Creative leisure means experience of time itself, which can help to attain higher productivity. The refusal to engage in “how” activities (being busy) creates time for truly experiencing and discovering “what” activities that allow for innovative leaps (being creative).

In the context of product development processes otium is consciously applied. The development team of Honda’s

S2000 sport coupé deliberately went several times for two to three weeks to Europe [19]. The team cruised in different top class cars at leisure through European landscapes to create and share tacit knowledge regarding the pleasures of driving.

Defining moment distinguishes brief periods as particularly meaningful. Defining moments occur when meaning culminates within a narrow time span. The current idea of timing is one aspect of defining moments. Defining moments are known as important in articulating consensus or decisions. Catching the spur of the moment by putting chaos to order refers to turning points that concentrate meaning [20]. When things seem due to be done definitive action is needed to seize the moment [21].

Providing the occasion of defining moments does not mean an isolated point in time, i.e. a press conference, an exhibition. Iteration of such occasions is common, as for example during the development process of the S2000 at. The development team prepared and seized several defining moments, including visits to Honda's historical sites or presentations to top management, to articulate a series of insights leading to the final outcome. Such defining moments are processes of articulating and refining ideas. Honda's famous "waigaya" sessions have their particular pattern and a distinct agenda for the team leader [22].

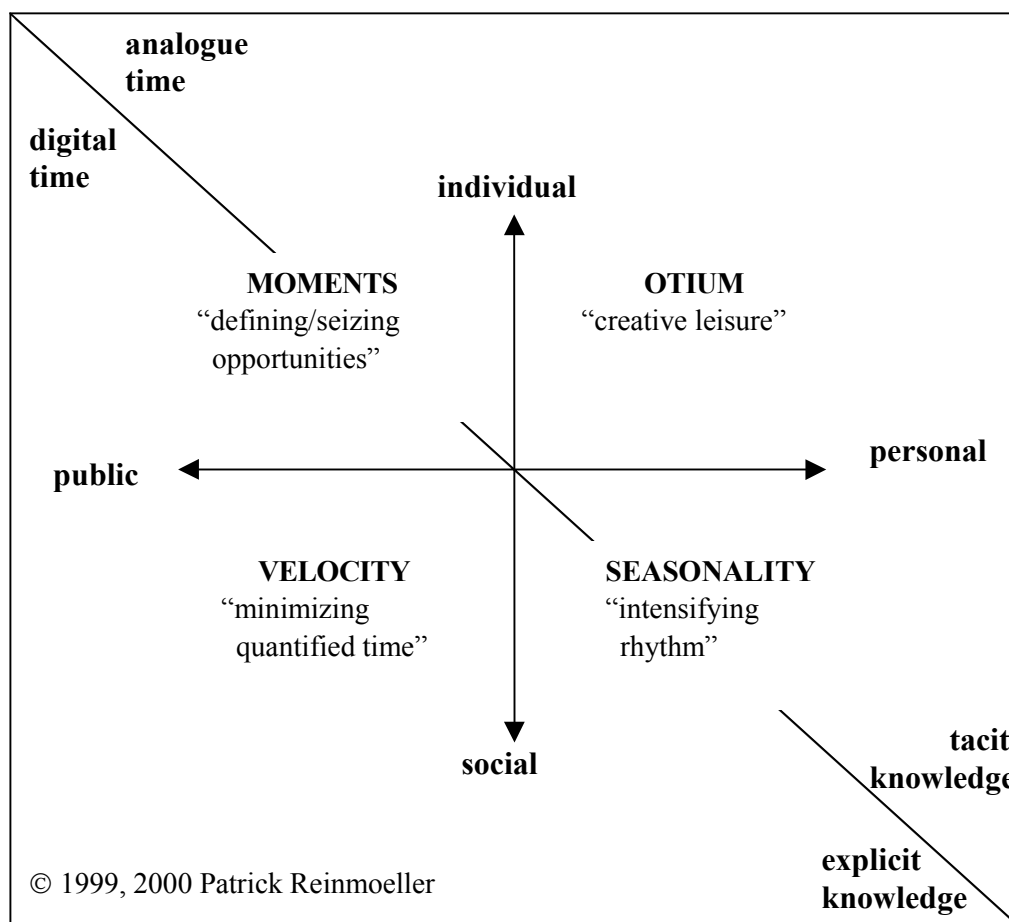


Fig. 2 Polychronicity: Occasions for Knowledge Conversion

High-speed occasions are very close to the digital concept of time; their guiding metaphor and limit is that of the speed of light, as expressed in Internet time. Occasions that evoke high-speed experiences minimize time through organizational structure, efficient processes, limitations, budgets and support systems or methods. Research on cultural

differences in time perception shows that industrialized countries create time experiences that require high levels of activity, such as time experiences of people in metropolises which differ markedly from experiences in rural locations.

High-speed time experiences are tied to mathematical and quantitative measurement of time and other performance metrics [23]. Measuring of time and time keeping as practices themselves foster standardization and comparison that prepare occasions of high-speed experiences, such as simultaneous new product development projects that exploit different time zones. Information technology has increased the speed by linking action to time and automatically taking records of all time-action events, such as sending e-mails.

