

The Knowledge Management Movement: Current Drives and Future Scenarios

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Abstract

Knowledge Management (KM) has developed at an unusually fast rate as a field of practice and learning. This paper tracks the seeds of the movement, the institutionalization process and some early signs of the role it might eventually play in the emergence of a global consciousness.

Three business drivers for the fast growth of the KM movement are identified and dimensioned: i) the shrinking cycle time for competency-base renewal, driven by the rate of industrial innovation; ii) the urge to value intellectual capital, driven by the growing economic weight of intangible assets and exasperated by an unprecedented wave of mergers, acquisitions and alliances; and iii) the pressure for most organizations to cope with a massive flood of unstructured information. On this light, the emergence of business and consultancy KM processes and tools is mapped. The current picture shows a pattern of turbulent propagation and dispersion of concepts and practices. This has led to a scarcity paradox in KM itself: the abundance of information and the rarity of wisdom. By looking at the existing confusion in the very definition of KM, the opportunity to capitalize on the philosophical and scientific stock of understanding about human knowledge becomes apparent. Some basic knowledge management operations for a rational reconstruction of the field of KM itself, look promising.

At the same time, early signs of self-regulation within the KM movement are beginning to appear. Some distinctive patterns of institutionalization of the KM movement are examined. On the one hand, conventional practices for the institutionalization of a discipline (such as dedicated societies, publications and conferences), are well established within the field. On the other hand, warnings on the potential role of the movement either to consolidate the drawbacks of industrial economy or to foster social mobility and economic growth are starting to receive attention. A number of potentially positive as well as negative impacts of KM on social and economic development are considered.

On the basis of the former analysis, some preliminary conclusions are drawn regarding the foreseeable evolution of KM as a field of theory and practice. Finally,

the possibility that KM could contribute to catalyze the emergence of a global consciousness is discussed.

Introduction

Given the sudden rise of the KM movement, the lack of an explicit theory or ideology anticipating it, and the speed at which it is spreading, one might be tempted to look at it as some form of spontaneous ignition. But we know that in order for a fire to start, three factors are strictly necessary: a combustible, oxygen and a sufficiently high temperature. Some other factors, although not critical, may contribute to facilitate or prevent a fire, such as moisture or wind. Helped by this analogy, we may ask: how did the fire of KM started? Which elements contributed to its emergence and propagation? Where is it heading to?

This paper is a preliminary report on a line of study at the Center for Knowledge Systems. This line aims at understanding the emergence of the Knowledge Management (KM) movement as an economic, social and cultural phenomenon. Also, it is concerned with the role of the KM movement either in the consolidation of unsustainable global trends or in the leverage of sustainable development and global consciousness.

Rather than reporting findings, this paper proposes a research agenda and launches a number of questions. Nevertheless, where some lines of evidence are beginning to mount and some patterns beginning to appear, these are identified and discussed.

It is the intention of the author to contribute to opening the discussion of these issues within the KM community and that growing levels of collective awareness and initiative emerge as a result.

1. Contributing Causes of the KM Movement

The novelty of the idea of deliberately improving our ways of handling knowledge, basis of the emergence of the KM as a managerial innovation, is often disputed. In fact, the birth and genealogy of the current KM movement is an open question. Of course, it all depends what we understand as KM in order to settle this issue. If we take as working definition of KM "the systematic application of scientific understanding about knowledge as a deliberate strategy by individuals, organizations or societies to optimize the production of value", then we can look for clues.

1.1 Underlying Drives of the Movement

Some say KM has been with us long time ago, often referring to classic Greek Philosophy. But obviously, our definition precludes any knowledge practice founded on philosophical grounds alone. To be sure, knowledge practices have been with us from the dawn of civilization. The articulation of experience is inherent to human consciousness and hence as old as this phenomenon proves to be. Social Anthropologists [1] refer to Knowledge Governance as the means by which human societies articulate their collective experience and give it permanence (through some form of record) and continuity (through some form of transfer). This applies to oral traditions in nomad and agricultural societies, to engraved/printed records in urban societies, to digital files in current post-modern societies. Note that associated to a form of record are different transfer practices which combine in a particular array of knowledge technique, e.g.; printed text associated to traditional school instruction [2]. But although there have been conscious attempts to found some practices such as education on the best scientific understanding of the underlying phenomena (i.e., learning), it is not until very recently that a formal link between the level of the social knowledge base and the capacity to generate value has been suggested.

