

**A Note on Some KM Basics -  
Or Why JC is So Cantankerous and Weird**

JC Spender  
Fulbright Research Chair  
Monieson Center, Queen's University Business School

Version 4.0  
April 2008

## Some KM Basics

### A Tad of Epistemology

It is tempting to say that KM is all about epistemology - the ancient study of the nature of human knowledge, what it means 'to know'. This is neither helpful to the KM beginner, nor precisely correct. KM is clearly narrower and mostly about 'knowledge issues' in what we call 'organizations'. Epistemology casts a much wider net. But, unavoidably, the roots of KM lie in epistemology and so some familiarity with that large subject is helpful. However a detailed study of epistemology may not be the best way into the narrowly focused problems of KM - on the contrary it is rather intimidating. Which raises another question - what problems is KM actually trying to solve or even address? We shall get back to that later, and see it is crucial.

But we cannot talk very usefully about knowledge without some sense of its peculiar complexities and so to a tad of epistemology.

Even a quick look at this takes us to the Ancients (Plato, Aristotle and Co.) and, especially important for us today, to the Enlightenment philosophers like David Hume and John Locke who lived and wrote in the midst of the upheavals of the 17th and 18th centuries - not that long ago when compared with the Ancients. Adam Smith, author of the *Wealth of Nations* and the person most consider the founder of modern economics, was one of these Enlightenment chaps. Whether we appreciate it or not, we are 'modernists' and inheritors (prisoners?) of their ideas about knowledge, for they underpin the 'modern' condition.

For the Enlightenment thinkers - and I believe for us too - 'knowledge' is a term of limited usefulness that, at best, refers to little more than our state of consciousness i.e. to our sense of knowing 'something'. For instance, if knowledge actually meant something precise, we could then ask what 'not knowing' would mean. If we knew what the absence of knowledge meant that would be knowledge too, no? This is more than language trickery - like the old puzzle over the truth-status of the statement "Everything I say is a lie". It is something fundamental about knowledge as a 'thing' or 'stuff' - or perhaps as something quite unlike other 'things' or 'stuffs'. This peculiarity must be revealed, not simply ignored, if our talk is to be substantial rather than mere wordy fluff - which is what a lot of intelligent folk think of KM.

Where are there some good foundations for our KM talk?

The Enlightenment philosophers saw the important questions were about how to describe and theorize our consciousness, how to distinguish the jumble of scarcely noted thoughts and feelings that skitter through our minds from the more substantial ones that we might use to shape or justify our actions and attitudes. It was particularly important for them to distinguish a

sense of 'rationality' from the various other thoughts and feelings of which they were acutely conscious, just as we are. They asked 'is to feel pain to know something?' or 'can we know the same Truth that is known to God?'

Their thoughts on these matters made possible the 18th century's step forward into the 'modern age' - marked most severely perhaps by the American and French Revolutions and the wars they precipitated.

Rationality was especially important because these guys were engaged in a profound political struggle, which began with a critique of 'dogma' (unjustified belief), especially that of the medieval Church, whose experts (priests) claimed special insight and whose alliances with European royalty had shaped European life since the fall of the Roman Empire.

Broadly speaking we can say the Enlightenment project was two-fold; the establishment of (A) 'individualism' and (B) 'rationalism'. These are related in complex ways but together were intended to lift the 'dead hand' of religious dogma from our shoulders and so let a new form of society emerge; hopefully one less prone to religious wars and other notably bad behaviors. As we observe the 40th anniversary of Martin Luther King's assassination we realize the Enlightenment project is far from complete although still progressing.

(A) refers to our contemporary sense of being an independent human being. This seems so familiar it scarcely warrants comment, but it was astoundingly new in 17th century Europe. The political and religious implications were 'huge', as we say. Our sense of being 'free individuals' and having 'inalienable rights' is the basis of our sense of 'freedom' in a democracy. While it is difficult to define terms like freedom and democracy precisely we have a reasonable sense of what they mean for us in everyday life - the right to pursue our own lives, liberty and happiness in whatever way we wish so long as we do not infringe the corresponding rights of others, perhaps. What we debate with most difficulty are our responsibilities to those who for one reason or another are unable to achieve or maintain their 'freedom' in our society.

It is crucial to realize that as soon we admit the free individual as an everyday and functioning political concept, we threaten social disorder, confusion and anarchy. No longer are we simply 'institutionalized objects', soldiers in the service of some Higher Being, whether religious or political (i.e. a King or his deputed), with total authority over us - it being OK for them to kill us for refusing to obey their orders, as sometimes still happens in wartime, for instance. How can we theorize social order except by understanding how we might agree with other 'free individuals' on answers to the new questions which those in servitude - who had no choices - never had to answer? Recall the WWI soldiers singing "tis not for us to question why, tis for us

to do and die". Though they were fighting and dying for 'our freedom', they fully understood they were not free themselves.

The Enlightenment philosophers' focus on 'rationality' as the key to an ordered society of free individuals has become the underpinning to our everyday sense of being, living and knowing. We cannot grasp what all this talk of 'knowledge' and its management is about without appreciating how the Enlightenment philosophers laid out the terms to be used and the questions to be considered.

Chief among these terms is 'rationality'. If we were in a philosophy program we could spend a year or so talking about rationality and still not get to the bottom of it. But as students of KM we can abbreviate this into a few sentences and still keep the essential message.

The Enlightenment notion of rationality has two sides. First, the model is of pure logic, of reasoned links between cause and effect. These philosophers realized - as many had before them - that we human beings seem to have the power to reason logically. This characteristic is also shared, in the strictest sense of that word. Your reasoning is the same as mine so long as we both conform to the principles of logic. The second side of rationality, then, is that it seems to lie outside us, in the universal or objective realm and not in the messy internal subjective realm of private thoughts and feelings. Its conclusions are clean and crisp and, most importantly, independent of us and our foibles and failings. They are 'objective'.

Rationality became the core of a practical defense against (a) knowledge errors, for we presume the world is logically constructed, with every effect having a cause, and therefore model-able and empirically testable using these rationalist principles. Knowledge is then more or less defined as 'justified true belief' (JTB), where the 'justification as Truth' is grounded in the combination of rationality and empirical testing - displacing, for instance, the Holy Books or the shamans' or priests' interpretation or the Divine Right of Kings. In this way JTB underpins a workable defense against (b) the arbitrary power of others, be that grounded in religion, wealth, birth, political position and so forth. This is what we need to protect our new-found freedom.

Through this kind of reasoning the Enlightenment philosophers provided the intellectual basis for European (and North American) society to move towards accepting rational explanations and empirical models as the best guides their decisions. Democracy is pivotal and timely since it seems to embody the spirit of rationality in that it defers to the views of the majority rather than any powerful minority - it being presumed that the greatest agreement arises when all apply their rationality in the pursuit of their self-interest as free individuals.

But it is not easy to make this work.

While rationality - for instance, with Smith's 'invisible hand' as its instrument - illustrates the beneficial impact of rationality on everyday life, there are two obvious problems in its practice. Descartes had already indicated one in the 1630s with his notion of 'radical doubt'. He argued that since our senses sometimes deceive us, there was only one thing that we could be absolutely certain of (i.e. know fully) - *cogito ergo sum* - our consciousness of our consciousness. That means that while rationality may well be a universal feature of both human thinking and, perhaps, the Universe itself, we can never know that for certain - for that all lies beyond our own awareness of ourselves. Another way of putting this is that while we may be able to speak with complete logicity about purely abstract things - as mathematicians try to when doing their work (as opposed to living their lives) - we may not be able to speak rationally about the world in which we live, or our experience of it. Herein lies the core of what Simon called 'bounded rationality' (Simon, 1947).

