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*Info Systems J* (2006) **0**, ••–•• 

# *Editorial*

## SPECIAL ISSUE ON PHILOSOPHY AND EPISTEMOLOGY: A 'PETER PAN SYNDROME'?

This special issue of *Information Systems Journal* (ISJ) is devoted to questions of the philosophy and epistemology of information systems (IS) research. Epistemology is the discipline of questioning the truth claims of science: how and what can we know, and how do the knowledge claims of science relate to our broader society? The term 'philosophy' means that the level of questioning is not about a particular research method or technique, but includes a self-reflective questioning across other realms of enquiry, ranging from ethics to aesthetics, and locating our ideas and methods in important trends in the history of philosophy of science.

We are pleased that ISJ is the first journal in IS to publish a special issue on such ambitious topics. Since its beginning, ISJ has been open to a wide variety of research methods, especially qualitative ones, and a wide variety of approaches, like interpretivism and critical social theory, that did not always find a home in other journals. ISJ has also been open to quantitative methods and positivist approaches, showing an impressive commitment to pluralism. We see this special issue as one more way that ISJ serves to link the technical dimensions of IS to organizational and management issues, including their social and intellectual context.

Our goals for this special issue, as stated in the Call for Papers, were:

**1** to discuss if the theories used in the IS field were specific to our field or not;
**2** to illustrate the applicative nature of our field, by challenging the classical empiricist view and idea of design;
**3** to explore the extent that our object of research, i.e. the IS, exists independently of our observation of it; and
**4** to question the definition of science, especially the taken-for-granted ideas of 'falsification' and 'paradigms', through a comparison with other academic fields.

We received 18 submissions for this special issue. Of those, four were selected by the review process and are included here. Of the four accepted papers, two responded to the question on theories (Silva, Butler and Murphy), one to the applicative nature of our field (Hassell), and one to the object of research (Niehaves). But we had no papers that dared to question the definition of science through a comparison with other academic disciplines. We will elaborate on this point in the last part of the editorial, where we will ask if an academic field that has such limited comparative thinking reveals a 'Peter Pan syndrome' by failing to grow up.

**The applicative nature of our field: the implementation issue**

In this issue, the first three papers serve to connect questions one and two above. In them, the authors discuss the applicative nature of our field in light of the theories used. Theory is a vivid topic in ISJ. For instance, Iivari *et al.* (2004) introduced in 2004 the idea of coding 'practically relevant body of knowledge (BoK) in Information Systems that could have major benefits for the field' (p. 313). Larson & Levine (2005) raised the idea of core areas and discussed the relevance vs. rigor debate. They argued for the necessity of 'theory building that contributes to a research tradition' (p. 367). However, Chen & Hirschheim (2004) questioned such an idea: 'As such, if the IS discipline believes that "a monistic, Kuhnian view of IS research is inadequate", then a continuous commitment to paradigmatic pluralism is critical' (p. 225).

The other question, the link to practice, is also often raised in IS research. For instance, McGrath (2005) estimates that critical research in IS is a case of 'theory and practice not informing each other' (p. 85). This link was also stressed by Avison *et al.* (2001), when they argued that 'Many of the "hot issues" in information systems are also "hot issues" in management generally, so the impact of IS on practice (and vice versa) is also much more prominent' (p. 10). In this issue, Butler and Murphy ask about the value of our research if the failure rate of Knowledge Management Systems is still 80%. This echoes to Avison *et al.*'s remark: 'BPR has proved to be largely unsuccessful despite (or because of) the "hype", and it is no consolation for many to hear from its protagonists that "we're sorry – we forgot the people". There have been many other fads during the 1990s to add to BPR and ERP, including executive information systems, group decision support systems, outsourcing, learning organizations and knowledge management and, of course, electronic commerce and electronic business' (p. 5). In this issue, Leiser Silva argues that the reason our research does not improve the implementation or use of knowledge systems, or any other IS for that matter, is because we do not understand power. As Hirschheim and Klein say, power has an acceptable side, which is authority, and a 'dark side', which is politics. Mintzberg calls this dark side of power 'illegitimate power'. Why is that so? Because politics, says Silva, is a 'blasphemy in the presence of the Rational Ideal' (Keen, 1981, p. 21).