Hence, we can differentiate KM from all previous knowledge practices in recorded history in that:

- it constitutes a technology -namely the means to produce value out of the effective and efficient handling of represented reality
- it is founded on a science or set of sciences -namely the sciences of knowledge to which we will refer later
- it implies a growing awareness of a formal link between the social handling of knowledge and the creation of wealth
- it is fuelled by an powerful array of economic drivers which are giving knowledge an unprecedented attention by decision makers.

Given this description one may stop wondering how old KM is, and begin asking whether such an embodiment has actually begun to exist. The following sections describe how those different factors have been happening during the 1990s and how they are converging at the turn of the century. The first three look more like direct causes and constitute business motivations. The last two act more like enablers or propiciatory conditions. These five factors constitute extrinsic and therefore more visible factors for the emergence of KM. We will refer later to some intrinsic factors which in a more fundamental way may be contributing to the emergence of a new economic environment.

1.2 Drive One: Obsolescence Rate of Competency-base

The first economic drive in the emergence of KM has to do with the growing speed at which the know-how embodied in the workforce -i.e., the competency base of an organization- loses currency. This is obviously related to the shortening time-life of technologies and the need of people to acquire new skills. But it is also related to the entirely new portfolio of competencies that the "knowledge worker" requires in order to develop life-long employability.

Hence, the demand for life-long learning and the need not only to develop a new training infrastructure, but also to redefine the relationship between learning and work. While the education establishment is giving way to an alternative training system composed of corporate universities, adult learning centers, and on-line services, the meaning of training at work is shifting from a support function to the very essence of business development. Hence, establishing what a person has to do in order to add maximum value, what she has to learn, how she can do it best and faster, how it can be transferred to the right processes and have an impact in terms of business results, is a major managerial challenge for today's organizations. This need has sparked the learning industry as one of the fastest growing in the service sector.

Even if there is a growing culture about learning in organizations, this youngest child of the KM family has a lot to mature. To begin with, it has to reconcile the new and powerful business motivations with existing understanding (i.e., scientific theories) about human learning. Indeed, the prevailing discourse and practice about Organizational Learning has been influenced more by some parallel disciplines, such as Systems Theory, than by Learning Theory founded on empirical studies. Once both ends meet, the pragmatic forces driving innovation on learning management and the wealth of understanding resulting from more than a century of experimental and theoretical work, the field might multiply its impact.

1.3 Drive Two: Weight on Intangible Assets in a Company's Market Value

A second economic drive is the need to account for the value of intangible assets. Such need has been fuelled by two converging forces. One is the growing differential between the book value of a public company and the market value of its stock price. The signs are so compelling that many people actually equate such differential with the very definition of Intellectual Capital. Another urge to value intangible assets comes from the recent wave of mergers, acquisitions and alliances -the largest in history. Hence, the need to determine the value of intangible capital relative to the total value of a company has sprung efforts to determine the "magic formula", sort of an "intellectual gold rush".

Most of those intellectual gold diggers might be looking at the wrong side of the river. So long as the question remains "how do I determine the financial base of my intellectual assets", the likely answer will be some artifact to establish an indirect correspondence between heterogeneous classes of entities -oranges and apples.

Perhaps when the search becomes not just one of accounting for, but one of developing a consolidated capital base and therefore, one of Value-based KM strategy [3].

Then we might start looking for a homogeneous value frame for all forms of capital and their rules of correspondence. In order to do that, we will have to come to terms with the tenants of measurement and value theories [4]. Again, an encounter of business pragmatic vigor with existing human understanding.

1.4 Drive Three: Efficiency Pressures to Cope with Massive Information

The third economic drive constitutes the need of individuals and organizations to cope effectively with an overwhelming flood of data. Inefficiencies associated to poor information acquisition, indexing, recording, storage, retrieval, transfer, etc., are huge. The much debated "productivity paradox" in the US economy (relating higher investment in IT technology with relatively poorer results) has less to do with hardware reliability than with lack of process capability.

Hence, a third child of the KM dynasty was quick to be born in response to such pressure. Software companies, aware of the demand for systems capable of delivering integrated information management rather than mere data processing, began notably during 1997 to re-label existing or in-development products as "KM solutions". Not surprisingly, most of them are the same old datawarehouses, yellowpages, document taxonomies and the like. Again, the solution is unlikely because the question is wrong. Most of these are based on an attempt to build powerful enough data superstructures. This is understandable when the Chief Knowledge Officer is seen as a projection of a "high-end CIO". But no matter how large, no matter how complex, current information systems cannot deliver the foundations for KM.

The main constraint of IT in dealing with KM matters is the very concept of knowledge that prevails in the IT industry. Knowledge is very extensively regarded as "content" and, therefore, treated as "object". Knowledge is seldom seen as a human act, an event, a happening. Taken as content, it is void of agent and context (human and cultural factors) and remains a computer operation. Hence, the prevailing preminence of information systems in current "KM solutions".

