




STRATEGIC MARKET PERSPECTIVE

Contractual Approaches to Project Risk Reduction

U.S. Business Integration Program



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Contractual Approaches to Project Risk Reduction

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Abstract

Change implies risk. There are elements of risk in all systems integration projects. Sometimes the risk is negligible, sometimes it is great but it must always be identified, measured and minimized. Many service vendors and their customers utilize their contract as a mechanism for reducing their exposure to risks. This report examines how risk reduction is approached from the vendor's and customer's points of view.

The report identifies the elements of the work that are perceived as having an element of risk. Customers do not always share the vendors view of where risk may exist or the extent to which part of the project may have high risk. These areas of difference are highlighted.

Vendors use differing techniques to determine the potential risk within a project. Their analysis is often a key determinant of the proposed project price. As the systems integration market changes and the types of projects evolve, then pricing structures also evolve. This report ties together some of the commonly used pricing practices and the associated project types.

Once the price and contract are in agreement, it is then necessary to manage the project and the associated risk. There are a variety of tools and practices being used in this area. These are discussed and trends are identified.

The report concludes with an examination of the relationship between users and vendors and a summary of trends in risk management within user organizations as well as within vendor companies.

This report contains 86 pages and 25 exhibits.

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***Contractual Approaches to Project Risk
Reduction***

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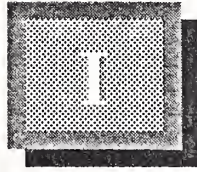
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Introduction

Undertaking any significant systems integration (SI) project, whether in-house or in conjunction with a professional services (PS) or SI vendor, usually entails some significant risks. These projects tend to be large, frequently involve the use of new technologies and require sophisticated management processes to ensure that:

- The delivered functionality meets user requirements.
- Schedules and deadlines are, in fact, met.
- Actual costs are held close to forecasted costs.
- Implementation of the resulting systems and related business processes are accomplished in an orderly and effective manner.

The history of major systems development efforts contains numerous examples of projects that did not meet at least one of these objectives, and there is no shortage of examples that failed on two or more. To some degree the very existence and rapid growth in the use of systems integrators over the past decade has been fueled by the user community's desire to reduce the risks and increase the probability of success for major SI efforts by partnering with firms who specialize in the development and implementation of complex information systems.

Users look to these firms to provide:

- Expertise in the applications relevant to their industry
- Experience in the use of current technology

- Sophisticated tools and processes to insure accurate and timely implementation

It is safe to assume that all of these things contribute to reducing the risks. Nevertheless, risks still and will continue to exist in major systems integration projects, with the sources of risk frequently perceived differently by SI vendors and users of their services.

A

Purpose

The purpose of this study is to examine how the risks are perceived by both parties, and gain an understanding of what mechanisms, contractual and otherwise, are put into place to contain risk in SI engagements. Specifically, this study identifies user and vendors views on:

- The areas of risk associated with SI projects and their impact on the project outcome
- Approaches to assessing risks for specific projects
- Vendor and user attitudes toward the sharing of risks
- The contract mechanisms and management processes used to control risks
- The impact of risk on project pricing

B

Scope and Use

The scope of this study is limited to users and SI vendors in the United States.

From a vendor's perspective the study should prove useful by:

- Providing insight into how users see the risks associated with SI contracts

- Identifying the way other vendors deal with risk-related issues contractually
- Pinpointing tools and methodologies employed to manage risk

Users should also benefit from the findings, by gaining a greater understanding of the wide variety of approaches taken by various vendors to risk assessment and management and the impact of risk on vendor pricing.

C

Methodology/Demographics

1. Methodology

To obtain the data used in this analysis, interviews were conducted with 65 companies who have used systems integrators in a least one engagement. In addition, 11 interviews were conducted with major systems integrators. (Appendices B and C contain the user and vendor interview guides).

In some instances users and vendors were asked identical questions to allow for a direct comparison of the responses.

