Weekly Online Update Tool for Managers

Did you know that there is a weekly current awareness service entitled Managers on NASA/RECON? Are you interested in new developments in space commercialization, Congressional and legislative reports, new business methods and trends, research and development programs, and many more timely subjects?

Every Monday morning a list of twenty citations (including books) is compiled. Items of interest to managers and administrators of NASA Headquarters, NASA Centers, and NASA Contractors are selected for pertinence to NASA's mission, management, and foreign technology exchange.

Any NASA/RECON user may utilize the service by executing the Managers stored search from within File Collections A, B, D, N, O, and P, as follows:

QUERY EXECUTE MANAGERS(NAHQ)

Once the stored search has ceased execution, simply use the DISPLAY, BROWSE, or TYPE command to review the results.

Some of the subject areas covered by the weekly service are:

- Current aerospace technology on present and future NASA space missions, including aerospace medicine.
- Technologies of the European space programs as well as those of the U.S.S.R. and Japan.
- New management methods, business trends, and policies concerning procurement, financial, contract, personnel, and research management.
- Congressional and legislative reports, Federal budgets, and appropriations of the NASA programs.
- New developments in database management systems.
- Current reports on international trade, market research, and economics.
- Current research in artificial intelligence, expert systems, and robotic technology.
- Current technology transfer, assessment, and utilization.
- Current reports on international relations, cooperation, and space law.

Project Management: A Systems Approach to Planning, Scheduling, and Controlling, second edition, by Harold Kerzner, 1984. Van Nostrand Reinhold Co., New York.

Since his first edition just 10 years ago, Dr. Kerzner, a professor of systems management at Balwin-Wallace College and president of Cleveland-based Project Management Associates consulting firm, has expanded his college-level textbook to 937 pages. As a textbook, it contains a couple of final exams (multiple choice), 332 discussion questions, and 42 case studies. As a resource for managers and executives, it suffers from a thin and faulty index, making it difficult to look up needed information quickly. Nevertheless, the book is of value to those who desire a lengthy and broad overview of project management, as well as useful tips and ideas for management problem-solving. It is the leading book in a narrow field.

While NASA defines a program as a related series of efforts which continue over a long period of time, designed to pursue a broad scientific or technical goal, and a project as a defined, time-limited activity with clearly established objectives and boundary conditions executed to gain knowledge, create a capability or provide a service--this book uses the terms interchangeably in the index and rarely mentions program management in the text. Instead, the author creates a hierarchy of line managers who answer to the project manager who in turn answers to a functional manager or executive. Thus, his gag definition: "Project management is the art of creating the illusion that any outcome is the result of a series of predetermined, deliberate acts when, in fact, it was dumb luck."

Dr. Kerzner traces the concept of project management to its birth in the 1960s in aerospace, defense and construction, maintaining that the concept took off in the early 1980s and is the wave of the future in management techniques. Complexity and diversity set in during the late 1960s, forcing some companies to accept project management reluctantly. However, the real breakthrough came in 1970 when "NASA and the Department of Defense 'forced' subcontractors into accepting project management."

Likewise, the textbook is built around systems theory as opposed to other traditional or more conventional management theory. Management-by-objectives, for examples, places too much emphasis on the end item or goal, with little regard for people. Behavioral theory emphasizes human relations (person and job) or social relations (cultural relationships which involve social change). Decision theory, on the other hand, is too rational, using mathematical or scientific models. The empirical school of thought emphasizes the study of experiences of other managers, but all too often, situations are not similar. That leaves systems theory, which, in this text, is part and parcel of project management.

"Project management utilizes the systems approach to management by having functional personnel (the vertical hierarchy) assigned to a specific project (the horizontal hierarchy)," Dr. Kerzner says in his definition which guides the text. The systems approach is not clearly defined, roughly "a group of elements (that) can act as a whole toward achieving some common goal, objective, or end." More specifically, one of the hundreds of charts in the text indicates that the systems approach starts with an objective shaped by constraints, which is broken into requirements and then alternatives, leading to trade-offs (in terms of cost, time, performance or policy).