Sure, those packages can be "customized", but again, only subordinated to a given structure. Until "KM solutions" depart from business processes and then design tools that leverage process capacity, they will remain unfulfilled promises. Some companies are preferring to understand better some basic KM operations -notably document handling, collaborative teamwork and basic forms of knowledge visualization- and design flexible environments with a low learning threshold. Rather than offering the ubiquitous "KM solution", they are developing platforms where

proper KM strategies can be built within the organization. Yet, amongst so many efforts going on, innovative platforms designed to leverage KM agents in their value contexts may be showing up any time now.

1.5 Enabler One: Social Awareness of Knowledge Base Value

The first contributing factor to the KM movement is the realization by a growing number of government and development agencies of unprecedented evidencies regarding both the social value of knowledge and the huge inadequacies of the existing knowledge establishment. Until as recent as the 1970s, the intuitive idea that learning is a sound social investment was a romantic one. Only when the studies on Human Capital [5] established consistent empirical correlations between education levels and outputs such as employment, occupation and earnings, policymakers had the tools and compelling arguments to develop the social knowledge base. At the same time, national surveys in several OECD countries began to exhibit the huge and growing disalignment between social knowledge needs (e.g; fast competency renewal in industry and distant lifelong learning) and the knowledge establishment (academic and scientific institutions).

As a result, some of the most important development agencies such as the World Bank and the OECD have made U-turns in their policies and are now strong supporters of K-based development strategies. This shall bring not only the long-term effects of new knowledge policies which are just beginning to be implemented (such as national competency systems), but also short-term benefits in terms of credit, venture capital and knowledge capitalization.

1.6 Enabler two: Convergence of New Sciences and Technologies

A second favourable condition is even a more recent manifestation, practically happening now. This is the unprecedented array of scientific and technical resources that are available to build the knowledge society. Again, knowledge visionaries from Confucio to Bacon provided normative systems for wiser societies, but counted on rather poor social support systems to found them on. As a postmodern society, we might be confronting the very prospect of environmental and social collapse, probably even more that in Confucio or Bacon times. But we also have available a number of key resources.

First we developed, in the course twenty-century, an understanding of human knowledge -specifically of the scientific kind- which until very recently had been the exclusive realm of discursive epistemology. Through a consistent build up of empirical studies about science itself -the so-called Sciences of Science [6]- we have developed a second-order understanding of the way in which we generate and handle knowledge. Historical, Sociological, Economic, Psychological and Linguistic

accounts of human knowledge offers us not only new perspectives, but above all the possibility to advance those perspectives through empirical testing, not just opinion. This gives citizens the means to make knowledge policy more accountable and knowledge investments more effective [7].

We don't know for sure how favourable this is because we have no external rule to judge the inherent adequacy of our knowledge method. But one thing we know is that for the first time we may be entering a second-order knowledge system, that is, one that is capable of learning about itself. By founding MetaScience and MetaTechnology we might be able to boost our knowing capacities. That was Bacon's realization when he prescribed ... "that discoveries advance as the method of discovery advances" [8].

2. The State of the Art

From the prior perspective of its origins, we will now look at the current pattern of development of the KM movement. Also, some general trends will be identified.

2.1 Dispersion Phase and the Scarcity Paradox

On the basis of the previous account of economic drives and enablers, the KM phenomenon is a turn-of-century creature, a postmodern happening of the 1990's. As such, it exhibited a first phase of explosive growth and dispersion during the first half of the 90's. For good and for bad, business pragmatism was the powerful engine that helped the movement to spread with unprecedented speed, while the academic and scientific communities were -and still are- largely unaware.

Typical of this phase were the proliferation of events as means of diffusion, the involvement of business magazines, the lack of technical frameworks, the extreme diversity of practices, and the easy reengineering of consultants. Not that there was lack of highly relevant scientific and technical contributions, but they simply did make no contact with the conceptual base accompanying the movement. Discussions were centered on the novelty and business significance of the new economic rationale. Knowledge itself was regarded as a given entity, still an object: the hen of the golden eggs.

Given the fast dispersion of improvised accounts responding to the economic drives identified in previous section, the movement was -and to some extent it still is- lacking substance, both scientific and technical. As The Economist perceptively put it in 1996: "what is scarce in the new economy is the ability to use and understand knowledge" [9].

