
Resources for NASA Managers

by William M. Lawbaugh

■ Project Management Resources on the Internet

Many resources on the Internet are of value and interest to the project manager, including files of the National Performance Review and discussion lists devoted to TQM, ISO 9000, Training and Development. The Internet also offers project management personnel at various NASA Centers a quick and easy means of communicating. A new Program/Project Management Initiative (PPMI) Listserv has been created to:

1. Act as a forum for the project management community to share questions, suggestions, lessons learned and other information in a convenient fashion.
2. Provide schedule information about NASA PPMI training and other relevant news of interest to the PPMI community.
3. Offer widespread dissemination of information from the Program/Project Management Librarian, including subject bibliographies and listings of new resources available on the Internet.
4. Address the information needs of the PPMI community and offer a conduit for those needs.

NASA employees and contractors have a wide range of Internet experience. Some are Internet experts and will only need an address in order to access that resource; others will require more help. The following is a compromise between the minimum use of technical jargon while still offering

some basic instruction on navigating Internet resources. Please refer to your Center library's collection of Internet books and journals for more information. One good recent article on the topic is in the August 1994 issue of *Training & Development* by Bryndis A. Rubin entitled "The Internet: Where Few Trainers Have Gone Before."

Information of interest to the PPMI community may be found on listservs and bulletin boards, at World Wide Web and Gopher sites, and through Archie and Veronica searching. The method you use is less important than knowing where the information is located.

The PPMI list has been created exclusively for the NASA project management community; those outside NASA will not be able to subscribe. If you are with NASA but do not have nasa.gov as part of your e-mail address, contact the PPMI Librarian to discuss how to join the list at (202) 358-0172.

All NASA readers of this article are invited to subscribe to this list; the method is similar to most other lists to which you may have subscribed. To subscribe to the PPMI Listserv, address your message (with nothing on the subject line) to:

domo@hq.nasa.gov

The message should read:
subscribe PPMI

Listservs/Discussion Lists. An easy way to discover new things is to subscribe to Internet listservs, which are discussion groups devoted to particular topics. Once subscribed you can join in on discussions, or sit back and "lurk" as you learn what

the list is all about. For example, if you subscribe to the ISO 9000 list, you will quickly learn additional sites for information in that area as questions abound from subscribers.

Some sample lists follow. Please remember that these addresses are current as of late 1994 and could become quickly out of date. As new lists may be created at any time, one purpose of the PPMI Listserv is to advertise new discussion lists as we find them. Lists are as easy to leave as they are to join, so feel free to sign up for any that appeal to you.

ISO 9000. This discussion list is devoted to the ISO 9000 series of quality standards. To subscribe, send the following message with the subject line blank to:

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listserv@vm1.nodak.edu  
subscribe ISO9000 yourfirstname  
yourlastname
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Example:

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subscribe ISO9000 jeffrey michael
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Quality (TQM in Manufacturing and Service Industries Discussion List). This list covers many aspects of TQM, and is intelligently moderated to keep the discussion organized. Since list members include company practitioners of TQM, academics and book and magazine writers, the discussion is varied. To subscribe, send the following message with the subject line blank to:

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listserv@pucc.princeton.edu  
subscribe quality yourfirstname  
yourlastname
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Business Process Redesign/Reengineering (BPR). This mailbase discussion list was created by academics in the United Kingdom to create cross-disciplinary discus-

sions of BPR issues. Subscribers are diverse in their professions and nationalities. To subscribe, send the following message with the subject line blank to:

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mailbase@mailbase.ac.uk  
join BPR yourfirstname yourlastname
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REGO/NPR (Reinventing Government/National Performance Review). Several lists have been created devoted to Reinventing Government (REGO) issues. To subscribe to the original list, REGO-L, send the following message with the subject line blank to:

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listserv@pandora.sf.ca.us  
subscribe REGO-L yourfirstname  
yourlastname
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Spinoffs from the original list include REGO-QUAL (Creating Quality Leadership and Management in Government) and REGO-ORG (Organizational Structures in Government). These lists are not yet as good as the original, and have too many George Mason University students as subscribers since George Mason is the home site. To subscribe, send the following message with the subject line blank to:

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listproc@gmu.edu  
subscribe REGO-QUAL yourfirstname  
yourlastname  
subscribe REGO-ORG yourfirstname  
yourlastname
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Training & Development List (TRDEV-L). This list is devoted to the interests of the training and development community from many different organizations. To subscribe send the following message with the subject line blank to:

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listserv@psuvm.psu.edu  
subscribe TRDEV-L yourfirstname
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Professional Organizational Development (POD). Those interested in POD may want to take a look at this discussion list. To subscribe send the following message with the subject line blank to:

listserv@lists.acs.ohio-state.edu
subscribe POD yourfirstname yourlastname

World Wide Web and Gopher Sites. Do you want copies of NPR reports, selected MIL-STDs, SF171 software, or other Federal information? The Internet offers several methods of downloading such information. For World Wide Web (WWW) sites you need a Web browser (Mosaic is one example), which should be available at all NASA Centers. Some interesting addresses include the following, which are case sensitive, so please use the addresses as they are written:

Malcolm Baldrige National Quality Award information: (please send as one line):

http://www.nist.gov/item/NIST_Malcolm_Baldrige_National_Quality_Award.html

This site offers criteria for the Baldrige Award, a list of past winners, and other related information.

National Performance Review (NPR):

<http://WWW.NPR.GOV>

This new site includes a Reinvention tool kit, and offers a soundbite of Vice President Al Gore speaking on the NPR.

Americans Communicating Electronically (ACE):

gopher ace.esusda.gov

This is another way to download all the reports of the National Performance Review.

You may gopher to the address above, or to get a list of all NPR reports you can download, send the following message with the subject line blank to:

almanac@ace.esusda.gov
send netresults catalog

W. Edwards Deming files at Clemson University:

<http://deming.eng.clemson.edu>
gopher://deming.eng.clemson.edu

This university Gopher/Mosaic site is definitely worth some exploring. It includes downloadable TQM files, public domain software and offers a tool for searching the CQI server.

Bulletin Boards. Bulletin boards are another format for discovering a wide variety of information, including the downloading of files. Almost every government agency has an electronic bulletin board, and one good way to access them all is through FEDWORLD, the NTIS gateway system. FEDWORLD may be accessed by modem at 703-321-8020 or by telnetting to:

fedworld.gov

Follow online instructions to register. Resources for downloading include MIL-STDs, NPR documents and other Federal information. FEDWORLD also serves as a gateway to the bulletin boards of many Federal agencies; see the Gateway section of the FEDWORLD main menu for a list of those bulletin boards.

OPM Mainstreet is accessible through the gateway system as #44. Resources include a listing of Federal jobs, NPR files, downloadable software (including SF171) and a section devoted to TQM events and discussion.

The TQM BBS is accessible through the FEDWORLD gateway system as #68, or by modem at 202-606-4800. This bulletin board offers additional information on total quality and related issues. All of our Program/Project Management Resource Lists are available at that site as PPM.ZIP. (Contact your local computer help center for information about unzipping files.)

This is just a sampling of all the information available on the Internet. Contact the PPMI Librarian at NASA Headquarters with additional information you have found, or if you have any questions about the lists or bulletin boards.

Some Internet problems may require the help of your systems personnel. The PPMI Listserv will serve as a means of organizational learning on this topic, as we share our discoveries of Internet resources. Communication throughout NASA will be as easy as sending an e-mail message when you subscribe to the PPMI list.

