



Vol. 15, No. 2; February 2002

[PDF Version](#) | [Contents](#) | [2002 Issues](#) | [Resource Center](#) | [Newsletter Home Page](#)

DEFINING RISK: A DEBATE

A heated debate is currently under way in the risk management community over an issue that most outside observers would have assumed was settled long ago -- what does the term "risk" really mean?

Traditionally, risk has been generally defined as the potential for the realization of unwanted, negative consequences of an event. In simple terms, risk is a potential problem.

This "negative" view of risk has been challenged in the past decade as being too restrictive and incomplete, especially in regard to considering opportunities. In this new view, risk is an uncertain condition or event that has a negative or positive effect on achieving some objective.

This debate is of great significance, for it underpins the practice of risk management itself as well as its perceived usefulness. For instance, if the positive aspects of a situation are not part of the definition of risk, are they ignored? Do you need a separate opportunity management process to assess and manage them? Is it even meaningful to separate negative from positive aspects of an event?

On the other hand, if positive aspects are included, does this make the definition so expansive that it dilutes the effectiveness of risk management as a practice? Can everything be viewed as an opportunity? Why not call everything "opportunity management" and define risk as the absence of opportunity?

Is there a gain or a loss by including or not including positive aspects in the definition? Does including a positive component make it easier to teach risk management, or does it only serve to confuse? Is it true, as the old Chinese epigram supposedly says, "Where there is risk, there is opportunity," or is the reality closer to "Where there is opportunity, there is risk?"

?? [Not Just a Four-Letter Word Anymore: Project "Risk" Includes Opportunities](#)
by David T. Hulett
and David Hillson

?? [If It Ain't Broke, Don't Fix It](#)
by Ronald J. Kohl

?? [Response to Mr. Kohl](#)
by David T. Hulett
and David Hillson

?? [Response to Drs. Hulett and Hillson](#)
by Ronald J. Kohl

Further, if the definition of risk is in debate -- both definitions appear in risk management standards -- can risk management flourish as a practice? Or will it be seen as something wishy-washy, without much substance? Or does it really matter at all?

The two papers that follow present both sides of the argument. David Hulett and David Hillson argue for the new, more expansive definition of risk, while Ron Kohl argues for the traditional one. Both sides address the theoretical as well as practical reasons for their beliefs.

Finally, in true debate style, each party is given the opportunity to "rebut" the other's arguments at the end. Read on and decide for yourself on which side of the definitional divide you belong.

-- Bob Charette

NOT JUST A FOUR-LETTER WORD ANYMORE: Project "Risk" Includes Opportunities

by David T. Hulett and David Hillson

There is no doubt that projects, like everything else in life, are subject to uncertainty. It is also clear that some of that uncertainty might be harmful if it came to pass (threats), whereas other uncertainties might assist in achieving our objectives (opportunities). The issue is whether we could or should include both types of uncertainty in our definition of risk, and whether both could or should be handled by a common risk management process.

Project risk can be observed in elements such as (1) technology that can be more or less difficult than assumed in the baseline plan, (2) productivity that might be greater or less than originally estimated, and (3) external events, such as suppliers' delivery of components, that might occur sooner or later than shown in the schedule. The project can be improved by capturing opportunities to make the technology less difficult, the personnel more productive, and/or the deliveries earlier than planned.

MINIMIZING OVERHEAD, MAXIMIZING PROJECT SUCCESS

There are definite advantages in dealing with both types of risk together under a single heading of "risk management." The main such advantages are: (1) minimizing process and overhead, and (2) expanding organizational and personal commitment to finding and capturing opportunities. This is where the broad definition of risk earns its stripes. The Project Management Institute's (PMI®) definition of a project risk as "an uncertain event or condition that, if it occurs, has a positive or negative effect on a project objective"¹ requires that both opportunities and threats be addressed to maximize these advantages.

Including opportunities in the definition of risk will mean that there is no need to introduce a new process. On the one hand, a separate "opportunity management" process is likely to

encounter resistance from hard-pressed project managers who see it as an additional burden. On the other hand, if the risk management process that already exists handles opportunities, the additional overhead is minimized. Thus there is a clear advantage in including opportunities in the risk management process.

