Books

Exploring Requirements: Quality Before Design, Donald C. Gause and Gerald M. Weinberg, Dorset House Publishing, New York, 1989. 291 pp. (ISBN 0-932633-13-7).

This book comes as a breath of fresh air at a time when system designers can begin to feel stifled by the formal methodologies and computer-aided design technologies that are the focus of attention. Gause and Weinberg provide us with the assurance that it is still the human mind, not the machine, that is the system designer's most important tool.

The subject of the book is the requirements process, the earliest part of the development cycle in which designers attempt to discover what is desired. Part I, "Negotiating a Common Understanding," begins by telling us why methodologies are not enough. Gause and Weinberg are true masters of the anecdotal example, a technique they often use to underscore their points.

Most significant system problems found in test and operational use (where the cost of fixing errors is greatest) can be traced back to ambiguity in the requirements. Early attacking of ambiguity lowers development costs in the end. Unfortunately, system designers are so anxious to get going that they often ignore or minimally perform the requirements exploration phase. If every designer assigned to a new project were to heed the advice in this book, it would surely prolong the requirements analysis, but the overall development process would be made more efficient. Inefficiencies caused by requirements ambiguity is at the heart of this book's message, and there are many sources for ambiguity. The authors' style is unique in that they do not simply enumerate those sources, but allow the reader to experience the ambiguities firsthand. In fact, much of the book gives the reader the sense of attending a live lecture rather than reading a book.

Part II addresses every system designer's biggest problem—getting started. The authors' techniques serve to slow down the beginning of a project, allowing the mind to do its work of grasping a better understanding of the problem. A chapter on "Getting the Right People Involved" provides the practical means to accomplish today's market-driven approach of involving the user throughout the system definition, design, and development phases. The message Gause and Weinberg give is clear, which is that the practice of definition, design, and development and system understanding are the same.

"Exploring Possibilities" is the subject of Part III. These possibilities include providing more how-to techniques, conducting idea-generation meetings, using right-brain methods, and selecting a project name so as to have a theme or rallying point toward which to work. An excellent discussion is made of facilitation and facilitators, a concept that the authors expect to reach maturity in the '90s. Part IV, "Clarifying Expectations," brings us still farther along the path of eliminating requirements ambiguity by addressing functions, attributes, constraints, preferences, and expectations. A number of subtle yet key points are made. For example, "only the strength of the client's fears or desires determines which is a constraint and which is a preference." Such thought-provoking assertions are often brought home by an enjoyable anecdote to give the reader an innate understanding of the key point. The how-to techniques offered in the book are highly usable and by following them the reader should achieve positive results.

The final part of the book, "Greatly Improving on the Odds of Success," addresses ambiguity metrics, technical reviews, measuring satisfaction, test cases, study of existing products, and making agreements.

©Copyright 1991 by International Business Machines Corporation.

The authors conclude with a little philosophy on ending the requirements exploration phase. In each chapter they include a section on helpful hints, variations, and a useful summary that captures the ideas by using those tried and true editorial stalwarts: why, when, how, and who.

The pace of the book is very comfortable. It ebbs and flows such that every once in a while a burst of excitement comes with a new idea, followed by explanations that allow the reader to ride the wave. The numerous diagrams, done with intentional informality, keep an interesting and personal tone.

The principles discussed can most definitely be applied by a committed team and management, and they should contribute to the success of a project. It is up to creative individuals to find ways to apply the principles within their own environments, through the inspiration of the authors. Gause and Weinberg foresee the '90s as a time in which use of systems with higher complexity will grow. They envision more reliance on computer-aided design technology, and customers with higher expectations. Gause and Weinberg provide practical methodologies and techniques that allow system designers to bring their project-development practices to a level that meets expected system, technology, and environmental complexity.

Donna H. Rhodes
IBM Federal Sector Division
Owego
New York

Knowledge Engineering, Dimitris N. Chorafas, Van Nostrand Reinhold, New York, 1990. 380 pp. (ISBN 0-442-23969-6).

