

A-CAUSALITY, CONSCIOUSNESS AND ORGANISATION

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INTRODUCTION

ATENDENCY EMERGES IN MANAGEMENT THEORY and practice today to accept that our linear and deterministic ways of thinking about managerial problems create more problems than they solve. In the field of strategy studies, for instance, one can observe a growing interest in learning and organizational flexibility; It gives importance to distributed cognition and adaptive systems. Management theorists are keenly observing developments surrounding complexity

and chaos theory in science, and management researchers are attempting to apply emerging theories to managerial problems. The current economic reality is harsh in showing the consequences of choices that we have made over the last decade.

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“Wanderer, your footprints are the path, and nothing more; Wanderer, there is no path, it is created as you walk. By walking, you make the path before you, and when you look behind you see the path which after you will not be trod again. Wanderer, there is no path, but the ripples on the waters.”

ANTONIO MACHADO

The ideas that many simple, nonlinear deterministic systems can behave in an apparently unpredictable and chaotic manner is not new. Such thinking was first introduced by the great French mathematician Henri Poincaré. Other early pioneering work in the field of chaotic dynamics is found in the mathematical literature of scientists such as, amongst others, Birkhoff, Levenson and Kolmogorov. More recently, several Nobel prizes have been awarded in this field of research, for instance to Prigogine and Kauffman.

Complexity as an emergent organisational paradigm in the knowledge based economy primarily questions the concept of causality. Despite relativity and quantum mechanics, most physics (and certainly all managerial thinking) is still Newtonian, being based on a fixed space-time frame. In the mean time, further developments have taken place in the area of biology (such as the concept of Sheldrake's morphogenetic fields) (Sheldrake, 1995) and mind/body medicine that all seem to point to a federating idea of a quantum interpretation of social phenomena (non-locality, synchronicity and

entanglement). Isn't acausality the basis for a quantum ontology of complex systems?

Once we have accepted such a quantum ontology, the concept of “mind over matter”, or the prevailing role of consciousness, becomes more obvious

This paper is an attempt to explore the essence of such a quantum ontology and its consequences for a more consciousness oriented approach to management and organisations.

THE PHILOSOPHY OF QUANTUM MECHANICS

The foundational concepts in the complexity realm emerge from such fields as neurobiology, cognitive sciences, physics,

and organizational theory. New developments in knowledge management such as connectionist approaches (complex adaptive systems) for the visualization of emergence give promising results (Baets, 2005). In fact, instead of causality, it appears that the networked economy is rather ruled by synchronicity (appearing at the same time) as many quantum researchers suggest. Is economy and management, and in particular the more dynamic aspects of it like innovation or leadership development, indeed based on a quantum ontology?

Given the insight in complexity that we have developed over the last decade and its consequences for management the way we have discussed it in earlier work (Baets, 2006a and b), we are now ready to explore the ontological basis of complex systems, and possibly draw some far reaching conclusions on the way ahead. In the current economic turmoil, the necessary shift towards transformational leadership will have to be based on a different set of assumptions about reality.

What Prigogine and complexity theory in general discussed fundamentally was the existence of any causal relationship. In fact he was surprised that despite the two fundamental revolutions in physics in the last century, relativity theory and quantum mechanics, physics is still mainly Newtonian. It presumes a fixed time and space concept, in which the future is causally related to the past. Complexity theory shows the impossibility of this assumption, and so does quantum mechanics.

The discontinuity versus continuity dichotomy can be seen as contingently rooted in philosophical commitments and in the physical phenomena studied. By the late 19th century there were already significant, even if not overwhelming, philosophical precedents for the concept of indeterminism (including the possibility of inherent chance) in nature, as opposed to the straightforward determinism often associated with classical physics. Soren Kierkegaard believed that objective uncertainty can force one to make a leap into the unknown so that decisions cannot always 'even in principle' be based on a continuous chain of logic. For example one of Hoffding's tenets was that in life decisive events proceed through sudden 'jerks' of discontinuities, an idea incorporated into Bohr's view of atomic phenomena (Cushing, 1998).

