The unacknowledged parentage of knowledge management

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Abstract

Purpose – *This paper aims to argue that the current malaise and fragmentation within knowledge management are at least partially caused by a lack of awareness of its own historical roots.*

Design/methodology/approach – *A comprehensive literature review shows that very explicit knowledge management concepts and practices were in circulation 50 years ago and that current knowledge management literature has very little historical depth.*

Findings – *The current canonical knowledge management literature almost universally ignores significant antecedents to knowledge management thinking and practice dating back to the 1960s.*

Practical implications – *There are three practical implications: for knowledge management education to recover its historical antecedents; for KM theorists and practitioners to connect KM theory and practice to historically-related work in economics, sociology and information management, from which it is currently isolated; through an understanding of its roots to help knowledge management theorists build a meaningful and coherent agenda for the discipline.*

Originality/value – *This is the most extensive exploration to date of the historical origins of knowledge management, with significant implications for recovering a productive agenda for the discipline.*

Keywords *Information management, Knowledge organizations, Intellectual capital, Knowledge management*

Paper type *Literature review*

Charles Dickens opened the second chapter of his 1865 novel *Our Mutual Friend* with a description of the Veneering family:

> Mr and Mrs Veneering were bran-new people in a bran-new house in a bran-new quarter of London. Everything about the Veneerings was spick and span new. All their furniture was new, all their friends were new, all their servants were new, their plate was new, their carriage was new, their harness was new, their horses were new, their pictures were new, they themselves were new, they were as newly married as was lawfully compatible with their having a bran-new baby, and if they had set up a great-grandfather, he would have come home in matting from the Pantechnicon, without a scratch upon him, French polished to the crown of his head. (Dickens, 1865).

In many ways, this characterization of improbable newness could be applied to knowledge management in the mid-1990s.

The new kid on the block

It is generally accepted that knowledge management emerged as a discipline in the early 1990s, fuelled by a confluence of computing availability, propagation through consulting firms, and conference promotion – three Cs: computing, consultants, and conferences. There was a fourth C as well: commerce. Our three driving forces also provided a strong commercial push to market knowledge management as a new organizational tool.

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As Koenig and Neveroski (2008, p. 244) put it:

> KM, as the term is understood today [. . .] did arise basically in the consulting world, and it was they that publicized it. The consulting firms quickly realized the potential of the Intranet flavour of the Internet for linking together their own geographically dispersed knowledge-based organizations. They then quickly realized that the expertise they had gained was a product that could be marketed and sold to other organizations. The product needed a name, and the name chosen was Knowledge Management.

And in many senses, like the Veneerings, it appears that knowledge management sprang fully-formed from the womb, with very little acknowledged antecedent, and very little sense of the intellectual and management traditions from which it sprang. When Wiig traced the origins of knowledge management in 1997, he wrote that it ''came for some as the proverbial bolt from the blue'' (Wiig, 1997).

Once born, knowledge management took very little time to gather about itself the key features of its philosophy and approach, and they were presented as if invented anew. The great classics of knowledge management literature appeared in a golden period of five short years, from Wiig's great trilogy on knowledge management that appeared between 1993-1995, to Nonaka and Takeuchi's *The Knowledge-Creating Company* and Leonard-Barton's *Wellsprings of Knowledge* in 1995, to Allee's *The Knowledge Evolution*, Sveiby's *The* New *Organizational Wealth* and Stewart's *Intellectual Capital* in 1997, to Davenport and Prusak's masterful *Working Knowledge* and Wenger's *Communities of Practice* in 1998 (Wiig, 1993, 1994, 1995; Nonaka and Takeuchi, 1995; Leonard-Barton, 1995; Allee, 1997; Sveiby, 1997; Stewart, 1997; Davenport and Prusak, 1998; Wenger, 1998).

Knowledge management was not hijacked by the consultants, technologists and conference organizers, as later accusations were to go; it was invented by them and quickly clothed in management literature suited completely to the needs and environment of the 1990s. Or so it would seem.

In fact, knowledge management had a long and varied set of precedents. The phrase ''knowledge management'' appeared regularly in the management literature through the 1960s and 1970s, alongside a thriving literature until well into the late 1980s exploring practical and theoretical problems of knowledge transfer, knowledge utilization, and knowledge diffusion. It was in the 1970s that the relationship of data management to information and knowledge management (yes, using the phrase ''knowledge management'') first began to be explored.

A review of the bibliographies of those first knowledge management classics is revealing. Arguably the most popular and influential books, Allee's *Knowledge Evolution* and Davenport and Prusak's *Working Knowledge* reflected nothing of those antecedent traditions, although Prusak later acknowledged the influence of the economist Kenneth Arrow, who had begun writing on themes directly relevant to organizational knowledge management in the 1960s (Prusak, 2001).

The encyclopedic work of Wiig did little better, although Wiig otherwise showed a masterful ability to integrate wide knowledge of topics from organizational learning to intellectual capital and machine intelligence. Wiig saw some antecedents to knowledge management in the thinking on decision support and artificial intelligence and in the knowledge-based management practices of Chaparral Steel from the mid-1970s but missed any broader set of influences, placing the first uncertain steps in knowledge management proper in the 1980s (Wiig, 1993, 1997, 2000). Nonaka and Takeuchi had greater historical depth but still missed many of knowledge management's direct antecedents.

Of the major works to appear in that first five years of knowledge management, only Leonard-Barton's *Wellsprings of Knowledge* got seriously to grips with prior theoretical work in knowledge transfer and knowledge use, but references to her work quickly substituted in the canonical literature of knowledge management for the sources on which she so closely depended. It seems that few people wanted to read farther or deeper back than they needed to, once the first quick canon of authoritative literature was established.

It is as if in those five golden years that set the shape of knowledge management for the following decade or more, a process of selective memory was at work, where the explicitly acknowledged traditions for knowledge management were a limited number of its immediate predecessors in the 1980s – dominated by organizational learning and intellectual capital. And strangely enough, considering the strength of technology innovation and availability as a driver for knowledge management in the 1990s, much of the antecedent work in data and information management was also neglected – to its political cost in subsequent practice.

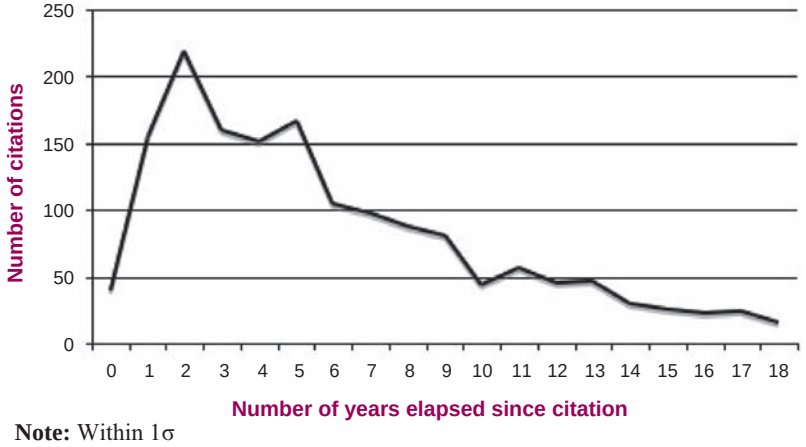
To get a better insight into this effect in a broader literature, the author looked at the citation patterns in nine top ranked knowledge management journals selected based on the ranking proposed by Serenko and Bontis (2009). The process was to take one sample issue from the second or third volume in the journal's history to get a representative spread, and calculate the ''citation memory'' for that journal issue (Table I). The ''citation memory'' number indicates the median period in years between a citation appearing in the journal and its original publication, giving an illustration of the typical ''memory horizon'' in that journal. The median figure was preferred over a mean since one or two references to much older sources can distort the overall pattern of citation memory using a mean.