Butler and Murphy argue that we are caught in the 'trap' of using 'information management tools and concepts to design KM systems' (McDermott, 1999). We are 'underpinned by the image of organizational actors as decision makers governed by bounded rationality' (Introna, 1997). The paradoxical result says Butler and Murphy, is that, by using a particular kind of rationality concept, we manage to use IT not in order to *informate*, but in order to *automate*, and thereby 'removing all opportunities for decision making and learning' (Boland & al., 1994). By focusing on computerized business processes, we treat as rational what is easy to rationalize, and focus on the abstract notion of process rather than the concrete reality of human beings. We use decision theory to avoid deciding what is truly important.

What is the cause of this situation? One origin is in the theory of decision. Indeed, since the *bounded rationality theory of decision-making* was presented by Nobel Laureate Herbert Simon (1977), its influence in IS has been impressive. Nearly all IS design is governed by the belief that an ideal of rationality, although bounded, is still achievable. In a world that does not

 

attend to significant, overt conflict, a decision that satisfies the bounded rationality of all is possible. Even if this decision is not optimal, but simply satisfactory, it is nonetheless rational. Despite the efforts of Simon in explaining that his theory was not based on substantive rationality, but on bounded rationality, the point is that the very idea of rationality is never radically questioned or confronted in practice.

The belief in an ideal, rational decision was first described by the French philosopher Descartes, creator of *rationalism*, in his book *The Discourse on Method*. Over time, the influence of rationalism in the sciences has been strengthened by two epistemological trends: *positivism* and *functionalism*. The word *positivism* was created by the French sociologist, Auguste Comte (1995), who also coined the word *sociology*. Indeed, Comte was one of the first to advocate for a 'social physics', or the study of human society using the methods of the natural sciences, creating, as Lee (1991) puts it, 'the natural sciences of social sciences'. Following Comte, another
1 French sociologist, Emile Durkheim (1968) launched an epistemological movement based on the assumption that societies may be studied as a whole, without including conflicts or the subjectivity of actors. It encouraged us to 'consider social facts as things'. This epistemological approach led to *functionalism*, and was highly developed in the United States under the influ-
2 ence of Talcott Parsons (1966).

In this brief overview, rationalism is seen as leading us to believe that an ideal decision is possible, to believe that physics is a good model for studying human society, and to believe that we can neglect conflicts at a global level. Through the work of Descartes, Comte and Durkheim, the newborn Social and Human Sciences were under the influence of a positivism and a functionalism that turned the identity of the social and the human against itself.

**The theoretical debate: from sociology to philosophy**

The history of Social and Human Sciences shows that from the beginning there was a challenge to the idealistic assumptions of rationalism, positivism and functionalism. As Silva argues, social reality is the product of its inhabitants. Hence, 'because of this fundamental difference in the subject matters of the natural and social sciences, different methods are required'. Indeed, the positivism of Comte (1995) was systematically criticized by Wilhem Dilthey (1883), who coined the phrase 'Human Sciences'. Dilthey argued that, if in physics we can *explain*, in the human sciences, we can only *understand*. Functionalism was contested from the very beginning by another major sociologist, Max Weber (1965). Against Durkheim, Weber argued that the global level of a society cannot be understood without studying the individual level. He called for a '*methodological individualism*'.

The relationship between the global level and the individual level is the basis of nearly all theories in contemporary sociology, especially the four presented in this issue by Leiser Silva: Habermas' *theory of communicative action*, Giddens' *structuration theory*, Latour's *actor-network theory* and Foucault's *circuits of power*. For instance, one application of actor-network theory to analyse strategy formulation is provided in ISJ by Gao's (2005) paper. The question of the global and the individual in contemporary philosophy, as represented in this issue by Tom Butler and Ciaran Murphy on the one hand, and Lew Hassell on the other hand, is evident in

 

the dynamic relationship between contextual interpretation and psychological interpretation in the practice of *hermeneutics* (through the well-known hermeneutic circle), and also in *phenomenology*'s emphasis on understanding of the individual in its Life World. Such a use of these reference approach might help to overcome the 'paradigm wars in organizational studies' (p. 3) both in IS and sociology, as the sociologist Silverman (1998) argues in ISJ.