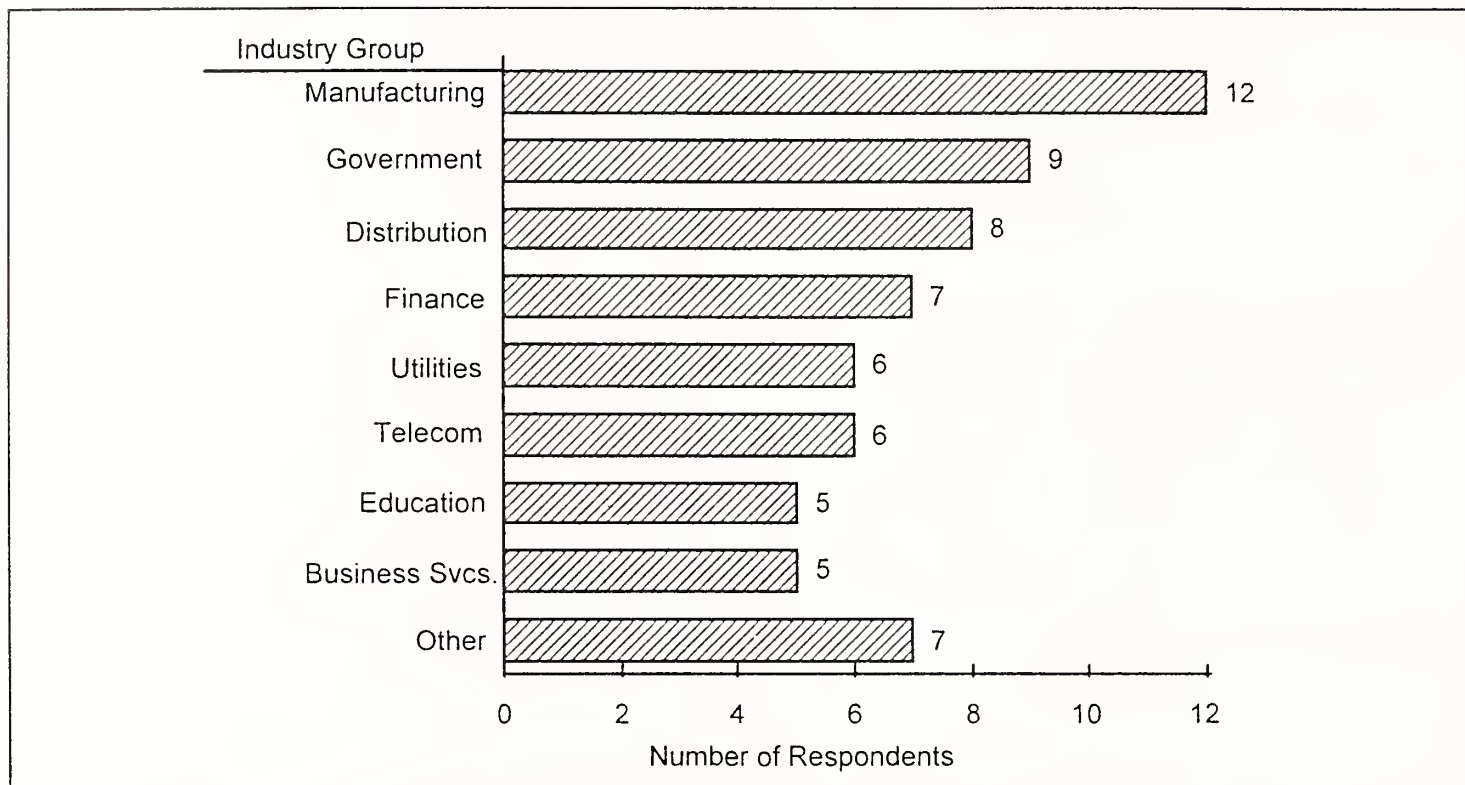
In addition to the data gathered through the field interviews, information from INPUT's prior systems integration research, along with data from secondary sources, was used to formulate the conclusions and recommendations presented here.