When we look at the distribution of citations across all the journals in the period sampled, we can see (Figure 1) that the focus of collective memory within mainstream knowledge management seems to be on the one- to five-year range.

Table I Citation memory in mainstream KM journals 1994-2007

Journal	*Year started*	*Year sampled*	*Median citation memory (years)*
Journal of Knowledge Management	1997	1998	2
Journal of Intellectual Capital	2000	2001	4
Knowledge Management Research and Practice	2003	2004	7
International Journal of Knowledge Management	2005	2007	8
The Learning Organization	1994	1995	5
Knowledge and Process Management	1993	1994	4
Journal of Knowledge Management Practice	1998	2001	5
Electronic Journal of Knowledge Management	2003	2004	6
Journal of Information and Knowledge Management	2002	2003	5
Overall			5

Figure 1 Memory patterns for KM journal citations 1994-2007



Note: Within 1σ

To quote Koenig and Neveroski (2008, p. 243) again:

> [. . .] the term [knowledge management], as presently used, appears to have been independently re-coined more or less by happenstance somewhere among the major accountancy and consulting firms, without any reported connection to previous literature.

This is not completely true for the first major writers in knowledge management, but the general theme of collective amnesia and a lack of connection to past and parallel disciplines certainly characterizes the discipline of knowledge management to this day, if we take the published literature of knowledge management as evidence.

In this paper the goal is simply to highlight a few of knowledge management's neglected predecessors, who:

1. have had an unacknowledged influence on the course of knowledge management;
2. have had something useful to say that knowledge management might still learn from; or
3. represent traditions of thinking with which knowledge management still competes for attention, when it should arguably be building common ground and common language with them.

In all three cases, a better understanding of prior thinking, and better insight into the social, economic and organizational challenges those thinkers were trying to address, can perhaps clarify some of the confusions and inconsistencies that beset knowledge management practitioners, bring focus to some of the muddy thinking and silly doctrines that still abound in knowledge management, and bring some resolution to Ward's (2010) harsh characterization of knowledge management as:

> [. . .] talking in the wrong language, or in too many languages rather incoherently, or in not enough languages [. . .] One way or another, there's a re-examination needed here, and I'd suggest we cast a harsher critical eye over our sloppinesses, assumptions, half-baked metaphors and undigested analogies.

It should go without saying that knowledge management education curricula that neglect these antecedents will continue to perpetuate a partial and shallow view of where the needs for knowledge management come from, and where some of its future may lie.

Antecedents of knowledge management in economics and sociology

If we could trace the theoretical antecedents of organizational knowledge management back to a single year, 1962 would be a good candidate. That year saw the appearance of three major publications by three thinkers who were about to shape the formation of social and economic theory for the next 50 years: Fritz Machlup, Kenneth Arrow and Everett Rogers.

Each of these men, in their own ways, initiated different but sometimes converging strands of enquiry on the production, movement and management of knowledge within societies as well as within organizations.

Fritz Machlup (1902-1983) was an Austrian-American economist who became increasingly interested throughout his career in the notion of knowledge as an economic resource.

In 1962 he published an enormously influential book *The Production and Distribution of Knowledge in the United States* which (although he never explicitly used the term in that book) was responsible for popularizing the concept of the ''information society'', based on a recognition of the increasing role of knowledge in the economy, and the pressing need to study how knowledge can be deployed for economic advantage:

> As an economy develops and as society becomes more complex, efficient organization of production, trade, and government seems to require an increasing degree of division of labor between knowledge production and physical production. A quite remarkable increase in the division of labor between pure ''brain work'' and largely physical performance has occurred in all sectors of our economic and social organization [. . .] If society devotes considerable amounts of its resources to any particular activity, economists will want to look into this allocation and get an

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> idea of the magnitude of the activity, its major breakdown, and its relation to other activities (Machlup, 1962, pp. 6-7).

Machlup's thinking influenced Drucker's characterization of the ''knowledge society'' and ''knowledge worker'' in his landmark 1968 book *The Age of Discontinuity* (Drucker, 1968) and then in turn influenced the notion of the ''knowledge economy'' circulating alongside and sometimes within the rhetoric of knowledge management in the late 1990s.

Machlup's work provided the groundwork for future work on intangible assets and intellectual capital by pointing out:

> The facts that the production of knowledge of several types is paid for by others than the users of the knowledge, and that these types of knowledge have no market prices, raise questions of their valuation for national-income accounting as well as for welfare-economic reasons (Machlup, 1962, p. 9).

Finally, Machlup (1962, pp. 122-3) also developed the notion of ''stocks'' and ''flows'' of knowledge and discussed the desirability of maintaining inventories of knowledge. The context he was considering was that of a society, but some of the basic ideas of organizational knowledge management were already beginning to emerge in his work.

Kenneth Arrow (1921-) is an American Nobel-prizewinning economist who has, among other areas, had a significant impact on the theory of economics of information, in particular on decision making under uncertainty. In the 1960s and 1970s he published two influential articles and a book that could have provided a powerful theoretical and empirically based foundation for organizational knowledge management, had his work been picked up and applied.

In 1962 Arrow published what was to become a very influential paper in *The Review of Economic Studies* entitled simply ''The economic effects of learning by doing'' (Arrow, 1962). While economists had observed for many years that productivity in a given firm and activity tended to improve over time with experience, classical economic theory had no way of accounting for the role of learning and knowledge building in this effect.

Arrow's 1962 paper provided a theoretical model which became a foundational piece in the growth of a new area of economic research, termed endogenous growth theory. Endogenous growth theory studies the ways in which innovation and new knowledge can spur new economic growth independently of the addition of new investments.

Critical to this is Arrow's (1962, p. 168) observation that: ''the presence of learning means that an act of investment benefits future investors, but this benefit is not paid for by the market'' suggesting the importance of learning and knowledge creation as a key organizational capability alongside the ability to manage labor and costs.

This has tremendous implications for how innovation – new knowledge creation – is perceived and analyzed. Prior to Arrow's work, the classical view of innovation was that it was mostly driven exogenously, i.e. by external market pressures. As March and Simon (1958, p. 183) express it:

> The rate of innovation is likely to increase when changes in the environment make the existing organizational procedures unsatisfactory.

Arrow's insight shows that innovation can also be driven endogenously, and that in fact there is always new knowledge creation at the start of a learning curve – whether it is exploited other than in productivity gains over time is another question, one that knowledge management should perhaps be interested in.

Seven years later, Arrow (1969) followed up with a paper on the problem of knowledge diffusion, which developed this idea further. Having established the importance of learning in improving economic outputs, Arrow turned his attention to the problem of why new knowledge does not propagate, despite its evident benefits. As he pointed out: ''there is no gain in acquiring the same information twice'' (Arrow, 1969, p. 30).

Drawing on the emerging insights of Everett Rogers in diffusion of innovations theory, Arrow created a precise formulation of what was to become a classic problem in knowledge management within organizations:

> The understanding of transmission of knowledge is of especial importance in two of the key socioeconomic problems of our time: (a) international inequalities in productivity, and (b) the failure of the educational system in reducing income inequality. The two problems have a considerable formal similarity. If one nation or class has the knowledge which enables it to achieve high productivity, why is not the other acquiring that information? That a nation or class has a consistently high productivity implies a successful communication system within the nation or class, so the problem turns on the differential between costs of communication within and between classes (Arrow, 1969, p. 33).