A second immediate problem revolves around the rest of what goes on within us - what is not rational, what we might call our 'irrationality'. What are we to do with this stuff? To ignore it is surely to ignore the vast bulk of what goes on in our lives and what often stands behind the 'real' reasons why we do what we do - jealousy, lust, envy, fear, ambition and so forth. But 'rationality' is a very hard concept that admits little modification. We are familiar with the idea that 'emotions' run contrary to rationality, and that we should take decisions in an 'objective' non-emotional way. The idea is that while we all feel emotions we need to suppress them if beneficial social order (or Pareto optimal behavior) is to result.

The combination of (a) not knowing anything for certain other than our own consciousness, and (b) being aware of the non-rational aspects of our everyday thinking puts the idea of 'knowledge' as only those things that are 'known for certain' in grave question.

Unfortunately the idea that we can know about the world 'for certain' - even if only limitedly - is part of what most of us were educated into when we were taught 'science'. We test our models of the world against its reality, and 'rigorously' find which were right and which were wrong. To know is to be scientific in this sense. The other stuff in our heads is something lesser - opinions, feelings, hunches, ideas, and so forth, and errors, of course. The modern age is quintessentially one in which empirical science provides us with our notion of 'correct knowledge' - as opposed to error and mere opinion.

If we stick with this kind of Enlightenment 'empiricism' for a moment, we see 'correct knowledge' can be thought of as a testable representation of 'reality'. This idea is technically known as 'correspondence theory' - in which our ideas correspond to the things we perceive -

and it is the intellectual basis for those who call themselves 'realists' - those of our colleagues who believe there is a logically constructed reality 'out there' which is knowable to us.

Realism opens up a very specific range of KM projects. Generally speaking the development of KM within the 'information technology' field is realist in foundation. Before getting into these too we can get some better insight by comparing the realist position, as a particular interpretation of rationalism, with 'Interpretivism'.

### **Realism and Interpretivism**

Most students know that the realists amongst us are engaged in a never-ending struggle against the 'interpretivists', those of us who argue that all we humans can ever have are 'interpretations' of our sense data. And such data may not be what they seem to be, as Descartes noted. Our senses can be deceived so what we regard as data is not to be trusted. That is what the Gestalt figures (those fun figure/ground reversals such as the young flower girl / old hag or the Rubin face/vase figures<sup>1</sup>) are designed to remind us of.

The 1920s 'cognitive turn' - as it is technically known - helped social theorists (of which we are merely one tribe) drive a wedge between data and its meaning. Among other things this is a denial of the correspondence assumptions on which realists stand and which had informed so much of earlier social and psychological thinking.

How does cognitive theorizing change KM?

Well, it depends on what we think KM is about.

Let's assume, for the moment, that KM is about making better use of what people in the organization 'know' - realizing 'hidden value' and so forth. The realist take is that such knowledge, being an objectively justified representation of the organization's reality, is not in any way dependent or contingent on the individuals who currently 'hold' that knowledge. In principle it can be 'extracted' from them - provided they do not interfere with this process for any 'personal' reason, such as a secrecy paranoia or an emotional sense of possession - and the results can be moved, pooled, refined, redistributed and so forth, all to the organization's betterment. It is the organization's knowledge, it doesn't belong to these individuals, and they have no valid reason for not giving it up (sharing it). Note here the echo of the Marxist notion of the capitalist's desire to 'own the means of industrial production'.

The KM strategy here is essentially 'capitalist'. Knowledge is regarded as a form of capital and KM is the technique needed to collect the organization's intellectual property (its correct

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<sup>1</sup> [http://psylux.psych.tu-dresden.de/i1/kaw/diverses%20Material/www.illusionworks.com/html/figure\\_ground.html](http://psylux.psych.tu-dresden.de/i1/kaw/diverses%20Material/www.illusionworks.com/html/figure_ground.html)

knowledge) and manage it better, to drive out mistakes, feelings and opinions and, secondly, to pursue economies of scale and scope like those achieved by holding all the organization's financial resources in a central place. Realists see the organization's knowledge as 'out there' too, part of its capital - that which is of the organization and not its participants.

This gets us into a rather different discussion about organizational capital (tangible + intellectual perhaps) as opposed to human and social capital - but this is for some other time. Note there is there is no real debate about whether the organization 'owns' its financial or tangible resources, yet we have 'double entry' bookkeeping that establishes these assets actually belong to those who provided them or their equivalent. Note too that the organization's intellectual capital is acquired without any corresponding liability to those who provide it.

The interpretivist take is that this 'capitalist' KM strategy makes no sense and cannot conceivably work. A quite different notion of 'knowledge management' emerges.

If each individual's knowledge is their own interpretation of the various sense-data they are receiving, then what they know is intimately connected to and bound up with them - we might say contingent on them and who they are. There is nothing to be separated, nothing to be collected.

What are we left with? Does cognitive theory have anything useful to say to KM?

Note that all the stuff about rationality in the first section of this note has been pushed into the background. But both realism and cognitivism hinge on rationality. The difference between them is not rationality versus opinion or some other form of 'irrationality', but 'Whose rationality?' Realism's rationality is grounded in the universality of our logicity and the related logicity of the physical universe. Beneath this is the quasi-religious message that our rationality is the 'native human feature' that most securely connects us to the rest of the Universe, so this can be re-phrased as a form of secular transcendentalism - as the science versus belief debate over the centuries has reminded us, especially as recently re-ignited in the 'evolution versus creationism' debate.

Cognitivism's rationality is grounded in the human interpretive process - utterly different from the realists' inherent transcendentalism - but in rationalism nonetheless. Having arrived at our personal interpretation we then act on its rationality, on the rationality we have created. Nowadays, following Karl Weick's work from 1969 onwards, we might call this process 'sense-making' (Weick, 2001).

Just as the notion of the free individual threatened the pre-modern notions of social order, displacing an externally imposed order with one generated collectively (democratically), each of

us being the source of our own interpretation likewise threatens all discussion and agreement. How can I know what you really mean when you say this or that? What have we actually agreed?

Here we stand close by the chasm of 'anarchic relativism'. At its extremes 'the truth' is simply whatever a person wishes it to be. That makes agreement and politics difficult - and managing organizations too.

Cognitivist theorists focus on how we develop our interpretations, what we might call our systems of meaning, lenses, schema or mental maps - dozens of different terms here. The crucial point is that we do not develop these as a result of being exposed to 'the facts'. For cognitivists there are no 'raw facts', no unproblematic data, no objective truths. On the contrary all data is problematic by definition, none more so than any other; we don't have interpretations that are 'almost' or 'close to being the facts', 'facts to all intents and purposes', 'standardized facts'. Such expressions are merely about how we try to justify our interpretations - which remain interpretations.

This gets us to two points crucial to KM. First, from the interpretive point of view the managerial problem is the shaping of others' meanings – as opposed to giving them 'data' which they then process rationally. We need our people to 'get with our program'. Here we refer to some process (notably unspecified) of generating the order that individualism and its implicit relativism threatens. Thus we might define the organization as a stable, or dynamic, system of meaning that otherwise free and independent individuals 'buy into'.

