

## **Scientists, Philosophers, and Knowledge Managers, Oh My!**

### **The Use of Philosopher of Science Michael Polanyi's Ideas in the Literature of the Knowledge Management Movement.**

#### **Abstract**

This paper asks and attempts to answer the following questions in the order they appear: 1) What does formal philosophy have in common with business? 2) What, according to KM authors Nonaka and Takeuchi, paved the way for Michael Polanyi's ideas in KM? 3) In what context were Michael Polanyi's ideas originally made well-known to the world of KM? 4) What are some practical examples of how Polanyi's insights have been applied? 5) But do most in the KM movement really understand the core of Polanyi's ideas regarding: a) tacit and explicit knowledge, b) information and knowledge, and c) the management of knowledge 6) What might the future of KM, Polanyi, and philosophy in general, hold? In this article's conclusion, the importance of Polanyi's thought is stressed, and KM practitioners are encouraged to take a closer look yet at the work of Michael Polanyi to assist them in their organizations.

#### **Goal and Beneficiaries**

To explore in a notebook format the wide influence of Michael Polanyi in the Knowledge Management movement, using the information provided in chapter 2 and 3 of *The Knowledge Creating Company* as a beginning and guiding framework, thereby laying a foundation for future inquiry into Polanyi's significance for KM in particular, and formal philosophy's in general.

#### **Methodology**

Using chapters 2 and 3 of *The Knowledge Creating Company*, with its philosophical discussions and argumentation as a starting frame, I set up my GAANT chart (see Appendix A), and did intensive web and database searching using various combinations of "knowledge management" and "philosopher(s)" and "philosophy" in October of 2006, and obtaining some helpful articles.

One of the more fruitful approaches was doing a Google search of “knowledge management” and about 50 well-known philosophers (ancient and modern; see Appendix B), compared with Google searches for the philosophers alone:

- 1) Michael Polanyi – 7.38
- 2) Thomas Kuhn – 1.18
- 3) Adam Smith – 0.93
- 4) John Dewey – 0.71
- 5) Karl Popper – 0.64

(More in order of popularity: Confucious, Socrates, Max Weber, Aristotle, Francis Bacon, Plato, William James, Karl Marx)

*Percentage of instances that “Knowledge Management” appears on the same web page as the full names of these philosophers*

At that same time, I tried a similar approach with Google Book Search. This time I searched for books with the title “Knowledge Management” and found 111 titles. I then searched simultaneously for this with the names of the same well-known philosophers:

- 1) Aristotle – 29
- 2) Michael Polanyi – 27
- 3) Plato – 27
- 4) Adam Smith – 20.7
- 5) Thomas Kuhn – 19.8

(More in order of popularity: Socrates, Max Webber, Francis Bacon, Karl Popper [9.01], Karl Marx, William James, John Dewey [6.36])

*Percentage of instances that a philosopher’s name appears in all the books in Google Book Search which have “Knowledge Management” somewhere in the title*

Based on this, I determined to devote my efforts to Michael Polanyi and his influence. I searched for more articles relating him to KM in the EBSCO Megafile database, in various web search engines (including Brint.com’s search engine), as well as looking at excerpts from various Knowledge Management books (with some help from the Library of Congress and their subject headings) though Google Book Search.<sup>1</sup> After this, I read, thought, and produced. I sincerely hope it benefits someone in some way.

## **Introduction**

As of October, 2006, one of the 515 books the Library of Congress had cataloged under the subject of “Knowledge Management” was a 2004 work called, *Thinking for a living : the coming*

*age of knowledge work* by Kenneth A. Megill. The title of this book reminds me of the time a rather hard-working and relatively accomplished Sudanese immigrant said to me about his going to school in America: “Thinking is hard work”. This man saw the value of clear thinking and how it had contributed to the success of the country he had become a part of. Certainly, philosophers have always thought thinking is hard and valuable work, but with the advent of the information age and its flood of information, perhaps more and more people are coming to agree – or are finding themselves forced to agree as they wade through piles of information in search of true knowledge and inspiration. The field of Knowledge Management - which gained some steam in the early and mid 90’s and continues to grow in force – is certainly interested in the importance and usefulness of thought, as its name implies. As Dick Stenmark says, “in recent years... the importance of knowledge in business and industry has risen dramatically, and shifted from being one resource among many to becoming the primary resource”,<sup>2</sup> and Peter Gottschalk drives home the point:

‘Knowledge is power’. So said the 16<sup>th</sup> century philosopher Sir Francis Bacon. This profound yet simple statement is even more appropriate today. As we gradually move into a more ‘informed’ world, the products and services of most organisations have become extremely complex with significant non-material component[s]. the work of organizations is increasingly based on knowledge. Their processes are based on knowledge. They compete based on knowledge. In fact, their very survival is based on knowledge – on their realizing how important knowledge is to them, and in making use of knowledge. It can be argued that the organizations that can harness the power of knowledge will be the eventual winners, while the rest will remain laggards, or even disappear.<sup>3</sup>

In other words, ideas may have always had consequences, but now it is truer than ever. After being introduced to the concept of Knowledge Management, I noticed some links between the movement and formal philosophers and philosophers of science – and had to explore more. In the process, I discovered that a man named Michael Polanyi – a scientist-turned philosopher – had gained particular attention from several Knowledge Managers. For example, Michael Polanyi has three of the books in “The 50 Most-cited KM Articles From Academic Literature, 1995-2001” in Appendix B of chapter 2 of Michael ED Koenig, and T. Kanti Srikantaiah’s book, *Knowledge Management: Lessons Learned*<sup>4</sup>. So what does “down-to-earth”, “bottom-line-driven” business have to do with “ivory-tower” philosophers given to impractical abstractions? And who is this Polanyi fellow and why might his ideas be important for business? I invite you to journey with me to look at just these questions.

## **I What does formal philosophy have in common with business?**

Before looking at how Michael Polanyi was introduced into the field of KM and his influence though, it may be helpful to consider the obvious question, “Why have various authors promoting KM given their attention to the relation of formal philosophers with business?” First, let us examine a more dismissive answer. Reviewing 3 KM books, Laura Empson, in her article “Knowledge Management: In Search of the Philosopher’s Stone” in a 1999 issue of *Business Strategy Review*, said “the attraction to knowledge management may lie in the ‘back to the basics’ philosophy which underpins much of the writing in the field.” Noting the comments of Bertels and Savage that “the approaches in the popular business literature usually have little to do with the research output from academia, and academics have difficulty in relating to the recipes put forward for the consumption of management practitioners”, Empson writes “disillusioned with the simplistic solutions peddled by management academics in the past, business people have embarked on a quest for meaning and truth within their organizations, under the guise of knowledge management”, and scathingly concludes by saying, “...the question ‘what is knowledge’ has preoccupied philosophers throughout the ages. Is it likely the new alchemists, the management consultants and academics, will be any more successful than their medieval counterparts in their quest for the universal panacea?”<sup>5</sup> Martensson noted in 2000 that while some consider KM the business salvation, others see it as “the emperor’s new clothes”<sup>6</sup>, i.e. a marketing ploy consultants use. On the other hand, I believe David Weinberger, writing on the weblog for *KM World* magazine, offers hope for a moderating view, with this helpful hint:

Business certainly cares about certainty. When a business makes a decision, it takes a risk that equates to the degree of certainty possible. Factors are weighed, which means the certainty of their occurrence is assessed. Even the certainty of certainty counts in business decisions: Some analysts are known to be more reliable than others, and some circumstances are capable of greater degrees of certainty than others. Of course, unlike philosophers, businesspeople can't wait for perfect certainty because the world is not perfectly knowable and the future is not perfectly predictable. The issue is always one of how much certainty one can assume. But, good businesspeople, like philosophers, think about knowledge in terms of certainty, sensitive to its various degrees and possibilities in every situation.<sup>7</sup>

Weinberger later goes on to conclude about how both businesspeople and philosophers are both interested in certainty and the relation of the mind and the world.<sup>8</sup> And, Jeffrey Pfeffer and Robert I. Sutton, in their book *The Knowing-Doing Gap: How Smart Companies Turn Knowledge into Action*, I believe spell out well the practical consequences of the theories we formulate:

The fact that knowledge is acquired through experience and is often intangible and tacit produces a third problem of turning knowledge into action. One important reason we uncovered for the knowing-doing gap is that companies overestimate the

importance of the tangible, specific, programmatic aspects of what competitors, for instance, do, and underestimate the importance of the underlying philosophy that guides what they do and why they do it. Although specific practices are obviously important, such practices evolve and make sense only as part of some system that is often organized according to some philosophy or meta-theory of performance. As such, there is a knowing-doing gap in part because firms have misconstrued what they should be knowing or seeking to know in the first place.

This quotation further suggests that the question about “what works” seems to be related to the other questions about seeking meaning and certainty (truth). Now, let’s move on to Michael Polanyi, and find out where all of the interest in him came from.

## **II. What according to Nonaka and Takeuchi, paved the way for Michael Polanyi’s ideas in KM?**

Interestingly, one could say that for a long time the importance of intuition and experience (tacit knowledge) were tacitly known by managers, but not looked at explicitly. However, the organizational theorists Nonaka and Takeuchi, with the release of their *Knowledge Creating Company* in 1995<sup>9</sup>, brought the idea of “tacit knowledge” to the forefront, and made Michael Polanyi a prominent name in the KM movement. I think it is very interesting to see what these authors believed paved the way for his introduction. In the first few chapters of their book, Nonaka and Takeuchi discuss why Western observers see the organization as a mechanism for “information processing” (56) that primarily utilizes existing knowledge (49), and do not (their perception in 1995) take into account organizational knowledge creation<sup>10</sup>, which they focus on in their book. Their contention is that it has to do with the tradition of Western management, which necessarily views knowledge more as something explicit, i.e. something formal and systematic (other word pictures here: “machine-like”, “hard data”, “scientific formulae”, “codified pictures”, “universal principles”), as opposed to Japanese companies which see knowledge more as being primarily tacit, i.e. something “not easily visible and expressible (other word pictures that come with this: “living organism”, “personal”, “subjective insights”, “intuition”, “hunches”, “ideals”, “values”, “emotions”) (8). This eventually leads them into an extended discussion of the philosophical foundations of Western society<sup>11</sup>, which “has fundamentally shaped the disciplines of economics, management, and organizational theory, which in turn have affected managerial thinking about knowledge and innovation.”<sup>12</sup> Enlightenment philosopher Rene Descartes, who posited a distinction between “subject (the knower) and object (the known), mind and body, or mind and matter” (20), is their “whipping boy” in this endeavor. The authors state that DesCartes’ dualism followed “from the assumption that the essence of a human being lies in the

rational thinking self”, and note that “contemporary challenges have emphasized the importance of some form of interaction between the self and the outside world in seeking knowledge”, proceeding to list examples (25). Further, they go on to speak of the “three distinctions of the Japanese intellectual tradition: (1) oneness of humanity and nature; (2) oneness of body and mind; and (3) oneness of self and other”, and go on to explain these distinctions in some detail (27). They see Western philosophy as having gradually moved closer to this – and this is where Michael Polanyi will come in and be used to further promote this – even though they say that the different views need not be “either-or”, but can be “both-and” (32)<sup>13</sup> As they say elsewhere, organizational knowledge is created “by *transcending* a multiple of dichotomies presented throughout [their] book” (19, italics their’s). And yet, on the ground, their “view of the organization is one in which the organization re-creates itself by destroying the existing knowledge system and then innovating new ways of thinking and doing things” (50). Then, they “actually create new knowledge and information, from the inside out, in order to redefine both problems and solutions and, in the process, to re-create their environment” (56).<sup>14</sup> It is at this point that Polanyi is introduced, as one who can help organizations – who in the main may have “not followed modern and contemporary philosophical discussions on how the Cartesian dualism between subject and object or body and mind can be transcended” (49) - better understand how this can occur.<sup>15</sup>

### **III In what context were Michael Polanyi’s ideas originally made well-known to the world of KM?**

Nonaka and Takeuchi are concerned to promote organizational knowledge creation and its management, and the chemist-turned-philosopher Michael Polanyi, with his distinction between “tacit” and “explicit” knowledge, is the man they use in their cause. In leading up to Polanyi, they first state that “the cornerstone of our epistemology [(the theory of knowledge)] is the distinction between tacit and explicit knowledge” (56). Second, because they are focused on organizational knowledge creation, their theory also has its “own distinctive ‘ontology’, which is concerned with the levels of knowledge creating entities (individual, group, organizational, and inter-organizational)”(57).<sup>16</sup> Third, in discussing the definition of knowledge as “justified true belief”, they say: “While traditional epistemology emphasizes the absolute, static, and nonhuman nature of knowledge, typically expressed in propositions and formal logic, we consider knowledge as *a dynamic human process of justifying personal belief toward the ‘truth’ and ‘knowledge is essentially related to human action’* ” (58, 59, italics author’s)<sup>17</sup> Michael Polanyi is then seamlessly introduced at this point, credited as the man who drew the distinction between

tacit knowledge and explicit knowledge, and who said “we can know more than we can tell”.<sup>18</sup>

The authors go on to make this significant claim:

In traditional epistemology, knowledge derives from the separation of the subject and the object of perception; human beings as the subject of perception acquire knowledge by analyzing external objects. In contrast, Polanyi contends that human beings create knowledge by involving themselves with objects, that is, through self-involvement and commitment, or what Polanyi calls ‘indwelling’. To know something is to create its image or pattern by tacitly integrating particulars. In order to understand the pattern as a meaningful whole, it is necessary to integrate one’s body with the particulars. *Thus indwelling breaks the traditional dichotomies between mind and body, reason and emotion, subject and object, and knower and known. Much of our knowledge is the fruit of our own purposeful endeavors in dealing with the world* (60, italics mine).”