2. Demographics

In general, the user firms participating in the study were large. The average annual sales volume for the 65 companies was just over \$3 billion. The average number of employees was 10,600.

As shown in Exhibit I-1, a wide variety of industries was represented.

Exhibit I-1

Distribution of User Respondents by Industry

Eighty five percent (85%) of the user respondents were CIOs or the heads of information systems from major divisions of large corporations. The remaining 15% consisted of general managers or contract specialists.

On the vendor side the variety was somewhat greater. In the case of the Big 6 companies, partner-level individuals with direct practice experience were the rule. For hardware companies, respondents tended to be individuals responsible for contract strategy for the organization's professional services, or systems integration division.

In some instances more than one individual was contacted within a user or vendor firm to obtain the necessary information. In those cases a single questionnaire was prepared reflecting the composite view.

D

Organization

The remainder of the report is organized into four chapters:

- Chapter II, *Executive Overview*—provides a synopsis of the findings of this study along with recommendations.
- Chapter III, *Users' Perspectives on Risk*—presents INPUT's analysis of how users perceive risk when undertaking an SI project with an outside vendor, the processes they deploy to control the elements of risk, and the types of contract mechanisms they feel are effective in managing the risk.
- Chapter IV, *Vendors' Perspectives on Risk*—examines the same issues as Chapter III, but from a vendor perspective and identifies areas where vendors and users differ in their views regarding risk and its management.
- Chapter V, *Risk in Contracts*—discusses user/vendor relationships and identifies current trends in SI contracts
- Appendix A, *Definition of Terms*—provides definitions of key terms used throughout this report. A complete set of INPUT industry definitions may be obtained by contacting any INPUT office.
- Appendices B and C contain the user and vendor interview guides used for this study.

E

Related Reports

U.S. Systems Integration Market Forecast, 1993-1998

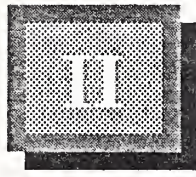
Systems Integration Opportunities in Reengineering

Systems Integration in Discrete and Process Manufacturing

Systems Integration in Health Services

Systems Integration in State and Local Government

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Executive Overview

Over the past ten years, users have increasingly used professional services and systems integration firms to assist them in major systems development efforts. They look to these vendors for application and industry expertise, currency in new technology, and overall management of the implementation. Furthermore, since systems integration (SI) agreements assign primary responsibility for a project delivery to the vendor, users anticipate that the vendor will assume the bulk of the responsibility for managing risk. Yet, despite the growing sophistication in tools and methodologies, undertaking a major systems integration effort still involves significant elements of risk to both parties.

How these risks are perceived, evaluated and managed impacts the nature of the contractual agreement between the parties and the working relationship between the vendor and buyer.

The objective of this study is to:

- Gain insight into how both parties perceive and evaluate risk
- Provide an understanding of how risk is managed in SI contracts
- Examine the processes used to minimize and manage risk during SI engagements
- Identify trends in risk assessment and management that are likely to have an impact on future contracting strategies and user/vendor working relationships.

A

Introduction

To gather information for the study, INPUT conducted interviews with 11 systems integrators and 65 companies that had used systems integrators within the past two years. They were asked to comment on:

- Their perceptions on the sources of risk and the impact of each
- How they assessed risk
- Contract mechanisms and management processes used to control risk
- The impact of risk on project pricing
- Attitudes toward risk sharing with vendors
- Their views on the quality of the relationship with their SI vendor

This research was the primary source of information used in the analysis presented here.

B

Sources of Risk

Users and vendors identified 10 key areas of risk associated with systems integration efforts.





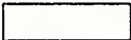




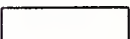
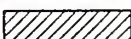

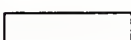







- The initial identification of requirements by the user
- Lack of user involvement during the course of the project
- Project management by the SI vendor
- Project management by user personnel
- Resource estimating by the vendor
- Resource estimating by the user

- Risk evaluation by the vendor at the start of the project
- Risk evaluation by users at the start of the project
- Control over user requests for change
- Complexity of the technology


In general, there was agreement between users and vendors on the potential impact of each of these sources of risk. But there were some differences worthy of comment. Exhibit II-1 shows how users and vendors compared in their assessments of risk levels.