■ Book Reviews

Training for Profit: A Guide to the Integration of Training in An Organization's Success
by Philip Darling (McGraw-Hill, 1993)

This is only one in a dozen or so books in McGraw-Hill Europe's training series. Philip Darling is a trainer and lecturer at the Roehampton Institute in England, but he appears knowledgeable of the American scene. He notes, for example, that half the companies listed in the Fortune 500 for 1955 dropped off by 1980; by the late 1980s, however, the dropout rate accelerated threefold. In addition, only 14 of the 43 companies identified as "excellent" by Tom Peters in *In Search of Excellence* (1982) could still be regarded as such just

five years later. An official of IBM Europe is quoted by Darling as saying: "For it seems to me that in practically every sector of the economy, the dynamics of competition are shifting away from the industrial logic of the past to the service-driven philosophy of the future."

Building on that insight, Darling says the implications for training include not merely adjustment to increased competition and a faster rate of technological change, but a whole new mindset. Training must now be regarded as continuous and perhaps even a lifelong process. Specifically he recommends emphasis upon the following:

- *Quality.* "TQM is a 'people' issue," he notes, "rather than a technical one," requiring a heavy investment in education and training for quality throughout the organization.
- *Just-in-time working.* "The essence of JIT is that production is 'pulled' through the organization according to [customer and market] demand, rather than 'pushed' in accordance with rigid production schedules."
- *Teamworking.* Employees should be trained to take responsibility for organizing some if not all of their own work as a team, with a shared goal. Emphasis shifts from supervision to "self-help, problem-solving and cooperation."
- *Problem solving skills.* Training in informational technology leads naturally to better cooperation and teamwork in solving problems, especially with desktop personal computing.
- *Organizational learning.* Managers today "need to be skilled in unlocking the talents of their staff and helping them learn how to learn," Darling concludes.

A learning organization encourages "a climate of continuous learning and development in which people can grow."

After all, the author proclaims at the very start of his 155-page paperback, "the long-term success or failure of any firm depends upon the quality of its work force." Training, education and development are not one-shot efforts to fix a problem but rather continuous solutions for the growth, health and renewal of an organization in a period of rapid change.

Project Management: Engineering, Technology, and Implementation

by Avaham Shtub, Jonathan F. Bard and Shlomo Globerson
(Prentice-Hall, 1994)

The authors of this 634-page textbook are experienced in electronics, information services and aerospace industries. Shtub and Bard teach industrial engineering at Tel Aviv University and University of Texas at Austin, respectively, while Globerson teaches in the school of business administration at Tel Aviv University.

As a textbook, *Project Management* takes the student from conceptual design through production and termination, using a class project to design and construct a thermal transfer plant (solid waste disposal facility).

This is not an engineer's text but rather a senior-level or first-year graduate course combining project management and engineering economics. Although the authors claim they rely on "simple models" and "avoided detailed mathematical formulations and solution algorithms," most students trained only in business administration will find some of the tools difficult, if not exasperating.

The authors also recommend *Project Management* as a handbook or reference for professionals in the field. As such, the book opens with engineering economic analysis and goes into basic checklists and scoring models. Then they analyze multi-attribute utility theory (MAUT) and the analytical hierarchy process (AHP), followed by organizational and work breakdown structures for the project manager.

Chapter 6 attempts to integrate total quality management into configuration management and control. More traditional tools such as Gantt charts, critical path method and the PERT approach follow the network models of AOA/AON (activity-on-arrow and activity on node). For R&D simulation, the authors introduce an advanced (Q) version of the graphical evaluation and review technique, called Q-GERT. They close with advice to not only evaluate the ongoing project but also conduct a postmortem analysis to achieve continuous improvement from project to project.

Project Management also comes with a demonstration disk (DOS) for a software system known as Super Project Expert. This educational version obviously contains only a portion of the \$695 version from Computer Associates, but it does give a 50-task limited glimpse of the software on disk and in an explanatory appendix.

Lest the project manager get bewildered or discouraged with all the charts, graphs and tables in *Project Management*, the authors reprint the "Laws of Project Management" from the American Production and Inventory Control Society:

1. No major project is ever installed on time, within budget, or with the same staff that started it. Yours will not be the first.

