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PANEL 8

INFORMATION SYSTEMS DEVELOPMENT METHODOLOGY EVALUATION

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Panelists: Henk Sol, Delft University
Lars Mathiassen, Aalborg University
Kalle Lyytinen, Jyvaskyla University
Richard Welke, Meta Systems, Ltd.
Niels Bjørn-Andersen, Copenhagen Business School

An area which continues to receive considerable attention in both the popular and academic press is that of information systems development (ISD). Over the years, numerous books and papers have been written on the subject. This is hardly surprising given the vital role information systems are thought to play in the survivability of today's organizations. Attention has been focused on the approaches or methodologies for developing information systems. Although a vast number of methodologies have been developed, there is little empirical knowledge of their virtue. Comparative studies are still rare. The CRIS (Comparative Review of Information Systems Development Methodologies) Conferences of IFIP's TC8.1 were an attempt to shed light on the matter. Four conferences have taken place so far: The function of CRIS 1 was to "take stock" of the various methodologies (Olle, Sol, and Verrijn-Stuart 1982); CRIS 2 intended to compare them, to provide a "feature analysis" (Olle, Sol, and Tully 1983); CRIS 3 sought to provide "practical experience" (Olle, Sol, and Verrijn-Stuart 1986). A fourth took place this past September and focussed on "automated tools for systems development." Although the intention was laudable, CRIS has not been an unequivocal success: The results are inconclusive and, more fundamentally, the issue of "evaluation" has proved elusive. Moreover, CRIS has highlighted a number of basic problems which have yet to be resolved. For example, what exactly is an information system development methodology (ISDM)? Do practitioners use ISDMs? What are the implications of using a particular ISDM? These questions would seem to need answering before one could attempt any serious evaluation of ISDMs, yet they remain largely unresolved. It is easy, however, to understand why this is the case: They are not easily answered.

Take for example the issue of ISDM definition. Although there are a number of writers who have offered definitions, each has conceptual difficulties when translated into practice. Checkland's (1981) definition of a methodology, "a set of principles of method which in any particular situation has to be reduced to a method uniquely suited to that particular situation," and Welke's (1983) definition, "a comprehensive procedural framework directed towards accomplishing a particular change in the object system," are both very broad and involve a great deal of subjectivity in determining what is and what is not an ISDM. But even more detailed definitions pose problems. Lyytinen's (1987) definition, "an organized collection of concepts, beliefs, values and normative principles supported by material resources. The purpose of the ISDM is to help a development group successfully change object systems, that is to perceive, generate, assess, control and to carry out change actions in them," while more specific, still causes difficulties in distinguishing between ISDMs and broad systems development approaches. The simple fact is, while there are certain approaches to systems development which virtually everyone would consider an ISDM and certain approaches which no one would consider an ISDM, there is a large grey area where there is no consensus. Good definitions of ISDMs might help to clear up the confusion.

Another problem associated with ISDMs is their use. To what extent do practitioners actually use ISDMs to develop computer-based information systems? This is an issue which has received very little attention in the research literature. In one of the few detailed studies of ISDM use, Episkopou (1987) found that while practitioners do use methodologies in developing information systems, the methodologies used typically involve a loosely connected set of tools, techniques, and methods, and are not anything like the formal, structured methodologies which are written about.

Her work also highlights another problem: Even if a developer says he uses a particular ISDM, to what extent does he *actually* make use of it? Episkopou found that developers rarely, if ever, followed the detailed ISDM procedures in their entirety. In fact, they took bits and pieces, adapted and modified them as required, and, generally, took a rather loose view of ISDM use. This perhaps reflects the Argyris and Schon (1974) notion of "espoused theories" versus

"theories in use." Developers may say they use a particular ISDM but what they actually use may be a far cry from what the ISDM author had intended.

Then there is the difficulty of evaluation itself. What criteria should be used in methodology evaluation? What should the process of evaluation involve? Who should be involved in undertaking evaluation? A recent TC8.2 Conference on Information Systems Assessment (Bjørn-Andersen and Davis 1988) documents in detail the great difficulties associated with evaluation. Yet, people continue to insist on evaluating. As Hirschheim and Smithson (1988) note: "Evaluation is endemic to human existence. Food, drink, appearance, social interactions, etc. are constantly being evaluated by someone or something." ISDM evaluation is no exception. But while such evaluation is desirable, the CRIS conferences have pointed out just how problematic and elusive evaluation is.

The purpose of this panel is to explore the issue of methodology evaluation in some detail. The panel seeks to address questions such as:

- what is an information systems development methodology,
- what is the nature of the systems development process,
- how should methodology evaluation be carried out,
- what are the intrinsic difficulties with evaluation, and what are the implications for practice?

The individuals participating in the panel and their topics are as follows:

1. Major lessons learned from CRIS, and its future -- Henk Sol, Delft University, Delft, Netherlands
2. The nature of the systems development process: intuition, tradition and method -- Lars Mathiassen, Aalborg University, Aalborg, Denmark
3. Towards a more comprehensive notion of systems development methodology -- Kalle Lyytinen, Jyväskylä University, Jyväskylä, Finland
4. Socio-technical variables in information systems development methodology evaluation -- Richard Welke, Meta Systems Ltd., Ann Arbor, Michigan USA
5. A multi-perspective approach to requirements analysis -- Niels Bjørn-Andersen, Copenhagen Business School, Copenhagen, Denmark

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