Arrow's formulation drew attention for the first time in a very systematic way to the organizational constraints that operate on knowledge transfer. It spurred a wide ranging literature through the 1960s into the 1990s studying problems of knowledge transfer in economic development, propagation of technical innovations within and between firms, inter-firm partnerships, internationalization, and international joint ventures.

Szulanski's (2003) work on ''sticky knowledge'' which appeared in book form in 2003 represents the first emergence of this rich tradition into the knowledge management literature, and even now it is not widely known, applied or developed.

Szulanski himself is a professor of strategy and management, not of knowledge management, and this is suggestive of the distance between today's conceptions of what belongs in mainstream knowledge management and a rich resource base on problems and solutions in knowledge transfer going back five decades.

This is why, for example, practitioners of knowledge management in development keep bumping into methodologies and frameworks that look and feel like knowledge management and have been circulating in the field for decades, long before ''knowledge management'' officially existed. Take this example from Ferreira posted to the KM4Dev listserve in February 2010, responding to a call for ideas on improving ''bottom-up'' knowledge flows among NGOs, citing lessons he had learned in the 1980s:

> When I started working in development, early 80s, we dreamed with the discovery of good practices that could be replicated outside or used for influencing policy making. We used to apply participatory approaches to identify and harvest good practices. We could learn amazing things from those experiences and use some pieces of the knowledge harvested (Ferreira, 2010).

More formally, an extension of Arrow's formulation of the problem of knowledge diffusion was the detailed study of the problem of ''knowledge utilization'' – when knowledge is produced, what factors influence its use and how is value created from it?

One of the leading thinkers in this field, also heavily influenced by Everett Rogers, was the psychologist Edward Glaser. Glaser was studying problems of knowledge utilization with a special focus on healthcare from the early 1970s (Glaser, 1973), and in 1976 produced a major study for the US National Institute of Mental Health entitled *Putting Knowledge to Use: A Distillation of the Literature Regarding Knowledge Transfer and Change* (Glaser, 1976). This work was subsequently adapted and published as a book for general consumption in 1983 (Glaser *et al.*, 1983).

The study of knowledge utilization had many spin-offs, which are today close cousins of knowledge management: there is a link back to the work of Fritz Machlup in the study of the social and economic impact of knowledge creation by universities and by R&D departments. It has informed the development of techniques and methodologies for evaluating the impact and application of knowledge and innovation in the economy at large, and within organizations.

The Human Interaction Research Institute, a non-profit founded by Edward Glaser in 1961, evolved from knowledge utilization into the facilitation of organizational transformation and capacity building for other non-profits. Capacity-building is a concept largely confined to the world of non-profits, community organisations and development agencies, and yet it has at its heart the idea of building knowledge, diffusing it and rendering organizations capable of applying knowledge to their advantage.

And yet this quite mature body of work is almost completely ignored within mainstream knowledge management. So Wesley Vestal, the AQPC practice lead for knowledge management, could write in 2005:

> Prior to 1995, few tools existed to understand what knowledge was embedded in organizations or analyze the flow of knowledge in organizations, and any methodologies for improving flow and use were miles away from materialization (Vestal, 2005, p. 2).

Arrow's influence did not cease with his two short but influential papers. In 1974 Arrow published a slim but powerful volume entitled *The Limits of Organization* based on his Fels Lectures on Public Policy Analysis. In this book, Arrow begins to discriminate the key distinctions between the efficiencies of information and knowledge flows within a free market economy, contrasted with information and knowledge flows within an organization.

Within society, information and knowledge pertaining to life's necessities flow through the price mechanism, Arrow argues. This is relatively costless to individuals, since they need only respond to locally available information, and the markets provide for the rapid dissemination of these signals.

Within organizations, division of labor means that the acquisition and transmission of knowledge must be specialized according to the functions being supported. Building on his 1969 article, Arrow argues that there are significant costs in learning, coordination, transmission and application of knowledge. Because of this, knowledge and information processing within organizations must always broker a tension between filtering and control of information, versus providing for the availability of relevant information:

> An organization can acquire more information than any one individual, for it can have each member performing different experiments. Thus, the limitations on an individual's capacity are overcome. But as always there is a price to be paid. In fact, the relevant considerations have been adduced in some of the old discussions of the U-shaped cost curve. The information has to be coordinated if it is to be of any use to the organization. More formally stated, communication channels have to be created within the organization (Arrow, 1974, p. 53).

With typical acuity Arrow points out one of the key pivots on which knowledge management succeeds or fails, though many knowledge managers fail to take up any responsibility in this regard:

> Error, of course, there must be in a world of uncertainty. Error is unnecessary when the information is available somewhere in the organization but not available or used by the authority. The reason for this failure is, simply enough, the overload of the information and decision-making capacity of the authority. In an organization of any complexity, an individual or a small group cannot be aware of all that is relevant (Arrow, 1974, pp. 73-4).

"The great classics of knowledge management literature appeared in a golden period of five short years."

In this short book published 20 years before knowledge management invented itself, Arrow outlines a theoretical and practical orientation to organizational knowledge management (without calling it that) that, even in its rudimentary form, illuminates the task of the knowledge manager and the importance of the knowledge management role for the success of the enterprise. Its capacity to set a rigorous and productive agenda for knowledge management is still unparalleled.

Arrow's distinction between two major forms of collective action (society versus the bounded organization) is a critical one for understanding why, for example, intranets do not behave like the internet, even though in each successive generation of technology innovation, social computing not excepted, knowledge managers try to replicate internet-based behaviors within the corporate intranet. Information and knowledge use within society is radically different from information and knowledge use within organizations.

Arrow's work has a number of other implications for knowledge management: he deals with the problem of organizational memory costs, he connects the role of knowledge management with economic success, and simultaneously recognizes that the application and use of knowledge works very differently with individuals compared with organizations, and differently again from how it works in society at large, while simultaneously recognizing that these forms of knowledge activity must interact with one another.

For example, he points out that organizations do not create all of the knowledge that they utilize. Individuals gain much of their knowledge in society, e.g. through education and training:

> Thus, the organization is getting the benefit of a considerable amount of information which is free to it. Even though the code of the organization may make the internal transmission of information costly, if there is enough of it [coming in from outside], the behavior of the organization may change (Arrow, 1974, p. 59).

One implication of this is that organizations can deliberately address knowledge needs (and knowledge-change needs) simply by changing the constitution of its workforce (restructuring and recruitment) and that such changes will happen anyway over time as an effect of ''free'' socially provided knowledge flows provided by generational shifts in the workplace. It suggests also from a strategic perspective that knowledge managers ought to be concerned with the external availability of requisite knowledge for the strategic functions of an organization.

A recognition of Arrow's work has the potential to recast the knowledge manager's perception of their role from a largely passive, internal, infrastructural and enabling one, to a more strategic one, where the value of recognizing and interacting with the external environment is keenly recognized.

Everett Rogers (1931-2004) was a sociologist, born in an American mid-Western farming community in Depression America, and this farming background shaped his future career. Initially inclined towards the study of agriculture, he became interested in the ways that innovations in agricultural practice were adopted or resisted among farmers. The availability of knowledge about an innovation was not enough, even though adoption could have significant implications for a farmer's livelihood.