Seasonality is grounded in the fact that experiences in time are not unique occasions. Giddens [15] points out that, while individual's history of experience is irreversible and bound to end, the duration of day-to-day being of individuals and the long duration of organizations is recursive and repetitive in itself. The continuous passing and repetition creates the experience of duration, simultaneous change and flow. Seasonality links individual behavior to organizational routines through a complex rhythm of basic recurrence and specific change on different organizational level.

Shimano Inc. a bicycle component manufacturer in the city of Sakai, West Japan, targets mainly the high end markets in North-America and Europe. The fact that Shimano's product planning managers and relation managers spent much of their time in foreign markets makes them experts in local market trends. Shimano refines their knowledge on world bicycle markets and presents it to partners. Shimano's presentations regularly update Japanese manufacturers on new Western trends. Further, employees in South-East-Asian factories are invited to educational trips to the headquarters in Japan. The recursive pattern of training in Sakai helps to disseminate and transfer manufacturing skills as embodied knowledge to the subsidiaries [24].

6. Exploring and Exploiting Time

The design of the research methodology is multiple-case; the cases selected were treated as a series of experiments to test the conceptual hypothesis, and to allow for comparative analysis from the perspective of "replication" [25]. The cases are based on multiple-sources, such as extensive reviews of secondary material; semi-structured interviews with managers and hearings of experts in the industries were conducted.

Two data sets including design-consulting companies and companies in the information technology and service industries offer the empirical foundation for this paper. The cases are part of an ongoing series of interviews in information technology, the service and design industry; first interviews were conducted in 1995. Some illustrative material of two design consulting companies is presented below to develop a deeper understanding of how organizations use polychronicity in international business practice.

6.1 Case Study "I": Exploring Time Creatively

"I" is a leading professional service firm offering complete product design, development, strategy or design for manufacturing. "I" is known for creative work style and innovative results.

One way to increase occasions of creative leisure is to offer artifacts that trigger interaction, contemplation and exploration. At "I"'s headquarters a black box contains numerous curious articles and materials that are meant to be as entertaining stimulus to experience new materials, colors or solutions. The box invites people to playful interaction more than a hundred items that stimulate sensorial experience.

While beneficiaries can indulge in physical experience of the items in the black box, "I" prepares immediate switching to high-speed access through digital technology. "I" has installed a computer on every black box with immediate access to the "I"'s Intranet to increase the impact of such sensorial interaction with new materials. On a special page all items are described in detail. The digital documentation of explicit knowledge on each item contains basic characteristics, special information and indications for use. Thus the concept of otium is directly linked to high-

speed access to detailed data, including supplier contacts and links to their homepages. The black box is to be located in all offices worldwide, so those beneficiaries are stimulated to spend time at leisure and expand their shared tacit knowledge.

One means to define meaningful rhythm of epochs in an individual's life span is to offer the occasion to experience new challenges, such as the opportunity to apply for a long term transfer to another "I" office. Transfers for mostly 6-month periods are a unique occasion for individuals to experience personal and social time in different culture in Asia, Europe or USA.

6.2 Case Study "F": Synchronizing Time

The leading international design consulting company "F" emphasizes a multicultural identity and creative integration of graphic, new media, industrial design, mechanical engineering, strategic consulting and building of brands.

Polychronicity utilized at "F" is a key to integrate resources fast. The different offices offer beneficiaries opportunities to apply for preferred location. The employees may want to extend their irreversible lifetime spend close to their home or to invest time to explore the world at their leisure. Face-to-face meetings create a sense of urgency and prepare defining moments. Frequent traveling during projects is common for shorter distances, such as those between the US East and the West Coast. Such physical trips are meaningful epochs with expectations, tensions and opportunities; they such occasions can become memorable epochs during a development project.

Members in different time zones that work together on a specific project share a "virtual project time". This "virtual project time" corresponds to the need to communicate over timelines. To increase the efficiency and achieve high-speed in development the members live simultaneously in local time and project time. "F" is engaged in a long-term experiment with a clients real-time video-conferencing system. "F" does a real life experiments to understand the potential of the equipment for knowledge work. Video-conferencing is integrated with new product development to support improvisation. Remote locations are connected via a standing online connection. The screens are placed in central areas of the offices so that a passer by is transmitted to the other office in real time. The integration of video equipment as a window to the remote offices invites spontaneous dialogue. Such technology-enabled encounter synchronizes activities in remote offices, and integrates different patterns of everyday life.

7. Conclusions and Implications

Polychronicity is complementary to ontological places; it creates contexts for innovation. Four temporal occasions for high quality experiences of being in time promote knowledge dynamics. Interaction of human and artificial resources in multiple temporal contexts has been examined.

The conclusions can be summarized as follows. 1) Providing contingent time experiences can stimulate knowledge processes. 2) Multiplicity of experiences is important to promote different knowledge conversions. 3) Methods of how to create and integrate different time experiences are developed and applied specific to organizations. 4) Polychronicity includes exploring and exploiting the benefits of multiple temporal contexts in sequence or simultaneously.

Managing of polychronic contexts requires, first, detailed analysis of the temporal conditions within and related to organizational vision and goals. Two, identifying the key time occasions to strengthen key processes and to support weak conversion processes. Three, following detailed analysis time occasions need to be prepared. Given the current focus of knowledge management of digital standard time, polychronistic leadership has to emphasize analogue time concepts providing defining moments, seasonality and creative leisure to leverage time occasions for successful knowledge creation and breakthrough innovations.

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