There was a split in philosophical outlook along generational lines: the 'older' essentially classical world view of people like Einstein, Schrödinger and de Broglie versus a radically different, eventually indeterministic conception of physical processes engendered by a generally younger generation (Bohr and Born being exceptions here) including Heisenberg, Pauli, Jordan and Dirac (Polkinghorne, 1990).

On the standard or so-called Copenhagen, interpretation of quantum mechanics and, in particular, the Schrödinger equation, we no longer have event-by-event causality and particles do not follow well-defined trajectories in a space-time background. The theory predicts, in general, probabilities, not specific events.

We now come to one of the most profound issues in the interpretation of quantum mechanics – that of causality (in the sense of a specific, identifiable cause for each individual effect). Dirac (1958) observes: Causality applies only to a system that is left undisturbed. If a system is small, we cannot observe it without producing a serious disturbance and

hence we cannot expect to find any causal connexion between the results of our observations.

In this same spirit, Heisenberg too felt that, since the mathematical structure of quantum mechanics is so different from that of classical mechanics, it is not possible to interpret quantum mechanics in terms of our commonly understood notions of space and time with classical causality (Heisenberg, 1927).

We characterized the standard, or Copenhagen, view of quantum mechanics as requiring complementarity (say, wave-particle duality), inherent indeterminism at the most fundamental level of quantum phenomena and the impossibility of an event-by-event causal representation in a continuous space-time background. So, on the Copenhagen interpretation of quantum mechanics, physical processes are, at the most fundamental level, both inherently indeterministic and non-local. The ontology of classical physics is dead. The heart of the problem is the entanglement (or non-separability) of quantum states that gives rise to the measurement problem. This entanglement makes it impossible to assign independent properties to an arbitrary isolated physical system once it has interacted with another system in the past – even though these two systems are no longer interacting. The non-separability characteristic of quantum systems can be seen as an indication of the 'holistic' character of such systems.

A Bell-type theorem is proven and taken as convincing evidence that non-locality is present in quantum phenomena. Quantum mechanics has undeniably introduced us to non-locality, entanglement and synchronicity; concepts that thus far have not yet been applied in business, economics or social sciences at large.

THE SOCIAL SCIENCE IMPLICATIONS OF A POSSIBLE NEW ONTOLOGY

In an earlier work (Baets, 2006a), I already suggested that the solution might be, in effect, to go as low as possible on the aggregation level (human emotions, team members) to allow innovation to produce itself through the emergence processes. In fact we want to explore the quantum reality of management or any other social phenomenon. The remaining question is a double question: can, and how can, you make the concept of innovation holistic, and so encapsulate the personal emotional side? But on a deeper level we can ask ourselves this question with reference to conscience and causality, and the "seat" of consciousness.

The more on-the-ground question is: on what level can we find consciousness; is there something like a collective consciousness (for example in a company on the subject of innovation): does everyone have a sort of essential element of incorporated consciousness with a possibility of connection with others (at the level of consciousness)? Translated to companies: do consciousness, engagement, and emotions make a difference for a company? Does a company have a "soul", or a consciousness? Is there a link between this "consciousness" and the success of a company? Are vision, emotions and consciousness linked? More concretely, who determines the choice of a client who has a preference for one company rather than another? What lets potential clients make a distinction between two companies which in fact

offer the same services (for example, two big banks such as BNP and ING, or two consultant companies such as PWC and Accenture)? And finally, can we arrive at an approach, accepted as scientific, that gives at least the beginning of a response to these questions? Although these questions are, of course, a little metaphysical, this does not prevent them from being important questions. Is the current crisis a quest for a more conscious approach to management and responsibility, and are we able to think on consciousness level if we talk business? Indeed, our managerial thinking is still Marshallian, the economic thinking of the 19th Century (Arthur, 1998).

At the end of his scientific career, Wolfgang Pauli (as described in de Meijgaard, 2002) asked himself how we can know if human cultures can live with a clear distinction between knowledge and belief (an idea, moreover, of Max Planck). For this reason, according to him, societies are in trouble if new knowledge arrives and puts the classical spiritual values in question. The complete separation between the two can only be a solution in the short term, and one of facility. Pauli had predicted (and how much does reality seem to support him today) that there will be a moment in the near future when all the images and metaphors of classic religions will lose their strength of conviction for the average citizen. So we will get to a situation where classic ethical values explode and we have a period of hitherto unknown barbarism. He was touched and very interested by what he himself called “background physics”: the spontaneous appearance of quantitative concepts and images concerning the physical in fantasies and dreams. Their character was very dependent on the dreamer himself. Background physics has an archetypal origin and that leads (always, according to him) to a natural science that will work just as well with matter as with consciousness. He was also sufficiently realist to say that if a researcher in physics has observed a sub-system, the observations are as much dependent on the observer as on the instruments.