Noting that tacit knowledge includes cognitive (“mental models”, analogies, schemata, paradigms, perspectives, beliefs, viewpoints, “images of reality”, “visions for the future” [i.e. “what is” and “what ought to be”]) and technical elements (concrete know-how, crafts, and skills), the authors then attempt to apply Polanyi’s insights in a practical manner.<sup>19</sup> First, they go on to further distinguish the terms “tacit knowledge” and “explicit knowledge”:

...knowledge of experience tends to be tacit, physical, and subjective, while knowledge of rationality tends to be explicit, metaphysical, and objective. Tacit knowledge is created ‘here and now’ in a specific, practical context and entails what Bateson (1973) referred to as ‘analog’ quality. Sharing tacit knowledge between individuals through communication is an analog process that requires a kind of ‘simultaneous processing’ of the complexities of issues shared by the individuals. On the other hand, explicit knowledge is about past events or objects ‘there and then’ and is oriented toward a context-free theory. It is sequentially created by what Bateson calls ‘digital activity’” (60,61).

Seeing these two kinds of knowledge as complementary and their interaction as resulting in knowledge conversion, the authors then introduce their “dynamic model of knowledge creation”. It consists of “four different modes of knowledge conversion... (1) from tacit knowledge to tacit knowledge, which we call socialization; (2) from tacit knowledge to explicit knowledge, or externalization; (3) from explicit knowledge to explicit knowledge; or combination; and (4) from explicit knowledge to tacit knowledge, or internalization” (62).<sup>20</sup> After explaining these four modes in more detail, Nonaka and Takeuchi go on to develop their “knowledge spiral” first noting the need for certain “enabling conditions” (intention, autonomy, fluctuation and creative chaos, redundancy, and requisite variety), and second laying out the five ideal phases of the organizational knowledge-creating process: (1) Sharing tacit knowledge; (2) Creating concepts; (3) Justifying concepts; (4) Building an archetype; (5) Cross-leveling of knowledge.<sup>21</sup> The rest of

their book revolves around this model. Particular to our interests, in the midst of the explanations of the “enabling conditions” of “autonomy” and “creative-chaos”, several far-reaching philosophical statements occur, perhaps now given additional significance in the light of Polanyi’s concepts. For example, they say:

“Top or middle managers can draw organizational attention to the importance of commitment to fundamental values by addressing such fundamental questions as ‘*What is truth?*’ ‘*What is human being?*’ or ‘*What is life?*’ This activity is more organizational than individual. Instead of relying solely on individual’s own thinking and behaviors, the organization can reorient and promote them through collective commitment (75, italics author’s).”

After saying that a knowledge creating organization can be compared to an autonomous living organic system<sup>22</sup>, they sometime later go on to talk about the importance of individual members rethinking their perspectives: “...we begin to question the validity of our basic attitudes toward the world... a breakdown demands that we turn our attention to dialogue as a means of social interaction, thus helping us to create new concepts. This ‘continuous’ process of questioning and reconsidering existing premises by individual members of the organization fosters organizational knowledge creation” (79). This “creative chaos” has broad implications:

Top management’s ambiguity with respect to philosophy or vision can lead to a reflection of value premises as well as factual premises upon which corporate decision making is anchored. Value premises are subjective in nature and concern preferences; they make possible a far broader range of choice. Factual premises, on the other hand, are objective in nature and deal with how the real world operates; they provide a concrete but limited range of choice” (80).<sup>23</sup>

The importance of this “creative chaos”, otherwise known as “order out of noise” or “order out of chaos” (79) cannot be underestimated, as the pursuit of “high goals may intensify individual wisdom as well”. To this effect they quote Taiyu Kobayashi, the former chairman of Fujitsu: as “Relaxed and in a comfortable place, one can hardly think sharply. Wisdom is squeezed out of someone who is standing on the cliff and is struggling to survive... without such struggles, we could never have been able to catch up with IBM (Kobayashi, 1985, p. 171).” Here, a philosophy which endeavors to tackle the greatest questions of life and a serious real-world pragmatism come together. Michael Polanyi, having been a highly successful chemist before becoming a philosopher-polymath<sup>24</sup>, developed a far-reaching analytical philosophy that effectively combined a concern with utility – and this has been picked up by Nonaka and Takeuchi. That said however, there are aspects of their thought here that Polanyi would have in all likelihood cautioned against.

Before considering this though, let us examine how others in the KM movement have used Michael Polanyi's insights in their work.

#### **IV What are some practical examples of how Polanyi's insights have been applied?**

Nonaka and Takeuchi were only the first to apply Michael Polanyi's insights to their KM theories. Since their classic work on knowledge creation energized the KM movement with its release in 1995, many others have endeavored to see how Polanyi might give their business area an edge. Here, we will briefly look at some who have latched onto Michael Polanyi's ideas in a broad and general way<sup>25</sup> with an eye to immediate practical application. Alice Lam, writing in *Organizational Studies* in 1997, used and extended Michael Polanyi's ideas in research dealing with the close collaboration between a Japanese and British high-technology firm in a "knowledge-intensive" area. The research showed "how the dominant form of knowledge held in organizations, its degree of tacitness, and the way it is structured, utilized and transmitted can vary considerably between firms in different societal settings" and the author went on to catalogue the chaos this had caused.<sup>26</sup> Dorothy Leonard and Sylvia Sensiper wrote an extensive article called "The Role of Tacit Knowledge in Group Innovation" in an oft-referenced article, in which they, like Nonaka and Takeuchi, talk about the tacit knowledge being critical to innovation, which is both "an exploration and synthesis".<sup>27</sup> Dick Stenmark, who supports "IT solutions that will help us locate and communicate with knowledgeable people", specifically looks at Polanyi's ideas and their applications to information technology. Two of Stenmark's observations are that "an interesting but also troublesome property of tacit knowledge is the inherent tension between its value on the one hand and its elusiveness on the other hand" and that "an organization's view of how work is carried out contrasts sharply with what it really takes to get the job done". Then, noting that it is easier for us to recognize what appeals to us than to explain it, he keenly observes,

The reason we intuitively know what we are interested in when we see it may be explained by applying Polanyi's [22] theories. Polanyi claims that tacit knowledge has two distinct properties, which he names its proximal and distal terms. The proximal term is the part that is closer to us, while the distal part is further away. In Polanyi's example he describes how the police help a witness who is unable to describe a suspect to create a photo-fit picture by selecting images from a large selection of human features, such as eyes, nose, and hair. By attending from the first, closer image that resides within, to the second, more distant picture collection, the witness is able to communicate her awareness of the face... Applying Polanyi's notion of the proximal and distal terms, we see that when attending from our interests--the proximal term--and attending to the document--the distal term--we are

able to recognize and express our interests. Through interesting documents, tacit knowledge may be communicated, despite the fact that it is not easily expressible in words. The fact that language alone is not enough thus does not stop tacit knowledge from being communicated [ 26]. Choo [ 7,p. 117] suggests that rich modes of discourse, including analogies, stories, and metaphors, should be used to reveal tacit knowledge. What we need now is an instrument to help us attend to this other, richer form.

Stenmark then goes on to note how recommender and retrieval systems can utilize this tacit knowledge (which people find more trustworthy and prefer to explicit knowledge, which they see as somehow imposed on them) and how systems which do so can provide real incentives for people to share their knowledge. With this plan, people can share knowledge without worrying about “‘automat[ing] away’ the reason for [their] existence in the organization” by externalizing their knowledge (i.e., by making it explicit). Near the end of the article, he concludes, “though some things in organizations are tacitly experienced it does not imply that they are outside the reach of information technology support.” In this we can also see some connections with much of the “social software” that is popular now, which allows individuals to utilize their intuition to a high degree and then to represent and organize information according to their own goals and perspectives. Haridimos Tsoukas and Efi Vladimirou also make application of Polanyi’s ideas in their 2001 research paper “What is Organizational Knowledge”. They show that:

Through experience and their participation in a ‘community of practice’ (Brown and Duguid, 1991; Wenger, 1998), operators develop a set of diagnostic skills which over time become instrumentalized, that is to say, tacit. This enables them to think quickly, ‘on their feet’, and serve customers speedily. Over time, operators learn to dwell in these skills, feel them as extensions of their own body and thus gradually become subsidiarily aware of them, which enables operators to focus on the task at hand... The tacitness of operators’ knowledge was manifested when they were asked to describe how and why they tackled a particular problem in a particular way. To such questions, operators were at a loss for words; ‘you feel it’, ‘you know so’, ‘I just knew it’, were some of the most often repeated expressions they used (cf. Cook and Yanow, 1996). Such knowledge was difficult to verbalize, let alone codify.<sup>28</sup>

Shortly thereafter, the authors state, “If Polanyi’s claim that all knowledge is personal knowledge is accepted, it follows that, at least as far as organizational knowledge is concerned, there always is an improvisational element in putting knowledge into action” and make the claim that, “at any point in time, abstract generalizations are in themselves incomplete to capture the totality of organizational knowledge. In action, an improvisational element always follows it like shadow follows an object.” At the end of their paper, these authors state, “Knowledge management then is primarily the dynamic process of turning an unreflective practice into a reflective one by elucidating the rules guiding the activities of the practice, by helping give a particular shape to

collective understandings, and by facilitating the emergence of heuristic knowledge... heuristic knowledge needs to be formalized (to the extent this is possible) and made organizationally available.” In addition to these mentioned above, one will also encounter Michael Polanyi’s ideas about tacit knowledge in works covering industrial management<sup>29</sup>, information technology, leadership<sup>30</sup>, education<sup>31</sup>, and economics<sup>32</sup>, for example. Like Nonaka and Takeuchi, several of these articles make use of Polanyi (some briefly) in route to propose what we might call softer, more intuitive (perhaps “human”) solutions to what the authors would consider harder and more “rationalistic” (mechanical) practices prevalent in these areas, though not with something akin to Nonaka and Takeuchi’s broad-reaching philosophy.<sup>33</sup> As has been hinted at above however, the usage of Polanyi in many of these cases above seeks to be immediately practical, and fails to examine definitions or argue over some of Polanyi’s finer points. Tsoukas and Vladimirou resist this trend however, stating that:

On the contrary, what we need is ever more sophisticated theoretical explanations of our topic of interest, aiming at gaining deeper insight into it. Those who think that such an attempt is futile, need to ponder the great extent to which Polanyi’s notion of ‘personal knowledge’ has advanced our understanding of what knowledge is about and, accordingly, how much more impoverished our understanding would have been without that notion. If theoretical confusion is in evidence the answer cannot be to ‘drop theory’ but ‘more and better theory’.<sup>34</sup>

The author believes Michael Polanyi would heartedly agree, and at this time invites an examination into some of the more challenging questions KM’s interest in Michael Polanyi and tacit knowledge raises.