EXHIBIT II-1

Comparison: User and Vendor Assessments of Risk Impact

Source of Risk	Impact Assessment by:	
	User	Vendor
Requirements Identification by User		
User Involvement During the Project		
Project Management by User		
Resource Estimating by User		
Risk Assessment by User		
Resource Estimating by User		
Project Management by Vendor		
Risk Assessment by Vendor		
Change Control		
Complexity of the Technology		

 = High

 = Medium

 = Low

The three major areas of difference are:

- *Complexity of the Technology*—Vendors see the introduction of client/server (C/S) and other new technologies as much riskier than users. To some degree, users' relative lack of concern is attributable to the hype about the ease of implementation. But vendors also contribute to this high degree of comfort that users have by emphasizing their processes for establishing requirements, prototyping and design, leaving the user to assume that once design is completed, technology risks are minimal.
- *User-Risk Assessment*—Users generally consider their own assessment of the risk as a source of risk itself. But, vendors disagree, largely because in the end, it is their own assessment of the risk that will dominate the estimating and pricing of a given engagement.
- *User-Project Management*—Since users expect vendors to assume the responsibility for delivery, they seldom see the role of their project manager or liaison person as a high source of risk. Vendors take the opposite view indicating that the user project manager is the key player on the user side. They look to this individual as a key facilitator and a gateway to other user resources.

But despite these differences, vendors and users alike agree that all the sources cited above had potential to introduce some level of risk into the effort.

C

Risk Control Strategies

1. The User View

The findings indicate that while users recognize the elements of risk in an SI project, they generally feel that their ability to have a significant impact on risk containment is limited. The key areas where they feel they can make a contribution are:

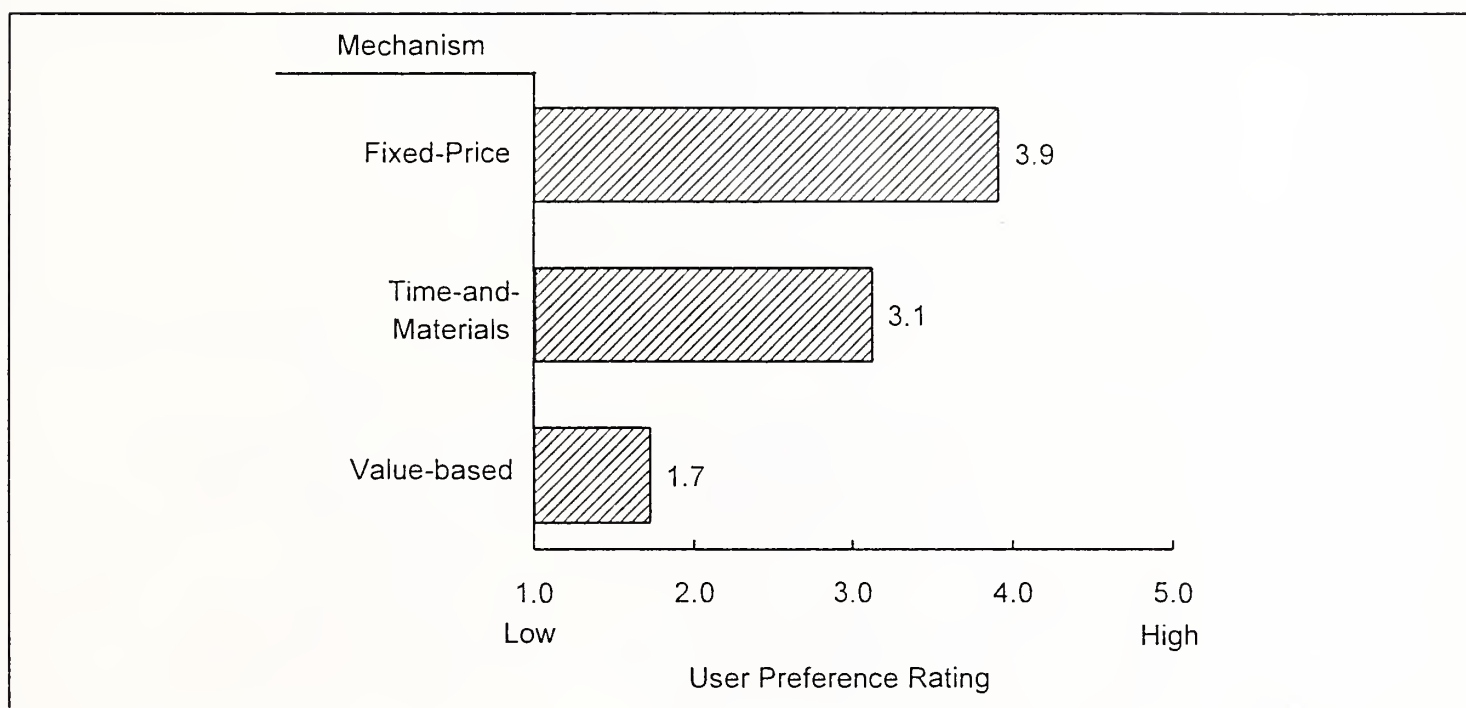
- Strong compliance with change control procedures
- The provision of dedicated user personnel to the project team