Rogers had had personal experience of this: in his childhood his father had resisted the adoption of hybrid drought resistant seed corn, and his family suffered the consequences in the Iowa drought of 1936. So for his PhD Rogers moved to sociology and statistics to study how new knowledge and innovations moved through society.

Researchers in the field of agricultural sociology were already interested in the diffusion of innovations but Rogers' postdoctoral work combined detailed fieldwork with a far-reaching review of the literature, which he published in 1962 in his extraordinarily influential book *Diffusion of Innovations* (Rogers, 1962). His book became an instant classic, and ran to five editions over the coming 40 years. Rogers' research and review of the field and his keen analytical insight enabled him to present a comprehensive framework to understand the

factors that influence the transfer and application of knowledge within and across social groups.

Rogers' work had an impact far beyond where it started in agricultural sociology. It was Rogers, for example, who identified the different social roles played in reacting to an innovation, and coined the term ''early adopter'', now much beloved of marketing and sales trainers. His recognition of the role of informal social networks, trust and perceived authority in the adoption and application of new knowledge provided a thrust to the study of social network analysis (another discipline ''discovered'' by knowledge management in the late 1990s).

Rogers' work was almost instantly picked up by Kenneth Arrow in his formulation of the problem of knowledge transfer in Arrow's 1969 article, where for the first time, Arrow acknowledged the insights that sociologists can supply to the problem of knowledge diffusion – although he noted that the two schools often seem to be talking at cross-purposes:

> There have been studies by both economists and sociologists on the diffusion of innovations; the relation between the two types of studies resembles nothing so much as the parable of the blind men and the elephant. While Griliches and Mansfield stress the profitability of the investment and the risks involved, the sociologists . . . are concerned with the nature of the channel connecting the adopters of an innovation with potential followers. While mass media play a major role in alerting individuals to the possibility of an innovation, it seems to be personal contact that is most relevant in leading to its adoption. Thus, the diffusion of an innovation becomes a process formally akin to the spread of an infectious disease within and between classes (Arrow, 1969, p. 33).

Arrow's wry metaphor of the blind men and the elephant seems to presage in much simpler form, much of the confusion that knowledge management has subjected itself to over the past two decades, and reflected in Ward's (2010) comment cited earlier about the multiple languages and lack of coherence endemic to knowledge management.

In turn, diffusion of innovations theory informed much of the work on knowledge utilization pioneered by Glaser and others in the 1970s and 1980s (e.g. Glaser, 1973). It has turned up again most recently in the methodology on ''positive deviance'', originally developed by Jerry Sternin in a development context, but now increasingly of interest to organizations seeking to discover improved ways of finding and propagating internal solutions to intractable problems (Pascale *et al.*, 2010).

Positive deviance as an approach starts with the assumption that seemingly intractable problems shared across a community will already have found better solutions somewhere within the community – the fact that these solutions are not widely recognized is a classic knowledge transfer-knowledge utilization problem. The positive deviance approach contains a systematic methodology for surfacing these hidden solutions, and for enabling their effective diffusion. In theory, this would appear to be a highly relevant methodology from a knowledge management perspective.

But in fact, as a case study from the pharmaceutical company Genentech suggests, mainstream knowledge management as a sponsor of officially supported and demonstrated ''best practices'' programs would seem to actively inhibit the productive effect of a positive deviance approach

In this case study, a positive deviance discovery exercise within Genentech identified innovative ways of selling a new drug among two members of the sales force team. However, the positive deviance approach towards knowledge propagation (influenced by Rogers' diffusion of innovations research) was ignored. Instead, in ways very consistent with mainstream knowledge management practice, the technique was documented and disseminated top-down as a new best practice. The result: merely lukewarm adoption and improvements in sales. This compares unfavorably with other projects using a positive deviance diffusion approach (Pascale *et al.*, 2010, pp. 14-17).

Knowledge management, it seems, is not simply ignoring its heritage, it may even be competing unproductively with it.

The forgotten history of knowledge management

Thus far we have not looked at the history of the term ''knowledge management'' itself, but rather at some of the key influences on thinking about how knowledge might be managed and the many opportunities missed by forgetting or ignoring these influences.

One of the most systematic and comprehensive researchers into the history and origins of knowledge management, Koenig, believes that ''the use of the term 'Knowledge Management' is a surprisingly recent phenomenon'' – he dates the earliest occurrences of the term to the mid-to-late 1980s in print, as well as in oral circulation at McKinsey & Co (Koenig and Neveroski, 2008, pp. 243-4). This is consistent with Wiig's 1997 account of knowledge management's origins (Wiig, 1997).

However, as Wallace has recently pointed out, the term can actually be traced back to the 1960s. Wallace traces the earliest appearance in the management literature to an article by Caldwell on ''Managing the scientific super-culture'' which appeared in the *Public Administration Review* in June of 1967 (Wallace, 2007, p. 3; Caldwell, 1967).

Caldwell takes a public policy standpoint towards scientific knowledge as a resource that has great potential for bringing both benefit and harm to society. He was writing, it must be remembered, at the height of the cold war, and where confidence in the progress of science and capacity for technological development was increasingly being matched by uncertainties about the attendant risks, in geopolitical relations, environmental pollution and public health. So he asks the difficult question of how public policy administrators can ensure that ''all relevant knowledge is brought to bear upon the problems that society needs to solve [. . .] At the very least, the manager of knowledge needs to discover what science can tell respecting trends or objectives that would be socially harmful'' (Caldwell, 1967, pp. 130-1).

Knowledge management (which he says is an idea which ''is rapidly ceasing to be novel'') is seen as an activity that helps to broker awareness of the implications of scientific and technological knowledge for public policy administrators and governments.

This is an idea of knowledge management at a societal scale, very much in synch with the ideas of the knowledge-based economy emerging throughout the 1960s. Caldwell's article outlines an educational program to produce a cadre of ''knowledge managers'', by which he means public administrators trained expressly to synthesize, analyze and communicate the implications of new knowledge for public policy and government.

Caldwell's article seems to have initiated (or reflected) a surge of interest in the role of knowledge management in public administration and public policy development. In 1970 a panel on science and technology commissioned by the US House of Representatives themed its eleventh meeting ''The Management of Information and Knowledge'' and called in experts from academia and industry covering a wide span of topics including education, organization theory, management, librarianship, computer science and cybernetics (US House of Representatives, 1970).

Public administration heavyweight Nicholas Henry would revive the focus on knowledge management four years later (Henry, 1974) to be followed by a special issue of the *Public Administration Review* a year later on knowledge management with seven articles covering various aspects of knowledge management and its relationship to public policy and administration (Carroll and Henry, 1975).

Henry's 1974 article is notable for the way it attempts to break down the differences between data, information and knowledge, a distinction that was already emerging in the fields of data and information management at around the same time.

By 1974 Henry had refined Caldwell's initial exposition of knowledge management, and focuses the role of knowledge management onto ''formulating policies for new information

technologies and publicly accessible information'' He actually defines knowledge management as: ''public policy for the production, dissemination, accessibility, and use of information as it applies to public policy formulation'' which he otherwise characterizes as ''meta-policy'' (Henry, 1974, p. 189). This strand of thinking would remain dormant in mainstream knowledge management until the work of Firestone and McElroy (e.g. Firestone and McElroy, 2003).