2. Projects progress quickly until they become 90% complete, then they remain at 90% complete forever.
3. One advantage of fuzzy project objectives is that they let you avoid the embarrassment of estimating the corresponding costs.
4. When things are going well, something will go wrong.
 - When things just cannot get any worse, they will.
 - When things appear to be going better, you have overlooked something.
5. If project content is allowed to change freely, the rate of change will exceed the rate of progress.
6. No system is ever completely debugged. Attempts to debug a system inevitably introduce new bugs that are even harder to find.
7. A carelessly planned project will take three times longer to complete than expected; a carefully planned project will take only twice as long.
8. Project teams detest progress reporting because it vividly manifests their lack of progress.

Despite the interactive computer programs, the vast engineering science and the hundreds of management tools that go into project management today, the eight "Laws" are comforting to remember.

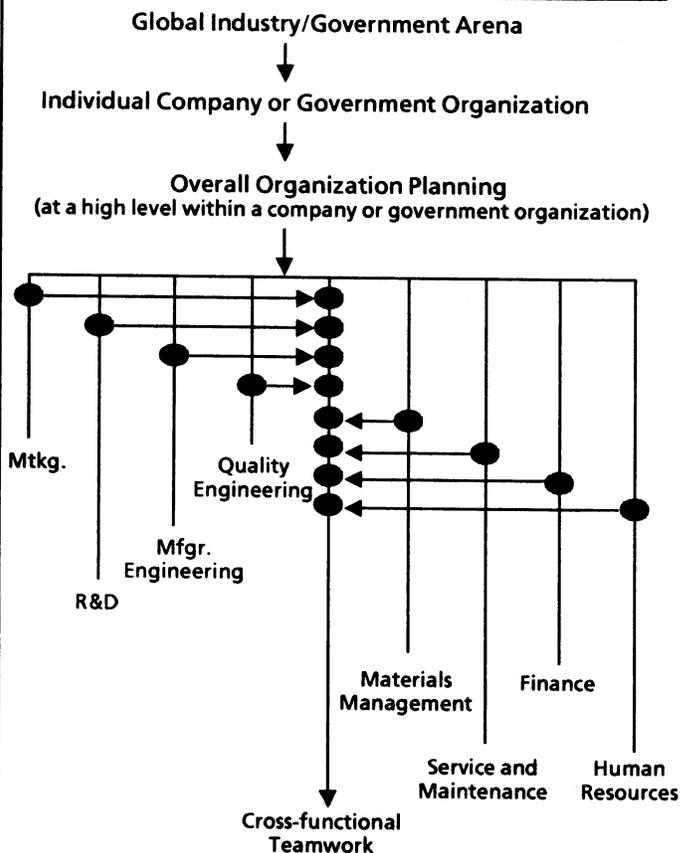
Implementing Concurrent Project Management

by Quentin C. Turtle (Prentice-Hall, 1994)

The author is president of Technology Management Group, a consulting organization, and adjunct professor in the college

of engineering at the University of Rhode Island. Having taught a course in technical project management for several years, he wrote a textbook on an increasingly hot topic. Turtle defines concurrent project management as concurrent engineering plus marketing, finance, purchasing, engineering, manufacturing and human resources functions, all in a team-building process. He uses the DoD definition of concurrent engineering: "A systematic approach to the integrated, concurrent design of products and their related processes." In a schematic chart (below), Turtle describes it as a hierarchy of organizations and cross-functional teamwork.

The bulk of the 213-page textbook is devoted to concurrent planning and concurrent scheduling. "Cost" receives only 10 pages, mostly tables and charts. His explanation of a 200-word summary report takes just about 200 words. He ends with a fine chap-



ter on Concurrent Control, emphasizing the need for "detailed, accurate, realistic planning at the outset."

In the preface, Turtle states: "This book provides the reader with the basis for Total Quality Management (TQM) in product development," but less than a page is devoted to TQM in the main text. Nevertheless, the book does apply fundamental concepts such as the PERT chart to such personal projects as purchasing a car or building a home.