## **V But do most in the KM movement really understand the core of Polanyi’s ideas?**

“Polanyi’s work, for the most part, has not been really engaged with”<sup>35</sup>, claimed Tsoukas and Vladimiriou in 2001. Even though it is true enough that Michael Polanyi has been very popular in the KM movement, that is not necessarily to say that there is total agreement about how his insights ought to be applied, or even more fundamentally, just what his insights really were. At issue here is not only a clear understanding about what Michael Polanyi said and meant, but also the definitions of even the simplest terms he dealt with (like knowledge!). First, it should be noted that though many would consider this a fruitless venture, Tsoukas and Vladimirou, noted above, do not hold to this view<sup>36</sup>, nor does the library and information scientist Birger Hjørland, who in another context speaks of the importance of having one’s knowledge claims confronted with “more generally accepted claims” from outside one’s own necessarily limited point of view.

Only in this manner will knowledge “cumulate satisfactorily”.<sup>37</sup> In addition, besides the obvious issue of confusion, there is also the issue of credibility. As knowledge management consultant Fred Nickols notes, “...if claims are being made that knowledge can be managed and if the term knowledge management is to have any credence, we must be clear about what we mean by the knowledge in knowledge management.”<sup>38</sup>

### **A. Regarding tacit and explicit knowledge?**

Michael Polanyi said somewhere that our knowledge is like an iceberg where the explicit, articulable part of our knowledge is above the water level and the rest is tacit. Also: “...Tacit thought [is] an indispensable element by which all explicit knowledge is endowed with meaning.”<sup>39</sup> (indeed, it is inconceivable to have learning without having other persons – assuming we are talking about *the cradle* to the grave). With this in mind, we first look at Tsoukas’ article “Do We Really Understand Tacit Knowledge”, in which he provides an excellent summary of Polanyi’s thought (“Polanyi for Beginners: A Guide”), and explains where Nonaka and Takeuchi misappropriate Polanyi.<sup>40</sup> Introducing Polanyi, he asks,

What is it that enables a map-reader to make a competent use of the map to find his/her way around, a scientist to use the formulae of celestial mechanics to predict the next eclipse of the moon, and a physician to read an X-ray picture of a chest? For Polanyi the starting point towards answering this question is to acknowledge that “the aim of a skilful performance is achieved by the observance of a set of rules which are not known as such to the person following them (Polanyi, 1962:49).

Explicating Polanyi further, things like “probes, sticks, or hammers”, as well as “intangible constructions such as radiological, linguistic, or cultural knowledge”, are all “tools enabling a skilled user to get things done”.<sup>41</sup> Regarding rules or maxims, they “do not determine the practice of an art”, but serve as guides only insofar as they are practically integrated into the art, and, “no rule is helpful in guiding action unless it is assimilated and lapses into unconsciousness”.

Regarding skills, he quotes Polanyi saying “[they] retain an element of opacity and unspecificity; they cannot be fully accounted for in terms of their particulars, since their practitioners do not ordinarily know what those particulars are; even when they do know them, as for example in the case of topographic anatomy, they do not know how to integrate them (Polanyi, 1962: 88-90).”

The article is packed with a helpful exposition of Polanyi’s thought, and I highly recommend it. I find this lengthy quote particularly helpful:

We engage in tacit knowing through virtually anything we do: we are normally unaware of the movement of our eye muscles when we observe, of the rules of language when we speak, of our bodily functions as we move around. Indeed, to a large extent, our daily life consists of a huge number of small details of which we tend to be focally unaware. When, however, we engage in more complex tasks, requiring even a modicum of specialized knowledge, then we face the challenge of how to assimilate the new knowledge – to interiorise it, dwell in it - in order to get things done efficiently and effectively. Polanyi gives the example of a medical student attending a course in X-ray diagnosis of pulmonary diseases. The student is initially puzzled: “he can see in the X-ray picture of a chest only the shadows of the heart and the ribs, with a few spidery blotches between them. The experts seem to be romancing about figments of their imagination; he can see nothing that they are talking about” (Polanyi, 1962: 101). At the early stage of his training the student has not assimilated the relevant knowledge; unlike the dentist with the probe, he cannot yet use it as a tool to carry out a diagnosis. The student, at this stage, is a remove from the diagnostic task as such: he cannot think about it directly; he rather needs to think about the relevant radiological knowledge first. If he perseveres with his training, however, “he will gradually forget about the ribs and begin to see the lungs. And eventually, if he perseveres intelligently, a rich panorama of significant details will be revealed to him: of physiological variations and pathological changes, of scars, of chronic infections and signs of acute disease. He has entered a new world” (Polanyi, 1962:101). We see here an excellent illustration of the structure of tacit knowledge....<sup>42</sup>

This brings us to Tsoukas’ criticism of Nonaka and Takeuchi. He focuses on their example of tacit knowledge being made into explicit knowledge, which is the example of a baker’s explaining how she made bread by revealing the “knowledge in her head”. In response, he cites Polanyi saying that tacit knowledge is “based on an act of personal insight that is essentially inarticulable” (it has an “ineffable element”). However, Tsoukas notes, this does not mean that we can never talk about a practical activity at all. Rather, we can reflect on the practical activities we participate in, and “re-punctuate the distinctions underlying those activities”. “Through instructive forms of talk (e.g. “look at this”, “have you thought about it in that way?”, “try this”, “imagine this”, “compare this to that”), practitioners are moved to re-view the situation they are in, to relate their circumstances in a different way.” In short, “through the instructive (or directive) use of language, we are led to notice certain aspects of our circumstances that, due to their simplicity and familiarity, they remain hidden (“one is unable to notice something – because it is always before one’s eyes” [L. Wittgenstein, 1953: No. 129])”, and “Something that we know when no one asks us, but no longer know when we are supposed to give an account of it, is something that we need to *remind* ourselves of” (L. Wittgenstein, 1953: No.89; italics in the original)”. Seeing things in a new context, we can “relate to our circumstances in new ways and thus see new ways forward”.<sup>43</sup> To sum up Tsoukas’ concerns about tacit knowledge then, he (with Vlaimirou) elsewhere concluded that “knowledge is the capability to draw distinctions,

within a domain of action [“a form of life”, “practice”, “horizon of meaning”, “consensual domain”], based on an appreciation of context or theory of both.” Wilson also comments that Nonaka and Takeuchi’s approach seems to be: “If I see something I hadn’t noticed before, or knew of before, then those actions, or whatever, must constitute tacit knowledge.” As has been shown above, this cannot be the case if one defines tacit knowledge as that which an individual has but cannot articulate. In light of the above then, perhaps, as some have pointed out, it makes sense to speak not only of tacit and explicit knowledge, but also “implicit knowledge”, which is expressible knowledge that was previously unexpressed.<sup>44</sup> For example, Nickols also offers this helpful example:

In analyzing the task in which underwriters at an insurance company processed applications, for instance, it quickly became clear that the range of outcomes for the underwriters’ work took three basic forms: (1) they could approve the policy application, (2) they could deny it or (3) they could counter offer. Yet, not one of the underwriters articulated these as boundaries on their work at the outset of the analysis. Once these outcomes were identified, it was a comparatively simple matter to identify the criteria used to determine the response to a given application. In so doing, implicit knowledge became explicit knowledge.<sup>45</sup>

So it becomes clear that sometimes, with the help of others, we can realize and even articulate the knowledge of how we do things or perhaps how we find out how to do things.<sup>46</sup> Polanyi also shows that sometimes, even though we “know more than we can tell”, others can, through observation, determine things about us (like skills that we have) which we are unaware of.<sup>47</sup> Further, there can be no doubt that things like audio and video, though they cannot fully replace the indispensable “master-pupil” relationship can, in some instances – like riding a bike, or hitting a baseball, for instance – be at least more effective than words, formulas, and pictures alone.<sup>48</sup> Nevertheless, not all activities can be made explicit, and Wilson’s comments below remind us of all of our limits:

...data and information may be managed, and information resources may be managed, but knowledge (i.e., what we know) can never be managed, except by the individual knower and, even then, only imperfectly. *The fact is that we often do not know what we know: that we know something may only emerge when we need to employ the knowledge to accomplish something. Much of what we have learnt is apparently forgotten, but can emerge unexpectedly when needed, or even when not needed. In other words we seem to have very little control over 'what we know'.* (italics mine)<sup>49</sup>

And Polanyi himself would likely bid this case closed, citing perhaps the time he asked the expert cello maker whether there was any aspect of his wood-choosing procedure that could be quantified. The answer, was, of course, “no”.

## **B. Regarding information and knowledge?**

Jumping off from the most recent Wilson quote above, what about these distinctions between data, knowledge and information?<sup>50</sup> Is this also important and if so, can Polanyi help us? Tsoukas and Vladimiou comment that “for some researchers and practitioners (see Gates, 1999; Lehner, 1990; Terrett, 1998) organizational knowledge tends to be viewed as synonymous with information, especially digital information, in which case the interesting issue is thought to be how knowledge-as-information is best stored, retrieved, transmitted and shared (cf. Brown and Duguid, 2000; Hendriks and Vriens, 1999).” For their part, Tsoukas and Vladimirou adopt the view of Bell, saying, “What underlies Bell's definition of knowledge is his view that data, information, and knowledge are three concepts that can be arranged on a single continuum, depending on the extent to which they reflect human involvement with, and processing of; the reality at hand.”<sup>51</sup> Nickols states something compatible with this, repeating a commonly-held view that one use of the term “knowledge” (the others uses reflect a person’s internal state and their capacity for action) is “to refer to codified, captured and accumulated facts, methods, principles, techniques and so on. When we use the term this way, we are referring to a body of knowledge that has been articulated and captured in the form of books, papers, formulas, procedure manuals, computer code and so on.”<sup>52</sup> On the other hand, Wilson writes:

'Knowledge' is defined as what we know: knowledge involves the mental processes of comprehension, understanding and learning that go on in the mind and only in the mind, however much they involve interaction with the world outside the mind, and interaction with others. Whenever we wish to express what we know, we can only do so by uttering messages of one kind or another - oral, written, graphic, gestural or even through 'body language'. Such messages do not carry 'knowledge', they constitute 'information', which a knowing mind may assimilate, understand, comprehend and incorporate into its own knowledge structures. These structures are not identical for the person uttering the message and the receiver, because each person's knowledge structures are, as Schutz (1967) puts it, 'biographically determined'. Therefore, the knowledge built from the messages can never be exactly the same as the knowledge base from which the messages were uttered.<sup>53</sup>

I think these important issues can be dealt with by looking more closely at Polanyi’s claim that knowledge has an inextricably personal element, using a review of Polanyi’s book *Personal Knowledge: Towards a Post-critical Philosophy*, as a starting point. In the September 2001

issue of *Knowledge Management*, Martin Ward writes, "...by the time he reaches pages 380, Polanyi is so convinced by his personal, existential approach to knowing that he can state that 'purely cognitive targets such as facts, knowledge, proof, reality, science... can be said to exist only as binding on ourselves'". Ward says this is nonsense and using ideas from another philosopher of science, Karl Popper, explains that,

the Toyota D4 engine is a direct injection gasoline engine. It will remain so even though it means less than nothing to my father... Behind that oily fact are engineering and physical laws which are equally inaccessible to him, and even though they are slightly more tenuous and open to amendment than the engine, they remain as the collective, concrete property of all mechanical engineers. These knowledge objects [i.e. the physical laws] are valid, independent of any individual engineer...<sup>54</sup>

I think that one can find a harmony in Polanyi's and Ward's statements. When Polanyi says that such things "*can be said to exist only as binding on ourselves* (italics mine)", I think he means that from the individual subject's point of view, he can be aware that he has no real knowledge of these things, that they have not "bound him". In other words, *for all practical purposes*, things *can be said to "not exist"*, insofar as the person, *in his mind*, has no true "know that" (theoretical knowledge) and "know how" (technical knowledge) of them (indeed, perhaps he does not think the ideas are worth his interest). It does not necessarily follow, however, that this knowledge does not truly / really / objectively exist *in the minds of others*. Indeed it does and can be transferred to others so long as there is a description tool, such as language, held in common, and a desire to learn. Nor does it follow, that absolutely *all* occurrences of reality ("facts") given to people from different cultures via our common sensory and historical experiences, cannot be agreed upon – there is indeed "common ground" for "different worlds".<sup>55</sup> In other words, not all facts are hopelessly in dispute due to their being impregnated by culturally constricting conceptual schemata born of concerns regarding rivalry - power concerns regarding the one against the other.<sup>56</sup> Given the rest of Polanyi's work, I believe this is a responsible interpretation to take (and this will be explained and explored in greater detail in the next section).<sup>57</sup> Making an analogy then, since each one of us depends on tacit knowledge imparted to us by other persons (in the form of language, behavior, rules, etc.), genuine knowledge *can be said to exist* only insofar as it resides *within our minds and the minds of others*. This approach bows to practical concerns then, opting to connect our view of knowledge with those persons who throughout our lives impart tacit knowledge to us, and who daily affect us and are effected by our selves – indeed, why should such involvement from others be taken for granted?<sup>58</sup> Therefore, in this scheme, "explicit knowledge" apart from tacit knowledge (the knowledge of the individual expressed as

information in their visible words and deeds, and corresponding desire to learn) is really more accurately labeled as “information” (of which there are certainly varying degrees of quality and kinds) – it becomes knowledge when it begins to reside in (and of course affect) individuals. But if this is the case, does this necessarily mean that the term “knowledge management” should be abandoned?