In addition, the use of a common process to handle opportunities and threats helps ensure that opportunities are indeed identified and managed. Most project managers think of risk in terms of threats alone. A broader risk management mindset that includes opportunities encourages the identification of all uncertainties that might affect objectives and leads the project manager to look for ways of capturing risk proactively, combating the one-sided approach commonly practiced.

In a recent article, Arnold Ruskin addresses the use of opportunities to offset threats and thus to improve project performance. He notes that project activities experience risk in two tails. He says that some of them will be "under their expected values" of effort, duration, or cost, and that others will be over theirs. He then says that "the *unders* should be able to offset the *overs* provided that two conditions occur: (1) The *unders* must be captured when they occur" [and] "(2) The *unders* in one area must be either directly useful or capable of being transformed into something that can be used in another area."²

Most people would agree that paying attention to both opportunities and threats in performing project risk management will result in better project performance than if threat mitigation is the exclusive focus. Some would have us believe that the opportunities are attended to in some other process called "opportunity management." We believe that this just does not fit the facts on the ground.

Many projects hardly practice risk management at all. To assume that those who use a single-direction definition of the term "risk" will turn around and go through the exercise again to manage opportunities is wishful thinking.

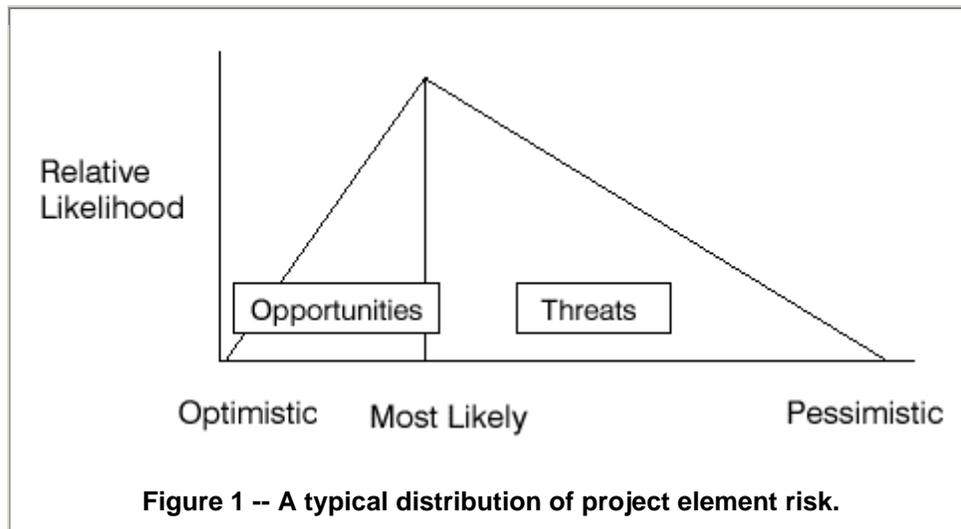
WHAT WILL HAVE TO CHANGE

We recognize that if the existing risk management process is to be extended to allow opportunities to be managed alongside threats, some changes will be required. These changes are small, we believe.

Some familiar ideas about risk identification processes already emphasize opportunities. The SWOT analysis highlights "strengths" and "opportunities" equally with "weaknesses" and "threats." Similarly, an assumptions analysis might unearth excessively pessimistic assumptions as well as those that are excessively optimistic.

A typical qualitative risk analysis using probability and impact matrix analysis does emphasize the negative impacts that are to be mitigated, and we think this method must be expanded to include opportunities. Quantitative risk analysis already deals with opportunities and threats in a parallel fashion. A typical cost or schedule risk analysis addresses risk as a probability distribution of possible outcomes. The distribution that results generally has two tails and

usually extends in both directions from the most likely value (see Figure 1).



What are we to call those two tails of one distribution? "Opportunity" and "risk," as if they represent two different concepts? No, this is the distribution of "risk" of a project element that ranges from optimistic to pessimistic values. Only when the baseline equals one extreme or the other will the distribution have only opportunities or only threats. For instance, a politically motivated estimate that is "bare bones" has assumed all of the opportunities and will most assuredly be overrun. Maybe experience with such bare-bones baselines is the reason some people think of "risk" as only "threat."

Our language in risk response planning will have to be expanded to address opportunities. The term "avoid" the threat should be balanced with "exploit" the opportunity, and "transfer" the threat's impact might be balanced with "share" the benefits. "Mitigate" the threat would be balanced by "enhance" the opportunity. The term "accept" the threat has negative connotations - perhaps "protect" the remaining benefits would balance it.