The interpretivist KM strategy, therefore, is about managing this process - be that through simply informing people, or telling them stories, or whatever. This agenda has little or nothing to do with the realists' agenda. The problems to be solved are quite different - which is one of the reasons why it is important to get clear about what KM is supposed to be doing ... or maybe it isn't quite that simple, so more on this later.

The second point is that we have stumbled onto a profound revelation about how we talk about how we think - which begins to reveal some of the deeper peculiarities of 'human knowledge' or 'human knowing'- features characteristically ignored by most social scientists. By slicing the extremely vague concept of knowledge down its middle, by making an epistemic distinction between the realists' notion of data and the interpretivists' notion of meaning, we have revealed that ordinary people are likely to mean two quite different things by the term 'knowledge'. On the one hand they might be meaning data - such as the time at which Toronto-bound trains leave the Kingston VIA station on a Tuesday morning. On the other they might be meaning meaning (aha! How can this sentence make sense?) If I tell you 88.7 that seems to be

data; but now without meaning and therefore 'useless'. (Must knowledge be useful? Is usefulness a criterion of truth?) If I tell you 12:47 you guess it is a time, but actually I meant it to be a ratio (ha!) - or a basketball score, or whatever. At the same time we see there is no 'data' distinct from a system of meaning, nor can we ever express a 'meaning' without referencing specific data.

With this distinction between data and meaning in place we can turn back to KM and see how we typically conflate data + meaning into 'information'.

### **Information and Strategy**

Immediately we can suspect the transformation of what used to be called 'electronic data processing' (EDP) into 'information technology' (IT) has actually confused the field for IT systems move data, not meaning. The meaning of the data being moved, of the reports being generated, of the data being 'mined' always resides outside the IT system, in the human beings beyond the human-computer interface (HCI). Computers have no notion of meaning, as the Dreyfus brothers remind us in their book about what computers cannot do. So long as they conform to von Neumann architecture they are fully rational and, in this restricted universe of binary language, cannot have anything like the distinction between data and meaning which forever characterizes human thought.

Data is what seems to be objective, external to us, if only because it is being trafficked within an IT system. Meaning is what we humans need to generate in the process of connecting data to our reasoned (possibly optimal) action in our imperfectly comprehended milieu – the 'real' world as opposed to the artificial universe that the IT system 'knows'.

This distinction between data and meaning is where our theorizing come in. A theory is a system of meaning and originates not in the 'scientific method' but in someone's mind as a 'hypothesis' or 'conjecture'. For realists the empirical scientific method is about testing the hypothesis and policing its acceptance into the body of 'scientific knowledge'. The theory that 'if you let your cell-phone fall into the swimming-pool it will not work any more', seems pretty well established - way beyond being a mere conjecture. We might also back up the theory by explaining how the water discharges the battery and shorts out the chips and SIM card.

We see theory-based explanations actually stand on other theory-based explanations and so we inevitably regress towards the fundamental axioms of the relevant bits of science - which we then realize are not representations of reality, but no more than working hypotheses (interpretations). Thus we see the focus of the scientific method is not the management of data,

on the contrary it is about the management of meaning - and about gaining agreement about meaning.

This is not to say the management of data (or knowledge-as-data) is trivial. On the contrary it is far and away the largest part of KM as we see it in the press, the profession, and at KM conferences.

But to mix data and meaning is not mere error or sloppy thinking. It reveals something very fundamental about how KM projects - and organizations - operate. Given that data and meaning can never be completely severed from each other, we turn naturally to the term 'information' because it captures the inter-connection and inter-dependency of data and meaning in the everyday world of our practice as opposed to the strictly epistemological sense. What is being overlooked, however, is that what is information to me may not be information to you - because the systems of meaning that must be associated with our organizational practice are extraordinarily specific to contexts and practices and, being different people who may be doing different work, our systems of meaning may be quite different too. Thus information that is completely uninteresting to Industry Canada, the domestic trade agency in Ottawa, may be of great significance to a local Kingston auto-repair shop, i.e. that a competing Kingston shop is going out of business on the owner's retirement.

Thus it is normally useful to talk of 'information' whenever and only the epistemic gap between data and meaning in that context is of no immediate consequence. We talk of meaning only when its relationship to the data available becomes problematic. When we speak of information we characteristically foreground one part and background the other. If I inform you that the Toronto train is running late, I foreground the data. Its meaning is relatively unproblematic. But if my flight is cancelled when I get to Toronto - as is sometimes the case - the meaning of that for me and my 'loved ones' is not at all the same as for some of my fellow non-passengers. Our responses to this situation vary quite a lot, even though the data - flight cancelled - is the same.

Which takes us to 'strategy'. As some of you might recall when President Bush the Elder (#41) spoke so derisively of 'the vision thing', and checked his watch during a presidential TV debate, he revealed his detachment from and lack of interest in 'ordinary peoples' lives. The folks to whom he was speaking were suffering various degrees of existential puzzlement and 'meaning-loss'. Strategy making is what we call the process of responding to a loss of meaning, and thus direction. We don't know what to do and need a 'strategy' - which sounds grander than just making a choice.

There are those who think of the strategy process as gathering some new data that drives new meaning. For instance, we are in trouble in the market, we do some focus groups and discover to our horror that the public hates the scent we put into our laundry powder. We develop a new product (innovation) strategy to resolve this and protect our market position.

We should not dismiss this rational-process concept of strategy entirely since managers are often short of relevant data that is, in principle, available and they may need to be pushed to go get it. But the deeper challenge is to develop new meaning as, for instance, the music distribution industry must as its super-highly-paid executives must now reflect on how Steve Jobs has 'eaten their lunch'. Can they only respond by aping his strategy and coming up with a super-iPod - an Ur-Pod perhaps? Or are there some other ways of framing the music-making and distributing situation that might reveal new strategic opportunities? Is there a Truth there that awaits discovery as the rationalist approach presumes?

Since KM is presently regarded as an intellectual endeavor unrelated to strategy let's not go too deep here - or into 'leadership' or 'entrepreneurship' for that matter - and reflect, instead, on where we have arrived. Though note we are driving a wedge between making a 'choice' and making a 'decision', between 'choosing' and 'deciding'. Realists think they are the same. Interpretivists, such as cognitive theorists think they are completely different.

More important for our KM theorizing, see that by focusing on the distinction between data and meaning we have removed the term 'knowledge' from the discussion. That is clearly some kind of progress, if only because it takes us closer to something actionable and manageable. On the one hand it suggests when the organization's or the nation's system of meaning is stable and widely understood, then management (or government) can focus their attention on data management - on its generation, collection, transmission, storage, mining, packaging, delivery, availability etc. All useful stuff and, in fact, the place where value is ultimately delivered. But nothing is going to be improved by taking the term 'data' out and sticking 'knowledge' in its place - no matter how often the advertising department tells us we'll get extra attention in the market by calling ourselves 'purveyors of 21st century KM tools'. The buyers will still want to know what our products really do - and how they deliver value in their situation with their particular data.