The first attempts to mark the boundaries of systems, programs and projects are attributed to the U.S. Air Force and NASA, but the text does not cite sources or indicate when such distinctions were made. Essentially, the text views project management as a "coordinative" function and matrix management as a "collaborative" function. Problems result when there is dual accountability between project manager and functional manager, and when there is a difference of opinion. Thus, in a matrix organization, the project manager "must continually negotiate," calling for interpersonal and communication skills.

The book does seem to indicate that a modified matrix organization is superior to both a pure functional structure and a pure product organizational structure, especially for labor-intensive projects, but not capital-intensive ones.

Project management does have a downside, the author notes. The main risk, observed in missile and space programs, is falling in love more with job than family. You know if you are to the edge if you take work home or on vacation. You know if you are over the edge if you consider 5 p.m. as the working day half over, or if you come in Friday and realize there are only two more working days until Monday.---WML

Project Management Handbook, edited by David I. Cleland and William R. King, 1983. Von Nostrand Reinhold Co., New York.

Although this "handbook" bills itself variously as a reference guide and how-to manual, it is really a collection of articles clustered around certain themes such as life cycle management and project planning.

Most of the 35 articles come from college professors of management, and more from the University of Pittsburgh than any other college. David Cleland is a professor of engineering management there, and William King is a professor of business administration there also. Five articles are co-authored, including one by Cleland and King on linear responsibility charts.

Two of the best articles in this book are from Fred Holenbach of the Bechtel Power Company. In one, he

discusses project control at Bechtel in a no-nonsense, step-by-step manner. In the other, he outlines the advantages and disadvantages of the matrix approach, concluding simply: "The success of a project manager is measured by client satisfaction as a result of getting the job done on time and within budget."

Other articles, especially from the academics, are more esoteric. Readers who do not understand stochastic network analysis or cultural ambience may not even attempt articles with such terms in the titles. Technical terms and complex charts abound in this book which claims to be more pragmatic than theoretical.

Admittedly missing in this "handbook" are chapters on configuration management and value engineering, which the editors describe as "parochial interests," yet regarded as important in the aerospace industry.

In 724 pages, only four references to NASA are listed in the index, most of them clustered in a section called "The Successful Application of Project Management." One article in this section seems to be based upon a 1974 study by Murphy, Baker and Fisher on "Determinants of Project Success," sponsored by NASA (NGR 22-03-028). Actually, there are other references to NASA in this book, despite the index. The very first chapter, for example, tells how General Phillips came into the Apollo Program in 1963 and created one of the first successful matrix organizations, with 120 persons at the headquarters program office managing upwards of 30,000 persons in three Centers. NASA life-cycle management is discussed near the middle of the book. Twice, NASA studies are cited in an article at the end of the book, but not indexed. More so than other books, reference books need to be fully and accurately indexed for users as a reader service.

One of the liveliest pieces in the handbook is by Dr. Thomas E. Miller of the University of Missouri-Kansas City. Although it focuses on managing change in a fire department, the article describes four natural groups seen around any office. There are the technical-specialist organizational types who tend to be productive but standoffish. The social-specialist regulars are outgoing, popular and accepted by everyone except top management. Then there are the "underchosen" who are loved by management but who are out of line with peers and subordinates because of age, competence, ethnic background, education or just plain flat personality. Finally, there's the power specialist who is admired by social regulars but no one else because of a tendency to buck authority.

Yet, Project Management Handbook is useful even if it is not comprehensive, up to date and consistent. The "Behavioral Dimensions of Project Management" section has some good material on leadership, worthy of reflection and analysis. Each of the eight sections starts with a brief description of each article, and the different points of view may be of more value than a single author attempting to cover the whole field, from conceptual phase to phasing-out and evaluation.--WML

Project Manager Game, by Nancy Bingham, 1988. Ames Research Center, Moffett Field, CA.

An employee at Ames Research Center has devised a game that should put Monopoly out of business, at least among project managers in NASA.

Nancy Bingham's Project Manager Game is in production at the Ames Graphics Department, with about 50 boards and sets of gamecards set for the first of what may become many press runs.