**The object of research: a comparison with physics**

We now come to the fourth paper in this issue, by Niehaves, which reminds us that the very first epistemological question is not methodology. Instead, it is to wonder about the status of our object of research: does it exist, or do we invent it? Nearly all major scientists, like Popper, Piaget, Einstein, Bohr, Heisenberg and Husserl, agree that the most important contribution to epistemology and philosophy of science is Kant's *Critique of Pure Reason*. Kant led to the 'Copernician revolution' in science. This revolution is still now considered as one of the most important contributions to the philosophy of science, especially in physics. Why? Because he started by questioning the object of research.

Before Kant, scientific thinking was based on the assumption that our perception conforms to the object that we observe. According to Galileo, especially, objects exist in the world independently from an observer. This means that the observer can perceive the external object without any reference to the self who is doing the observation. This was also an assumption of Newton's classical physics, before the revolution of contemporary quantum physics. Quoting Nobel Laureate Heisenberg: 'In classical physics science started from the belief – or should one say from the illusion? – that we could describe the world without any reference to ourselves' (Heisenberg, 1962, p. 43). Here was the Copernician revolution of Kant's Critique or Pure Reason: 'The Critique is not in error when it teaches us to take the object in two different senses: as appearances and as thing in itself' (Kant, 1781, p. 29). Kant thereby establishes a distinction between two aspects of the objects of our research. We have on the one hand an aspect that is, as Galileo said, independent from the observer. Kant calls it the '*thing in itself*' (*noumenon*). But the other aspect, the one we observe, is called *phenomenon*. The word phenomenon is derived from the Greek '*phainomenon*', meaning appearance. The appearance is located within our intuition (our mind) and leaves the 'real' object or 'thing in itself' unknown to us. 3

This is the 'Copernician Revolution' of Kant. The phenomenon is a 'being of senses', and as an appearance, it stands in opposition to Galileo. According to Kant, 'things in themselves' are unknowable – only a phenomenon is available to our cognition: 'Our rational cognition applies only to appearances and leaves the thing in itself uncognized to us' (Kant, 1781, p. 24). Nobel Lauriate Niels Bohr put the implication quite starkly: 'It is impossible to make a clear distinction between the behavior of the objects and the interaction with measurement instruments that are used to define the conditions under which the phenomenon appears' (Bohr, 1935, p. 207). In contemporary physics, we are always studying our own measurement instruments and the artefacts that they bring into appearance. In this sense, in both the natural and the social sciences, we are always observing ourselves. 4 5

Returning to our central question, 'does the object of research exist independently from the observer?', we now have an answer. The objects of our research are 'phenomenons',[1] and what we are talking about is their appearances, which exist not in the world outside but in our intuition, in our mind: 'being appearances (phenomenon) cannot exist in themselves, but can exist only in us' (p. 94). One of the most well-known phrases of Kant's 'Copernician revolution' is 'we all cognize a priori about things, what we ourselves put into them' (p. 23). More radically, if there is no observer, the phenomenon cannot be, and the object disappears, along with the intuition of the observer: 'And if we annul ourselves as subject [. . .] then this entire character
6 of objects and all their relations [. . .] – would vanish' (Kant, 1781, p. 94). Contemporary physics has come to a similar conclusion: 'Nature is earlier than man, but man is earlier than natural science' (Heisenberg, 1962, p. 44). In summary, when we talk about a phenomenon such as an IS, an organization or a project, the only thing we can be sure about is that this object of research is in our mind. In both physics and our own corner of the social sciences, objects of
7 research are in the eyes of the beholder (Monod, 2004).