This book is aimed at computer professionals who want to upgrade their skills, and stay competitive in understanding the field of knowledge engineering and the methodology of knowledge acquisition. The author envisions a bright future for knowledge engineering and artificial intelligence (AI), in general.

Despite the author's optimistic forecast for the field, he does not minimize the many obstacles between "here" and "there." The discussions fairly balance the difficulties and advantages of specific approaches. There are a liberal number of schematic illustrations. A minimal amount of technical jargon is used for a book dealing with this type of subject and, for this reason, it should be easy to read for a diverse audience.

The book represents a comprehensive survey of the field of knowledge engineering. It provides an overview of what is currently going on for those who have not been directly involved with AI. For people who already are involved, it may suggest other projects where the same skills are useful. A part of the author's purpose seems to be to attract new people to the field. He suggests that the need for such experts will grow 25 percent per year during this decade. Viewed in this light, the book may well open new vistas of opportunity. Although it provides little insight into the detail required for the actual implementation of programs, this may perhaps be presumed by his target audience of computer professionals.

Included in the book is an appendix that outlines a training program for knowledge engineers. However, this is not a textbook in the sense of a book that might form the basis for a curriculum. The book is a comprehensive survey and, as such, should appeal to a number of people.

The specific examples cited tend to be discussed from the perspective of business applications, rather than research or scientific contributions. Although the bibliography contains 200 references, these are not cited in the text; the few citations that do occur in the text do not appear in the bibliography. The index also is not as helpful as one might desire. In short, the book does not serve as a scholarly treatise or as a reference source.

The author is a consultant who has written 65 books. In many ways, this book reminds me, in expanded form, of some of the reports I have received from consultants. Such reports tend to be comprehensive, easy to read, well organized, and noncontroversial, though they do not expand the field. While the author may be correct in predicting the future success of the field of AI, eventual success may not directly depend on many of the current methods and theories, but may require as yet unforeseen breakthroughs.

The book goes into enough depth to make its significant points. It is easy to read, is up to date, and

covers most topics of current interest. I would recommend it to anyone contemplating knowledge engineering as a possible vocation, and to anyone who wants an overview of what this might entail.

W. D. Hagamen, M.D.
Professor of Cell Biology and Anatomy
Cornell University Medical College
New York

VSAM: A Comprehensive Guide, Constantine Kaniklidis, Van Nostrand Reinhold, New York, 1990. 440 pp. (ISBN 0-442-24641-2).

If you are interested in acquiring a good overall knowledge of how VSAM works, this is definitely the book for you. Constantine Kaniklidis has done an excellent job of consolidating vast amounts of available information into one easily comprehensible book. He also provides the reader with many good practical suggestions for using VSAM effectively, with occasional editorial comments expressing his likes and dislikes of the access method.

The book begins by presenting the reader with a short evolutionary synopsis of VSAM from its inception in 1973 up to the present. It then proceeds to describe, in detail, the functional components of VSAM, including catalog and data set structure and operation, and the use of IDCAMS in defining, loading, and listing catalogs and data sets. With the functional components having been laid out, several chapters follow that present various options for data set security, backup, and recovery, with the final chapter being devoted to VSAM optimization, including such topics as control interval size calculation, free space distribution, buffer allocation, and data set sharing. Throughout the entire book, each topic is accompanied by examples that help to clarify the information presented.

Having spent many of my years at IBM working on the VSAM access method, I think that the reader will find this book very informative. While the information included in the book appears to be technically accurate, it is difficult to evaluate its factual contents down to the "bits and bytes" level, due to the volume and detail of information presented and the ever-changing nature of the subject. It is therefore my recommendation that the reader consult the appropriate IBM publication for verification whenever a high degree of detail is required.

Gale A. Burt
IBM Storage Systems Products Division
San Jose
California

Note—The books reviewed are those the Editor thinks might be of interest to our readers. The reviews express the opinions of the reviewers.