According to the draft rules, the boardgame consists of bonus and penalty points in three categories: technical quality, cost and schedule. The objectives are "to perform your job as project manager to deliver the best technical, high-quality product at the least cost and minimum development time."

Like most boardgames, this one is driven by a pawn moving forward at the roll of a single die. The board itself is divided into four "phases": requirements definition, project planning, project performance and project closeout.

Each phase consists of spaces along the board, some of them labeled "crisis" and "zap." The player landing on a crisis space draws a crisis card which presents a problem and three possible alternatives, some of which will cost points. For example, here's one from the first phase:

Project funding is cut by 25% after requirements are finalized.

A) descope project to meet budget.
B) advocate additional funding.
C) assume budget risk (buy-in).

If you select "A", you lose 15 points in technical quality (TQ), 10 points in cost (C), and 10 points in schedule (S). Choose "B" and you lose 15 points in C and 15 points in S. If you chose "C", you lose 15 points in TQ, 20 points in C, and 10 points in S.

The other set of cards, zap cards, may be given to another player at certain times. Here's one from the project planning phase:

All internal manpower is already assigned to key projects. You'll have to hire to fill your project's positions. Subtract 15 points for TQ, 10 points for C and 20 points for S.

The idea behind zap cards is connected to the "zero sum game" often played for real in companies. In other words, your requirements for resources will affect the other projects going on in the company at the same time.

Gradually, each player advances along the board, facing crises or getting zapped until bonus points are awarded for reaching the next phase.

But a project manager's career is not that simple or worry-free. At each of the four progress spaces, the player must draw both a crisis card and a zap card. The zinger, however, is at the end of the game. Most games end with the winner as the person with the most points. Ms. Bingham notes: "Other considerations may disqualify the winner with the most points. These will be explained at the end of the game." Sound familiar?--WML

In Brief

Managing Projects in Organizations, by J. Davidson Frame, 1987. Jossey-Bass Publishers, San Francisco.

This 240-page book is written primarily for those involved in information systems projects, claiming that the same project management techniques that yield products can be applied to information systems as well. Frame recommends a focus on people, though, not techniques, recommending the Myers-Briggs Type Indicator. In a requirements section, he claims that most projects are started too soon. In a third section, on tools and techniques, Frame notes that the cost of administering projects can be half or more of total costs, so the project should be measured from all angles.

Out of the Crisis, by W. Edwards Deming, 1988. MIT Press, Cambridge, Mass.

The guru of Japanese management, Deming, now 88, issues a new edition of his classic study in his twilight years. Foremost among the new corporate folklore principles here is his 85-15 Rule: production problems are the result of workers only 15 percent of the time; the rest is caused by management. In direct opposition to "search for excellence" theories, he is appalled at MBWA, management by wandering about, because most managers do not ask the right questions nor stop walking long enough to get the right answers. He deplores the whole idea of management-by-objectives, and he opposes performance appraisals and quality circles, the latter beyond management responsibility. What does he like? Dedication to quality which is contagious, spreading to an increase in productivity, a decrease of cost, satisfied customers and happy workers.

Management: A Bibliography for NASA Managers (NASA SP-7500) Scientific and Technical Information Division, annual. This is a selection of annotated references to unclassified reports and journal articles that are introduced into the NASA scientific and technical information system. Items are selected on the basis of their usefulness to NASA mangers, and they are grouped into 20 categories ranging from Human Factors and Personnel Issues to Management Theory and Techniques. They are indexed six ways. Available from the National Technical Information Service.

NASA/SCAN: Selected Current Aerospace Notices. Scientific and Technical Information Division, semimonthly. SCAN is a current awareness publication covering a full spectrum of aeronautic and aerospace information, segmented into about 75 categories, including management. Each SCAN topic resembles a newsletter and can be customized for an individual. SCAN topics are available free to NASA employees, university libraries, and contractors registered with the NASA Scientific and Technical Information Facility. Others may subscribe at a nominal charge.

* U. S. GOVERNMENT PRINTING OFFICE:1989-241-446:80058