According to Pauli, the physical concept of “complementarity” physics (de Meijgaard, 2002) illustrated a profound analogy with concepts such as conscience and the unconscious. Two extreme cases which can never be attained in practice are “someone with a perfect conscience” (eastern philosophy suggests that this can be attained uniquely in death, also called Nirvana) and something like a “bigger spirit” which will never be influenced by a subjective consciousness. This “bigger spirit” is what eastern philosophy calls the “consciousness”, and western psychology calls “collective unconsciousness”. Pauli accepted that physical values, as much as archetypes, change in the eyes of the observer. Observation is the result of human consciousness.

Pauli wrote a book with Jung on this issue (1955). Where Jung talks about defined archetypes as primordial structural elements of the human psyche, Pauli introduced the

notion of the “collective unconsciousness”. They both believed that we are moving towards a joining of the psyche and the physical.

The introduction of the notion of “synchronicity” in this coauthored work would inspire many others, with the term being used by other authors in others disciplines.

Synchronicity (being united-in-time) (according to Pauli) appears in all the sciences and the techniques in which simultaneity plays a role. We must take into account that we are not speaking about a causal coherence (from cause to effect) but about a coincidence (or being together in time) that must be considered as useful even if we cannot explain the deep cause of this simultaneity. We must

remember that we always speak about synchronicity if the events concerned occur in the same time period. The concepts of statistics or the theory of probability are of another order. Probability can be calculated with mathematical methods, which is impossible when speaking about synchronicity.

Synchronicity (according to Meijgaard) is considered as the basis of a great deal of phenomena which are difficult

to explain and which are often called nonscientific. In the context of this paper, we do not go into these aspects. The way to understand this better is that the widening of consciousness and the dissolving of borders is only possible when we keep, besides our energetic causal thinking (classical), a space for synchronicity and information. It is to Pauli's great credit that he indicated the necessity to create space for the concept of synchronicity in scientific thinking. Jung speaks about this as the “a-causal” link. Sheldrake later confirmed these ideas with his theory of morphogenetic fields.

Pauli and Jung proposed that the classic triad of physics (space, time and causality) be extended with synchronicity to then form a tetrad. This fourth element works in an a-causal manner, and it is, in effect, the polar opposite of causality. Pauli and Jung believed that these oppositions were orthogonal in time and space.

The idea of an a-causal link, or non-locality, are new concepts which should contribute effectively to the science of management.

CONSCIOUSNESS IN COMPLEX SOCIAL SYSTEMS

One of the illustrations of this quantum concept, and with the goal of doing a thought experiment, is developed in Mitchell's “dyadic model” as he describes it in his book (Mitchell and Williams, 1996). Stated simply, the concept of non-locality is derived from quantum physics (as explained before). In fact, in the experiments he demonstrated that particles (photons) stay attached in a ‘mysterious’ manner, even if they displace in directions contrary to the speed of light.



The dyadic model is built on the idea that everything is energy. This basic energy is linked to information, what Mitchell calls structures of energy. The energy and the information form a dyad. The information, in this context, is the basis of the capacity of matter to 'know' (and so has nothing to do with information as treated in information systems).

All matter contains a sort of 'awareness' or, in other terms, a capacity to 'know'. If not, how can molecules 'know' that they must join up with others to form cells? In a subsequent state (a more complex state), it could be that in the human body/brain matter evolves such that it knows what it knows. It is therefore capable of self-reflection.

Another dyad in his model is 'awareness' and intention that equally make up part of the evolutionary process which leads to consciousness. Consciousness and innovation, accepted elements of the energy-information scheme, are the basis of self-reflective consciousness.