- The adoption of the integrator's project management, risk containment and other methodologies

Essentially, users hope to cover their risk through contract mechanisms. They have a strong preference for fixed-price agreements, rating this approach above all others as shown in Exhibit II-2.

EXHIBIT II-2

User Preferences for Pricing Mechanisms

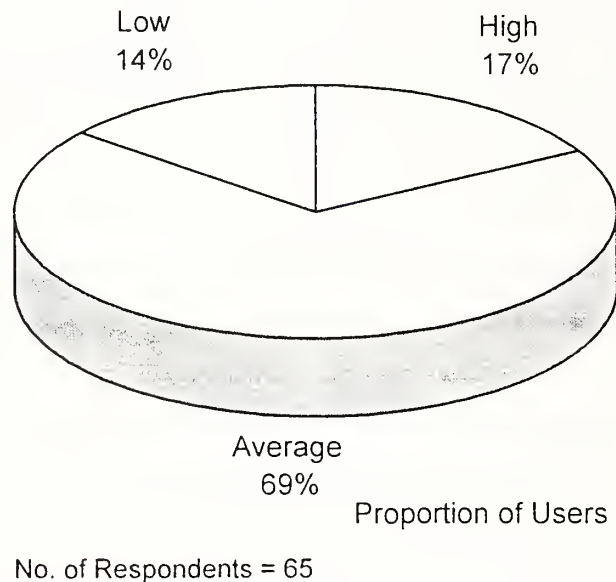


In addition to limiting their risk financially through the fixed-price agreement, users negotiate for other contract mechanisms to limit their risk.

- Inclusion of task milestone commitments in contracts was indicated as a key strategy of 94% of the users in the survey.
- Performance clauses and warranties were cited in more than 75% of the cases.
- Bonus payments are also used, but presently by only 20% of the respondents.

Exhibit II-3 shows users are generally satisfied with the levels of risk containment they are able to achieve using these mechanisms.

Exhibit II-3

User Levels of Satisfaction with Risk Containment**2. The Vendor View**

Vendors on the other hand, assume most of the risk and have developed many sophisticated approaches to assessing and managing the risk associated with an SI engagement.

Of primary importance is risk assessment itself. Generally, vendors approach this process using one of the following three approaches.

- *Risk Scoring*—The use of formal scoring systems for assessing each element of risk (usually by task) based on historical databases.
- *Margin Based Analysis*—Estimating and pricing the potential agreement allowing for a variety of risk scenarios; then adding a standard margin to the most likely or worst case.
- *Prospect Assessment*—Application of a scoring system to the user contributions to risk; then factoring the pricing by a multiplier based on the assessment of the prospect.