### **C. Regarding the management of knowledge?**

If the above holds true then, it would seem that the term “knowledge management” is justly under some fire.<sup>59</sup> Even if we conclude that information needs to be managed, can knowledge really be managed anyway? Echoing the conclusions from the paragraph above, Davenport says, “Knowledge is information within people’s mind, without a knowing self-aware[] person, there is no knowledge”.<sup>60</sup> Capurro notes that “Von Krogh, Ichijo and Nonaka (2000) put it like this: “This book is about knowledge enabling. It is our strong conviction that knowledge cannot be managed, only enabled.”<sup>61</sup> Wilson, in his paper, “The Nonsense of Knowledge Management”, quotes Kotzer reporting on the highly influential Peter Drucker’s thoughts:

...Drucker... scoffs at the notion of knowledge management. 'You can't manage knowledge,' he says. 'Knowledge is between two ears, and only between two ears.' To that extent, Drucker says it's really about what individual workers do with the knowledge they have. When employees leave a company, he says, their knowledge goes with them, no matter how much they've shared.<sup>62</sup>

In his conclusion Wilson also has this hard word for the overly technological side of KM:

...according to the rhetoric of 'knowledge management', 'mind' becomes 'manageable', the content of mind can be captured or down-loaded and the accountant's dream of people-free production, distribution and sales is realized - 'knowledge' is now in the database, recoverable at any time. That may be Utopia for some, but not for many. Fortunately, like most Utopias, it cannot be realized.<sup>63</sup>

In the abstract to this paper, Wilson writes that “those activities that are not concerned with the management of information are concerned with the management of work practices, in the expectation that changes in such areas as communication practice will enable information sharing [, for example, by “encouraging personal networking and the development of ‘communities of practice’”]” But is this really so bad? It seems that what KM is primarily about and what makes it unique is its conscious effort to encourage and facilitate the transfer of persons’ knowledge, and to spark creativity by creating an environment where there is a increased chance / opportunity for

individual's knowledge to affect others in ways that will be beneficial to the goals of the organization. Perhaps there is a sense that this could even be said for some "KM systems", as Stenmark has argued above (Section IV) and elsewhere.<sup>64</sup> Bouthillier and Shearer, in evaluating their research study, add the interesting insight that:

...despite the fact that knowledge creation was closely related to the goals and objectives of the [KM] initiatives [of the organizations studied], no organization focused specifically on the knowledge creation process. This suggests that there is an underlying assumption that knowledge creation, either through adding to existing knowledge or analyzing information to create new knowledge, is the outcome of knowledge sharing.<sup>65</sup>

Though Bouthillier and Shearer may not consider this a positive, this does seem to take into account what researchers know about the information-seeking behavior of most people. It also seems analogous, for example, to the very human desire to arrange circumstances in such a way so as to help people meet others from a select group of people *in general*, with all the serendipitous results that go along with that. Here, there is also resonance with Polanyi, who emphasized that insights would unpredictably arise from the inner workings of the individual's theoretical and practical knowledge. However, like Wilson's quote above challenging the hard / technical side of management, some may feel that even these kinds of ideas can have a dark and insidious side, and perhaps some more words of warning might not be a bad thing to consider. It seems to me that even those advocating a more "soft and human" side of knowledge management cannot be totally immune from their own desire for more exacting control that overreaches (with Utopian visions guiding), though perhaps of a different kind. I believe that there are legitimate concerns to weigh when examining the "soft direction" KM seems to be proceeding in as well, and this is what the final section of this paper will examine.

## **VI What might the future of KM, Polanyi, and philosophy in general, hold?**

"Perhaps we are again standing with Galileo, realizing the contradictions of traditional wisdom and reaching for a new order"<sup>66</sup>, some academics said of the KM movement a while back. Stenmark, sounding somewhat similar to Nonaka and Takeuchi, tries to briefly lay out the past's problem and future's supposed solution:

Without going too deeply into the philosophical debate of what exactly knowledge is, we may notice that most voices in the KM discourse have abandoned the positivistic view of knowledge as an objectified and monistic absolute truth. Instead,

the KM community has adopted a pluralistic epistemology, acknowledging that there are many forms or types of human knowledge.

There is no doubt that Polanyi himself fought against what he considered naïve positivism, “bloodless objectivism”, and blind overconfidence in prevailing “maps of reality”. Indeed, with Polanyi, “mechanical theories of the mind are all utterly confounded”<sup>67</sup>, strict devotion to simply locating, measuring, describing, and identifying is meticulously questioned, and all rationalist philosophies devoted to logic and coherent “mental maps” – like those of Descartes – are shown to be wanting. For Polanyi, knowledge is fundamentally personal, and true knowing, (as opposed to daydreams) involves... “passionate and personal commitment” whereby we “transcend ourselves”. This sounds a bit like Nonaka, who has attempted to introduce to the KM world the Japanese philosophy of Ba which “is the recognition of the self in all”.<sup>68</sup> Further, of Polanyi it can definitely be said that, “One of the most distinguishing features of Polanyi’s work is his insistence on overcoming well established dichotomies such as theoretical vs. practical knowledge, sciences vs. the humanities or, to put it differently, his determination to show the common structure underlying all kinds of knowledge”<sup>69</sup>. He himself said that: “The act of knowing includes an appraisal; and this personal coefficient, which shapes all factual knowledge, bridges in doing so the disjunction between subjectivity and objectivity” M. Polanyi (1962:17).<sup>70</sup> Therefore, he might seem to be just the man to promote something like Ba. But one must not go too far. There are crucial differences between Polanyi’s and Nonaka’s thought. For Polanyi, the passionate and personal commitment is to a reality external to the self, or the “one truth” (315-316). In addition, theories (which must be constructed without regard to one’s normal approach to experience), are also things other than the self (4), and he explicitly denied cognitive relativism (315-316).<sup>71</sup> In short, though all knowing is personal (“subjective” as in the strict sense of the subject) increased objectivity is the accomplishment of subjects who are willing to dedicate themselves to making contact with external reality. To attempt to neatly coral, or make explicit, a fundamental, underlying aspect of Polanyi’s views then: A mind or self exists (which we can call A) as does a mind / self – independent reality (which we can call B). “Objectivism” may indeed be a “bloodless caricature of science” (15-17, 214), but increasingly reliable, or objective (obviously not “detached objectivity”, which is impossible) maps of the external reality distinct from our selves certainly exist. With Polanyi, the purpose of our cognitive structures in our consciousness is not merely to guide human activity in appropriate ways, as more radical proponents of social constructivism maintain<sup>72</sup> - this is insufficient – but to make contact with and to represent the reality external to our selves.<sup>73</sup> These kinds of modes of thought seem decidedly opposed to the kinds of ideas that Nonaka, Takeuchi, and Konno have put forth in various places

(described above). Indeed, in this regard, Polanyi seems remarkable traditional, Western, even Christian. To address one of Nonaka and Takeuchi's primary concerns, though this distinction may be seen as a kind of "dualism", it in particular has little in common with Descartes' philosophy, who began by trying to prove his own existence, and proceeding from there, and not by assuming the existence of the world external to his whole person ("body" and "soul"). Noting these crucial aspects of Polanyi's thought then, I believe it behooves us to ask whether any of the hard work of careful observation and accurate description – and especially more empirical and inductive pursuits (not to mention functioning well with others in the world) – occurs without assuming the existence of an external reality that is distinct from our selves / minds.<sup>74</sup> These important bulwarks of Polanyi's thoughts seem to have gone unnoticed by most Knowledge Management proponents of Polanyi. Perhaps concerns of Western "exclusivism", and embarrassing incidents in its history are partly responsible, but it seems to me that nevertheless, we should be very careful about downplaying and phasing out the explicit, traditional Western categories that we have inherited. To clarify, this is not said primarily with a concern to guard the individuality against "the collective", (though that is always something to be concerned about as well), but rather to uphold the logic "A (mind / self) is not B (external reality, or non-mind / self)" in the hope that the West's unique and rather peculiar progress in the areas of science, technology, and formalized "explicit knowledge" may continue.<sup>75</sup> I believe Polanyi would agree that by keeping explicit in our minds – by re-minding ourselves of, meditating on, and re-investing in – these distinctions (which certainly seem to keep in line with how people actually act in the world), we are far more likely to see continued success. In addition, the recent resurgence of religious ideas in the consciousness of people is another good reason to look towards Polanyi, who again, emphasized the role of passionate and personal commitment. He believed that it was a kind of faith (perhaps the "meta-theory"?) that linked our intuitions with new relationships to be discovered, and importantly, that such faith counted on an ordered universe<sup>76</sup> (therefore, we can't, for example, fundamentally alter or manipulate the natural laws of the external world to our advantage). Indeed, with Polanyi, one must believe in order to understand.<sup>77</sup> And yet, in Polanyi's view, there is a clear line between mere emotion or feeling (often associated with faith) and the intuition that is tacit knowledge. In an age where many are eagerly telling us that individual and collective passion ought to be released to "create our own reality" by the power of belief, it is good to be reminded that progress in science counts on the very hard (but interesting for the passionate scientist!) work of careful, empirical observation and study, which presupposes that the world external to our selves is at the deepest level ordered, and not subject to the whims of our [mystical, or magical] powers. This may be a very good reason

why the Western world left behind pagan religions with their magical thinking and proceeded to make astounding advances in science, medicine, and technology which still serves us well today. To sum up then, business managers have always been concerned with the reality “on the ground”, and yet today a sizeable few seem eager to take Polanyi’s thought to higher dimensions, in an effort to get “off the ground” with ideas that resonate with Utopian dreams and schemes.<sup>78</sup> An actual reading of Polanyi may correct and temper that tendency, and guard the KM or business manager from becoming unmoored, facing a harsh reality just waiting to “bounce back”.<sup>79</sup>

### **Conclusion:**

What makes Michael Polanyi so appealing to the KM movement in particular? Polanyi is unique as far as formal philosophers go because before becoming a philosopher he was a highly respected chemist (as well as being well-read in many other topics), said to be on the verge of the Nobel prize. Having turned to philosophy, then, he was able to begin a bridge – to address the concern of analytical philosophies which remain detached from utility. Polanyi was very much concerned with how philosophy should connect “real life” on the ground, inviting the importance of all of our sensory experiences and all that we partake in and observe as human beings. This has made him particularly interesting to KM, because as David Weinberger has noted, both businesspeople and philosophers are both interested in certainty and the relation of the mind and the world. Day notes that the general instincts of KM proponents to discuss a knowledge economy as distinct from an information economy indeed deserve attention<sup>80</sup>, and I have tried to do just that in this paper, focusing on KM’s most oft-quoted philosopher, Michael Polanyi. Michael Ward does a fine job of summarizing these efforts, reminding organizations of some especially salient points for doing business:

Far from being as objective [put this words in quotes if you wish] and the theories that result from it, the human quest for knowledge is rooted in human reality. Knowing is a skilled activity which involves a vast tacit element. It entails logical gaps, for example in the ingenuity required in every patent, and leads to unforeseeable consequences and implications, like the theory of relativity. Riding a bicycle and swimming are two activities which exemplify knowledge that cannot be made explicit. The student doctor painfully and slowly learns to read an x-ray photograph. Tacit knowledge underlies all knowledge.<sup>81</sup>

If today’s organizations in general and today’s businesses in particular desire true ingenuity and innovation, they may well have to give up elements of certainty in some areas – it is hard to guarantee a favorable “bottom line” when dealing with “unforeseeable consequences” – even as

they cling to certainty in other areas, namely, the traditional Western S-O distinctions, that Polanyi himself depended on, tacitly and explicitly, for his own work. Seeking such practical certainty as well as truth itself, taking a closer look yet at Michael Polanyi might just be a good place to start. Finally, I believe that scientists, philosophers and those in business, in particular, can all identify with this passage from George Eliot, illustrating the concepts of certainty, utility, and truth together:

Truth is the precious harvest of the earth. But once, when harvest waved upon a land, The noisome cankerworm and caterpillar, Locusts, and all the swarming, foul-born broods, Fastened upon it with swift, greedy jaws, And turned the harvest into pestilence, Until men said, What profits it to sow?<sup>82</sup>

And I believe Michael Polanyi, ever observant of the world, would agree in full.