The non-locality is illustrated by the famous connection proven and explained in more detail before ("entanglement") between partner photons that are sent in opposite directions. They still stay, however, in a position to immediately ("instantaneously") communicate between each other over large distances. This has a relationship with the 'knowledge' of these particles. Man is equally made up of these sorts of particles.

So how does such communication function according to Mitchell? The groups of particles seem to have special characteristics of resonance and coherence that are evoked by the groups themselves. This resonance includes historical knowledge about universal matter. This idea strongly corresponds with Rupert Sheldrake's observations. The body/brain can receive holographic information in the form of virtual long wave signals. Mitchell's dyad suggests that the particles "know" by their inherent qualities of conscience and intention. The groups of particles communicate between themselves on the basis of quantum holograms (what Sheldrake calls the morphogenetic fields) that includes information about the universe. As our body/brain also works in a holographic way, it can recuperate this information. Apparently, Nature does not lose its memory concerning its own evolution. Mitchell believes that it is our intention or directional attention that links us holographically with the signals or non-local long waves.

The greater the experience of satisfaction, the more the consciousness of each cell in the body will resonate with the holographic information engraved in the "quantum zero point" (the lowest possible state of energy, in an almost resting, but not quite, situation; Polkinghorne, 1990) of the energy field. This phenomenon refers to what we know as to be 'carried along.' If Man lives in harmony with his biological rhythms (all sorts of rhythms) the body is in balance and the person will fall ill less quickly. In the material world we can witness a phenomenon of 'being carried along' if we put two pendulums beside one another. Although the

movement of the pendulums in the two clocks seems at first to be totally arbitrary, after a certain time, the movements adapt to each other and move in harmony. The two clocks are 'carried along'. In the world of medicine a lot of these ideas are found in Ayurvedic (holistic) medicine.

This quantum approach of energy, information and communication allows us to suggest causality at a much lower level of aggregation; that is to say, at a quantum level. In effect, we should really speak about synchronicity or coincidence rather than causality. It is important that it is this structure that allows people to realise what they want to realise; that could be, for example: to protect themselves against viruses, or to simply survive or to innovate, as in companies. It is therefore a question of elementary particles

(let us say the characteristics of people if we translate them into economic behaviour), which are linked in solid networks with all sorts of matter (the context), which, in turn, interact with this matter, and in doing that, become part of the wider energetic field (morphogenetics) which contains knowledge and information. When more members of a team (or a company) are 'carried along', their actions will have more success; for example,

in teams working on product innovation.

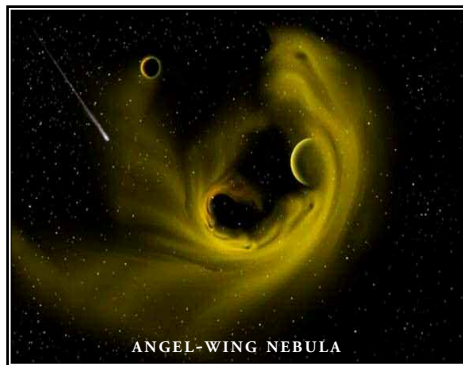
Once we relax the five basic assumptions that physics gave us on the fabric of reality: reality, locality, causality, continuity and determinism (Radin, 2006), we are able to see and develop consciousness.

SUSTAINABILITY

A transformational view in management or organizational theory today has to be based on the concept of sustainability. The currently prevailing definition of sustainability emphasises cross-generational equity, clearly an all-important concept for any society that wishes to endure, but one that is operationally insufficient. Anchoring an alternative definition directly to the relationship between a population and the carrying capacity of its environment (a here-and-now concept) offers some advantageous. Ben-Eli suggests the following definition:

Sustainability: A dynamic equilibrium in the processes of interaction between a population and the carrying capacity of an environment such that the population develops to express its full potential without adversely and irreversibly affecting the carrying capacity of the environment upon which it depends.

This definition points to the dynamic nature of sustainability as a state, a state that has to be calibrated with time, again and again, as changes occur in population numbers, or in the resources available for supporting all humans at a desired level of wellbeing. It does not seek to define specifically what such a level is, nor to limit yet unimaginable possibilities for social evolution. It recognises, however, boundaries and limits that must be maintained by stone-age tribes and industrial societies alike. As long as the



underlying conditions for equilibrium are maintained, the well-being of future generations is assured.

