Association for Information Systems
AIS Electronic Library (AISeL)

ICIS 1991 Proceedings

International Conference on Information Systems (ICIS)

1991

MANAGING EXPERT SYSTEM DEVELOPMENT INTEGRATION AND DEPLOYMENT IN LARGE COMPANY ENVIRONMENTS

Robert J. Mockler
St. John's University, USA

Follow this and additional works at: http://aisel.aisnet.org/icis1991

PANEL 2

MANAGING EXPERT SYSTEM DEVELOPMENT, INTEGRATION AND DEPLOYMENT IN LARGE COMPANY ENVIRONMENTS

Panel Chair: **Robert J. Mockler**, St. John's University, USA

Panelists: **Ed Mahler**, E. I. DuPont De Nemours & Co., USA
                  James A. Euchner, NYNEX Corporation, USA
                  Robert H. Flast, Metropolitan Life Insurance Company, USA

By far the most effective approach to organizing knowledge-based systems (KBS) development efforts is to start with specific company situation requirements and then develop an approach suited to those specific organization, system, people and available resource requirements and limitations under study.

Such a situational or contingency approach is common in management and strategy planning decision making and is applicable especially to emerging business areas, such as artificial intelligence.

This does not mean that many lessons cannot be learned from the experiences of other companies in KBS development. Nor does it mean that studying models or approaches used by others that worked in their company situations is not helpful when planning for your own development effort.

It just means that these general models are not necessarily answers. They are more often only guidelines that have to be adapted and modified to meet your own needs.

This panel is devoted to studying situational approaches to managing expert systems development, integration and deployment efforts at three major companies. We are fortunate to have here today people involved in some of the most well-known and successful major expert knowledge-based systems efforts in the United States.

Dr. Ed Mahler is currently Manager of Decision Support and Artificial Intelligence at E.I. DuPont De Nemours & Company with responsibility for leading their implementation program worldwide. This effort currently spans over 2000 employees. Tom Peters, writing in the foreword to Ed Feigenbaum's new survey book of expert systems companies, *The Rise of the Expert Company* credits DuPont a clear leader in applying the technology for competitive advantage with an estimated 20% of the world's expert systems. The effort has won *High Technology* magazine's award for innovation.

Widely known for his highly successful no-nonsense, business oriented approach, he has been frequently quoted in a broad range of press spanning from *Time* and *Fortune* to *Information Week* and *Computerworld*, to *Chemical Engineering* and *High Technology* magazines. He has been twice featured on Texas Instruments' Satellite Symposium series on Artificial Intelligence and Expert Systems and frequently guest lectures at leading universities, most recently at Stamford and Harvard. He is currently on the faculty for two different series of public seminars on expert systems and has also lectured widely in the process, aerospace, paper and food industries. He is also a principal in the Boston Consulting Group.

Dr. Mahler received his B.S. and PhD degrees in chemical engineering from the University of Texas at Austin. He worked for a small chemical company before joining DuPont in 1969. He has held numerous managerial positions in research, manufacturing, Corporate strategic planning, and Information Systems. In 1985 he founded an ad hoc group to exploit AI application in DuPont. This activity precipitated the creation of his current position in 1986.

Jim Euchner is Director of the Expert Systems Laboratory at NYNEX Science and Technology. He has been involved with the development of expert systems for five years, particularly applications in telecommunications operations (loop maintenance, network planning, trunk maintenance, cellular communications). Jim is the author of several publications on the management of expert systems. His interests lie in issues related to incorporation of knowledge based systems into existing organizations, including customization of expert systems, benefit assessment, testing and validation, and

organizational change. He holds a BS degree from Cornell University and an MS degree from Princeton, both in Mechanical Engineering, and an MBA from Southern Methodist University.

Robert H. Flast is Vice-President in charge of Strategic Technology Resources in the Information Systems department of Metropolitan Life Insurance Company. In this position Mr. Flast is responsible for a unit which champions the introduction of new technologies of potential benefit to the company. Mr. Flast joined Metropolitan Life in 1989 as Vice-President, Information Systems.

Before joining Metropolitan Life, he served as Vice-President of Strategic Technology at American Express. Prior to American Express he was associated with International Paper, Merrill Lynch, American Broadcasting Company and Eastern Airlines. Mr. Flast received his B.A. degree cum laude from City College, CUNY in 1970 and attended the Harvard Business School in the Program for Management Development. He has also done graduate work at Baruch and New York University.