The Wiley Project Engineer Desk Reference

by Sanford I. Heisler
(John Wiley and Sons: New York, 1994)

Subtitled "Project Engineering, Operations, and Management," this handbook covers a wide range of activities, including schedule development and control, materials acquisition, contracts and engineering organization.

A Project Manager (PM) is commonly the head of a task involving more legal, accounting and materials acquisition, but a Project Engineer (PE) is the head of a project that involves mainly engineering, says Sanford Heisler, PE. Thus, the emphasis here is on technical rather than managerial principles.

Nevertheless, the *PE Desk Reference* is a handy book of 500 pages, chock full of sample diagrams, flowcharts, standard forms and computer-generated tables. The many sample reports and outlines are quite useful and can be easily adapted to the needs of the project manager. Key terms and difficult concepts are highlighted in boldface and cross-indexed.

The desk reference is rather weak on computer technology but does include a long re-

port from ICF Kaiser Engineers on integrated project management control systems, more descriptive than prescriptive. Common sense prevails, though. Heisler warns against the proliferation of bewildering charts and analyses, and at one point discourages the use of indiscriminate e-mail.

The author suggests that most meetings are a waste of valuable time but does not go one step further to recommend teleconferencing or VITS as an alternative. He highly recommends training in time management and memory improvement, and he vigorously applauds the use of newsletters in any unit of 30 or more employees.

While the desk reference is heavy on construction and architecture, and thin on business and human resources, it is readable and useful. It is especially good on avoiding pitfalls in planning as well as contract negotiations.

Punished by Rewards

by Alfie Kohn (Houghton Mifflin, 1993)

Younger NASA project managers will remember writer-lecturer Alfie Kohn from his lively talk on "Competition and Cooperation" at the first Executive Project Management Colloquium in 1991 at Hampton, Va. The author of *No Contest: The Case Against Competition* (1987) told the delegates: "Rewards are offered in a controlling way." Incentives are a bad idea. They prompt people to cut corners, finish too quickly and take few risks. Furthermore, working for rewards is less pleasurable and less satisfying than working for self-motivated intrinsic rewards. People feel manipulated, controlled and less autonomous when rewards or incentives are dangled in front of them. These controversial and disputed notions are developed and explained in Alfie Kohn's latest book, subti-

tled "The Trouble with Gold Stars, Incentive Plans, A's, Praise, and other Bribes."

In a heavily documented tome with 65 pages of notes and 30 pages of references, Kohn traces our fixation with rewards to behaviorism, a semi-determinist theory of culture popularized by psychologist B. F. Skinner. Kohn deplors any attempt to reward behavior in the workplace and classroom as well as the home in childrearing, but he gives fair play to opposite views in two appendices by presenting a 1983 interview he had with Skinner and counterarguments from current behaviorists.

Alfie Kohn stresses "intrinsic motivation" over being Skinner-boxed by rewards. In the workplace, he says, "the *desire* to do something, much less to do it well, simply cannot be imposed." All we can do is set up certain conditions that will maximize the probability of their developing "an interest in what they are doing and remove the conditions that function as constraints," such as merit pay and annual performance appraisals. Setting of salaries is not clear, but his notion of self-motivation is clear in the chapter title: "Thank God It's Monday."

"Hooked on Learning" is his chapter title on schooling. Kohn sees grades as degrading and instead proposes Three C's: collaboration, content and choice. Tell that to the typical harried and overworked schoolteacher.

"Good Kids without Goodies" is much more realistic but also quite difficult to achieve, because Kohn's effort to raise caring kids will take time. First, you must be genuinely caring yourself, a model for the child. Then you need to offer repeated opportunities to care for others, such as the aged or infirm. With bad behavior the parent is to assume positive motives but explain things over and over until the child (or teenager)

understands, or at least until their eyes stop glazing over.

Punishing by Reward is a fascinating book, an excellent follow-on to the Executive Project Management Colloquium.