The set of sustainability principles that follows is grounded in Ben-Eli's definition. The principles are articulated in broad terms but can receive a specific operational meaning in relation to particular sectors of the economy, development issues, business strategies, investment guidelines, or initiatives taken by individuals. We express them in relation to the following five fundamental domains (all representing essential aspects in the interaction of human populations and the environment):

- 1 - The Spiritual Domain: Which identifies the necessary attitudinal orientation and provides the basis for ethical conduct;
- 2 - The Domain of Life: Which provides the basis for appropriate behavior in the biosphere with respect to other species;
- 3 - The Social Domain: Which provides the basis for social interactions;
- 4 - The Economic Domain: Which provides a guiding framework for creating and managing wealth;
- 5 - The Material Domain: Which constitutes the basis for regulating the flow of materials and energy that underlie existence.

The result is a set of five core principles, each with its own derived policy and operational implications. The set is fundamentally systemic in nature, meaning, that each domain affects all the others, and is affected by each in return. Rather than a list, the set should be approached and understood as a coherent whole. The framework of these principles enables a nurturing context for talking about values.

In respect to the role and necessity for consciousness in organizations, I would like to highlight only the first principle. It relates to the spiritual domain, to the basic assumptions we hold about the very nature of reality and the values we hold. It calls for recognising the fundamental mystery that underlies all existence, and the seamless continuum that links us humans, and our technology, with the rest of the biosphere, and with the outermost reaches of the cosmos. This principle means honoring the earth with its intricate ecology; fostering compassion and an ethical perspective in all human affairs; reintroducing a sense of sacredness and reverence to all interactions; linking inner transformation of individuals to transformations in the social collective; and fostering the emergence of a genuine, wise, planetary civilization. With some creativity we can see in this list a first draft of attributes to consciousness in management.

CONSCIOUS BUSINESS

Would it help to start even a little more a-centric? Would the culture shock be made bigger by limiting the values to consciousness-related values in line with Kofman's (2006) view that conscious business means finding your passion and expressing your essential values through your work? A conscious business seeks to promote the intelligent pursuit of happiness in all its stakeholders. It aims to produce sustainable, exceptional performance through the solidarity of its community and the dignity of each member.

Ken Wilber (in Kofman, 2006) talking about Kofman's

book 'Conscious Business: How to Build Value through Values' says that integral mastery begins with mastery of self, at an emotional level, a mental-ethical level, and a spiritual level. Anything more than that is not needed; anything less than that, is disastrous, according to him. Peter Senge, on the same book, yet highlights another important issue. The key to organisational excellence lays in transforming our practices of unilateral control into cultures of mutual learning. When people continually challenge and improve the data and assumptions upon which their map of reality is grounded, as opposed to treating their perspectives as the truth, tremendous productive energy is released.

Collins (2001) studies what drives average companies to take a quantum leap and become extraordinary. He concludes that a crucial component of greatness is a group of leaders with a paradoxical blend of personal humility and professional will. These leaders, whom Collins calls 'level 5', channel their ego ambition away from themselves into the larger goal of building a great company. Conscious employees are an organisation's most important asset; unconscious employees are its most dangerous liability. So what are conscious employees?

Kofman uses seven qualities to distinguish conscious from unconscious employees. The first three are character attributes: unconditional responsibility; essential integrity; and ontological humility. The next three are interpersonal skills: authentic communication; constructive negotiation; and impeccable coordination. The seventh quality is an enabling condition for the previous six: emotional mastery. Conscious employees take responsibility for their lives. They don't compromise human values for material success. They speak their truth and listen to others' truths with honesty and respect. They look for creative solutions to disagreements and honour their commitments impeccably. They are in touch with their emotions and express them productively.