BEING OPEN TO OPPORTUNITIES

In summary, it is agreed that the project manager should manage proactively both threats and opportunities. We believe that the use of an inclusive definition of the term "risk" to include opportunities will facilitate this outcome. If risk is defined only in terms of threats, individuals and organizations will avoid it like the plague.

On the one hand, if risk management is viewed as identifying and managing only threats, individuals and organizations will adopt attitudes and pursue strategies that deemphasize capturing opportunities, because finding opportunities would require an additional process and increased organizational burden. On the other hand, process efficiency is increased and burden reduced if risk management is designed for and charged with finding opportunities and threats

in the same process.

Of course there is nothing that absolutely forbids opportunity management under the more limited definition of risk as threat. However, the broader definition of risk that includes its two balanced aspects, opportunities and threats, will improve project success.

NOTES

¹A *Guide to the Project Management Body of Knowledge* (Project Management Institute [PMI], 2000), p. 127. The original title for Chapter 11 in the 1996 edition of the *PMBOK® Guide* was "Risk and Opportunity Management," according to William Duncan (private communication).

²Arnold M. Ruskin, "Using Unders to Offset Overs," *PM Network* (February 2000), p. 35.

IF IT AIN'T BROKE, DON'T FIX IT

by Ronald J. Kohl

In my view, the definition of risk is an event that has some uncertainty of occurrence (a probability of occurrence between zero and one) and a negative consequence of occurrence. A word that is sometimes considered synonymous with this definition of risk is "threat." Some might claim that a threat is an uncertain event with negative consequences that is maliciously planned by some sponsor/instigator. In either case, "threat" certainly shares, with "risk," the common features of uncertainty and negative consequence. For the purposes of this position paper, we can treat "risk" and "threat" as synonymous.

The word "risk" has been associated for centuries, perhaps millennia, with uncertain events that have negative consequences. This is well documented in many current dictionaries and in other time-tested documents. Yet as the capabilities of the savvy risk manager increase and new expertise is acquired, it is clear that in the age-old practice of risk management, it is increasingly important to include the acknowledgment and management of uncertain events that also have positive consequences.

EXPAND THE PRACTICES...

Let's call any uncertain event that has positive consequences an "opportunity." Opportunities naturally arise out of the identification, analysis, and management of risks, and to ignore them would be, at best, a disservice to the customer and, at worst, a demonstration of incompetence. It should be noted that addressing opportunities as a part of risk management is not new. What is new is the widespread appreciation of the added value of including opportunity management in the realm of risk management.

It is significant that a large portion of the risk management community agrees that including opportunity management in the risk management process is a necessary expansion of the risk management methodology. Thus, ignoring the occurrences of opportunities in normal risk management suggests a lack of understanding of the full scope of risk management, which should rightfully deal with all types of uncertain events. In order to address opportunity management issues, I support the inclusion of opportunity management processes in risk management methodologies.

...NOT THE DEFINITION

That being said, there is no reason to suggest that the risk management community modify the definition of "risk" to include uncertain events that have both a positive and negative consequence. This would be akin to changing cost-benefit analysis to "cost analysis" and then changing the definition of "cost" to mean something that *either* consumes resources *or* generates benefits. In a similar vein, it would be absurd to suggest that there is some logic for changing the definition of "con" to include both pros and cons and then to say that we can do trade studies by looking only at these newly defined cons.

In conducting both cost-benefit analysis and trade studies, it is quite standard engineering practice to look at both positive and negative aspects of a situation, be it an uncertain event or a certain one. (We might choose to use the words "problem" and "benefit" here.) Even in such a best practice engineering process as "perform a trade study," we sometimes see inadequate and incomplete analysis of both the positive and negative aspects of the items being considered, which then leads to poor and/or incorrect decisions. One good example is the expanding use of COTS [commercial off-the-shelf] products in large, complex systems. There is no question that these products have advantages, some quite significant. However, the analysts assessing candidate products often do not fully understand their negative aspects (e.g., security flaws, integration difficulties), which again can lead to bad decisions and unsatisfactory solutions.

The above suggests that there are a variety of opposing pairs of terms used in the engineering of complex systems for which it would be folly to consider changing either the positive or negative term to include the other. While we may wish to ensure that both terms in these opposing pairs are considered in engineering analysis, any such redefining of one term in a pair would cause great confusion in the technical community.