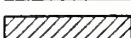

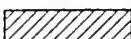
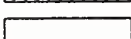
Risk scoring was cited by 55% of the respondents as the preferred method with margin-based analysis and prospect assessment being used by 27% and 18% of the respondents respectively.



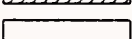
In addition to specialized risk assessment processes, vendors apply additional tools and techniques to minimize risk throughout the engagement. They tend to focus on estimating, project management, subcontractor management and project pricing.

The types of techniques and tools used for each of these areas are shown in Exhibit II-4.

EXHIBIT II-4

**Techniques Used by Vendors to Minimize Risk in
Key SI Management Processes**

Process	Tool or Technique	Level of Use
Estimating	Function Point Analysis	
	Proprietary Methodologies	
	Multiple Estimates	
	Monte Carlo Techniques	
Project Management	Continuous Tracking and Review	
	Proprietary Project Mgt. Process	
	Quality Assurance System	
Subcontracting	Prequalified/Preferred Suppliers	
	Full Integration into Team	
	Payment or Contract Mechanisms	
Pricing	Task Estimating Including Risk	
	Incentive Mechanisms	
	Range-based/Phase-fixed	

 = Heavy Use
 = Medium Use
 = Light Use

As is the case with users, vendors also look to contract mechanisms to help manage risk. In general these mechanisms are designed to increase the level of risk sharing on the part of the buyer. They include.

- Providing for detailed specification of user participation, responsibilities and resource commitments as part of the agreement
- The contractual specification of detailed management processes for change control, risk management and quality assurance

Vendors are also pushing hard for pricing arrangements which either increase risk sharing, or provide potentially higher rewards for the assumption of risk.

- Range-based pricing is becoming more common. It allows for a range of prices for a phase or task based on predefined contingencies which might arise.
- Phase-fixed pricing is also becoming more popular. Under this method a price is fixed for the first phase and estimates given for subsequent phases or tasks. At the completion of the first fixed-price phase, prices are fixed for one or more of the subsequent phases.
- When the financial benefits of successful implementation are well defined, many vendors will encourage benefit sharing approaches such as value-based pricing. In these situations, the price may be fixed, but at a lower level, additional revenues will then be earned based on some portion of the actual financial benefits realized by the client.
- In situations where an effort is truly leading edge, some vendors encourage a joint venture approach, retaining some type of ownership rights to the technology as an incentive in addition to an agreed upon price.

Finally, many of these approaches can and are being combined in a single agreement, offering significant opportunities to tailor pricing and process with the risk. In fact, based on the survey results, vendors anticipate a significant shift from straightforward fixed

price and time and materials agreements to those incorporating some of the mechanisms discussed here.

D

Trends in Risk Management

In summary, a number of trends are emerging with regard to the management of risk in systems integration projects. Essentially, these fall into two categories; those impacting the nature of the contract relationship between buyers and vendors, and those effecting change in the SI project management processes.

The major trends impacting contracting are:

- An accelerated shift from time and materials pricing to value-based or other incentive-based approaches
- A movement toward pricing schemes such as range-based and phase-fixed which encourage risk sharing (with or without incentive clauses) and acknowledge at the start of a project that there may be elements of risk that simply can not be properly estimated in financial terms.
- A growing tendency to include detailed contract specifications for user resource requirements down to the level of phase and task.
- The use of joint venture development efforts between buyers and vendors to deal with very high-risk projects involving advanced or unproved technology.

Those trends impacting SI management processes include:

- An increase in the use of computer-assisted continuous monitoring processes supported by on-line computer applications.
- A growth in the use of specialized quality assurance assessment teams to provide early problem identification and recommended solutions.

- An increase in the inclusion of user personnel in quality assurance, ongoing risk assessment and other project monitoring and control processes, formerly considered internal to the vendor.
- A growing use of prototyping and application modeling to insure user satisfaction with the end product.