**No comparative thinking: the example of physics**

What is the situation in IS? Even if 'It has commonly been argued that the use of different research methods within the information system discipline and within individual pieces of research will produce richer and more reliable results . . . such work is relatively scarce' (Mingers, 2003). As Butler and Murphy remind us in this issue, '(the) positivist influence of com-
8 puter science and mathematics, resulted in a chiefly functionalist orientation' (Hirschheim & Klein, 1989). This trend is confirmed in the 2004 paper published in ISJ by Chen and Hirschheim: 'positivist research still dominates 81% of published empirical research. In particular, US journals, as opposed to European journals, tend to be more positivist, quantitative, cross-sectional and survey oriented' (p. 197). By doing so, aren't we trying to adopt 'distant methods' relying on questionnaires in order to avoid 'intervention in the research context' that would allow us a more 'engaged data-gathering method' (Nandhakumar & Jones, 1997, p. 109)? Are we not still fascinated by mathematics, and the archetypal science in IS remains physics? This is why we are advocating for a wider comparison with other sciences, from within the Social and Human Sciences, but also from within the 'hard sciences' like physics. Popular belief holds that physics is ruled by *causality* and *objectivity*, but that is no longer true. *Causality* is the belief in determination: in order to describe a phenomenon we must rely on the analysis of causes. This principle of causality leads to the explanation of a phenomenon, i.e. its prediction with certainty.

We have already discussed *objectivity*, the belief in the existence of an external reality that we can describe directly, without any reference to the observer. This means that there is one and only one single description of a phenomenon and that this description corresponds to the phenomenon. This correspondence is the criteria of truth. There is a sharp separation between

[1]We use 'phenomenons', despite the fact that one of the guest editor of this Special Issue is expected to follow the French Academy's recommendation to use 'phenomena'.

 

the world and the self, between the object and the subject, between objectivity and subjectivity. This was indeed the case of physics in the nineteenth century, during the physics of Newton and Galileo. But this is no longer the truth and has now been replaced by contemporary physics, primarily 'Quantum Physics'. As Einstein wrote: 'It is not likely that a future knowledge might constrain physics to leave its present day theoretical foundations, of statistical nature, in favour of deterministic foundations, that would deal directly with physical reality' (Einstein, 1990, p. 95). The '*statistical nature*' of the '*present day theoretical foundations*' of physics is the end of determinism, or causality. And the fact that we cannot '*deal directly with physical reality*' is the end of objectivity.



Indeed, in contemporary physics, *causality* and *objectivity* have been replaced by *Uncertainty Relations* and the *Principle of Complementarity*. Before contemporary physics, we thought we could explain the trajectory of an object by knowing the forces that were applied to it, with forces being the causes of its movement. In order to do so, we need to know everything about the object, including its position and its speed at every moment. This totally changed with contemporary physics, and we now realize that the more accurately we know an object's position, the less accurate is our knowledge of its speed, and vice versa. This was called the *Uncertainty relations* by the Nobel Laureate Heisenberg, and marked the end of determinism as well as the end of causality.

Turning now to *objectivity*, recall that there were only two kinds of objects in the world of classical physics, matter and energy. The fact that an object was matter or energy was independent from the observer, and belonged to the thing in itself. Nothing in the world could, at the same time, be both matter and energy. This belief was shattered by new understandings of the familiar object, light. In contemporary physics, light is at the same time both matter and energy. It depends on the point of view of the observer. If you observe it with some devices, you can describe it as a wave, which is energy. But if you observe light with other devices, it appears as a photon, which is matter. This was called the duality of light, or the duality wave-particle, which relied on the *Principle of Complementarity* proposed by another Nobel Laureate, Niels Bohr, who himself relied on, bringing this argument full circle, Kant's Critique of Pure Reason.

In physics, this signalled the end of objectivity, and established that there are different, legitimate points of view on the same object. As Heisenberg said in reference to physics, 'we cannot escape interpretation'. We have to choose our point of view, and in so doing, we exercise our subjectivity. What is therefore the criteria of truth, as Niehaves asks in this issue? It is not an objective correspondence with the object, but a consensus about the object. Indeed, something is said to be true in physics when different research teams around the world make similar subjective choices and come to the same conclusion. Husserl, founder of phenomenology, called this *intersubjectivity*.