At the same time we have adopted a 'method of distinctions' that may be quite appropriate to teasing out the peculiarities of knowledge as a topic of study. Even the distance covered so far has some managerial pay-off. It is surely important for them to be able to distinguish between the two types of KM project - data-oriented on the one hand, meaning-oriented on the other? We might go so far as to suggest the main reason why KM projects have such a poor

success rate is managers' failure to appreciate the differences between these two types and to plan accordingly. Indeed some, such as David Snowden, Tom Davenport, Larry Prusak, John Seely Brown and others are telling us that 'story-telling' as a meaning-management technique is the 'real' future of KM (Brown, Denning, Groh, & Prusak, 2005).

Before considering that - which takes us back to the first part of this Note and to our wondering about the precise problem KM is trying to solve - we need to focus some more on this business of 'distinctions'.

### **KM's Defining Distinctions.**

In the section above we worked with the terms 'data', 'meaning', 'information' and 'strategy'. We could enlarge greatly on their interplay, but the first thing to notice is that using these terms means the discussion is not the special purview of KM. On the contrary, it is that of social science generally. In particular, 'data' is basic to IT theorizing and mathematics, 'meaning' to sociology and psychology, 'information' to communications and language theory, and 'strategy' to those who teach this perplexing subject in military and business schools - none of whom come to KM's defense when it is attacked as low-caliber intellectual fluff.

Is there any intellectual substance in KM? Can it have its own territory? Should the whole KM phenomenon be written off as a passing commercial fad? This is a serious question for anyone wishing to pursue an academic career in KM.

It is also the hinge of this Note - the point at which those hanging out a professional shingle as KM academics may well take leave of the vast bulk of the KM journalists and practitioners who talk of knowledge as a form of organizational capital. We are left with the choice to explain KM as either (a) a highly successful piece of marketing by, say, those in IT or HR or the other areas that have so obviously taken up its language or (b) a conceptual breakthrough into a new form of theorizing about organizations and their management.

The impact of KM on HRM spins around the management of meaning - what traditionally might have been called 'training' or 'vocational education'. The 'human capital' field attempts to capture the notion that an investment in individuals' training needs to be evaluated against the economic value created, denying the value of knowledge generation or acquisition for its own sake. This field grew out of the economists' realization that economic growth could not be explained adequately by measuring investment in plant and equipment alone. Indeed a larger part of economic growth seems to the result of people learning how to do their work more efficiently - 'better education' or the 'learning curve' (self-education perhaps). The point here is that the KM language has added little or nothing to a discourse that already existed when KM

became popular in the 1990s. Human capital theory in particular was developed in the 1960s. Even the much-discussed 'intangible knowledge metrics' explored by Edvinsson at Skandia - and the others that have been developed since - have not resulted in much advance in the management of the organization's human capital.

So is there any argument for claiming KM as a break-through?

Again, it depends on the question we think KM addresses. If we say it is about systems design, or even systems implementation, or about corporate training or recruitment and retention strategies, or about facilitating management's control of the organization's value-appropriating processes, there is nothing especially new about what KM offers. On the contrary, we have probably messed up the crisper language of the previous analyses.

If KM is a break-through it is because of its novel concepts, not its novel language. In my view, while the language has definitely become fuzzier, there are powerful new concepts - largely deriving from KM's dependence on the work of Michael Polanyi and his notion of 'tacit knowledge'. Sensing its importance to our sputtering endeavor, a large amount of ink has been spilt trying to define tacit knowledge - without much success.

The method of distinctions explored in the previous section should alert us to something profound about trying to do this. Any attempt to define 'data' would have to appeal either to correspondence theory - to saying a piece of data was a representation of reality - or, having dismissed such realism in the light of Descartes's comments, we would have been forced to look elsewhere.

The method of distinctions suggests we cannot usefully define 'data' absent from a complementary definition of its 'meaning', and that even while we shall never be able to define either data or meaning in the abstract, we can make the difference between them into something actionable and managerially relevant. Thereby KM is transformed from a universal 'science of organizational knowledge' into the study of human or managerial action in the organizational setting. Indeed a 'science of knowledge' is tautological nonsense for the outcome, more knowledge, would be its intended object.

This is one of the first peculiarities of knowledge. Since there is nothing knowable which is also 'not-knowledge', knowledge is a very special notion. There is no distinction we can bring to bear; we are trapped inside what we think we know, might know and can know. There is no way in which we can get outside this universe of our knowledge to see it 'for what it is' - to sit on the fulcrum that Archimedes imagined from which he would be able to lift the Universe. This puzzle bears some thinking on since it raises deeper questions about whether we can ever

know anything 'absolutely' or 'fully', what some might call 'entering into God's mind' or as philosophers say, taking a 'God's Eye' view.

The appeal of the realist position actually hangs on the distinction between an assumed knowable and logical reality 'out there' and a perfectly logical language with which we can capture its image, so that we can speak precisely and logically about this reality and our experience of it. But in the light of Descartes's critique, we have come to realize - painfully - that this distinction, which seems so 'native' and 'obvious' - until we consider its epistemological foundations - is dangerously false and cannot but fail to guide us towards optimal action. We must confront the fact (!) that we can only ever act in the light of our interpretations of reality, be that physical or social. Indeed the realists' claim is itself no more than a special kind of interpretation, one then justified by an appeal to an assumed transcendental reality that is, in fact, forever unknown and inaccessible.

In this sense KM is more honest, epistemologically, than much of what passes as 'scientific discourse' in our community. For it admits that we human beings can never achieve 'certain knowledge' or 'the Truth'. Instead, KM takes off from a practical acceptance that we have to struggle along with 'bounded rationality' and incomplete information as best we can, appreciating we sometimes have data challenges, sometimes meaning challenges, sometimes other challenges. Note these distinctions are themselves the progeny of our incomplete knowledge, of our inability to enter that realm of total knowledge that realists assume exists. In that place everything would be both data and meaning, inseparable. Anthropologists know some tribes, such as some Native Americans, for whom the world appears this way. Everything has meaning and time stands still, merely rotating around the seasons and the cycle of human life.

Our modernist condition is quite different. Once we have accepted the gulf between our knowing and complete rationality, as a 'fall from grace' perhaps, we set out from a condition of weakness and fallibility and can then understand more about the impact of Michael Polanyi's 1950s and 60s writings about tacit knowledge. It enabled his colleagues and some philosophers to talk about what they felt was others' unreasonable commitment to rationality in explaining the practice of science. To them it seemed a denial of much of what really went on in their lives and laboratories.

It may not be an exaggeration to claim that today's KM discourse and industry spun out of Polanyi's introduction of this other distinction - that between mental activity and effective action (skilled practice). The nub here is that effective action is sometimes the result of careful thought - planning - but sometimes it cannot be explained that way. Thus Polanyi's maxim "we know

more than we can say” - i.e. our skilled practice reaches beyond our mental framing and computation. Instead of ‘practice’ being only the enactment of our thinking, rational or otherwise, something else comes into play - our tacit knowledge.

Polanyi was a Nobel-level inorganic chemist from Vienna whose practical experience at the cutting edge of his discipline made him extremely critical of the ‘rigorous scientific method’ teaching that had become the norm in university chemistry departments. His brother Karl was of a similar epistemological bent - though as a political scientist and anthropologist. Michael felt ‘scientific rigor’ was vastly over-emphasized, at the cost of overlooking the creative insights of the individuals actually ‘doing the science’ - insights which were contingent on deep immersion in the practice of research, in its doing. By this he did not mean that purely conceptual analyses were irrelevant - that is to confuse ‘vocational’ understanding with his idea of ‘practical sympathy’ with the matters to be studied. Polanyi was puzzling about his own scientific productivity, and that of his colleagues. What was it that they were bringing to the process that could not be abstracted into a rigorous scientific methodology? What distinguished the productive scientist from the hack?