The Project Manager's Desk Reference
by James P. Lewis
(Chicago: Probus Publishing Co. 1993)

This is an odd book, but one that is very useful for project planning, scheduling with CPM and PERT, program control and problem-solving.

It is odd because chapters and topics seem to stand alone, with little or no overall coordination. For example, the author deplors both CPM and PERT techniques in an introductory chapter as being old, static and unworkable "in a lot of situations," yet he devotes four chapters to them. He praises Peter Drucker for his focus on the customer and Peter Senge for "learning organizations" in the introduction but doesn't even mention them in the main text.

If there is a theme to *The Project Manager's Desk Reference*, it is stated as "concurrency." Lewis even coins the term "concurrent project management" in the introduction, but it is merely mentioned a single time in the main text. And if he introduces a project management hero, it is Dan Dimancescu, but his 1992 book, *The Seamless Enterprise: Making Cross Functional Management Work*, is not listed in the 50 pages of bibliography.

One chapter, on "progress payments," is taken from another Probus book, and another, on "strategy and tactics," is taken from an article in Sloan Management Review by Slevin and Pinta. Their Project Implementation Profile (PIP) is examined in another chapter by a college professor. One

chapter ends with "References," another with "Endnotes" and the whole book with "References" again.

Despite the flaws, *The Project Manager's Desk Reference* is best when the author, formerly in product development, compiles lists and checklists. For example, he lists 15 pieces of project scheduling software, with the address and phone of the manufacturers, and a general price range, plus an evaluation checklist, but no actual evaluation of any of the programs.

Lewis also believes that project management is the wave of the future in American business. He lists eight non-credit project management training institutions / consultants (including himself), nine undergraduate programs, and three graduate programs in project management. However, the curricula of Golden Gate University, Keller Graduate School of Management, and Western Carolina University resemble graduate school programs in business and finance more than the management knowledge and skills listed by the author as "primary."

The book ends with a chapter on "Sociotechnical Systems and Project Organization" which, again, fails to connect well with previous chapters. Nice illustrations done by his wife complement such topics as "joint optimization" and "cross-function management," and then a few extra pages on "personal premises" and "transformed behaviors and beliefs." How these topics relate to project management is not clear.

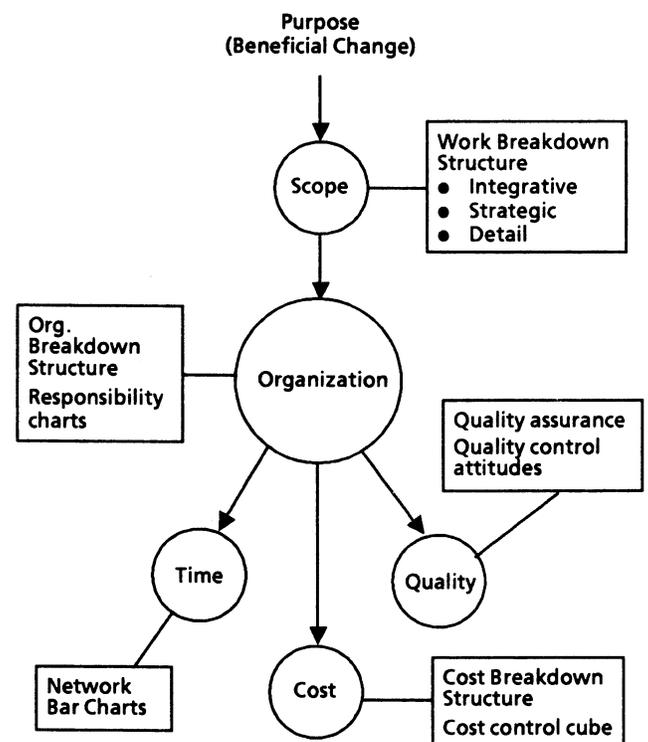
The Handbook of Project-Based Management

by J. Rodney Turner
(McGraw-Hill: London, 1963)

Yet another new project manager's handbook is a bit more dry and academic than

the others, but more comprehensive with more than 500 pages of text, charts and analysis.