2.2 Institutionalization Phase

As rapidly as it emerged and dispersed, the movement has been quick to react to the need for articulation. By 1997, the conventional elements of an institutionalized scientific discipline had been established within KM - dedicated journals, professional societies, peer review procedures, practitioners simposia. Some more recent forms of knowledge dispersion, such as electronic fora and dedicated web-pages, flourished overnight.

The pattern of institutionalization of KM is characterized by:

- the establishment of practitioner networks, which have been fundamental for the early articulation and diffusion of the movement,
- the effort towards the establishment of industry standards, which are adding credibility and conceptual foundation to the movement,
- the consolidation of an educational base, which although extremely slow to jump in the wagon, has some early participants and will probably be enriched soon, not necessarily by conventional academic institutions,
- the global distribution of KM activities, such as conferences and Internet resources which are reaching a more distributed audience,
- the growing role of dedicated KM integration entities, such as research centers and professional organizations.
- the initial consensus about the core processes and competencies distinctive of the KM domain.

2.3 Mapping KM Processes and competencies

One of the most fundamental lines of development is the definition of the underlying processes and competencies which actually constitute the basis for KM practice. Attempts to integrate core KM processes within a consistent theoretical and technical framework are beginning to materialize. The following taxonomy of KM processes is an attempt to provide an integrated framework. Details about the rationale and associated competencies, as well as references on similar attempts, can be found at the KmetaSite [10], a reference website specialized on KM.

First, are processes related to the organization as a general value system and hence to the mapping and strategic direction of the capital base. These include the establishment of the value base, the strategic consolidation of capital (i.e.: the integrated value ledger), as well as KM process assurance and innovation.

Second, are processes related to the development of Human Capital, perhaps the most continuous and work intensive of them all. Basically, these depart from a value alignment process in order to enable the development of individual and teamwork competencies (function analysis, competency matrix, standardization, instructional

design, learning systems, certification), as well as the development of value practices (visualization, optimization, standarization, capitalization, replication and frandchising, competition and cooperation, diferentiation, transfer and acculturation, commercialization, auditing) as aggregates of organizational performance.

Third, are processes related to the development of Instrumental Capital. These include the development of the knowledge base in all its content (i.e.: documents form) and process manifestations (generation, acquisition, explicitation, visualization, structuring, indexing, recording, storage, appropriation, protection, maintanance, retrieval, capitalization, sharing, contributing, valuation and compensation, assesment, commercialization, and clearing).

2.4 Second-order KM

The aforementioned KMetaSite and other initiatives such as KMC's MetaPrise are examples of intentional second-order KM: the movement managing itself. Through the application of existing knowledge about KM to the innovation of its internal mechanisms, the movement may be able to grow into progressive levels of consciousness.

Again, there is a wealth of human understanding in the Metaknowledge domain. From epistemology and other branches of philosophy such as cosmology, to the rich new domain of the Sciences of Science which grew with this century and gathered momentum in the last decades [11]. Once the KM movement becomes aware of the existing knowledge base in metaknowledge, it will multiply its options for designing its own future.

3. The Fate of the Earth

This subtitle is a reference to a yet unidentified 1970s paper that dealt with the social implications of experimental psychology, entitled "The State of The Art and the Fate of The Earth". Since our understanding about human behavior remains a core determinant of KM, that title seemed appropriate to articulate this paper. In the final section of this paper, an early identification of forces determining the social impacts of KM will be ventured. On the one hand, those forces which might prove detrimental and on the other hand those which might prove benefital to the prospects to a sustainable global future.

3.1 Intrinsic KM development factors

First, it is convenient to demarcate the scope of this analysis. It will not deal with the new value dynamics resulting as the means of production shift from objects to

represented objects. That in itself is an issue that deserves a review parallel to what this paper has covered so far. These are the intrinsic factors we referred to in section 1.

No doubt, there have been substantial advances in understanding that new value dynamics from such prominent economists as Gary Becker on the Theory of Human Capital, Robert Solow on the impact of technology, Robert Fogel on the value of sustained innovation and Paul Romer on Endogenous Growth. Nevertheless, an integrated body of knowledge that provides empirical principles for the generation and distribution of wealth in a knowledge economy, looks remote. To begin with, an unprecedented articulation of multidisciplinary elements and, above all, a radically new paradigm seems necessary to generate such account. This intellectual enterprise calls for collective rather than individual talent. In *PostCapitalist Society*, Peter Drucker wonders whether anyone will dare to undertake the intellectual manifesto of the Knowledge Economy, something like *The K-Capital*.

One of the most distinctive challenges to the KM movement is the extent to which it is capable of gaining self-awareness and self-management capabilities. To the extent that this happens, it will be able to facilitate the process for achieving the best human account on the principles of knowledge economics.

