Book Reviews

Why Information Systems Fail: A Case Study Approach *by Chris Sauer* (Alfred Waller Limited, Henley-on-Thames, 1993), pp. xi + 369, £17.95, ISBN 1-872474-08-X.

Information systems fail. The services that were to be made more efficient become less efficient. The dangers that were to be avoided are exasperated. There are impacts on job satisfaction. And, public images of information system capabilities are tarnished. All this, despite predictions that with the passing of time and technological advances failure would be a thing of the past. All this, despite considerable intellectual effort to identify and bring under control the causes of failure.

Sauer (whose knowledge of information systems is that of both a systems analyst practitioner and management school academic) is to be commended for taking on the challenge of a big question: "Why...is there such a gap between what is taught in most textbooks and the reality of information systems projects?" (p.xi) The extant models, Sauer challenges, make information system design and implementation seem straightforward, but the realities are intractable and complicated. Sauer encapsulates the essence of the mission he set for himself when he suggests that the standard computer jokes — to err is human, to really foul things up you need a computer — have "...all along recognised truths which the technocratic establishment has refused to acknowledge..." Computer-based information systems "...do not always help people or organisations, and it is usually a risky project to build them. Once these facts are openly accepted we may hope for the growth of a more mature approach to the problems of the field." (p.ix) As these comments suggest, Sauer actually sets out on a far more ambitious mission than his book title implies. He is not merely trying to tell us why information systems fail. Rather he is encouraging us to change the very nature of our thinking about the question.

Sauer's book is an organisational *tour de force* and will be worth its purchase for some readers simply because of how Sauer sets out to accomplish his task. What Sauer does in abbreviated description is to take on a variety of source literatures (general systems, information systems, organisational theory), and delineate how they impede and/or aid his task. He then establishes an alternative methodology, executes a well-evidenced exemplar, compares the exemplar to five other cases in the literature, and draws conclusions. Throughout, he balances attention so that both practitioners and academics will find something of value.

At a higher level of abstraction, what Sauer does is far more important, however. He refocuses our considerations — both as academics and as practitioners — several important steps away from the predominantly closed-system mechanistic models that generally characterise theorising in the field. Sauer does this with a series of fundamental moves.

First, he challenges that we need to restrict our use of the term "failure" to those instances where indeed a system faces the essence of failure — its termination, its failure to survive. To do otherwise as is now common, Sauer suggests, not only admits too many undifferentiated failures into our purview but encourages a narrow simple solution orientation to system correction. Thus, Sauer urges us to exclude from our definition of system failure such events as missed targets and user resistance. I commend Sauer for making this recommendation both for the reasons he suggests and because conceptually what Sauer is proposing is that we disentangle process from outcome. More on this later.

Second, Sauer builds a web-like model of the information system which incorporates a wide variety of contextual elements (e.g. environment, structure, history, cognitive abilities, politics and power, technical processes). In this move, Sauer mandates our attention to ele-

ments normally excluded from analysis thus assisting us in moving from the pervasive fantasy that technologies exist and can be fixed in vacuums to more complicated realities.

Third, in an inspired move, Sauer structures as the primary elements of his model the interdependencies between organisers, systems, and stakeholders and the tensions and trade-offs, constraints and contingencies, between the management of innovation (e.g. meeting needs) versus the management of support (e.g. gaining acceptance). In this move, Sauer refocuses us away from static conceptions to dynamic conceptions incorporating processes and changes over time as central concepts in his theorising rather than, as is usual, merely elements of accompanying narration. Thus, it is fair to say that while much is made of process as a concept in the applied social sciences very little theorising is done that actually incorporates process. Sauer is attempting to make this move.

Fourth, Sauer adopts a position which he derives inductively from evidence that flaws are inevitable aspects of the situation. Here, Sauer again takes a process orientation — it is not uncertainty and complexity *per se*, but what is done with it that matters. While we might criticise Sauer for not identifying a broader set of theoretic and philosophic movements in the social sciences that are grappling with the same issue, we must commend both his intuitive insight and his willingness to look at evidence even when that evidence disagrees with dominant institutional sense.

Fifth, Sauer invites us to enlarge our methodological approaches for understanding information systems from bounded rational and linear analyses to more complex and holistic analyses. He recommends in particular the case study. To this end, he develops a methodological approach for the historical organisational case study and then applies it to six cases of system failure — one extended original case and five others from the literature. In the analyses of these cases Sauer systematically brings to bear the full range of complexities which he incorporated in his alternative model.