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<sup>1</sup> For example, by going to the advanced search feature and putting “Knowledge Mangement” in the title box, and “Polanyi” or “tacit knowledge” in the “find anywhere in this book” box.

<sup>2</sup> Stenmark, Dick, “Leveraging Tacit Organization Knowledge”, Journal of Management Information Systems, Vol. 17, No. 3 (Winter 2000/2001), p. 9-24 (16 p.).

<sup>3</sup> Gottschalk, Petter, *Strategic Knowledge Management Technology*, 2004, p. vii, (found via Google Book Search).

<sup>4</sup> Koenig, Michael ED, and Srikantaiah, T. Kanti. Knowledge Management: Lessons Learned. Medford, N.J. : Information Today, March, 2004.

<sup>5</sup> Empson, Laura, “Knowledge Management: in Search of the Philosopher’s Stone”, Business Strategy Reveiw, Vol. 10, No. 2 (Summer 1999), p. 67 (5 p.). Empson later on again quotes Bertels and Savage, two contributors to R.C. Huseman and J.P. Goodman’s book *Leading with Knowledge: the Nature of Competition in the 21<sup>st</sup> century*, who say that “after three years of intense fluff, the lemmings will be on to their next topic, without ever having really mined the subject of knowledge”. Given the continued interest in KM today, this seems – for now, at least – to have been an inaccurate prediction.

<sup>6</sup> Quoted in Bouthillier, France, and Shearer, Kathleen, “Understanding Knowledge Management and Information Management: the Need for an Empirical Perspective”, Information Research, Vol. 8, No. 1 (October, 2002), <http://informationr.net/ir/8-1/paper141.html>

<sup>7</sup> Weinberger, David, “The Philosophy of Business Knowledge”, KM World (blog – accessed Nov. 2006), <http://www.kmworld.com/Articles/ReadArticle.aspx?ArticleID=16897>

<sup>8</sup> He goes on to say that businesspeople, unlike philosophers, are not interested in knowledge for its own sake, and want to put it to use. Also, he previously had commented on how philosophers themselves were concerned with 1) how “knowledge, as the connection of mind and world, is possible”, and 2) “the certainty that seems to be characteristic of knowledge. If knowledge as opposed to mere opinion, is justified true belief, what justifies belief?” In addition, we should note here, that philosophy in the Western tradition since Descartes has more or less sought a truth that is “unverifiable” by science – rather it is

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something rooted in logic and a coherent system that broadly encompasses everything, explains everything, and is completely universal. In other words, all of this can be determined by reason, and does not involve testing.

<sup>9</sup> Nonaka, Ikujiro, and Takeuchi, Hirotaka, The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation. New York: Oxford University Press, USA, 1995. All references to page numbers in Sections II and III are from this book, which was instrumental in the knowledge management movement getting off the ground. According to Wilson, “before the surge of publications in 1997, ‘knowledge management’ meant some application or other of computers, with the influence stemming from the notion of ‘knowledge bases’ in the expert systems field”. Wilson, T.D., “The Nonsense of ‘Knowledge Mangement’”, Information Research, Vol. 8, No. 1 (October, 2002), <http://informationr.net/ir/8-1/paper144.html>

<sup>10</sup> Later they write that, “We contend that [no major economic and management thinkers in the West] has articulated the dynamic notion that human beings can actively create knowledge to change the world, implicitly suggesting that our view of knowledge and theory or organizational knowledge creation provide a fundamentally new economic and management perspective that can overcome the limitations of existing theories bounded by the Cartesian split (32).”

<sup>11</sup> They later point out that “Despite the fundamental differences between rationalism and empiricism, Western philosophers have generally agreed that knowledge is ‘justified true belief’... according to this definition, our belief in the truth of something does not constitute our true knowledge of it, so long as there is a chance, however slight, that our belief is mistaken. Therefore, the pursuit of knowledge in Western philosophy is heavily laden with skepticism, which has induced numerous philosophers to search for the method to help them establish the ultimate truth of knowledge beyond all doubt. They have aimed to discover ‘fundamental knowledge without proof or evidence’, on which all other knowledge could be grounded” (21). Though I am not sure I agree with this last sentence in particular, I would agree with the authors that the quest of certainty in all things looms large in Western philosophy.

<sup>12</sup> Later they say: “The separation of ‘subject,’ ‘mind,’ and ‘self’ from ‘object’, ‘body’ and ‘other’ lies at the root of Western social sciences, including economics, management, and organization theory. As will be illustrated below, the century-long history of Western management thought can be seen as repeated challenges against the ‘scientific’ view of knowledge by the ‘humanistic’ one”, and they go on to give examples of these efforts “to overcome the Cartesian split between the knower and the known” (32)

<sup>13</sup> They later state: “Although contemporary Western philosophy seems to be getting closer to the Japanese intellectual tradition that has emphasized body and action, the view of knowledge in sciences and Western management practices is still dominated by the Cartesian dualism between subject and object, mind and body, or mind and matter. Following the Japanese intellectual tradition, however, we do not see these distinctions as an either-or dichotomy, but as mutually complementary (32).”

<sup>14</sup> And this then brings to mind a portion of a Peter Senge quote from earlier in their book: “A learning organization is a place where people are continually discovering how *they create their reality*. And how they can change it” (45, from Senge, “The Fifth Discipline”, 12-13). Later on they state: “Berger and Luckmann (1966, italics mine) argue that people interacting in a certain historical and social context share information from which they *construct social knowledge as a reality*, which in turn influences their judgment, behavior, and attitude” (59, italics mine). Perhaps these nuances of speech are important to keep in mind.

<sup>15</sup> Perhaps a more practical way of looking at Polanyi’s influence is to say, as does Martin Ward: “[Polanyi’s] existential account of our search for knowledge is helpful for today’s knowledge managers. Above all, he has given a philosophical basis for our understanding of tacit knowledge.” Ward, Martin, “Personal Knowledge: Towards a Post-critical Philosophy” (book review), Knowledge Management, (September, 2001), p. 34 (2 p.). This quote implies that tacit knowledge itself is something that business-

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minded individuals knew intuitively (tacitly), but need someone like Polanyi to make this “sense” understandable in words.

<sup>16</sup> Later, they write: “Organizational knowledge creation... should be understood as a process that ‘organizationally’ amplifies the knowledge created by individuals and crystallizes it as a part of the knowledge network of the organization” (59).

<sup>17</sup> Elsewhere, they say: “First, knowledge, unlike information, is about *beliefs* and *commitment*. Knowledge is a function of a particular stance, perspective, or intention. Second, knowledge, unlike information, is about *action*. It is always knowledge ‘to some end’. And third, knowledge, like information, is about *meaning*. It is context-specific and relational” (58, italics author’s). The distinctions between these will be discussed later on in this paper.

<sup>18</sup> This is from: Polanyi, Michael, The Tacit Dimension, Gloucester, Mass, Peter Smith, 1983, c1966.

<sup>19</sup> There are many invaluable insights that are shared in this context, in particular that “Through metaphors, people put together what they know in new ways and begin to express what they know but cannot yet say”, p. 13. They go on to express how the contradictions incorporated into metaphors are harmonized by analogy. “...the three terms capture the process by which organizations convert tacit knowledge into explicit knowledge: first, by linking contradictory things and ideas through metaphor; then, by resolving these contradictions through analogy; and, finally, by crystallizing the created concepts and embodying them into a model, which makes the knowledge available to the rest of the company.”, Nonaka, Ikujiro, Knowledge Management, vol. 3, Routledge (UK) 2005, p. 295, (found via Google Book Search).

<sup>20</sup> A more in-depth summary from Haridimos Tsoukas in his article “Do we really understand tacit knowledge?”: “Tacit knowledge is converted to tacit knowledge through observation, imitation and practice, in those cases where an apprentice learns from a master. Tacit knowledge is converted to explicit knowledge when it is articulated and it takes the form of concepts, models, hypotheses, metaphors, and analogies. Explicit knowledge is converted to explicit knowledge when different bodies of explicit knowledge are combined. And explicit knowledge is converted into tacit knowledge when it is first verbalised and then absorbed, internalised by the individuals involved. Tsoukas, Haridimos, “Do We Really Understand Tacit Knowledge”, from in, Easterby-Smith, Mark, and Lyles, Marjorie A. Handbook of Organizational Learning and Knowledge, Malden, Mass., Blackwell Publishing, 2003.

<sup>21</sup> Again, a more in-depth summary from Haridimos Tsoukas in his article “Do we really understand tacit knowledge?”: “The organizational knowledge-creation process proceeds in cycles (in a spiral-like fashion), with each cycle consisting of five phases: the sharing of tacit knowledge among the members of a team; the creation of concepts whereby a team articulates its commonly shared mental model; the justification of concepts in terms of the overall organizational purposes and objectives; the building of an archetype which is a tangible manifestation of the justified concept; and the cross-leveling of knowledge, whereby a new cycle of knowledge creation may be created elsewhere (or even outside of) the organization.” Tsoukas, Haridimos, “Do We Really Understand Tacit Knowledge”, from in, Easterby-Smith, Mark, and Lyles, Marjorie A. Handbook of Organizational Learning and Knowledge, Malden, Mass., Blackwell Publishing, 2003.

<sup>22</sup> “A knowledge-creating organization that secures autonomy may also be depicted as an ‘autopoietic system’ (Maturana and Varela, 1980), which can be explained by the following analogy. Living organic systems are composed of various organs, which are again made up of numerous cells. Relationships between systems and organs, and between organs and cells, are neither dominate-subordinate nor whole-part. Each unit, like an autonomous cell, controls all changes occurring continuously within itself. Moreover, each unit determines its boundary through self-reproduction. This self-referential nature is quintessential to the autopoietic system” (76).

<sup>23</sup> This “fact-value split” seems to be in line with what Ronald E. Day criticizes as the “traditional private-public modes of expression” that, he says, given the social construction of being and expression, are not

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useful explanatory categories. Day, Ronald E., "Clearing Up 'Implicit Knowledge': Implications for Knowledge Management, Information Science, Psychology, and Social Epistemology", Journal of the American Society for Information Science & Technology Vol. 56, No. 6 (Apr. 2005), p. 630 (6 p.).

Though I hardly believe that our being and expression are entirely socially constructed (this seems to eliminate the "nature" or the traditional nature-nurture categories), I have some sympathies with his view. More later.

<sup>24</sup> The complete footnote 5 on p. 91 says: "We did not include Polanyi in Chapter 2, because he is still considered minor in Western philosophy because of his view and background. Michael Polanyi was born in Hungary and was the brother of Karl Polanyi, an economist, who may be better known as the author of *The Great Transformation*. Micheal Polanyi himself was a renowned chemist and rumored to be very close to the Nobel prize until he turned to philosophy at the age of 50. Polanyi's philosophy has implicit or explicit agreements with those of 'later' Wittgenstein and Merleau-Ponty in terms of their emphases on action, body, and tacit knowledge. For a discussion on an affinity between Polanyi and later Wittgenstein with regard to tacit knowledge, see Gill (1974)."