Assuming INPUT's assessment of these trends is accurate, they are likely to result in some fundamental changes in how risk is perceived, managed and priced in systems integration efforts.

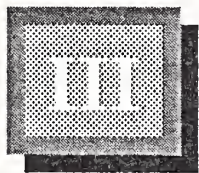
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Conclusions and Recommendations

- While users still see fixed-price agreements as the best approach to minimizing risk in SI projects, vendors will continue to push for more risk sharing, resulting in a gradual shift from a buyer/contractor type of relationship to one that functions more like a partnership. Vendors who wish to benefit from this shift will need to be open to more innovative contracting approaches.
- As this shift occurs, users will become increasingly integrated into project management processes that once were considered internal to the vendor. Process will need to be modified to accommodate that integration.
- Over time, contracts will focus more on specifying the processes to be used to manage quality and risk than on specific actions to be taken with regard to a given project.
- Review, control and problem resolution process will become virtually real time, using new technology and systems to enable the communication of issues and the development of adjustments to plan on an ongoing basis. Some vendors are already using these types of processes. Others will need to assess and invest in these types of systems to remain competitive.
- Pricing mechanisms will continue to adjust to accommodate the growing trend toward risk sharing.

- Over time, vendors will encourage long-term management agreements with their best clients; and users will become more receptive to the concept.
- The majority of users already prefer to work with one vendor, and are likely to give an existing vendor preferred supplier status.
- Vendors can reduce investments in marketing and startup expenses
- Both parties can benefit from the investment that they have already made in joint processes
- Risks are significantly reduced for future efforts once the first project has been completed.

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User's Perspectives on Risk

In general, users look to SI vendors as partners in a major systems integration effort. The implication, of course, is that the risks associated with the effort will be shared. However, for many user companies, the survey data indicates that little is done up front to identify and assess the risks associated with a proposed effort. So how do users factor risk into the partnership equation? This chapter addresses that question by examining:

- How users perceive the criticality of various elements of risk
- The processes and contractual mechanisms they put into place to manage the risk
- Their perspectives on who should assume responsibility for the risk associated with various aspects of a systems integration engagement
- Their views on the key contributors to quality in the partnership arrangement for risk sharing
- Their preferences for various approaches to contract pricing

A

Areas of Risk

Overall, the survey identified the following nine key areas of risk associated with major systems integration efforts.