Clearly Polanyi did not ‘define’ tacit knowledge - nor was that his intention or expectation. He was simply introducing another intellectual tool (a distinction) that would help him analyze and discuss the KM processes of inorganic chemistry, the way scientific knowledge was generated and communicated. He quickly realized that what he had to say about the distinction between logical mental activity and ‘skilled practice’ had ramifications far beyond inorganic science - and that he had even more to say about ‘modernist’ education and the professionalization of society. As a result he abandoned chemistry and became a philosopher and social scientist, occupying a specially created professorial chair at Manchester University in the UK.

But not everyone sees tacit knowledge Polanyi’s way.

The KM literature offers two distinct positions; one expressed by Max Boisot. While Boisot’s work on the ‘I-space’ is extremely sophisticated we can see a tendency to define ‘tacitness’ in terms of ‘explicitness’, that is to say the degree to which some knowledge has been codified and captured in general terms (Boisot, 1998). We might call this a progression from the particular to the general which underpins much of the mainstream philosophy of science. The result is a ‘covering law’. The interplay of covering law and instance is captured in the notion of logical syllogism:

*All men are mortal (the covering law); Socrates is a man (the instance); so Socrates is mortal (the finding).*

The KM process Boisot articulates is that of abstracting from an instance at time A and place B so that it might provide knowledge-based guidance at time P and place Q. The underlying assumption is that tacit knowledge can be made explicit. There is a history here that we shall get into later, but the model is familiar. It is inherited directly from the turn-of-the-last-century work of Frederick Taylor and his Scientific Management colleagues. Note also this notion of moving resources between space-time situations is the defining characteristic of 'capital' for economic theorists (Dean & Kretschmer, 2007). 'Working capital', that embedded in the firm's processes, is a contradiction in terms - but closer to 'tacit knowledge' nonetheless.

The different ways of understanding tacit knowledge, aside from reading Polanyi carefully, include reading the commentaries of Tsoukas and, in particular, of Gourlay. They argue skilled practice is a type of knowing that stands opposed to and apart from mental activity. Polanyi illustrated this with bicycle riding. Even those who are expert riders cannot put into language precisely what they do to stay upright and moving forward (though I think skiing a better example because of the more challenging variations in the terrain – but then again the management of the pressure on the pedals is distinct to cycling). In particular, even if we found an engineer who could build a reasonable model of cycling, the explanation it provided would not be of much use to anyone wanting to learn to ride. That's why we use 'training wheels' and other devices that impinge directly on the novice's practice. There is a parallel process with teaching people how to fly. No amount of blackboard explanation will do it, the student pilot must spend time flying a 'plane or in a trainer (it runs out that flight-simulators work remarkably well - as we in New York know. Yes, I was there).

The key here is not simply that of conceiving of a skill. It is the hidden distinction between the skilled practice that emerges from the careful application of some relevant explicit knowledge (good planning) and what emerges from some more puzzling and quintessentially human source or capability. Note that Polanyi's move brings the scientist her/himself back into a theory of scientific progress and so resists the attempt to objectify everything into a rigorous scientific methodology, to push the 'human element' out of the analysis.

Another way of putting this is to say Polanyi introduced a distinction between 'purposive activity', which is the execution of a rational plan (the kind of analysis we can find in Argyris's work) and something more situated and contrived '*in situ*' and which cannot be fully explained analytically, which cannot be fully captured in purely logical language - but about which stories may be told using real language in a different way. This is the kind of analysis we find in Julian Orr's or Cook & Brown's work.

With Polanyi's contribution of a distinction between explicit and tacit knowledge, and the previous section's distinction between data and meaning in hand, we have the beginnings of a theoretical discourse that is unique to KM, a set of distinctions that define KM's universe of discourse and analysis.

It has three dimensions: (a) data vs meaning, (b) mental activity versus activity in the world, and (c) plan-execution versus skilled performance.

But is this conceptual space of more than passing academic interest? We can have fancy new discourses about all manner of things organizational without their having any impact on managerial practice. Where might this new three dimensional discourse lead us?

If we go back to the first question - what is the problem that KM addresses - we see that if it is (1) how to move data around better, then we have nothing much to add to IT. If it is (2) how to manage human and organizational capital better, there may be little we can add to what HR practitioners know already. We should not forget that other slice (3) of the KM field that is concerned with managing intellectual property rights and the extraction of value from IPRs. But there again, KM has little to add to the discussion in the law schools.

But if we begin to focus on (4) management itself, new questions open up. One thought-leader here was Herbert Simon who famously pointed out that absent 'bounded rationality' there would be no need for a theory of management - what he called 'administrative science' (Simon, 1947). Likewise the micro-economists' struggles to explain the existence of firms suggest that so long as people are fully informed and rational we cannot explain why we have organizations or how they should be managed (Williamson & Winter, 1991).

So the really curious perhaps paradoxical thing is that KM only takes off when rationality fails, when our knowledge is imperfect, when we shift from theorizing knowledge-assets and start to consider knowledge-absences. Polanyi's distinction opens KM as a new field precisely because he claims there is a crucial mode of human knowing that stands outside mental activity and rationality - whether that rationality is based on the objective absoluteness of logic or on the relative subjectivity of the individual's idiosyncrasies.

But of the huge number of writers who claim to work in the field of KM only a handful are engaged in this knowledge-absence part of the field - the part we might suspect is both unique and with a significant future.

What is this future?

Before sketching this we should note that there is, in fact, nothing new in this 'method of distinctions'. It is the way much of language works. In describing something we assert what it is not. It underpins the exam question 'compare and contrast ...' The idea is that since we cannot

contrast and compare knowledge against anything else - since to know ignorance is to invoke yet another type of knowledge - we can only make progress by noting the interplay of the several different categories of human knowing. I.e. we can say something managerially useful about our knowing (knowledge) by distinguishing data from meaning - and by distinguishing information from skilled practice.

Of course this method of differences is both entirely familiar - it underpins all metrics - and, like most of our thinking, goes back to the Ancient Greeks - with which Polanyi, as a properly educated person, was thoroughly familiar. The Greeks explored many different 'knowledge typologies'. They made distinctions between *episteme* (absolute truth), *techne* (practical knowledge), *metis* (cunning), *nous* (mental activity as opposed to physical), *sophia* (wisdom as opposed to opinion), and others. Detienne & Vernant (Detienne & Vernant, 1978) noted Greek philosophers distinguished (a) '*metis*' - cunning, from (b) '*techne*' - the how-to pragmatic knowledge implied in the term 'technology, (c) '*phronesis*' - socio-political skills, and (d) '*episteme*' - theoretical knowledge. Ihde (Ihde, 1993) noted another tradition that distinguished (e) '*noesis*' - pure abstraction, from (f) '*diainoia*' - mathematical truths, (g) '*pistis*' - perceptions, and (h) '*eikasia*' - images of objects. Likewise some contemporary neuroscientists suggest, in a manner anticipated by the phrenologists, that different kinds of knowledge are stored in different parts of the brain (Penrose, 1989). Reber (Reber, 1993) put a different spin on the neurological approach, suggesting that the brain is a multi-part evolved organ and that the older parts (*cerebellum*) know in ways different from the more recently evolved parts (*cerebrum*), thus differentiating intuitive or 'animal' knowledge from reasoned conscious knowledge.