<sup>25</sup> A good example of this are these highlights from Dick Stenmark: "Davenport and Prusak observe that tacit knowledge 'incorporates so much accrued and embedded learning that its rules may be impossible to separate from how an individual acts' [ 11,p. 70]. A baseball batter just knows how to hit but he cannot describe it explicitly enough for someone else to learn. Such knowledge cannot be represented outside the human body. Choo takes a similar stand and writes that "tacit knowledge is distributed in the totality of the individual's action experience,' and that tacit knowledge is "relying on tactile cues registered by the human body interacting with its environment' [ 7,p. 117]. In other words, our daily activities are informed by our tacit knowledge, without us thinking of it as, or recognizing it as, knowledge. We know how to ride a bike without having to think. The knowledge resides within us, but we can neither document it in a manual, nor explain it in word to others. In fact, such knowledge would be useless to all who had not themselves experienced the activity. Tacit knowledge requires involvement of the knowing object, and to transfer such skills, the master and the apprentice must during periods of internship share experiences through actions." Stenmark, Dick, "Leveraging Tacit Organization Knowledge", Journal of Management Information Systems, Vol. 17, No. 3 (Winter 2000/2001), p. 9-24 (16 p.).

<sup>26</sup> Lam, Alice, "Embedded Firms, Embedded Knowledge: Problems of Collaboration and Knowledge Transfer in Global Cooperative Ventures", Organization Studies, Vol. 18, No. 6 (1997), p. 973 (24 p.).

<sup>27</sup> Leonard, Dorothy, and Sensiper, Sylvia, "The Role of Tacit Knowledge in Group Innovation", California Management Review, Vol. 40, No. 3 (Spring 1998), p. 112-132 (21 p.).

<sup>28</sup> Helpful also here is the following quote from another one of Tsoukas' papers: "There are two different kinds of awareness in exercising a skill. When I use a hammer to drive a nail (one of Polanyi's favourite examples – see Polanyi, 1962:55; Polanyi and Prosch, 1975:33), I am aware of both the nail and the hammer but in a different way. I watch the effects of my strokes on the nail, and try to hit it as effectively as I can. Driving the nail down is the main object of my attention and I am focally aware of it. At the same time, I am also aware of the feelings in my palm of holding the hammer. But such awareness is subsidiary: the feelings of holding the hammer in my palm are not an object of my attention but an instrument of it. I watch hitting the nail by being aware of them. As Polanyi and Prosch (1975:33) remark: "I know the feelings in the palm of my hand *by relying on them for attending to the hammer hitting the nail*. I may say that I have a *subsidiary* awareness of the feelings in my hand which is merged into my *focal awareness* of my driving the nail" (italics in the original)... In being subsidiarily aware of holding a hammer I see it as having a meaning that is wiped out if I focus my attention on how I hold the hammer. Subsidiary awareness and focal awareness are mutually exclusive (Polanyi, 1962:56). If we switch our focal attention to particulars of which we had only subsidiary awareness before, their meaning is lost and the corresponding action becomes clumsy. If a pianist shifts her attention from the piece she is playing to how she moves her fingers; if a speaker focuses his attention to the grammar he is using instead of the act of speaking; or if a carpenter shifts his attention from hitting the nail to holding the hammer, they will all be confused. We must rely (to be precise, we must learn to rely) subsidiarily on particulars for attending to something else,

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hence our knowledge of them remains *tacit* (Polanyi, 1966:10; Winograd and Flores, 1987:32)” Tsoukas, Haridimos, “Do We Really Understand Tacit Knowledge”, from in, Easterby-Smith, Mark, and Lyles, Marjorie A. Handbook of Organizational Learning and Knowledge, Malden, Mass., Blackwell Publishing, 2003.

<sup>29</sup> Cohen, Michael D, “What’s Different is Routine”, Industrial & Corporate Change. Vol. 15, No. 2 (April 2006), p. 387-390 (4 p.).

<sup>30</sup> Gallagher, Eugene, “Leadership: a paradigm shift”, Management in Education. Vol. 16, No. 3 (2002), p. 24 (5 p.).

<sup>31</sup> Benjamin Martz, Wm, and Shepherd, Morgan M., “Testing for the Transfer of Tacit Knowledge: Making a Case for Implicit Learning”, Decision Sciences Journal of Innovative Education., Vol. 1, No. 1 (Spring 2003), p. 41-56 (16 p.).

<sup>32</sup> Dolfsma, Wilfred, “Metaphors of Knowledge in Economics”, Review of Social Economy, Vol. 59, No. 1 (Mar. 2001), p. 71-91 (21 p.).

<sup>33</sup> For example, like the authors quoted right before this, who say: “...the management of the heuristic aspect of organizational knowledge implies more the sensitive management of social relations and less the management of corporate digital information”, Tsoukas, Haridimos, and Vladimirov, Efi, “What is Organizational Knowledge”, Journal of Management Studies, Vol. 38, No. 7 (Nov. 2001), p. 973 (21 p.).

<sup>34</sup> Tsoukas, Haridimos, and Vladimirov, Efi, “What is Organizational Knowledge”, Journal of Management Studies, Vol. 38, No. 7 (Nov. 2001), p. 973 (21 p.).

<sup>35</sup> Tsoukas, Haridimos, and Vladimirov, Efi, “What is Organizational Knowledge”, Journal of Management Studies, Vol. 38, No. 7 (Nov. 2001), p. 973 (21 p.).

<sup>36</sup> An opposing view: “I don't think that a philosophical discussion about the concept of tacit knowledge is really useful, the real crucial question is: "How can we make firms to really use all the knowledge, enthusiasm and motivation of their people, provided that a firm is not a unified block as the naive theories of the organizational culture pretend to state, but it is rather a warring field of coalitions killing each other ruthlessly?”(accessed from [www.brint.com](http://www.brint.com), late Nov, 2006, <http://www.brint.com/wwwboard/messages/132080.html>)

<sup>37</sup> Hjørland, Birger, “Arguments for Philosophical Realism in Library and Information Science”, Library Trends, Vol. 52, No. 3 (Winter 2004), p. 488-506 (19 p.), [http://www.db.dk/bh/Realism\\_Library%20Trends.pdf](http://www.db.dk/bh/Realism_Library%20Trends.pdf)

<sup>38</sup> Nickols, F. W. (2000). “The knowledge in knowledge management.”, in Cortada, J.W. & Woods, J.A. (Eds) The knowledge management yearbook 2000-2001 (pp. 12-21). Boston, MA : Butterworth-Heinemann.

<sup>39</sup> Polanyi, Michael, The Tacit Dimension, Gloucester, Mass, Peter Smith, 1983, c1966, p. 60. Polanyi also said in his book Knowing and Being (1969) that: “the ideal of a strictly explicit knowledge is indeed self-contradictory; deprived of their tacit coefficients, all spoken words, all formulae, all maps and graphs, are strictly meaningless. An exact mathematical theory means nothing unless we recognize an inexact non-mathematical knowledge on which it bears and a person whose judgment upholds this bearing.” Quoted in Walsham, Geoff, “Knowledge Management Systems: Representation and Communication in Context”, Systems, Signs & Actions: An International Journal on Communication, Information, Technology and Work, Vol. 1, No. 1 (2005), p. 6-18, (13 p.), <http://www.sysiac.org/uploads/1-1-Walsham.pdf>. This comment from Dick Stenmark is a helpful addition: “Both data and information require knowledge to be interpretable, but at the same time, data and information are useful building blocks for constructing new

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knowledge.” Stenmark, Dick, “Information vs. Knowledge: the Role of Intranets in Knowledge Management”, Proceedings of the 35<sup>th</sup> Hawaii International Conference on System Sciences – 2002, [http://www.viktoria.se/results/result\\_files/183.pdf](http://www.viktoria.se/results/result_files/183.pdf)

<sup>40</sup> Note the similarities to Nonaka and Takeuchi’s approach (from the introduction of another one of Tsoukas’ papers): “The aim of this paper is to explore the links between individual knowledge, organizational knowledge, and human action undertaken in organized contexts. Those links have remained relatively unexplored in the relevant literature, a large part of which, captive within a narrowly Cartesian understanding of knowledge and cognition, has tended to privilege ‘pure’ knowledge and thinking at the expense of outlining the forms of social life which sustain particular types of knowledge (Tsoukas, 1996, 1997, 1998; Varela et al., 1991; Winograd and Flores, 1987).” Tsoukas, Haridimos, and Vladimirov, Efi, “What is Organizational Knowledge”, Journal of Management Studies, Vol. 38, No. 7 (Nov. 2001), p. 973 (21 p.).

<sup>41</sup> He goes on to say here that: “To dwell in a tool implies that one *uncritically* accepts it, is unconsciously committed to it. Such uncritical commitment is a necessary pre-supposition for using the tool effectively and, as such, cannot be asserted...” This statement would probably be challenged by other scientists, though Polanyi would not deny that one can still entertain doubts and new ideas here.

<sup>42</sup> The following, though a bit more technical, further explicates the thoughts from this paragraph: “You cannot view subsidiary particulars as they allegedly are in themselves for they exist always in conjunction with the focus to which you attend from them, and that makes them unspecifiable. In [Polanyi’s] words: “Subsidiary or instrumental knowledge, as I have defined it, is not known in itself but is known in terms of something focally known, to the quality of which it contributes; and to this extent it is unspecifiable. Analysis may bring subsidiary knowledge into focus and formulate it as a maxim or as a feature in a physiognomy, but such specification is in general not exhaustive. Although the expert diagnostician, taxonomist and cotton-classer can indicate their clues and formulate their maxims, they know many more things than they can tell, knowing them only in practice, as instrumental particulars, and not explicitly, as objects. The knowledge of such particulars is therefore ineffable, and the pondering of a judgement in terms of such particulars is an ineffable process of thought” (Polanyi, 1962:88). Tsoukas, Haridimos, “Do We Really Understand Tacit Knowledge”, from in, Easterby-Smith, Mark, and Lyles, Marjorie A. Handbook of Organizational Learning and Knowledge, Malden, Mass., Blackwell Publishing, 2003.

<sup>43</sup> Here is Tsoukas’ more technical conclusion: “Tacit knowledge has been greatly misunderstood in management studies – or so I have argued in this paper. Nonaka and Takeuchi’s interpretation of tacit knowledge as knowledge-not-yet-articulated – knowledge awaiting for its “translation” or “conversion” into explicit knowledge –, an interpretation that has been widely adopted in management studies, is erroneous: it ignores the essential ineffability of tacit knowledge, thus reducing it to what can be articulated. Tacit and explicit knowledge are not the two ends of a continuum but the two sides of the same coin: even the most explicit kind of knowledge is underlain by tacit knowledge. Tacit knowledge consists of a set of particulars of which we are subsidiarily aware as we focus on something else. Tacit knowing is vectorial: we know the particulars by relying on our awareness of them for attending to something else. Since subsidiaries exist as such by bearing on the focus *to* which we are attending *from* them, they cannot be separated from the focus and examined independently, for if this is done, their meaning will be lost. While we can certainly focus on particulars, we cannot do so in the context of action in which we are subsidiarily aware of them. Moreover, by focussing on particulars after a particular action has been performed, we are *not* focussing on them as they bear on the original focus of action, for their meaning is necessarily derived from their connection to that focus. When we focus on particulars we do so in a new context of action which itself is underlain by a new set of subsidiary particulars. Thus the idea that somehow one can focus on a set of particulars and convert them into explicit knowledge is unsustainable. The ineffability of tacit knowledge does not mean that we cannot discuss the skilled performances in which we are involved. We can – indeed, should - discuss them provided we stop insisting on “converting” tacit knowledge and, instead, start recursively drawing our attention to how we draw each other’s attention to things. Instructive forms of talk help us re-orientate ourselves to how we relate to others and the world

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around us, thus enabling us to talk and act differently. We can command a clearer view of our tasks at hand if we “re-mind” ourselves of how we do things so that distinctions which we had previously not noticed, and features which had previously escaped our attention, may be brought forward. Contrary to what Ambrosini and Bowman (2001) suggest, we do not so much need to operationalise tacit knowledge (as explained earlier, we could not do this, even if we wanted) as to find new ways of talking, fresh forms of interacting, and novel ways of distinguishing and connecting. Tacit knowledge cannot be “captured”, “translated”, or “converted” but only displayed, manifested, in what we do. New knowledge comes about not when the tacit becomes explicit, but when our skilled performance – our praxis – is punctuated in new ways through social interaction.” Tsoukas, Haridimos, “Do We Really Understand Tacit Knowledge”, from in, Easterby-Smith, Mark, and Lyles, Marjorie A. Handbook of Organizational Learning and Knowledge, Malden, Mass., Blackwell Publishing, 2003.