Buckingham and Coffman report on a twenty-two year old study on organisational effectiveness. According to them, exceptional managers create a workplace in which employees emphatically answered 'yes' when asked the following questions:

- 1 - Do I know what is expected of me at work?
- 2 - Do I have the materials and equipment I need to do my work right?
- 3 - At work, do I have the opportunity to do what I do best every day?
- 4 - In the last seven days, have I received recognition or praise for doing good work?
- 5 - Does my supervisor, or someone at work, seem to care about me as a person?
- 6 - Is there someone at work who encourages my development?
- 7 - At work, do my opinions seem to count?
- 8 - Does the mission/purpose of my company make me feel my job is important?
- 9 - Are my coworkers committed to doing high-quality work?
- 10 - Do I have a best friend at work?
- 11 - In the last six months, has someone at work talked to me about my progress?

12 ~ This last year, have I had opportunities at work to learn and grow?

Kofman proposes a systemic organisational map that comes very close to our own development that is laid out in our latest book (Baets and Oldenboom, 2009). In this book we give very practical tools for managers that are interested to make the shift into transformational leadership for a more sustainable performance of the company.

Finally, Kofman illustrates the difference between unconscious and conscious attitudes through the following table.

UNCONSCIOUS ATTITUDES	CONSCIOUS ATTITUDES
Unconditional Blame	Unconditional Responsibility
Essential Selfishness	Essential Integrity
Ontological Arrogance	Ontological Humility
Unconscious Behaviours	Conscious Behaviours
Manipulative Communication	Authentic Communication
Narcissistic Negotiation	Constructive Negotiation
Negligent Coordination	Impeccable Coordination
Unconscious Reactions	Conscious Responses
Emotional Incompetence	Emotional Mastery

A big, tough samurai once went to see a little monk. "Monk", he barked, in a voice accustomed to instant obedience, "teach me about heaven and hell!" The monk looked up at the mighty warrior and replied with utter disdain, "Teach you about heaven and hell? I couldn't teach you about anything. You're dumb. You're dirty. You're a disgrace, an embarrassment to the samurai class. Get out of my sight. I can't stand you."

The samurai got furious. He shook, red in the face, speechless with rage. He pulled out his sword, and prepared to slay the monk.

Looking straight into the samurai's eyes, the monk said softly, "That's hell." The samurai froze, realising the compassion of the monk who had risked his life to show him hell! He put down his sword and fell to his knees, filled with gratitude.

The monk said softly, "And that's heaven." ZEN PARABLE

CONSCIOUSNESS AND MIND OVER MATTER IN ORGANISATIONS

This only presents an outline of my understanding of consciousness and organisations, and in some way the mind over matter orientation this might take. Of course, some of this is still a working hypothesis, but at the same time there is growing evidence for these theories and their appearance in real life. Essential to me is a new paradigm, a paradigm shift, in order to be or to become the transformational leaders we need, putting consciousness in the forefront of their managerial practice. This paradigm shift is based on what I call a quantum ontology, as I have tried to briefly develop in this contribution.

This ontology shifts our assumptions and beliefs into a set of other assumptions that not only allows for the defining of the role of consciousness, but also illustrates its great necessity for a different economy and society. The current crisis, unfortunately, is a hard proof of this. The point is no longer to reinvent capitalism, with or without a human face, but rather to reinvent a social fabric that is based on interconnectedness and the realisation of values, with economic value added. Some might want to call this a stakeholder economy, but yet again, this fabric needs another soul.

This new paradigm and its related managerial approach manifestly contain different aspects. Some of those aspects

we could label as more spiritual (dealing with connectedness and the inner self), as value driven, as related to awareness in action, and as giving meaning to actions.

The consequence of those choices will cause companies and organisations to develop an orientation towards sustainable performance that would be able to define a coherent answer to the crisis we observe today. Other than being based on another paradigm, another ontology, it is characterised by another performance orientation. The contemporary economy has developed a strict orientation on the short term, shareholder return, that by doing so has put itself artificially outside the necessary interconnectedness that we have referred to in this contribution. Hence there is little role for consciousness and conscious action in today's managerial paradigm.

For managers or people with responsibility that would like to make that shift themselves into conscious leaders concepts and tools are available. I gladly refer to our new book (Baets and Oldenboom, 2009) that exclusively deals with this and that gives in annex a little workbook.

"We are all linked by a fabric of unseen connections. This fabric is constantly changing and evolving. This field is directly structured and influenced by our behaviour and by our understanding" (David Bohm, quantum physicist). Hence the shift is ours to make.

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