Dr. Robert J. Mockler, the Panel Chair, is a Professor of Business at St. John's University's Graduate School of Business, where he teaches strategic planning and knowledge-based systems (KBS) development. He founded their Center for Artificial Intelligence Systems. Over the past 20 years, he has written 29 books and many articles in areas related to strategic corporate planning, management decision making, and computer systems use for management decision making. He has worked extensively for corporations, with his own companies, and as an independent consultant. In addition to his current work in strategic management and multinational planning, he is working on KBS development for a variety of management decision areas. Two of his books on this KBS work were published by Prentice-Hall in 1989. Further reviews of his KBS work and of the KBS resulting from them, as well as of his other work in strategic planning, are to be published by Macmillan Publishing in late 1991.

The panel will begin with each panel member discussing briefly their company's approaches to organizing and managing knowledge-based system development, and especially how these approaches evolved from their own specific company situations.

They will also discuss how the dynamic environments within which they work are changing and so dictating changes in organizational and management approaches. For example, both Ed Mahler and Jim Euchner report they are experiencing such changes, as their interests shift between large system and small system approaches and environments. They will described how they are adapting their original organization and management approaches to these changes.

The panel will conclude with a question and answer period in which everyone is invited to participate.

PANEL 3

A WORKSHOP ON TWO TECHNIQUES FOR QUALITATIVE DATA ANALYSIS: ANALYTIC INDUCTION AND HERMENEUTICS

Panel Chair: **Wanda J. Orlikowski**, Massachusetts Institute of Technology, USA

Panelists: **M. Lynne Markus**, University of California, Los Angeles, and The Claremont Graduate School, USA
Allen S. Lee, University of Cincinnati, USA

Numerous innovative techniques for qualitative data analysis have been emerging and receiving serious consideration in IS research. Among them are analytic induction, hermeneutics, ethnography, participant observation, content analysis, grounded theory, case studies, and action research.

Often labeled "qualitative," "interpretive," "nontraditional," or "intensive," the emerging techniques cover the range of both traditional and interpretive science. In this session, "traditional science" refers to "theoretical" knowledge, that is, formal statements about independent variables, dependent variables, and the relationships among them. "Interpretive science" refers to mutual understanding, namely, the understanding that a person (such as a researcher) forms of the understanding held by another person (such as a research subject), the intersubjective understanding held by a group, or any other understanding that is present in a socially constructed reality. The qualitative data analysis technique that we select for examination from the realm of traditional science is **analytic induction**; and from the realm of interpretive science, **hermeneutics**.

The long range purpose of this session is to help participants acquire some "how to" skills that they can try out at home on their own research projects. The session will be conducted as a workshop, giving descriptions of each technique and providing a "walk through" of each technique in one or two examples (using actual research studies as illustrations). The examples will be selected to illustrate different facets of the technique, to identify special issues in using the technique with IS subject matter, and to elucidate the technique's contributions to IS research.

Wanda J. Orlikowski will begin the session by briefly describing the underlying motivation for the emergence of the two research techniques. She will then introduce the two workshop presenters.

M. Lynne Markus will examine **analytic induction** as a technique for categorizing and coding qualitative data (e.g. interview notes, open-ended responses to questionnaire items, notes from observations in natural settings, archival documents, and other forms of textual data). Categorizing and coding such data play an important role in the "traditional science" end of the qualitative research spectrum. Markus' discussion of categorizing and coding data through analytic induction will cover the following concepts: assumed or deduced categories (which come from a priori theoretical frameworks); grounded or induced categories (which emerge from the textual materials themselves); open coding (where the researcher develops categories as she codes); closed coding (where the researcher applies a set of categories fully articulated at the outset); unit of analysis (which could be concrete or conceptual); and procedures for ensuring or assessing validity and reliability (which depend on the research goal: hypothesis verification, hypothesis generation, or grounded theory generation).

Markus will provide citations to exemplary studies and the "how to" literature on categorizing and coding qualitative data. She will also draw on her own research experience to illustrate analytic induction. One example involves the use of open-ended questionnaire items in an effort to test for differences between two organizations in people's use of alternative communication technologies. If time permits, she will discuss another example, involving transcribed interview notes from seven focus groups on people's use of electronic mail.

Allen S. Lee will examine **hermeneutics**, a technique from the "interpretive science" end of the qualitative research spectrum. Interpretation is essential to information systems. It is routine for an information system developer to form an understanding of information system users, including their information requirements. It is also routine for an information-system researcher to form an understanding of information system users and developers. Both instances