**Conclusion: a 'Peter Pan syndrome' in IS?**

The four papers of this issue can be said to argue that we produce knowledge in IS that does not solve practical problems, because we try to know everything about nothing. Our discipline's belief in rationality and in the physical existence of our object of research leaves us blind to our

 

own involvement in bringing forth our research object, and our own limitations in what we can know. By relying on causality and objectivity, two concepts challenged by contemporary physics, we leave ourselves little hope of making Social and Human Science progress. But is there a viable alternative to the assumption that we are rational? Can we seriously assume that we are irrational? No. There is an alternative to rationality, but it is not found in the negation of rationality. It is found by stepping aside from the hope for rationality, and by accepting ourselves as seeking to be *reasonable*, instead. Aristotle in his *Topics* and its *Sophistic refutations* defined this idea precisely by including in our action the *topos*, which are the context and the meaning of an action in a given society. As Lew Hassell argues in this issue, we can only understand knowledge if we consider it as situated, embodied and linked to experience in the Life World, to culture, and to power. Without this Social and Human Science conceptualization of knowledge, how could we ever dream of a successful implementation of a KMS? This is precisely the purpose behind sociological theories like Habermas' theory of communicative action, Giddens's structuration theory, Latour's actor-network theory, or Foucault's circuits of power, and behind philosophical approaches like hermeneutics and phenomenology.

More broadly, what is the consequence of the Principle of Complementarity for the Social and Human Sciences? Ultimately, it questions the possibility of falsification. This theory of truth was developed by Popper (1972), and claims that a hypothesis can never be proven. Falsification holds that a hypothesis can only be not-yet-unconfirmed (infirmed), and it has become a core assumption of empiricism. In place of this criterion of truth, contemporary physics invites us to try and employ the Principle of Complementarity, which suggests that for every object, we should always have multiple points of view. The criteria of truth then becomes whether or not several points of view arrive at the same result, or at least at consistent results.

What would this mean in IS? It would mean a realization that the other sciences can help us. They can help us to have multiple points of view on our object, including its appearances. About the single object, knowledge, this issue presents two points of view on implementation – one sociological and one philosophical. The two are not fighting to defeat each other, but are available to us as compliments to each other. All sciences, including our own, evolve, and the complimentary nature of the multiple perspectives that epistemology and philosophy can make available across disciplines is a powerful antidote to the positivist, especially functionalist and rationalist, history we still carry forwards in our IS journals and our IS research.

It is time for IS to stop repeating its history and that of classical physics. To repeat that history is to continue reproducing the mistakes of others. Unless we break from our history, we will not grow as a discipline. Instead, we will remain trapped in using an economics without a sociology, and a sociology inspired by an out-of-date physics. Our growth as a discipline requires that we simultaneously embrace multiple alternatives from the broader sciences, and struggle with the problem of reasonableness, rather than the impossibility of ideal decisions and rationality. In the conclusion of their 'paradigmatic and methodological examination of IS research from 1991 to 2001', Chen and Hirschheim asked the question 'We are not sure whether the field considers itself too young to need such a reflection or whether there simply are not enough "old timers" around who could provide such a view. Whatever the case, we believe this to be a serious shortcoming of the IS discipline'. In psychology, the syndrome of refusing to grow has a name

 

– the *Peter Pan syndrome*. It applies to thousands of adults who refuse to take responsibility for their own future and have not developed into a fully formed, complex adult (Kiley, 1983). This syndrome is also supposed to be illustrated by the principle character in the movie *The Tin Drum* based on Nobel Laureate Gunter Grass' novel (1990). If we refuse to compare ourselves critically, yet constructively to other sciences, aren't we suffering from the Peter Pan syndrome? Can we afford the luxury of this chronic adolescence?

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*Emmanuel Monod and Richard J. Boland*

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