Turner is a professor and consultant at England's famous Henley Management College in Berkshire. He abandons the traditional cost-performance-schedule triangle as being work done for its own sake in favor of a diamond of time (measured by CPM or PERT), cost/schedule control systems (managed by WBS), quality (TQM) and scope (SOW). He then adds another: the management of organization (resources, facilities and communication). In sum, here's what Turner's "structural approach" to project management looks like:



Some of the concepts, tools and categories may overlap in his scheme, but then the entire handbook is redundant, with many of the same topics covered chapter by chapter. Each chapter even has a topic outline summary.

Turner's "five principles of good project management" include:

1. Manage using a structural work breakdown.
2. Focus on results.
3. Balance objectives through the breakdown structure.
4. Negotiate a contract among the parties involved by trading benefits for contributions.
5. Adopt clear, simple management reporting structures; one page when possible.

The main idea of *The Handbook of Project-Based Management* seems to be this: even the most detailed and complicated tasks can and should be broken down into manageable portions and then executed. However, that leaves little room for creativity, serendipity or flexibility. The book itself is cut and dried, not for casual reading but fine as a reference book.

Scuttle Your Ships Before Advancing

by Richard A. Luecke

(New York: Oxford University Press, 1994)

History and *story* share the same Latin root, so business book editor Richard Luecke presents a half-dozen stories of entrepreneurs and opportunists in history to show lessons in leadership in a book subtitled "Other Lessons from History on Leadership and Change for Today's Managers." Luecke was inspired by Clemens and Mayer's *The Classic Touch: Lessons in Leadership from Homer to Hemingway* (1987) but uses history instead of literature to tell stories of business leadership. Of course, chronicles and biographies often paint their

historical figures larger than life, much like epic literature, so the examples of leadership are idealized somewhat.

One idealized character was Cortez, subject of the book's odd title. Cortez exemplified what Sun-tsu had theorized much earlier: that soldiers without an escape route would fight "with the courage of despair." Cortez, on route to the Aztec gold of Montezuma II in 1517, scuttled his ships before advancing. His 400 troops were thus committed to conquest or death, no turning back. For awhile, at least, the godlike conquistadors with their strange horses ruled over hundreds of thousands natives. For Luecke, this teaches daring and risk-taking.

A century before Cortez, French King Louis XI, described as a "change agent," was the first advocate of "management by (riding) around," and practiced what Japanese car makers learned but GM's Ross Perot did not: "to attack aggressively only those situations when the odds are clearly in your favor; and when you have your opponent on the run, do not let up."

Timing is everything, as we read in the case studies of Martin Luther and W. Edwards Deming. Their ideas struck a responsive chord; these outriders had ideas whose time had come. So, too, the ideas of Sam Adams, but not those of the British king's envoy at the time of the Stamp Act. Emperor Hadrian's ideas of global management are said to have hatched the Holy Roman Empire and live on the bipolar Vatican-missionary structure of the Roman Catholic Church. Innovative self-renewal under strong leadership saved the underdog British foot soldiers and archers from the powerful French mounted knights in 1346, as it saves behemoths like Motorola, 3M, Hewlett-Packard, Chrysler and Xerox.

However, as Luecke points out, the lessons of history are limited, and the dangers of misinterpreting are great. If managerial leadership could be achieved merely by study and mastery of history, Yamamoto would have won the Battle of Midway, Johnson would have won the Vietnam War and New Coke would have won the cola wars. As Ecclesiastes notes, “the race is not

to the swift, nor the battle to the strong. . . but time and chance happened to them all.” Perfect timing and the openness to chance or rapid change are key notions in Luecke’s readable book. Because of time and chance, history is a limited tool in predicting the future, and thus *Scuttle Your Ships Before Advancing* is a limited tool in taking lessons in leadership, but an interesting one.