Finally, Sauer brings his work to fruition in a conclusion section that illustrates in recommendations for practice and research the very essence of the argument he has been building. His challenges to practitioners may seem homiletic — for example: acknowledge politics, abandon hopeless systems, learn from experience. But this interpretation would miss the point. Practitioners, he says, must acknowledge and attend to the troublesome complexities of the realities of information system operation instead of remaining blissfully captured by the linear, tidy, mechanistic assumptions of the past. To the researcher, Sauer asks for attention to these troublesome dynamics and calls for research aimed at understanding, for example, how organisations handle uncertainty processes and deal with flaws and at understanding how systems serve supporters and what benefits supporters really need.

Sauer's book is an interesting read and a useful one. It provides a precisely structured and well documented argument. It provides as well some formidable by-products: concise and useful literature reviews, some handy and very well done brief annotations at the end of conceptual chapters, a *piece de resistance* exemplar of an historical organisational case study, a well articulated methodology for constructing the case, a solid anchoring in pertinent literatures, both practical and academic. Particularly noteworthy are Sauer's analyses of six failures, drawing from Australian, European, and US cases of systems designed for a variety of purposes: automated personnel records and salary processing, advanced decision support for an aircraft carrier, energy conservation assessment, planning support for retail buyers, and city-based fiscal impact analysis.

Beyond this considerable set of values, however, is the larger and far more important one that Sauer has tackled a big issue and has done so in a big way. The book is a must read for those who seek to understand info systems and why and how they fail whether they be practitioners or academics, novices or experts.

The criticism I would offer is really more a challenge to Sauer for his next step. Given the literature that Sauer has wrestled his way out of and the world in which he has practised and taught, I can not imagine another approach he could have taken to this particular book and still retain his intended audience. But for the next step I would like to see him reach for the higher level cohesion of his argument. Early on in his volume Sauer explicitly states that his book in anchored in what he calls "mainstream objective theories" (p. 35), thus leaving aside Marxist and neo-Marxist class-based analyses as well as radical humanist and interpretive analyses. But Sauer rests his very brief discussion of these alternative explanatory approaches on an early 1979 typology of research.

What Sauer may find useful now is to look deeper into these all too facile polarising of research approaches — for in fact the problematics attended to by some of those "non mainstream" approaches are the same problematics with which Sauer himself wrestles. It could be said that the reach Sauer makes in his own volume is greater than the tools he has to serve his insights. He acknowledges his reliance on "garbage can" theories of management (p. 54). But he has not taken the next step to the current debates in both the sciences and humanities focusing on chaos theories and the meaning of these theories for the execution of both our research and our practice.[1,2] Nor has he tarried with the many challenges to mainstream theories which have advanced us to the rise of chaos theories and to the very problematics which are now his focus. Nor, I think, has Sauer entirely understood that he himself stands on the edge of a contest with the ontological views of reality which dominate mainstream theories and which he still accepts in his own project all the while struggling with the very constraints with which they bind him. On the one hand, he concludes his last chapter with an argument of why information systems will continue to be problematic, an argument based on evidence regarding this or that factor which will contribute complexities and uncertainties. Yet, on the other hand, the entire reach of Sauer's theorising is away from mechanistic technocratic views of systems and toward an acceptance of ever-present, ever-challenging, ever-changing complexity and uncertainty.

In facing this contradiction, I suggest, Sauer can bring his solid skills with both evidence and insight to bear on some of his other contradictions. On the one hand, for example, he excludes interpretive approaches as outside his consideration along with all the other non-mainstream approaches. Yet, on the other hand, he incorporates a concern for diverse stakeholders and for meeting at least some of their needs into his context analysis. On the one hand, he gives primacy to issues of politics and power. Yet, on the other, by bracketing out the interpretive he inadvertently privileges dominant views of system dynamics.

If I appear to be accusing Sauer of intellectual schizophrenia, understand it is an accusation to be levied at us all. The issue of how to incorporate uncertainty, complexity and chaos into our models is perhaps the most important current agenda item for the sciences and humanities. Our time is marked by a contest between models that ricochet between privileging order vs privileging chaos. Sauer is one of the few who is trying to move in between. I am not sure whether Sauer realises he is not alone. There are others wrestling with the same dilemmas travelling parallel roads.

REFERENCES

1. Katherine N. Hayles, *Chaos Bound: Orderly Disorder in Contemporary Literature and Science*, Cornell University Press, Ithaca, New York, 1990.
2. M. M. Waldrop, Complexity: *The Emerging Science on the Edge of Order and Chaos*, Simon & Schuster, New York, 1992.

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