Then there is the fact that risk management documentation (plans, processes, guidebooks, etc.) in active, widespread use currently employs the "uncertain event with a negative consequence of occurrence" definition of risk. The owners and users of this documentation might justly be expected to oppose the proposed change in the definition of risk. Finally, there is compelling etymological history to suggest that the very origin of the word "risk" is associated with negative outcomes.¹

WHAT ARE "BODIES OF KNOWLEDGE" FOR, AFTER ALL?

Perhaps the opponents of this position are driven to suggest the new definition of risk in order to highlight the importance of including "opportunity management" as a standard element in

typical risk management practice. That may be, but there are many effective methods of doing this other than modifying the definition of risk. Establishing a body of knowledge that integrates risk and opportunity management is one such method, as is identifying such practices and processes as "industry best practices." Integrating the current risk management body of knowledge with any such opportunity management body of knowledge is another way to accomplish this goal. Incorporating opportunity management principles and methods into engineering process standards and models is yet another approach. Some of this work is already under way or even completed.

Changing the definition of risk to achieve this purpose seems to defy logic. Furthermore, it flies in the face of similar situations where cost/benefit, pro/con, advantage/disadvantage, positive/negative, income/outlay, and many other opposing pairs of terms are in common engineering practice but retain their own definitions.

NOTES

¹Peter L. Bernstein, *Against the Gods: The Remarkable Story of Risk* (John Wiley, 1996).

RESPONSE TO MR. KOHL

by David T. Hulett and David Hillson

We are glad to see that Mr. Kohl shares our conviction that "in ... risk management, it is increasingly important to include the acknowledgment and management of uncertain events that also have positive consequences." We feel, however, that his argument takes an illogical leap when he asserts that the definition of risk must exclude the opportunities. It seems to us that if "risk management" includes managing both opportunities and threats, then *de facto* the definition of risk must also include opportunities.

We feel that Mr. Kohl's discussion of "opposing pairs of engineering terms" as a reason to retain both "opportunity" and "risk-as-threat" does not address the issue. Our proposal that the umbrella term "risk" include a pair of related subterms "opportunity" and "threat" actually highlights the distinction he advocates.

We disagree with his particular appeal to etymological history--that is, the discussion in Peter Bernstein's *Against the Gods*--since the root Italian word Bernstein cites, "risicare," means "to dare," which is neutral on the question. Experts in any endeavor (e.g., science, medicine, or the arts) take the lead in defining terms used in that activity. Those special definitions eventually find their way into the dictionary. To say that we need to defer to the dictionary is to say that we do not have a profession and that project risk management is something everyone can do.

We disagree with Mr. Kohl's assertion that "opportunities *naturally arise* [emphasis added] out of the identification, analysis, and management of risks." If this were true, we would not feel as strongly as we do in this debate over language. Many clients are tired of hearing only about the problems but never the opportunities.

This is our point. When risk is defined as only threats, the mindset of risk analysts and project team members is to look for problems only. It would then take a separate effort to identify opportunities.

Lastly, Mr. Kohl suggests that including opportunities in the definition of risk would be a change in the definition. This objection has been overtaken by events, as several professional bodies have already adopted an expanded definition of risk. The list includes the Project Management Institute, the British Standards Institute, and the UK Institute of Civil Engineers. Other bodies (e.g., Standards Australia/New Zealand, UK Association for Project Management) use a neutral definition in which the nature of risk impact is undefined, implicitly allowing risk to cover both opportunities and threats.

If the definition of risk includes both opportunities and threats, and if an extended approach is implemented to address both together, the project manager will be able to take full advantage of both to achieve the project's objectives. Failing to implement proactive opportunity management will guarantee that only half of the benefits of risk management can be achieved. We believe that a broad definition of risk that includes opportunities is a major and necessary step toward this goal.

RESPONSE TO DRS. HULETT AND HILLSON

by Ronald J. Kohl

I believe that the authors of both sides of this debate, and probably most of the readers of this article, would agree that addressing both positive and negative uncertainties in any given project would likely increase the success of that project. In fact, there is a growing recognition that the expansion of risk management methods to address both the positive and negative uncertainties within a given project is the right thing to do.