### **Where KM Might Lead.**

In thinking about where KM and its expanded 'three dimensional' discourse might lead it is completely appropriate for us - as organization theorists and micro-economists - to focus on organizations even though the framework's implications carry well beyond these disciplines.

What, precisely, is the difference between these new possibilities and those of more conventional social science theorizing and research?

If, as Polanyi suggested, there is something about ordinary people and the way they contrive, acquire, develop and engage in skilled practice that cannot be captured in a purely logical discourse, then we run into a serious challenge to our expectations of analyzing organizations using a rationality-based approach alone i.e. along the lines of the mainstream work celebrated at the Academy of Management and in its journals.

Many people now working in the English language tradition of organizational and economic analysis, especially those following Barnard, consider organizations as 'systems' (Barnard, 1951). Historically, systems theory is based in biology. Barnard was much influenced by the Harvard physiologist, biologist and 'renaissance man' Lawrence Henderson, who also introduced him to the work of Vilfredo Pareto, the economist and social scientist known today for the 'Pareto Principle' or 80/20 rule. Pareto and Barnard were in turn major influences on Talcott Parsons and his development of 'social systems theory' - the idea that a society, and an organization, can be usefully thought of as a system - a structure with flows of information and other resources much as a biological 'system' has both flows of information and nutrients (Parsons, 1968). Parsons's theorizing is what most of us who work in English on organizations have inherited as our basic analytic frame, whether we know it or not.

At the same time biological systems are conceived of in engineering terms - conservation of mass and energy, entropy increases, and so forth. The underlying perfect rationality, which alone makes engineering calculations under appropriate 'covering laws' possible, is transported directly into systems theory - which would break down completely in the event that any part of the system 'lacked perfect knowledge'. Since we know that the human condition is marked by knowledge absence, the whole idea of using systems theory to analyze it becomes extremely problematic.

When we adopt systems theory to analyze organizations we are proposing that they are inherently rational. Thus bridges fall down only when they have what we call 'weaknesses'. The I-35W bridge collapse in Minneapolis followed the rupture of a smallish plate of steel that held some of the supporting members together. This had been designed 'incorrectly'; it was too thin for the loads that the bridge specification called for. The rationality at work here is what enables us both (a) to complete the design and (b) to explain the collapse. Note the design is never, in fact, complete - in the sense that some unconsidered detail may turn out to be crucial, as was the case of this plate. Nor is the explanation ever certain - which means that every other possible explanation has been eliminated. In the end the explanation offered by the NTSB (or which authority's imprimatur is on the final report) is never more than a 'conjecture' or hypothesis, open to be falsified by subsequent analysis. Thus 'evidence-based' research is a re-statement of classical empiricism that adds nothing new to the problematic relationship between phenomena and our theorizing.

It does not get much better if we ground our systems theorizing on 'behaviors'. This move pushes us into arguing that every 'naturally occurring' system shares a common set of principles, as suggested by Maturana & Varela's 'autopoietic theory' (Maturana & Varela, 1998),

or that the system's rationality is contingent on some inherent characteristic shared across the system. We see an example of this in 'behavioral economics' and its notion that human beings share 'bias'. Again this is not a move away from theoretical dependence on rationality, with its implicit dismissal of tacit knowledge. Rather it is the substitution of a 'biased' or 'behaviorally revealed' rationality in lieu of the previously assumed 'perfect' one.

It is clear that the vast bulk of the work being done in the field of organizations, and in IT too, proceeds from the premise that the things to be analyzed are inherently logical or 'rational'. The system's rationality is assumed into the analysis, as it is into what counts as explanation. Only then can the analysis and the design both be completed.

The impact of Polanyi's distinction is therefore 'huge', for he is arguing human beings can know things in ways that take us beyond the bounds of purely rational analysis and that cannot be 'theorized' in the ways that we are trained to imagine doing that.

There is no surprise here for people knowledgeable about the liberal arts who know about jealousy, fear, hate, love and all those other aspects of our lives which actually give them color (Pink, 2008). We cannot explain Othello's actions towards Desdemona in 'rational' terms. If we try this we miss both the power of Shakespeare's writing and its meaning for us as fellow human beings. Nor is this news to those in politics or political theory whose focus is more on what people actually do, individually and collectively, than on what they would do if only they were perfectly rational. Thus practical politics is defined not as a science but as the 'art of the possible' - though, yes, there are departments of 'political science' and how 'scientific' can they be?

So the bottom line is that Polanyi's distinction between rational mental processes and skilled practice is actually resurfacing a much deeper distinction between a philosophy of Man as purely rational and an alternative philosophy of Man as something rather different. In this sense Polanyi is a bit like Simon who, with his concept of 'bounded rationality', pointed out that basing our theorizing on Rational Man was not working too well. But neither Polanyi nor Simon gave us a workable alternative theory of Man. Recall, though, that Hayek told us that every significant advance in economics for the last century (now almost two) was a move towards greater subjectivity.

KM thus pushes us precisely to the point where Polanyi - and Simon - and a bunch of other thoughtful critics of Rational Man - have left us. So long as KM fails to embrace this challenge it fails to appreciate its fuller potential and falls back into a 're-badging' of the work that others have done in their respective disciplines - IT, organizational theory, marketing,

micro-economics and so forth - all the work in and around our area that stands on perfect rationality.

For KM to move forward and stake out its own specific intellectual territory it must surely shift its grounding axiom from that of Rational Man and onto some other Model of Man.

But which one? Fortunately human history and philosophy is replete with alternative models and the neuro-physiologists are coming up with new sets as we speak (Damasio, Ledoux, etc.). Our most immediate academic task is this choice, to develop a strategy - in the sense I used that term earlier in the Note - that will thereby create a new universe of KM discourse in which we can consider human actors as something other than purely rational.

Of course, this is yet another matter that takes us back to the Greeks. Philosophers understand it is all about what happened during the Enlightenment - which is why we need to know enough about that to get the issues into focus. What happened then was that Rational Man moved to center-stage. The model of Man that was pushed into the wings is more or less the 'humanist' model of the individual who has emotions and imagination in addition to rationality (Pink, 2008).

It is surprising to find how often contemporary scholars, especially those who are approaching the end of their careers and are professionally secure, have pleaded to 'bring the human being back into the analysis' i.e. to reverse the change effected by the Enlightenment philosophers (e.g. Homans, 1964). But what kind of 'human being' is being suggested?

KM forces us to look more deeply towards humanist philosophy, sociology and psychology - at the subjective aspects of the human condition - for a more appropriate model.

But what model of Man is this to be?

## *Some Contemporary KM Treatments*

### **Russ Ackoff**

Russ Ackoff has a lot to answer for. His 1989 'From Data to Wisdom' article has been incredibly influential (Ackoff, 1989). I wonder what its citation count is (this is what academics REALLY care about). I have a copy the article and can share it with anyone who would like it - as far as I know it is not available on-line. There's a useful précis at <http://www.systems-thinking.org/dikw/dikw.htm>.

The article was initially Ackoff's 1988 Presidential Address to the ISGSR (now called the International Society for the Systems Sciences <http://iss.org/world/index.php>).