What we will do in the following sections is to identify some issues that look relevant to a research agenda on the social impact of KM.

3.2 Potential negative impacts

Perhaps the most immediate question regarding the transition from a industrialized to a knowledge production mode, is the impact it may have on the sustainability of global development. It is not necessary to refer that transitional impact to developing countries, since it is the very evolution of the less developed economies what may determine global sustainability within a few more decades. Almost every critical issue of global governance, notably environmental issues, find their policy constraints in the possibility to integrate larger sections of the world population into a virtuous circle of competency, self-reliance and productivity.

Is the transition to a knowledge economy contributing to reduce the concentration of wealth at national, regional and global levels? Are policy makers aware of this sort of implications of the new economy? Beyond the multiplicatory effects on knowledge on wealth generation, the question follows whether such effect may only contribute to establish an unsurmountable gap between rich and poor economies. A so-called indianization of the global economy is unfortunately the prospect that the inertia of the current state of affairs offers to the new millenium.

A second aspect to watch is the social appropriation and social accountability of knowledge-based power. Just as atomic energy and other scientific breakthroughs, the capacity to understand and manage knowledge may prove catastrophic if controlled by the wrong hands. Wrong, of course, means either those that deliberate attempt against social well-being or those that with social justification actually decrease the quality of other people's lives.

Thirdly, is the danger that, instead of leveraging society's capacity to increase its level of self-awareness, a knowledge elite might get trapped within a self-contained system of beliefs. Thus, the promise of social mobility of the knowledge economy may result not only unaccomplished, but systematically prevented by the control system it may engender. Just as the means to accomplish a learned society are more powerful than ever before, so are the means for its alienation.

3.3 Potential positive impacts

One potential benefit is the social accountability that a knowledge economy brings with itself. By having to make explicit all value dimensions relevant to a system, whether a business or society at large, stakeholders agendas are bound to be more open in that system. Also, by including a broader realm of human experiences within the domain of work, the person is regarded differently as a managerial entity, becoming an interlocutor. One immediate impact is the enrichment of the work experience, through imagination, sensibility and vision. Contrary to the traditional dichotomy between labour and capital, knowledge workers become capital carriers and therefore business partners.

Another line of potential benefits, may take a while to articulate as a real possibility: a society's design of its own cosmology and religion. So far, this has been a historical construction, evolving from primordial myths to institutionalized belief systems. It may now be the product of an intentional effort to sort out in a systematic manner the value system and ethical framework that is normally taken for granted. A number of effects from the early years of the KM movement strongly suggest that possibility.

As mentioned above, the knowledge economy is bound to deal with a much broader realm of experiences than the world of economics, finance and business ever dealt with. If KM attempts to offer businesses the means to sustained profitability, it will have to provide the representation, production, accountancy and distribution means to include all relevant experiences. This is related to the analysis at section 1.3, regarding the need to overcome the trap of "finding the financial value" of intangible assets. The construction of a homogeneous capital base is an act of linking back all the realms of nature, particularly the "physical" and the "psychological" worlds.

Another aspect calls for social -both individual and collective- design. This is the cosmology or cosmologies for framing the construction of reality. Rather than living franchise lives, the basic choices implied by self-management will have to be confronted. Drucker's emphasis on self-management as core individual competency for the knowledge worker [12] is not without its consequences. Self-esteem, self-understanding, self-improving and self-assessment are not territories that modern culture enables individuals to chart and inhabit.

All these impacts may not necessarily result comfortable or even included by everyone on the "positive" list of KM by-products. But even in this case, one may still have the choice to buy a worldview where such fundamental questions come with handy answers, as it already is. An enriched market of cosmologies would also include customized cosmologies. Once given the choice, that may prove a growing trend.

3.4 KM and the Emergence of a Global Consciousness

If we prove capable of improving our capabilities to understand our own knowledge mechanisms and perhaps of broadening our consciousness, then we might as well improve collective consciousness and global governance. Contrary to any form of centralized control, such consciousness ought to come in the form of a networked array of individual initiatives sparked by the awareness about the extent of human-inflicted damage to the biosphere [13]. Other more ambitious uses of a global consciousness and governance are conceivable, but they will all have to overcome this first barrier.

What are the right conditions for the emergence of social consciousness regarding the State of the Earth? What may trigger the collective response of a critical mass of individuals and organizations the world over, in such an affective fashion as to contain the destructive agents of the ecosystem and its root causes? Again, significant efforts are building up, but the challenge for the KM movement is to take active part in articulating and diffusing the systems to make those initiatives more effective. After all, any future for KM depends on civilization itself having a future.

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