Where we disagree is that using a definition of risk that includes both positive and negative uncertainties is necessary to achieve the agreed-to goal of expanding risk management methodologies to include attention to positive uncertainties (opportunities).

It should be noted that there are perhaps just as many risk management practitioners that use the "risk is an uncertainty with negative impact only" definition as there are that use the more expansive definition. Much of the US federal government's risk management methodologies (NASA, FAA, etc.) are based on this definition, as is that of the International Council on Systems Engineering (INCOSE). Without knowing precisely how many individuals are counted

amongst the organizations claiming one definition or the other, we can certainly say that there are many risk management practitioners that are represented by organizations that espouse both definitions. Thus, suggesting that there is a set of organizations (professional societies, practitioners, etc.) that prefer one definition over the other seems to be, at best, a draw.

Next, the claim that a different definition for risk is necessary to cause risk management methods to expand to include "opportunity management" appears unfounded. What is needed to cause risk management practitioners to adopt and embrace opportunity management is an expansion of the body of knowledge and best practices for risk management. This is already happening, and there is growing evidence that the risk practitioner community that uses the "uncertainty with negative impact only" definition is, in fact, embracing this growing body of knowledge about how to integrate opportunity management into standard risk management methods. This same community has not proposed changing the definition of risk but rather has chosen to expand the description of the scope of risk management.

It may be the case that certain managers or even practitioners of risk management will perceive this expanded scope as "an additional process or burden" to include in their risk management practices and, therefore, will resist such a change. It is not at all clear how changing the definition of risk will overcome this misperception. If these managers and/or practitioners are not effectively practicing risk management under any definition, then neither expanding the scope of risk management practices to include opportunity management nor changing the definition of risk to include "positive impacts" is likely to help the situation.

We all agree that expanding the practice of risk management to include both threats and opportunities is the right thing to do and will, indeed, improve the results of applying risk management to a given project. But changing the definition of risk, at the behest of one part of the risk management community, is not the way to demonstrate a unified approach to risk management nor to promote the effective inclusion of "opportunity management" into any project's risk practices. This very debate suggests that although there is agreement in the risk management community about adopting "opportunities" into the scope of risk management, there is not consensus about changing the definition of risk.

David Hulett is president of Hulett & Associates of Los Angeles, California. Dr. Hulett consults and trains in project risk analysis and management and in project scheduling. His clients have included companies in many industries and several agencies of the US Departments of Defense and Energy. Dr. Hulett managed the project that led to the publication of a completely revised risk management chapter in the 2000 edition of the PMBOK® Guide. He has presented papers to many professional societies and published papers on risk analysis in the Project Management Journal and PM Network. He is active in the PMI® on local, national, and international levels.

Dr. Hulett has held positions with TRW and TOSCO Corporation and in the Federal Energy Administration, the Department of Energy, and the Office of Management and Budget. Dr. Hulett was an instructor in the department of economics at Harvard University. He has earned an A.B. from Princeton University and a Ph.D. in economics from Stanford University. He is a member of the Project Management Institute. Association for the Advancement of Cost

Engineering, Society for Cost Estimating and Analysis, American Economic Association, and the American Statistical Association.

Dr. Hulett can be reached at Hulett & Associates, 12233 Shetland Lane, Los Angeles, CA 90049, USA. Tel: +1 310 476 7699; E-mail: dthulett@lainet.com; Web site: <http://www.projectrisk.com/>.

David Hillson is director of consultancy with Project Management Professional Solutions Limited, responsible for the company's project management training and consultancy. Dr. Hillson also delivers training and consultancy assignments for major clients. He has a special interest in risk management consultancy, with clients in the UK and Europe. Recent clients include GlaxoSmithKline, Texas Instruments (Europe), Westminster City Council, QinetiQ (formerly the Defence Evaluation Research Agency [DERA]), Pfizer Central Research Division, and British Telecommunications (BT).

Dr. Hillson is a fellow of the Association for Project Management (APM) and is immediate past chairman of the APM Specific Interest Group (SIG) on Risk Management (1997-2000). He is also an elected member of the Institute of Risk Management (IRM) and the International Council on Systems Engineering (INCOSE). Dr. Hillson is active in the Project Management Institute (PMI®) and was a founder member of its Risk SIG. He is also a certified PMI Project Management Professional (PMP). He was the project manager for the annual PMI European conference, held in London in June 2001.