But the influence of Machlup and Drucker was also being turned to the implications of the knowledge-based economy for corporations. As early as 1969, Dale Zand, professor of management at New York University, was writing on ''The management of knowledge organisations'' in which he sketched out a management agenda that looks suspiciously like knowledge management:

> When we view the knowledge organization as a system, we can see four processes that should concern managers:
>
> 1. Collecting and disseminating knowledge that already exists in the organization;
> 2. Acquiring and creating new knowledge;
> 3. Converting knowledge to profitable products and services;
> 4. Managing people who work with knowledge (Zand, 1969, p. 115).

Zand would publish a comprehensive treatment of how organizations should manage themselves as knowledge systems a full decade before the official emergence of knowledge management, in his book *Information, Organization, and Power: Effective Management in the Knowledge Society* (Zand, 1981). The notable difference between Zand's work and knowledge management as it later emerged was that Zand seems to have viewed the management of knowledge as a general managerial competence, rather than as a distinct specialism as, for example, Caldwell had imagined.

Two years earlier than Zand, Wilensky had turned his attention to what he called ''organizational intelligence'' in an attempt to work through the implications of the ''celebrated knowledge explosion'' for organizations as distinct from society at large (although he shuttles uneasily between organizational and societal perspectives) (Wilensky, 1967, p. 8). Wilensky's work in turn fed back into the development of thinking around knowledge management for public policy (e.g. Henry, 1974, p. 194). Allee's book *The Knowledge Evolution*, written 30 years later, also focused on organizational intelligence, but seems unaware of Wilensky as a predecessor.

In the UK at around the same time, sociologists of education were extending the idea of knowledge management very much along Machlup lines as a way to characterize a society's education system, and anticipating Arrow's idea of society as a source of ''free knowledge'' for organizations. Davies (1971, p. 124), in a paper first published in 1970, argued that:

> Selecting people for jobs is one of education's latent functions: its *manifest* function is the management of knowledge.

We can characterize the 1960s and 1970s then as a period in which the explicit idea of knowledge management was struggling towards birth and self-definition. It oscillated uneasily between its potential applications at societal level and in public policy terms, versus an expression in managerial terms within the boundaries of organizations and organizational objectives.

The sharpness of Arrow's 1974 distinction between the nature of knowledge in society and knowledge in organizations (or for that matter, between organizations and individuals) was not to take hold outside of the field of economics where it continued to be developed (e.g. Hess and Ostrom, 2006). Perhaps this is why the public policy dimension of knowledge management (and the inspirations of Machlup) faded into the background. Without a clear characterization for knowledge management in the public domain, roles would be hard to define, and practices could not be meaningfully aggregated, exchanged and learned from.

In its 1990s reinvention, knowledge management only took up the organizational dimension of knowledge management, nevertheless forgetting its own direct predecessors in Glaser,

Wilensky, Zand and the practitioners of knowledge transfer and knowledge utilization. The idea of the ''knowledge economy'' was bandied around in the 1990s, to be sure, but often only as a rhetorical overture to announcing the arrival of the new corporate miracle that would be knowledge management. It is only most recently that the modern knowledge management tradition has shown signs of returning to a societal perspective (Wiig, 2007).

Knowledge management as a child of data management

There was another parallel birthing for the concept of knowledge management in the 1970s and 1980s, arising out of an almost distinct tradition: the growing ascendancy of computing in the life of organizations. We can say ''almost distinct'' because rapid developments in computing capabilities and information technology were very clearly seen to be drivers for the increasingly important role of knowledge and information in society and corporate life; they were a key theme, for example, in the public policy deliberations of the panel on the management of information and knowledge convened by the US House of Representatives in 1970 (US House of Representatives, 1970).

However, as this line of thinking developed in the 1970s, it was relatively untroubled by an awareness of broader issues relating to the economics of knowledge, knowledge-based organizations, educational and societal aspects of knowledge management and the demands of public policy.

The actors in the computing tradition were concerned primarily with defining their own roles and status within organizational systems, and striving to define how they could meet organizational needs as they perceived them. In a sense, this specialized branch of thinking about knowledge management prefigured the larger act of forgetting that occurred in the 1990s.

A report written for the US Department of Defense by Berry and Cook in 1976, entitled *Managing Knowledge as a Corporate Resource* casts a revealing light on the early formation of knowledge management ideas from a computing point of view (Berry and Cook, 1976).

It is revealing because it illustrates the almost complete divorce between the mental models of management science (for example) and computer science, and for prefiguring the strange way in which thinking around data and technology management dominated the shape, form and implementation of ''official'' knowledge management in its first decade, at the exact same time that the dominant literature of knowledge management during the 1990s talked about quite different things. Of those early pioneers, only Wiig (1997) seems to have tried, not entirely successfully, to get to grips with the implications of computer science thinking for knowledge management, particularly in relation to early work in expert systems, artificial intelligence and knowledge-based systems.

More precisely, the Berry and Cook report demonstrates that the theoretical foundations for the technological implementation of knowledge management (in terms of an enterprise data architecture) were already being laid in the 1970s, and these theoretical foundations had no connection whatever with the economic, social, organizational or psychological understandings of the natural workings of knowledge within human groups that had been evolving since the early 1960s.

The starting point for Berry and Cook was the growing tide of opinion in the data management community in the early 1970s that data should be managed as a corporate resource. In part this was a practical insight about the wastefulness of developing different data silos in different applications, but with often overlapping content.

From a logical and practical point of view, the integration and coordination of these resources made a lot of sense. But there was also a political aspect to this claim, because to achieve status as a strategic resource, data management needed to legitimize its own function as a critical corporate function. This is where the connection with knowledge came in.

"We can characterize the 1960s and 1970s then as a period in which the explicit idea of knowledge management was struggling towards birth and self-definition."

Let us follow the argument as Berry and Cook develop it, because this argument was to be developed in very similar ways several times over during the following decade, and it would eventually be congealed into an iconic framework, the data-information-knowledge-wisdom (DIKW) hierarchy. Although the DIKW hierarchy was developed within information science, it would be eagerly adopted and defended by knowledge management practitioners (starved of both theoretical depth and organizational legitimacy) who lacked much concrete guidance in relation to the use of technology in the early knowledge management literature.

Berry and Cook define data as being simply stored values and attributes ''which describe an entity of interest to an organization''; to have utility, the relationship of those values to the real world must be expressed.

The first level of exploitation – information – begins with associating the data about different entity-sets to create a meaningful picture. For example, data about employees can be associated with data about the projects they are working on and the locations where they work. So for Berry and Cook (1976, p. 4): ''the aggregate of the associations and the relationships among the entities in the database is called information. Information, as we define it, is the term used to describe the relationships among real-world objects which are represented in the database''.

The problem with information is that it is ephemeral: it loses utility with the passage of time. Knowledge represents the next level of exploitation, and represents:

> [. . .] the set of concepts abstracted from information over a relatively long period of time [. . .] Knowledge, then, is defined to be the data, the relationships that exist among the data items, the semantics of the data (i.e., the use to which the information is to be put), and the rules and conditions which have been established as applying to the data of the enterprise. Knowledge involves the enterprise's awareness of the world around it and its understanding of the significance of certain pieces of information. . . Knowledge consists largely of the rules and special conditions which an enterprise uses to allow it to make sense out of the potentially vast sea of data which surrounds it, to limit the volume of data it collects, and to employ this data for useful purposes (Berry and Cook, 1976, p. 5).