<sup>44</sup> Nickols, F. W. (2000). “The knowledge in knowledge management.”, in Cortada, J.W. & Woods, J.A. (Eds) The knowledge management yearbook 2000-2001 (pp. 12-21). Boston, MA : Butterworth-Heinemann, and Wilson, T.D., “The Nonsense of ‘Knowledge Mangement’”, Information Research, Vol. 8, No. 1 (October, 2002), <http://informationr.net/ir/8-1/paper144.html>.

<sup>45</sup> Nickols, F. W. (2000). “The knowledge in knowledge management.”, in Cortada, J.W. & Woods, J.A. (Eds) The knowledge management yearbook 2000-2001 (pp. 12-21). Boston, MA : Butterworth-Heinemann.

<sup>46</sup> See Udell, Jon, “Tacit Tech Support”, InfoWord, Vol. 27, No. 25 (June 20, 2005), p 26 (1 p.)

<sup>47</sup> Polanyi, Michael, The Tacit Dimension, Gloucester, Mass., Peter Smith, 1983, c1966, (p. 8-10).

<sup>48</sup> “As a general rule...the more rich and tacit knowledge is, the more technology should be used to enable people to share that knowledge directly, Davenport, Thomas, and Prusak, Laurence, Working Knowledge: How Organizations Manage What They Know, Harvard Business School Press, Boston, Mass., 1998. (p. 96). That is, if face-to-face contact is not possible!

<sup>49</sup> Wilson, T.D., “The Nonsense of ‘Knowledge Mangement’”, Information Research, Vol. 8, No. 1 (October, 2002), <http://informationr.net/ir/8-1/paper144.html>

<sup>50</sup> “Knowledge differs from information in that it is predictive and can be used to guide action while information merely is data in context. For example, if the raw data is –10 degrees, then information would be it is –10 degrees outside, and the knowledge would be that –10 degrees is cold and one must dress warmly. In other words, knowledge is closer to action while information could be seen as documentation of any of pieces of knowledge.”, Bouthillier, France, and Shearer, Kathleen, “Understanding Knowledge Management and Information Management: the Need for an Empirical Perspective”, Information Research, Vol. 8, No. 1 (October, 2002), <http://informationr.net/ir/8-1/paper141.html> This is a typical attempt to distinguish these three terms. Though it is convenient, I believe that both knowledge and information can be “predictive and can be used to guide action”.

<sup>51</sup> Tsoukas, Haridimos, and Vladimirov, Efi, “What is Organizational Knowledge”, Journal of Management Studies, Vol. 38, No. 7 (Nov. 2001), p. 973 (21 p.).

<sup>52</sup> Nickols, F. W. (2000). “The knowledge in knowledge management.”, in Cortada, J.W. & Woods, J.A. (Eds) The knowledge management yearbook 2000-2001 (pp. 12-21). Boston, MA : Butterworth-Heinemann.

<sup>53</sup> Wilson, T.D., “The Nonsense of ‘Knowledge Mangement’”, Information Research, Vol. 8, No. 1 (October, 2002), <http://informationr.net/ir/8-1/paper144.html>. Therefore, some, like Gourlay (2000) “have suggested that KM practices focus mainly on knowledge representations not on knowledge *per se*”, quoted in Bouthillier, France, and Shearer, Kathleen, “Understanding Knowledge Management and Information

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Management: the Need for an Empirical Perspective”, Information Research, Vol. 8, No. 1 (October, 2002), <http://informationr.net/ir/8-1/paper141.html>. Though holding to a more traditional interpretation of knowledge, Fred Nickols notes that, “When we describe a task, step by step, or when we draw a flowchart representing a process, these are representations. Describing what we do or how we do it yields declarative knowledge. A description of an act is not the act just as the map is not the territory”, showing at least that our ideas about reality do not correspond with reality itself in a strict, 1:1 manner (hence “representations”). Also see, Walsham, Geoff, “Knowledge Management Systems: Representation and Communication in Context”, Systems, Signs & Actions: An International Journal on Communication, Information, Technology and Work, Vol. 1, No. 1 (2005), p. 6-18, (13 p.), <http://www.sysiac.org/uploads/1-1-Walsham.pdf>

<sup>54</sup> Ward, Martin, “Personal Knowledge: Towards a Post-critical Philosophy” (book review), Knowledge Management, (September, 2001), p. 34 (2 p.)

<sup>55</sup> Therefore, the Incan may have viewed Cortes as a god, but he would also have been able to tell you that, for example, Cortes was taller than him (albeit with different words and system of measurement) and therefore might be able to help him reach that tasty red fruit in the tree over there... It seems to me that there are many truths that are simply obvious. We may never wonder about things regarding our bodies, the people we talk to, our immediate physical and social environments, beliefs in the past, beliefs in an external world, or even that one has parents who truly love him, etc.

<sup>56</sup> It goes without saying that very young children, disinterested as they are in the power-preserving aspects of conceptual constructions, will be the first to say that the emperor has no clothes.

<sup>57</sup> The following quote that illustrates how some facts are tricky, from Polanyi’s book, The Tacit Dimension, turned me into a true Polanyi enthusiast:

Scientists must rely heavily for their facts on the authority of fellow scientists.

This authority is enforced in an even more personal matter in the control exercised by scientist over the channels through which contributions are submitted to other scientists. Only offerings that are deemed sufficiently plausible are accepted for publication in scientific journals, and what is rejected will be ignored by science. Such decisions are based on fundamental convictions about the nature of things and about the method which is therefore likely to yield results of scientific merit. These beliefs and the art of scientific inquiry are hardly codified: they are, in the main, tacitly implied in the traditional pursuit of scientific inquiry.

...Our conception of the nature of things tells us that [certain] relationships are absurd, but cannot prescribe how one could prove this. [A]... technical example from physics can be found in a paper by Lord Rayleigh, published in the Proceedings of the Royal Society in 1947. It described some fairly simple experiments which proved, in the authors’ opinion, that a hydrogen atom impinging on a metal wire could transmit to it energies ranging up to a hundred electron volts. Such an observation, if correct, would be far more revolutionary than the discovery of atomic fission by Otto Hahn in 1939. Yet when this paper appeared and I asked various physicists about it, they only shrugged their shoulders. They could not find fault with the experiment, yet they did not believe its results, but did not even think it worthwhile to consider what was wrong with it, let alone check up on it. They just ignored it. About ten years later some experiments were brought to my notice which accidentally offered an explanation of Lord Rayleigh’s findings. His results were apparently due to some hidden factors of no great interest, but which he could have hardly have identified at the time. He should have ignored his observation, for he ought to have known that there must be something wrong with it.”, Polanyi, Michael, The Tacit Dimension, Gloucester, Mass., Peter Smith, 1983, c1966, p. 64, 65.

<sup>58</sup> When I asked my wife how she would distinguish between information and knowledge, she said something to the effect that “information is what you put out there for everybody”, and that “knowledge is what you possess and have internalized”. At the same time, it may seem to diminish their work by calling a book, for example, a work of “extraordinary information”. Further, we could not really say that a person’s knowledge “lives on” in a work. Certainly there is room for a looser, more metaphorical and popular use of this word. Academics, however, as Wilson points, out, need to distinguish between terms clearly (and I

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would add, to do so with a view towards the dignity of each individual). I believe, in this way, by discussing and debating definitions of phenomena, knowledge can grow in all of us.

<sup>59</sup> To note: “New terminologies and disciplines often generate legitimate skepticism. A few years ago, Cronin (1985, viii) dealt with the question “is there anything new in the field of information management, or is it just a ritzier label for librarianship?” In his book, he attempted to demonstrate that IM was a new interdisciplinary field seeking to address new approaches to the management of information.”, and “[he] rightly pointed out that ‘there are as many definitions of information management as there are supporters of the concept... definitions of information abound (and) definitions of management are many and varied.’”, Bouthillier, France, and Shearer, Kathleen, “Understanding Knowledge Management and Information Management: the Need for an Empirical Perspective”, *Information Research*, Vol. 8, No. 1 (October, 2002), <http://informationr.net/ir/8-1/paper141.html> Bouthillier, France, and Shearer, Kathleen, “Understanding Knowledge Management and Information Management: the Need for an Empirical Perspective”, *Information Research*, Vol. 8, No. 1 (October, 2002), <http://informationr.net/ir/8-1/paper141.html>

<sup>60</sup> Quoted in Daune West, Gillian Ragsdell, Jennifer Wilby, *Systems Theory and Practice in the Knowledge Age*, 2002, Springer, p. 182, (found via Google Book Search).

<sup>61</sup> Capurro, Rafael., “Skeptical Knowledge Management”, 2002, <http://www.capurro.de/skepsis.html>

<sup>62</sup> Wilson, T.D., “The Nonsense of ‘Knowledge Mangement’”, *Information Research*, Vol. 8, No. 1 (October, 2002), <http://informationr.net/ir/8-1/paper144.html>

<sup>63</sup> Wilson, T.D., “The Nonsense of ‘Knowledge Mangement’”, *Information Research*, Vol. 8, No. 1 (October, 2002), <http://informationr.net/ir/8-1/paper144.html>. I found these bits from Wilson about the “macho Harvard Business School” (with it’s “factory”, I guess) and the “temple” (religious temples?) very interesting in this regard as well: “This is not to say that enabling people to contribute effectively to the management of organizations is impossible and that sharing knowledge and enabling people to use their creativity in innovative ways in organizations is impossible - simply that it is very difficult, and that it does not reduce to some simplistic concept of ‘knowledge management’! It demands a change in business culture, from the macho Harvard Business School model, to something more thoughtful and understanding of what motivates human beings.... It is, perhaps, a sad reflection on the way in which the university, world-wide, has changed from the ‘temple’ to the ‘factory’ (Beckman, 1989) that so many academics are prepared to jump on the bandwagon - one’s only satisfaction is that the bandwagon lacks wheels.”

<sup>64</sup> “Whereas an information system processes information without engaging the users, a system for KM must be geared towards helping the users to understand and to assign meaning to the information, thereby including the user perspective... the user wraps this content in an interpretive envelope, thereby giving the information a subjective meaning. It is argued that this combination of content and interpretation is what the user finds valuable.... This means that design of KM-systems must be based on an understanding not only of information architecture and structure, but also of the situation where the user develops the information need, and analysis of the usage of the same information once it has been obtained and interpreted by the user.” Stenmark, Dick, “Information vs. Knowledge: the Role of Intranets in Knowledge Management”, *Proceedings of the 35<sup>th</sup> Hawaii International Conference on System Sciences – 2002*, [http://www.viktoria.se/results/result\\_files/183.pdf](http://www.viktoria.se/results/result_files/183.pdf)

<sup>65</sup> Bouthillier, France, and Shearer, Kathleen, “Understanding Knowledge Management and Information Management: the Need for an Empirical Perspective”, *Information Research*, Vol. 8, No. 1 (October, 2002), <http://informationr.net/ir/8-1/paper141.html>

<sup>66</sup> So say Bertels and Savage, in Huseman and Goodman, in Empson’s book review. Empson, Laura, “Knowledge Management: in Search of the Philosopher’s Stone”, *Business Strategy Reveiw*, Vol. 10, No. 2 (Summer 1999), p. 67 (5 p.).

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<sup>67</sup> Ward, Martin, "Personal Knowledge: Towards a Post-critical Philosophy" (book review), Knowledge Management, (September, 2001), p. 34 (2 p.)

<sup>68</sup> Nonaka, Ikujiro, Konno, Noboru, "The Concept of 'Ba': Building a Foundation for Knowledge Creation", California Management Review, Vol. 40, No. 3 (1998), p. 40-54..