Dr. Hillson can be reached at Project Management Professional Solutions Limited, 7 Amersham Hill, High Wycombe, Bucks HP13 6NS, UK. Tel: +44 (0) 1494 479650; Fax: +44 (0) 1494 479651; E-mail: dhillson@PMProfessional.com; Web site: <http://www.pmprofessional.com/>.

Ron Kohl has been involved in the large systems integration business for 25 years, beginning with NASA's Space Shuttle and Space Station programs (Onboard Flight Software Systems) while with IBM's Federal Systems Division in Houston. Mr. Kohl has provided process, training, and program/proposal support in systems and software engineering areas for several years with Loral's and Lockheed Martin's Federal Systems Headquarters Technical Staff and then with Lockheed Martin's Software and Systems Resource Center. He is currently with Titan Systems Co.-AverStar Group as the chief systems engineer for NASA programs, providing software IV&V and other systems and software engineering services to NASA and other federal agencies.

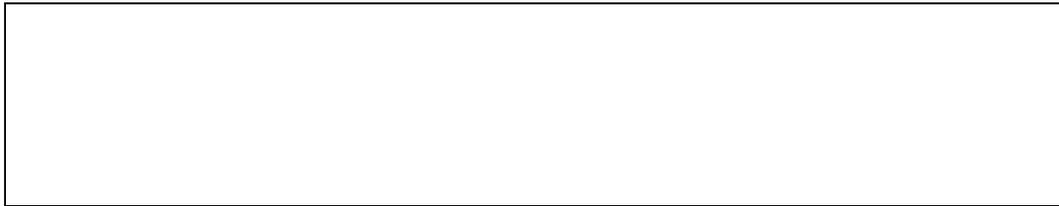
Mr. Kohl is actively involved in several professional and industry associations: the Government Electronics & Information Technology Association's (GEIA) G-47 Technical Committee (TC) and the newly formed GEIA Information Technology and Integration TC (chair), INCOSE's Measurements Working Group (WG) and Risk Management WG, and the IEEE's Architecture WG (coauthor, IEEE Standard 1471, "Recommended Practices for Architecture Descriptions"). He has a B.S. in mathematics from the University of Wisconsin-Oshkosh and an M.S. in mathematics from Southern Illinois University.

Mr. Kohl can be reached at Titan Systems Co., Civil Government Services Group, 3581 Mar Lu Ridge Road, Jefferson, MD 21755, USA. Tel: +1 301 874 3509; Fax: +1 304 367 8221; E-mail: rjkohl@prodigy.net.

[Previous Story: Opening Statement](#)

[Next Story: Making It Up as We Go: The Perils of Ad Hoc Risk Management](#)

[Back to Top](#) | [Contents](#) | [Newsletter Home Page](#) | [Resources for IT & Software Professionals](#)



Cutter IT Journal® is published 12 times a year by Cutter Information Corp. **Cutter IT Journal®** covers the software scene, with particular emphasis on those events that will impact the careers of information technology professionals around the world.

Editor Emeritus: Ed Yourdon

Editorial Board: Larry L. Constantine, Bill Curtis, Tom DeMarco, Peter Hruschka, Tomoo Matsubara, Navyug Mohnot, Roger Pressman, Howard Rubin, Paul A. Strassmann, Rob Thomsett

Publisher: Karen Fine Coburn

Managing Editor: Karen Pasley, Tel: +1 573 447 1331; E-mail: kpasley@cutter.com

Subscription Information: Tel: +1 781 641 9876; E-mail: service@cutter.com

Production Editor: Linda Mallon, Tel: +1 781 641 5130; E-mail: lmallon@cutter.com

Circulation Office: Cutter Information Corp., 37 Broadway, Suite 1, Arlington, MA 02474-5552. Tel: +1 781 641 9876 or, within North America, +1 800 492 1650; Fax: +1 781 648 1950 or, within North America, +1 800 888 1816; **E-mail:** service@cutter.com; **Web site:** www.cutter.com/itjournal/.

Subscriptions: \$485 per year; \$585 outside North America. For subscriptions visit <http://www.cutter.com/itgroup/itorder.htm#nls>, or call +1 800 964 5118 or +1 781 641 5118.

©2002 by Cutter Information Corp. ISSN 1522-7383. All rights reserved. No part of this document may be reproduced in any manner without express written permission from Cutter Information Corp.