Thus far, the absence of any conception of knowledge as a human capacity is striking. Humans do come into the developing argument for knowledge management, however, with echoes of Arrow's observations about the costs associated with moving information and knowledge around for coordination purposes:

> It is becoming clear that the transmittal of knowledge from individual to individual within an enterprise is growing increasingly expensive, for the amount of knowledge required for an enterprise to function is growing at an ever-increasing rate. A complaint often heard from all levels of management is that it is next to impossible to contact all of the persons who have relevant portions of the knowledge needed to answer a given questions or perform a given task. Many times, the knowledge of whom to ask is not even available. Furthermore, the costs of human storage (in the form of employee's brains) is also going up. The best answer to these problems appears to be in developing some form of computer assistance, that is, developing a formal mechanism of knowledge representation, knowledge acquisition, and knowledge application. This is not to say that humans are to be replaced by machines, but rather, that machines are necessary to assist human decision-makers by providing them with better access to the vast storehouse of knowledge which has been so painstakingly garnered for the enterprise (Berry and Cook, 1976, p. 7).

There is no evidence that the Berry and Cook report had any direct influence on successive thinking. However it provides a striking illustration of a growing body of thinking which would eventually paint a compelling picture of the data-driven enterprise. The progression from data to knowledge and thence to organizational capability is very tenuous given a naturalistic understanding of knowledge. In a naturalistic understanding, data is only one of the multitude of ways of representing and applying knowledge – i.e. data are identified, designed and produced out of knowledge, not the other way round.

However, defining knowledge as proceeding solely from data had very strong attractions for technologists as well as senior executives. It resonated with the growing popularity of the resource-based view of the firm at that time, and it allowed the computer scientists to claim strategic importance for their discipline within the enterprise, sketch a vision of an organization's knowledge base existing independently of particular human beings and persisting through time as people came and went, and express a widely held confidence that the difficulties associated with managing knowledge in humans could be mitigated by the application of logic-driven technology.

The first critical step in achieving these goals was to limit the scope of what was meant by knowledge, and to be able to derive or model knowledge from what was already manageable in a technical sense – data.

It was only a matter of time before more concise, formal and authoritative descriptions of the progression from data to knowledge would emerge. In 1982, educator and knowledge society thinker Harlan Cleveland published an article entitled ''Information as a resource'' reversing T.S. Eliot's sequence in his 1934 poem *The Rock*: ''Where is the wisdom we have lost in knowledge?/Where is the knowledge we have lost in information?'' (Cleveland, 1982). This is apparently the first recorded instance of the DIKW hierarchy in print, although Cleveland's own point of interest as a starting point is information (Sharma, 2008).

In 1985 Marchand, from an information management perspective, traced the stages of evolution of information management as passing through physical systems for information management, through data management, and thence to integration of separate information technologies, which is where he thought most organizations were at that time positioned. He saw a fourth phase on the horizon: ''transition from information to knowledge management as physical/technical management of information is integrated with decision making and planning through decision support, expert, and knowledge-based systems.'' (Marchand, 1985).

Interestingly, although Marchand predicted the coming of knowledge management as an evolution of information management, he did not himself jump on the bandwagon when it arrived. His edited volumes *Mastering Information Management* (Marchand *et al.*, 2000) and *Competing with Information* (Marchand, 2000) could easily have been presented as knowledge management books in terms of much of their content, but were very explicitly presented as information management.

When knowledge management finally did arrive, according to Marchand, incoherence and disconnectedness characterized it from the start. There was no single consistent understanding of what it involved and much of the literature was abstract and disconnected from managerial practice. Marchand came to believe that unlike information, knowledge cannot be managed directly, but only indirectly by managing the environment within which knowledge is used. What had seemed a logical progression in principle, turned out to be disappointing in practice.

By 2001 Marchand had developed with colleagues an information orientation maturity model which ''is an organizational people-centric capability [. . .] manifested in the maturity of managers and employees using information, IT and their knowledge effectively to drive organizational performance'' (Marchand, 2010; see Marchand, 2001a, b).

Finally, apparently independently of each other, the DIKW hierarchy emerged in much more explicit form in 1987 with Zeleny's article on ''Management support systems: towards integrated knowledge management'' and Ackoff's famous 1988 address to the International

Society of General Systems Research entitled ''From data to wisdom'' (Zeleny, 1987; Ackoff, 1989).

Zeleny's piece is of particular interest in the way it strongly echoes and extends the Berry and Cook report of 1976, in seeing a clear progression from data management to knowledge management. He is much more forceful about excluding definitions of knowledge that are too broad for his purposes, and he strengthens the idea of an organizational knowledgebase existing independently of individual human movements, by introducing the idea of autopoeisis:

> Through the operation (or process) of distinction, individual pieces of data and information (components, concepts) become connected with one another (i.e., organized) in a network of relations. Knowledge then is contained in the overall organizational pattern of the network and not in any of the components (or their simple aggregates or collections) [. . .] Knowledge is a self-producing and self-maintaining network of relations which are continually being re-created under perturbations. Knowledge is an autopoietic (self-producing) system (Zeleny, 1987, p. 61).

The common elements in this emerging conception of knowledge management through the 1980s are:

- a readiness to accept data management as the sole foundational stage in the application of technology to questions of knowledge, without presenting any real empirical evidence for the viability of this approach;
- very selective attention to the naturalistic settings within which knowledge is used; and
- a tendency to focus on well-informed managerial decision-making as a focus for knowledge management efforts.

Our close reading of the 1976 Berry and Cook report shows that the groundwork for the strange and frustrating disconnect between technology and knowledge management practice was already being laid a generation before knowledge management officially emerged. When it did emerge in the 1990s, there was an already-primed body of technology thinking and design available to ''recognize'' knowledge management and implement it.

Arrow's metaphor of the blind men trying to describe different parts of the same elephant comes to mind, except that for substantial portions of the 1990s it seemed as though the knowledge management thinkers and the technologists were like blind men calling quite different animals by the same name.

Forgetfulness in knowledge management

The sociologist Robert Merton studied the phenomenon of forgetfulness in science, where prior art is forgotten in the interests of current political concerns for legitimacy and where ideas become so popular that their origins are literally ''obliterated by incorporation'' (Merton, 1968).

It was clear throughout the 1990s that knowledge management was in an evangelizing phase, a condition amplified rather than moderated by the commercial drivers (consulting, computers and conferences) that lay behind it. And it is true that there was something distinctively new about the emergence of the world wide web and its implications for information access and use.

It might therefore be unsurprising that earlier traditions of work were ignored, not fully investigated, or quickly overlaid with a new and historically shallow canonical literature. It might be unsurprising that convenient explanatory models such as the DIKW hierarchy were picked up from immediate antecedents and used uncritically without regard for their origins, intent or empirical grounding. If proselytization was the goal, and the only goal, all of this arguably makes sense. We might, in homage to Charles Dickens, call this ''the Veneering Effect''.

One consequence of the Veneering Effect is to submerge prior art under more recent trappings, and we have seen vivid evidence of the very short-term citation memory in the

literature of knowledge management. Merton (1993, p. xxiii) called this phenomenon rather playfully ''palimpsestic syndrome (the covering over of earlier versions of an idea by ascribing it to a comparatively recent author)''.

The persisting disconnect between the three (relatively modern) surviving traditions that fed into knowledge management (data and information management, intellectual capital and organization learning) is a little more surprising, because very little effort seems to have been expended on building common ground and integrating the mental models inherited by each of these traditions in support of a more coherent and sustainable future. This disconnect has been consistently problematic for knowledge management, which has built a reputation for incoherence and unsatisfactory performance (Griffiths and Evans, 2010).