<sup>69</sup> Tsoukas, Haridimos, "Do We Really Understand Tacit Knowledge", from in, Easterby-Smith, Mark, and Lyles, Marjorie A. Handbook of Organizational Learning and Knowledge, Malden, Mass., Blackwell Publishing, 2003.

<sup>70</sup> Tsoukas, Haridimos, "Do We Really Understand Tacit Knowledge", from in, Easterby-Smith, Mark, and Lyles, Marjorie A. Handbook of Organizational Learning and Knowledge, Malden, Mass., Blackwell Publishing, 2003.

<sup>71</sup> Page references are from Polanyi, Michael, Personal Knowledge: Towards a Post-Critical Philosophy, University of Chicago Press, Chicago, Illinois, 1958. Still, Martin Ward has pointed out that Polanyi's work is "a classic of postmodernism" and argues that in the course of his magnum opus, Personal Knowledge, his "argument... [goes] horribly wrong" (See example from Section V, part B.). Others have argued that Polanyi was unwittingly a "tacit cognitive relativist". Jacobs, Struan, "Michael Polanyi, Tacit Cognitive Relativist", Heythrop Journal, Vol 42, Nol 4 (Oct, 2001), p. 463 (17 p.). I believe that these concerns, though it is understandable how they could arise given Polanyi's unique and complicated approach, are exaggerated in light of Polanyi's work as a whole, and can be adequately dispensed with. See pages 68, 74, and 77 in, Polanyi, Michael, The Tacit Dimension, Peter Smith, Gloucester, Mass., 1983, c1966, and vii, 12, 47, 147, 148-9, 158, 177 in Personal Knowledge, for example. In addition, Polanyi certainly argued against moral relativism, as the following quote shows: "The argument of doubt put forward by Locke in favor of tolerance says that we should admit all religions since it is impossible to demonstrate which one is true. This implies that we must not impose beliefs that are not demonstrable. Let us apply this doctrine to ethical principles. It follows that, unless ethical principles can be demonstrated with certainty, we should refrain from imposing them and should tolerate their total denial. But, of course, ethical principles cannot, in a strict sense, be demonstrated: you cannot prove the obligation to tell the truth, to uphold justice and mercy. It would follow therefore that a system of mendacity, lawlessness, and cruelty is to be accepted as the alternative to ethical principles and on equal terms. But a society in which unscrupulous propaganda, violence, and terror prevail offers no scope for tolerance. Here the inconsistency of liberalism based on philosophical doubt becomes apparent: freedom of thought is destroyed by the extension of doubt to the field of traditional ideals, which includes the basis for freedom of thought." (Michael Polanyi, "The Eclipse of Thought," in Meaning, by Michael Polanyi and Harry Prosch [Chicago: University of Chicago Press, 1975 , pp. 9-10). Not only this, Michael Polanyi seems to have anticipated the intelligent design movement by several decades, striking a powerful blow against "mechanical theories of the mind" rooted in philosophical naturalism: The following quotation is from Drusilla Scott and gives Michael Polanyi's reaction to the claim that the discovery of the DNA double helix is the final proof that living things are physically and chemically determined: "No said Polanyi it proves the opposite. No arrangement of physical units can be a code and convey information unless the order of its units is not fixed by its physical chemical make-up. His example is a railway station on the Welsh border where an arrangement of pebbles on a bank spelled the message - "Welcome to Wales by British Rail". This information content of pebbles clearly showed that their arrangement was not due to their physical chemical interaction but to a purpose on the part of the stationmaster ... The arrangement of the DNA could have come about chance, just as the pebbles on that station could have rolled down a hillside and arranged themselves in the worlds of the message, but it would be bizarre to maintain that this was so ... (Scott Drusilla, 1995, Everyman Revived: the Common Sense of Michael Polanyi pages 116 and 117) (accessed in late November, 2006 from <http://idintheuk.blogspot.com/2006/11/introduction-to-controversy-part-2.html>)

<sup>72</sup> I note in passing here that perhaps this insight regarding the necessity of explicitly recognizing an external reality can be used to begin a bridge between what Stenmark calls the "commodity view" of

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knowledge (knowledge as a thing) rooted, as he believes, in 19<sup>th</sup> century positivism, and the “community view”, derived from the more constructivist approaches of the 20<sup>th</sup> century.” Stenmark, Dick, “Information vs. Knowledge: the Role of Intranets in Knowledge Mangement”, Proceedings of the 35<sup>th</sup> Hawaii International Conference on System Sciences – 2002, [http://www.viktoria.se/results/result\\_files/183.pdf](http://www.viktoria.se/results/result_files/183.pdf)

<sup>73</sup> While not stating so explicitly, I believe this may be underlying Ronald Day’s view when he says: “Tn expressionistic theory of knowledge sees knowledge as both potential and actualized. The horizon of actualization is not that of a public/private dichotomy or that of a Cartesian division between mental content and public form, but of recognized performances. Social ‘context’ doesn’t so much give form to the manifestation of the individual potential powers, including those that will later be seen as ‘knowledge’ potentials, but rather, ‘context’ allows the expression of powers and their recognition in various manners. ‘Context’ signifies not a causal determinant of actualizations, but rather, a condition of allowances for potential powers (Harre & Madden, 1975).” Day’s statement at least seems compatible to what I have been saying about the importance of an external reality. Day, Ronald E., “Clearing Up ‘Implicit Knowledge’: Implications for Knowledge Management, Information Science, Psychology, and Social Epistemology”, Journal of the American Society for Information Science & Technology Vol. 56, No. 6 (Apr. 2005), p. 630 (6 p.).

<sup>74</sup> To explain this point in more depth: Western philosophy gets much of its content from Christian theology, or Judeo-Christian-(Islamic?) theism, which insists that there exists an ultimate personal reality (i.e. God) external to people which can be and is revealed to them. In analogous fashion, Western philosophies – philosophies of science in particular – have traditionally insisted that one must make distinctions between the self (understood by some still holding to traditional religions as the “rational soul”) and the external, material world. This is not necessarily to say that the mind can compare its ideas of reality with reality apart from those ideas (i.e., a strict, positivistic 1:1 correspondence in all areas), but is merely to insist on the assumption *that a “mind / self-independent reality exists”, and that without this assumption, any foundation for any true knowledge (or even cooperation, commerce, etc.!) is dubious (as absolutely everything becomes merely a will to power, when persuasion, necessarily ungrounded in truth as it is, fails), and the motivation to seek real knowledge and truth - via the hard work of careful observation and accurate description, much less via more inductive and empirical pursuits – dissipates.* As to whether or not it can also be assumed that we have the epistemic equipment to deal with this reality is another yet related question of course – but even this concern seems as if it should be of little consequence when one realizes *that everybody necessarily proceeds assuming this to be true, at least insofar as they themselves claim to truly understand or know anything at all. For if we can not make distinctions between our own minds and external realities, how can we even legitimately claim to know anything about our “selves”?* Indeed, as Hume pointed out, Descartes presupposed both his existence and the necessity of causation – and so all we are really left with is “thought”, which evidently may not even be “ours”. And of course, all of this necessarily precedes any discussion of the “truth” or “falsity” of our particular thoughts themselves!

Further, though it may be true that as, “...tools based on traditional approaches such as a questionnaire are directive in nature and influence the ecology of that being studied”, I believe it is irresponsible, in postmodern fashion, to assert that “this is *equivalent* to the classical problem in quantum mechanics where the energy required to measure the momentum of the electron alters its positions.” (Snowden, “Knowledge Elicitation...”, Knowledge Management 3 (9), 2000, italics mine), as one in the field of knowledge management writes. First of all, are not theorists with more “postmodern” bents that seize upon Heisenberg’s uncertainty principle to make these kinds of points (valid as they are for sure in the social sciences – in dragging living beings onto the often cold and sterile table of observation, you certainly affect things!) going too far, uncritically mixing harder (with their more reliable knowledge) and softer sciences? As one may gather from the above content of this footnote, I think that this is an even greater danger than materialistic determinism (at least scientists holding to this view inconsistently [they are consistently inconsistent] consider the material world *not as chaotic, illusionary, or evil at its core*, but treat it rather “as if” it were a deliberate work of genius – having *depth, harmony, precision, intelligibility, elegance, beauty, order, meaning – i.e. having an underlying natural order*, and hence there is still hope for true progress in the sciences). In addition, from my limited understanding of quantum physics, I do not believe that Heisenberg’s theory itself is without critique, as he insisted that when a scientist intrudes his measuring device into an atomic system, *he forces a particular outcome to be actualized from what had previously*

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*been an indeterminate realm of potentialities.* I think for Heisenberg to make such an assertion – namely, that it was the observer’s observation itself which was causing the seemingly chaotic behavior of the particles – was and still is an unwarranted conclusion. Perhaps – considering what I have endeavored to show here about the supreme importance of the claim that “a mind / self-independent reality exists” – he should have simply been content to say that given the available evidence, it appeared to him that their existed certain boundaries which human beings could not move beyond in regards to observation and measurement. In any case, whatever weaknesses there were in Einstein’s contestation of Heisenberg’s conclusion, I think that the fruits of scientific discovery validate his general intuition when he said, “the most incomprehensible thing about the universe is that it is comprehensible” (even if nature does some things that we simply can’t predict!)

<sup>75</sup> Western science certainly advanced beyond the Greeks for some very good reasons. In Aristotle’s day, the practical sciences, which were based on reason and logic and observation, were a part of science which was a part of philosophy. Even in Francis Bacon’s day (early 17<sup>th</sup> century), when the idea of *observation based on empirical methods (actual experience)* had finally taken hold, science was still seen to be a part of philosophy. It is only with Descarte’s move in the late 17<sup>th</sup> century that philosophy, unfortunately, came to be seen as something quite distinct from the sciences, as philosophy became that which was concerned primarily with the “realm of pure thought”.

<sup>76</sup> In this day and age when all things “authentic” are the rage, and companies desire to create such things, it is interesting to note that the word “authentic” comes from the word “authority”. The idea here is that we cannot invent authenticity, but actually receive it from an authority outside of ourselves. Polanyi notes that to learn by example is to submit to authority. I learn from my master because I trust his way of doing things. I must surrender myself uncritically to the imitation of him and must submit to tradition. The rules of the art are passed on in this way.

<sup>77</sup> Ritchie, Daniel E., "Reconciling the Heart With the Head", MacLaurin Institute; Minneapolis, MN. web audio, January 2, 2002, <http://www.maclaurin.org/mp3s.php> January 2nd, 2002

<sup>78</sup> So we get careless language like in the following: “*Complete* organizational knowledge is achieved only when individuals keep modifying their knowledge through interactions with other organizational members”, (italics mine), Liebowitz, Jay, Knowledge Management Handbook, CRC Press, 1999 .... (found using *Google Book Search*, Oct 2006).

<sup>79</sup> See also the similar arguments in this man’s article, to whom I am indebted: Hjørland, Birger, “Arguments for Philosophical Realism in Library and Information Science”, Library Trends, Vol. 52, No. 3 (Winter 2004), p. 488-506 (19 p.), [http://www.db.dk/bh/Realism\\_Library%20Trends.pdf](http://www.db.dk/bh/Realism_Library%20Trends.pdf)

<sup>80</sup> Day, Ronald E., “Clearing Up ‘Implicit Knowledge’: Implications for Knowledge Management, Information Science, Psychology, and Social Epistemology”, Journal of the American Society for Information Science & Technology Vol. 56, No. 6 (Apr. 2005), p. 630 (6 p.).

<sup>81</sup> Ward, Martin, “Personal Knowledge: Towards a Post-critical Philosophy” (book review), Knowledge Management, (September, 2001), p. 34 (2 p.)

<sup>82</sup> Quote from George Eliot’s Felix Holt, also used to end this article the following article: Haack, Susan, “Science, Scientism, and Anti-science in the Age of Preposterism”, Skeptical Inquirer, (Nov-Dec, 1997), [http://www.findarticles.com/p/articles/mi\\_m2843/is\\_n6\\_v21/ai\\_20379231](http://www.findarticles.com/p/articles/mi_m2843/is_n6_v21/ai_20379231).