His hierarchy was from 'raw data', to information, to knowledge, to understanding, to wisdom. 'Data', says Ackoff, has no significance beyond its existence. 'Information', on the other hand, is data that has been given meaning 'by way of relational connection'. Thus relational databases give meaning to the data stored. 'Knowledge' is information that is 'useful' and is determining - in the sense that a covering law determines the finding. 'Understanding' is cognitive, the process in which one takes various bits of knowledge and synthesizes them into some new knowledge. Ackoff uses the term 'interpolative' for this activity. 'Wisdom' is 'extrapolative' in the sense that it considers or reflects the human condition and provokes a search for new understanding.

I have some difficulty with understanding Ackoff's concept of wisdom though it is clearly grounded in the idea of an ethical stance, in 'knowing' the difference between right and wrong.

If you look at the Bellinger, Castro & Mills précis at the URL above, you'll see a diagram of the 'ascending' state of knowing towards increased connectedness and understanding. The diagram only works because they have pulled 'understanding' from Ackoff's sequence and turned it into an axis, which is odd to say the least, so I do not understand what space is being described here. You'll have to make up your own minds. Connectedness is also unclear - connectedness between people - at other levels or the same level?

As you know Ackoff's hierarchy is frequently collapsed into the DIKW mantra (data, information, knowledge and wisdom). It turns out that Milan Zeleny had published the DIKW

hierarchy a year earlier (Zeleny, 1987), explaining the distinctions in terms of 'know-nothing', 'know-what', 'know-how', 'know-why', actually a reference to the work of an English philosopher called Gilbert Ryle.

But I think Zeleny's formulation is commendably clearer and helps us get a sense of what Ackoff was reaching for, though it is then baffling how and why he slips in 'understanding'. If we go with Zeleny's formulation we have 'raw signals' that don't mean anything - have no 'information content' in the terms of this Note. Then 'information' is about 'knowing-what', understanding is about 'knowing how' - which takes us to a covering law - and wisdom takes us to 'knowing-why', where that question is posed beyond the purely rational and clearly in the domain of ethics.

There's a lot of interest in where the DIKW hierarchy came from (e.g. Rowley, 2007). Some say TS Eliot's 1934 poem 'The Rock', and we can note Frank Zappa alluded to it in 1979 in 'Packard Goose':

*Information is  
not knowledge  
Knowledge is  
not wisdom  
Wisdom is not truth  
Truth is not beauty  
Beauty is not love  
Love is not music  
Music is THE BEST...  
Wisdom is the domain  
of the Wis  
(which is extinct).  
Beauty is a French  
phonetic corruption  
Of a short cloth  
neck ornament  
Currently in  
resurgence...*

The main issue for us - and for those in the KM field generally - is whether the hierarchy can properly serve in the way that it is so often used - as a way of defining these slippery terms.

The first problem is not so much the distinctions implied, which we shall come back to, but the larger question of what precisely the DIKW elements are supposed to be part of. They

cannot be parts of knowledge, since knowledge is itself one of the parts. Yet when you read the original article you'll see that Ackoff introduces the hierarchy as 'types of content of the human mind' (Ackoff, 1989 p.3)

We can see immediately there is something seriously wrong with his starting point. Data cannot be 'raw' in the sense of being something about which we can speak, without it also being framed in some system of meaning - such as the language being used to describe the seemingly 'meaningless' data. The issue here is that language - which is what is being used to define the term - inevitably forces a collision between external impulses (sense-data) and the observing individual's cognitive processes that put her/his meaning onto the impulses.

As we saw earlier, when we speak of data it is to use language to explain what we see, feel, hear, taste, etc. or are counting to someone else who also uses their system of meaning to interpret what we say. The notion that we are only moving data assumes the listener's meaning system, and its relation to the speaker's meaning system, is not problematic for them. All too often, of course, we discover their meaning system and ours are NOT shared or 'aligned'. But how is a hearer to comprehend the speaker's meaning system?

This puts question marks around any attempt to distinguish between data and information.

'Knowledge' is clearly a puzzle. Given Zeleny's notion of it being 'know-how', we are lost somewhere between a fully rational and rigorous covering law model of a cause and effect relationship and Polanyi's notion of unarticulated skilled practice, of being able to perform without being able to model the process.

The bottom line, of course, is that the DIKW hierarchy is NOT anything that stands on clear distinctions and thus it cannot serve as the basis for a rigorous theory of KM. It is more of a Russian doll, each 'level' semantically enveloping those below it. As such it is also a reminder of Maslow's hierarchy of human needs. It may well be that all such hierarchies are no more contemporary secular reflections of the ancient '*rites de passage*' or progressions towards 'self actualization' such as the Buddhist 'eight-fold path' or the Christian 'Jacob's Ladder'.

## **Nonaka & Takeuchi**

Nonaka & Takeuchi's prize-winning book (Nonaka & Takeuchi, 1995) should probably be considered the most significant intellectual impulse behind today's worldwide interest in KM. Nonaka is justly considered a major figure.

Prusak (Prusak, 2001) argued KM began now because of (a) the increasing value-for-money of IT, (b) globalization and (c) the increasing awareness of the economic importance of learning. His view is important because he is a practitioner, at one time heading up IBM's KM effort, and 'was there'. Note his argument is rather different to Reich's more intellectual argument about the switch from 'muscle-work' to 'knowledge-work' and the arrival of the Information Age (Reich, 1992).

In this sense N&T focus on the last of Prusak's points. We can also see the N&T book as an extended essay on the productive interplay of the particular and the general in the context of the growth of organizational knowledge.

Their core proposition is the SECI model - socialization, externalization, combination, internalization [http://www.12manage.com/methods\\_nonaka\\_seci.html](http://www.12manage.com/methods_nonaka_seci.html).

The book has many weaknesses - which serves as a reminder that weaknesses may not stand in the way of a book's popularity. It clearly spoke to the managerial community at the right time, and that itself is a 'knowledge management' process that deserves some thought. Why this timing?

The technical or theoretical weaknesses arise out of way N&T actually fudge their theory of learning. Indeed they fudge whether the learning is taking place at the individual level or the collective (organizational) level. But their fudge is not simple error. Part of it is that we are seeing the Japanese intellectual style - in which, unlike the American style, all things are connected. The technical term for this is 'syncretism', the ability to absorb non-Japanese things into their culture for which the Japanese are historically famous.

It may also be that the whole distinction between the individual and the collective which seems to clear to Westerners, as children of the Enlightenment, is less clear to the Japanese whose sense of identity is evidently more social. There's a lot of anthropological literature on this and it provides an interesting mirror/contrast/distinction to our Western ideas on these matters.

But N&T are open to the charge that even if we neglect their fudging individual/collective distinction, it is still not clear how learning takes place. Perhaps knowledge-creating is not the same as learning. We are not told.

An unkind take on the book is that it is little more than an elegant contemporary reprise of Taylor's work on Scientific Management (Taylor, 1911). Taylor's book was certainly even more influential than Nonaka & Takeuchi's. It is a matter of record that the first translations of PSM were into Japanese and Taylor's first non-US 'disciples' were Japanese, and that what we now call the Toyota Method, is a modernized and updated version of PSM.