In fact, many proponents of these distinct traditions have maintained their careers outside the ambit of knowledge management – writers on intellectual capital are by and large much less connected to mainstream knowledge management now than they were at the end of the 1990s. Some information management thinkers were suspicious of knowledge management from the start as a simple ''re-badging'' of information management ideas and approaches (Wilson, 2002). The early flirtations of knowledge management with expert systems and artificial intelligence, which Wiig thought were early precursors of knowledge management, have not persisted with any great outcome. Organization learning theorists have maintained their distance. As Spender puts it:

> In practice, the two literatures run curiously parallel and, worshiping at different altars, honor different high priests; March or Argyris and double loops, on the one hand, versus Polanyi and tacit knowledge, on the other (Spender, 2008, p. 160).

Knowledge management has ended up very much like the English language, borrowing vocabularies, concepts, models and approaches from other disciplines. Unlike the English language, it has not built a distinctive identity and literature of its own. There is in knowledge management very little sense of overall coherence, integration or common agenda. The consequence is a chronic sense of malaise, uncertainty and confusion in the field.

The shallowness of knowledge management's understandings of the traditions that it came from, and its lack of recognition of continuing near relatives in the challenges of working with knowledge, must be factors in this malaise. To forget our past is also to forget what made us who we are today.

This shallowness, by the way, is also true of knowledge management's ''feeder disciplines''. We have already described the early disconnect between information science's first flirtations with knowledge management in the 1970s, and the broader field of economic and social theory which was already grappling with the notion of knowledge management.

Spender (2008, p. 165) points out that there is a similar disconnect between organizational learning theory and older traditions of learning theory:

> Indeed, it is remarkable how seldom learning theory is even referred to in the knowledge management literature where we find both an accretion model of learning, more data added, and a behavior change model which does not consider cognition or information at all [. . .] Indeed both Argyris's and March's work, hugely influential in our field, would be considered naive by today's educational and developmental theorists.

Proponents of modern intellectual capital theory trace their own roots to the 1980s (Sullivan, 2000; Amidon, 2007), but the concept can be traced back at least to the 1950s in the legal domain, as referring to the body of knowledge out of which intellectual property was produced (Welfling and Siegel, 1957, p. 119) and to a number of German and British nineteenth century political economists as ''the result of investments in the discovery and spread of productive knowledge'' (Kendrick, 1961, p. 105).

This survey of some of the history behind knowledge management has necessarily been a narrow one. My aim has been to identify a few unexploited strands of tradition that could have a direct bearing on how knowledge management is justified, implemented and oriented. There are other rich traditions of theory and practice that have been neglected or forgotten. Many of them are surveyed in Wallace's (2007) masterful book *Knowledge*

> **"Knowledge management has ended up very much like the English language, borrowing vocabularies, concepts, models and approaches from other disciplines."**

Management: Historical and Cross-Disciplinary Perspectives. Wallace (2007, p. 2) argues, as this paper does, that:

> The intellectual origins of knowledge management [. . .] are both deeper and broader than the explorations that have appeared in the literature to date. The influences of philosophy, economics, education, psychology, information and communications theory, and library and information studies have been almost completely overlooked. Furthermore, the historical chain of antecedents to current knowledge management thought and practice is either exaggerated (the history of knowledge management is coterminous with the history of knowledge) or truncated (knowledge management began with the 1995 publication of Nonaka and Takeuchi's *The Knowledge-Creating Company*).

Wallace makes a fine job of demonstrating this argument, in compiling and discussing a series of digests of many of those antecedents, spanning epistemology, learning, knowledge economy, informatics, and library science. However although Wallace captures the significance of Machlup, he misses any significant treatment of the important body of work inspired by Arrow and mentions the influence of Rogers only in passing.

Neither Wallace nor this paper have considered the rich tradition of anthropological insights into the shape of knowledge-activity in human collectives, spanning a literature from Durkheim (1947) through Halbwachs (1992) and latterly, Douglas (1986).

Moreover, Wallace's work only provides a preliminary mapping of the theoretical landscape to be rediscovered or acknowledged by knowledge management. The task of mining that landscape for insights, methodologies, applications and a rigorous new agenda for knowledge management still awaits us.

Wallace's book poses a substantial challenge to the intellectual foundations and legitimacy of knowledge management, but it has received only passing attention within mainstream knowledge management literature in the three years since its publication. It has been noticed mainly within the literature of library science, the profession from which Wallace himself hails.

We can look with Wallace at other precedents for the malaise within which knowledge management finds itself:

> Many fields, including architecture, business administration, education, engineering, and library and information science, have experienced long periods of uncertainty and questioning as to their identity as professions. Discussion of professionalism within such contexts has most frequently focused on the research base of the field in question but may extend to other factors as well. Knowledge management as a field appears to have not yet engaged in such self-questioning (Wallace, 2007, p. 224).

There are small signs that such self-questioning is beginning, although at present it seems that attempts at theoretical synthesis of knowledge management's fragmentation are preferred over investigations of its etiology (see for example Griffiths and Evans, 2010; Wieneke and Phylpo-Price, 2010).

The implications of forgetfulness in knowledge management

In *Our Mutual Friend* the Veneerings, who are characterized so playfully and with so much promise at the start of the novel, end up functioning as mere narrative devices deployed by

Dickens to bring the various ''real'' actors together so that the critical path of the plot might proceed. Dickens is not subtle about this: at their incessant showy dinner parties, Dickens is careful to point out, the characters come to dinner not to meet or listen to the Veneerings, but each other.

These insubstantial creatures, who immediately go bankrupt once their role in the plot is exhausted, provide a worrying parallel to knowledge management. Like the Veneerings, knowledge management has functioned as a device to bring disparate thought-traditions under one label. Unlike the Veneerings, knowledge management does not seem to be advancing the plot by getting those traditions to interact.

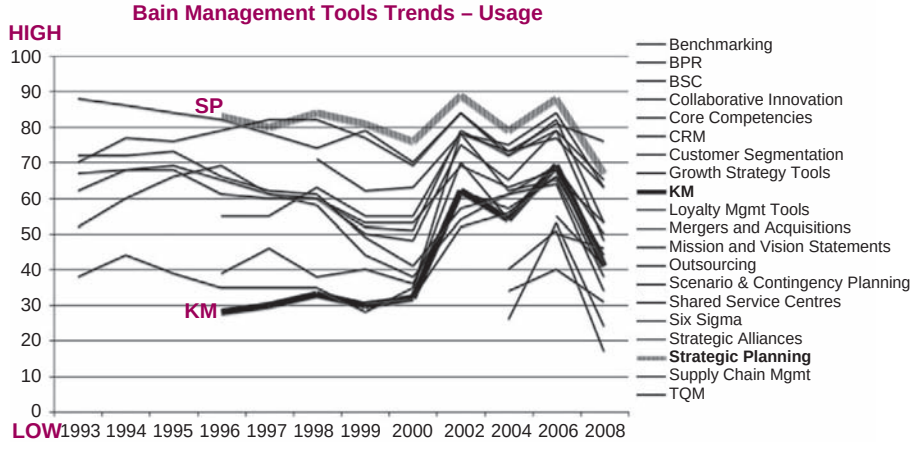
Koenig and Neveroski (2008) argue fairly convincingly that knowledge management does not look like a typical management fad in imminent danger of collapse, at least in bibliometric terms. But it is also clear that knowledge management is under strain.