Inasmuch as the N&T book introduces KM rather than Scientific Management, it is because of its treatment of 'tacit knowledge'. Taylor's analysis (which is worth reading even if only to see how many people trash him without any sense of what he actually said and did) does not tell us anything about 'learning'. As far as SM is concerned that takes place out of the analysis, out of sight on the shop floor where operatives develop their own ways of doing things. SM collects these, sorts out which are valuable, and delivers these back to the production process, eliminating all else. There is a link here to Adam Smith's explanation of what really drives economic progress - again it is worth reading the first few pages of the *Wealth of Nations*. Adam Smith argued the 'division of labor' was both economizing, in the sense that the operative did not have to keep switching jobs, but much more importantly, it was the source of learning - for by concentrating on a single task the operative's imagination was brought into play and this resulted in the development of the better methods and tools which 'enabled the one to abridge the labor of many'.

Unlike Taylor, N&T try to bring this learning process into their analysis. Its strength is that they assume the knowledge-generation takes place within the social processes of the small work-group (or the individual if indeed the individual is working alone - impossible in the Japanese environment). But their argument, unlike Smith's, is that this improvement is of negligible value until it is communicated across the organization and made available to others. They see the organization as a whole being moved forward.

Of course there is some funny business going on here, given that Smith saw the whole economy being moved forward. But the book is clearly helpful to managers struggling to penetrate the innovation processes that they feel are crucial to survival in a dynamic competitive economy.

None of this explains how their tacit knowledge bit is supposed to work. It would be generous to say it does not really matter given that their appreciation of tacit knowledge is enough to bring the central idea - the complexity and productivity of the relationship between mental activity and skilled practice - into the analysis.

Many have criticized the N&T reading of Polanyi's work and it is obvious that they slide around uneasily between the two utterly different positions explained earlier in this Note. Most

of the time they agree with Boisot that 'tacitness' is about the degree of explicitness. But not always.

The most glaring weaknesses are that while their presentation is intriguing the reader discovers very little about what might facilitate or hinder the interaction of the particular work-group and the wider organization which is, in fact, the core of their model. It is often assumed that the small work-group learning is the most important feature. This is simply a mis-reading of their book.

In his subsequent work Nonaka and his colleagues, since he really runs an '*atelier*' at Hitotsubashi, have focused on 'ba', the notional/conceptual space or 'situation' in which their learning processes takes place. To be able to determine how to set up and manage an appropriate 'ba' would give managers something actionable. We await Nonaka's next move.

### **Cook & Brown**

John Seely Brown is an industrial anthropologist and onetime head of the PARC-Xerox Lab whose background is in the work of Vygotsky. He shares this with a group of scholars that includes Jerome Bruner, Sylvia Scribner, Jean Lave and Etienne Wenger.

These days Vygotskian ideas are hugely influential in educational theory and developmental psychology where they stand, to some extent, against those of Jean Piaget.

JSB's work points up how lightweight are the notions of learning that are current in KM - often drawn from the work of March and iconized in Cohen and Sproull's volume (Cohen & Sproull, 1996):

Vygotsky's theories are subtle as well as influential. They are of particular interest to those who follow Polanyi's concepts and his knowledge-as-practice. Indeed Vygotsky argued that social practice is the primary source of the individual's knowledge. These ideas have led to 'activity theory' and 'action research'.

The general point here is that it is not possible to do useful work in KM without a viable theory of learning.

Cook & Brown's article bears some similarity to Nonaka & Takeuchi's work, though while N&T speak of the SECI model, they talk more of a 'dance of practice' (Cook & Brown, 1999). Cook & Brown certainly imply a clearer theory of learning than do N&T.

## Carlile

Paul Carlile was a colleague of Wanda Orlikowki's at MIT when he produced two papers seminal to KM's step towards what I see as its real future (Carlile, 2003, 2004). The papers grew directly out of his PhD thesis. He is one of the few working in KM who clearly understand the method of distinctions as a means to escape the clutches of 'perfect rationality'. Not everyone wants to do this, of course.

Carlile set out from the astro-physicist and philosopher Erich Jantsch's *Self-Organizing Universe*. This led Carlile to set up distinctions between a 'syntactic' view, a 'semantic' view and a 'pragmatic' view of organizational knowledge.

Distinctions exist on any scale - between 80 degrees F and 100 - and even on a binary scale between more and less or right and left, but the most theoretically powerful ones grow out of contrasting epistemologies - as the Ancient Greek distinctions illustrate.

Carlile's project was to investigate the flow or transfer of knowledge between different parts of a manufacturing organization. He spent considerable time on the shop floor and this led him to an increased sensitivity to the tacit and non-verbal aspects of organizational knowledge. He is also a rather successful entrepreneur in his own right, which bears on the matter since his grounding is not merely in the academic.

There is considerable parallelism between Carlile's distinction between the syntactic and semantic and that in this Note between data and meaning. He is contrasting a realist and an interpretivist epistemology. Where Carlile and I part company is on the 'third way' and my interest in knowledge-as-practice versus Carlile's use of a 'pragmatic' frame. He refers explicitly to the latter as a 'political' frame, so raising issues that are not well treated in my work. But at the same time I suspect he has not grasped the essence of pragmatism sufficiently. It is a complex epistemology. At the same time we can see constructivism as an alternative.

But our differences raise a more general methodological point. It is clear that much discipline-shaping work - the stuff that changes peoples' view of a field - must take place at the philosophical/epistemological level. This is part of a much longer discussion about the process of academic progress (institutional learning) that itself bears some relation to Nonaka & Takeuchi's notions of organizational learning.

The point here is that there is no single set of distinctions. They are no more than intellectual tools that, by definition, must lead some of the world out of account. We have seen the Greeks had scads of distinctions. But there is something important to understand about a tool. Its fitness for our purpose is always problematic. As the saying goes 'If one has only a

hammer then everything looks like a nail'. Different tools imply their own fields of activity - in our case KM research.

Since I know Paul well and we have spent a fair amount of time talking about these things it is important to tell you that he and I are NOT engaged in the same enterprise - it follows that his tools do not work for me, or vice versa. There is a certain synergy between one's choice of tool and one's choice of research topic. Sometimes the latter drives one's choices, sometimes the former. Sometimes one has to create a new tool in order to do the work one has in mind.

That 'situated' impulse is what has driven the creation of most of the intellectual tools that students are introduced to. They were built for a particular project. There is no overarching, immutable, unchanging kit of tools that can encompass the richness and complexity of the social and psychological sciences, or even that subset we call organizational and management studies. That would only be the case if we knew for certain what organizations are, and how they must be managed.

### **Hislop**

I am very partial to Hislop's review of the KM field (Hislop, 2005). It is well grounded in thought and bibliography and nicely balanced between the easy-to-grasp managerial tool-kit approach and the more complex questions considered in this Note.

There's nothing 'new' in it - beyond its down-to-earth treatment of some extremely slippery issues. But a good thing to have on your bookshelf!

### **Tsoukas**

Tsoukas is a Greek philosopher who has chosen to study and work in business schools. He has a joint appointment at Alba in Greece and at the Warwick Business School in the UK, arguably the most powerful KM group in the UK. His work is very profound and of excellent quality. A fine set of essays and papers is included in (Tsoukas, 2005). If his work is to be criticized from the KM point of view, as opposed to being criticized from a philosophical point of view, it might be that it is indeed too general, too much into philosophy and too little into organizations and the practical questions raised for managers about 'knowledge'.

But for those interested in delving deeper into the epistemological issues and making sure they are not talking rubbish, as so many do in this field, Tsoukas is my Man. It may help if I tell you that both of us are graduates of the PhD program at the Manchester Business School (in the UK) and our thinking was shaped by the same supervisors.

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