Since 1993 management consulting firm Bain and Company has run a regular survey on executive use and satisfaction levels with a range of management tools. Knowledge management has been included since 1996. An analysis of the usage rates versus satisfaction rankings since 1996 illustrates vividly the managerial tensions operating on the application and perceived value of knowledge management.

In Figure 2 we can see that knowledge management (KM) has been on the lower end of adoption by executives in organizations, but is still not the least intensively adopted tool, and it has followed a similar trendline over economic ups and downs compared with other mainstream tools, for example strategic planning (SP) which has been consistently on the top of the usage charts since it was first surveyed in 1996. By 2008, knowledge management was in the 40 percent adoption range, much higher than several other, more recent, management tools. This bears out Koenig and Neveroski's (2008) case that knowledge management has a durability that is untypical of management fads.

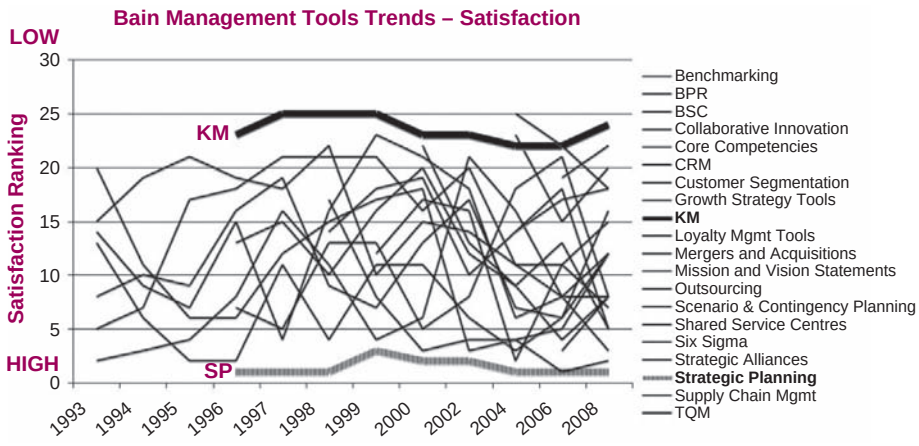
However, in Figure 3 we have an apparently counter-intuitive insight: KM has consistently been at the lowest ranking in terms of reported satisfaction by executives over the period. By contrast, SP follows an intuitively sound pattern. Consistently high adoption over the period seems to make sense with high satisfaction rates. KM is still being adopted more intensively than its consistently poor satisfaction rates would seem to warrant. No other management tool surveyed shows this kind of pattern.

Figure 2 Usage patterns for knowledge management 1996-2008



Source: Compiled from data in Rigby and Bilodeau (2007, 2009)

Figure 3 Satisfaction patterns for knowledge management 1996-2008



Source: Compiled from data in Rigby and Bilodeau (2007, 2009)

A global survey of over 200 knowledge management professionals in 2007 may give some clues to the low satisfaction rates of executives, and points us to a layer of forgetfulness we have not yet considered – not at the level of knowledge management theory, but at the level of knowledge management practice.

The survey found that knowledge managers were frequently ''teleported'' into their roles without relevant qualifications or experience, had access to very little professional development or training in knowledge management, and that the average length of time they spent in their role was about 2.5 years. Only a quarter of the respondents showed any confidence that they would remain in a knowledge management role (Lambe, 2008). This means that relatively few knowledge management practitioners remain in their practice long enough to build experience and expertise (they are working constantly on short term memory), and within organizations, high turnover means that corporate memory of their knowledge management experience is constantly being reset to zero.

For a discipline like knowledge management where initiatives are complex to implement, slow to get started and take years to show meaningful results, it would not be surprising that the constant churn of inexperienced staff without access to a sound theoretical base might cause low levels of satisfaction with the execution – or even continuity of knowledge management initiatives. This leads to a high level of defensiveness in relation to getting executive support, reflected in the constant quest by knowledge managers to ''get management buy-in''. Another finding in the 2007 knowledge management survey stated that two thirds of senior leadership teams were either not aware or not interested in knowledge management, had only basic awareness, or were ambivalent towards it (Lambe, 2008).

A more interesting question, beyond the scope of this article to explore in any depth, would be to ask why knowledge management has survived in corporate life despite its apparently poor execution and low satisfaction rates.

We can hypothesize that this durability is a function of growing gaps and shortfalls in coordination, corporate memory, and ability to learn, leading to corporate mistakes and poor competitiveness, as organizations scale the speed and scale of their activities in a knowledge-intensive, connected economy. Gaps and shortfalls in coordination, memory and learning are direct consequences of an inability to adequately manage the knowledge environment. According to this hypothesis, knowledge management therefore represents an unmet but still pressing need, more than it currently represents an effective set of solutions,

and this, more than its effectiveness, is the reason for its survival as a mainstream management tool, despite its tendency to disappoint.

To summarize then, the forgetfulness to which knowledge management is prone has two significant but connected implications:

1. *Lack of coherence*: arising from the lack of an integrated theoretical base, and resulting in an inability to educate knowledge management professionals effectively, develop a suite of substantive theory- and evidence-supported practices, or even communicate effectively with executives, partners and stakeholders.
2. *Poor execution*: arising from poorly prepared and supported knowledge management practitioners and low levels of continuity of personnel within knowledge management initiatives, resulting in poor satisfaction levels at executive level.

Some of the areas surveyed in this article show promise for meeting these needs. Connecting to a mature, inter-connected theoretical base would allow knowledge management to work from foundational principles toward empirically (or evidence-supported) practices, as contrasted with the current state of a fragmented and often naïve theoretical landscape, largely disconnected from an implementation landscape of constant invention, reinvention and improvisation.

This article has claimed that the fields of economics and social theory hold important elements of that mature and inter-connected theoretical base, and that over the past 50 years they have generated maturing traditions of practical insights around the application and use of knowledge for organizational and social advantage that knowledge management – and with it, broader managerial theory – at the moment largely ignore.

These insights include:

- The effects of knowledge production and use have significant economic impact beyond management of capital and labor, and therefore require serious managerial attention (within organizations) and policy attention (within governments) at senior levels.
- The dynamics of knowledge use within organizations are substantively different from the dynamics of knowledge use within societies, even though they share similar problem sets, and even though they need to interact with each other; it is difficult for knowledge management professionals to be effective without an understanding of these different dynamics and how they interact.
- The naturalistic patterns and constraints of knowledge diffusion within social groups are reasonably well understood, but largely unexploited by knowledge management theorists and professionals; the diffusion of knowledge across social groups is less well understood, but is being intensively studied by economists, and this body of theory is also under-exploited within knowledge management.

We have characterized knowledge management as an applied discipline without a sound theoretical base. To expect it to function effectively would be analogous to saying that the applied discipline of engineering can be effective without the ability to connect to a theoretical grounding in mathematics, physics and chemistry. This paper has argued that much of the requisite theoretical grounding already exists (in fact, was responsible for the first early explorations in knowledge management), and that this grounding needs to be recovered if knowledge management is to meet the organizational and societal needs that originally called it forth.

A pre-publication reviewer of this article suggested that a useful follow-up from this review would be a broad, integrative and multidisciplinary approach to describe the underlying concepts and drivers for knowledge management, and to tease out the implications for knowledge management as a purposeful discipline for creating social and organizational value. This author agrees with that view, and invites colleagues to join him in that endeavor.

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