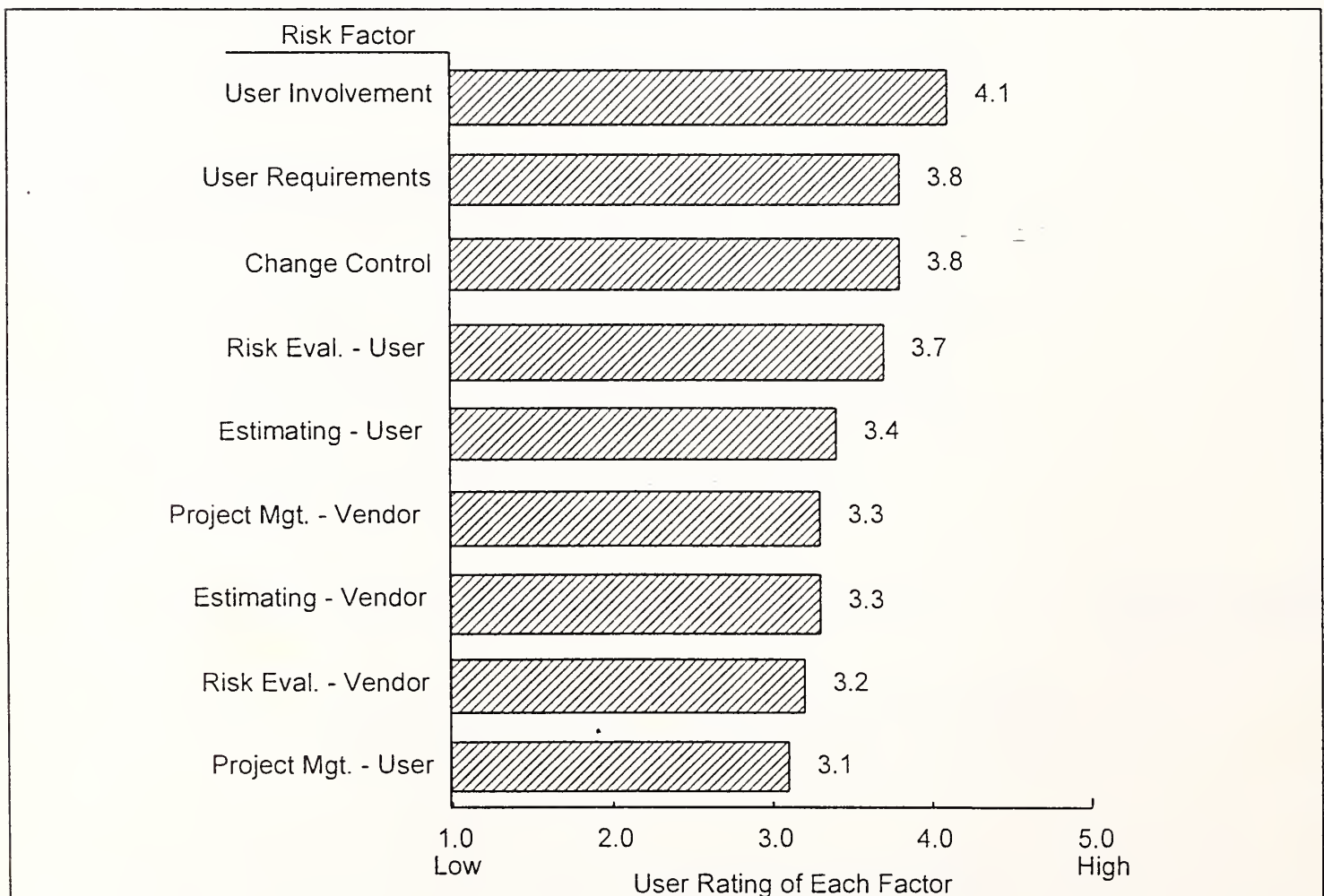
- The initial identification of requirements by the user
- Lack of user involvement during the course of the project

- Project management by the SI vendor
- Project management by user personnel
- Resource estimating by the vendor
- Resource estimating by the user
- Risk evaluation by the vendor at the start of the project
- Risk evaluation by users at the start of the project
- Control over user requests for change

Exhibit III-1 shows how significant survey respondents felt each of these sources is in terms of impact on the typical SI effort. The values indicate the average assessment of the sample on a scale of 1-5 with 1 being insignificant and 5 indicating very significant.

EXHIBIT III-1

User Ratings of Key Risk Factors



The fact that every area had an average rating greater than 3.1 indicates that users recognize all nine sources to be legitimate areas of risk. However, the lack of discrimination between the highest rated and the lowest (4.1 to 3.1) would seem to say that for all practical purposes users see these sources of risk as equal in terms of their potential impact.

Grouping the risk elements in terms of which side of the partnership has the majority of the control provides some additional insight. For example, the four highest-rated contributors to risk have an average rating of 3.9, and are definitely factors where the user has the bulk of the control. For factors where the vendor is dominant the average is just under 3.3. While this difference is not statistically significant in a sample of 65, it does tend to indicate that users recognize that they have a significant impact on the risk associated with a project—probably more impact than the vendor.

This concept is further reinforced when the data is analyzed on the basis of whether the respondent is a “first time” user of SI services or has used systems integrators for multiple projects. Users with multiple experiences tend to rate the impact of their contribution to the risk at 3.8, but their assessment of the vendors contribution drops to about 2.6. Apparently, companies who have experienced more than one major SI project see that the same factors exist and acknowledge vendors are perhaps more sophisticated at managing those components that they control.

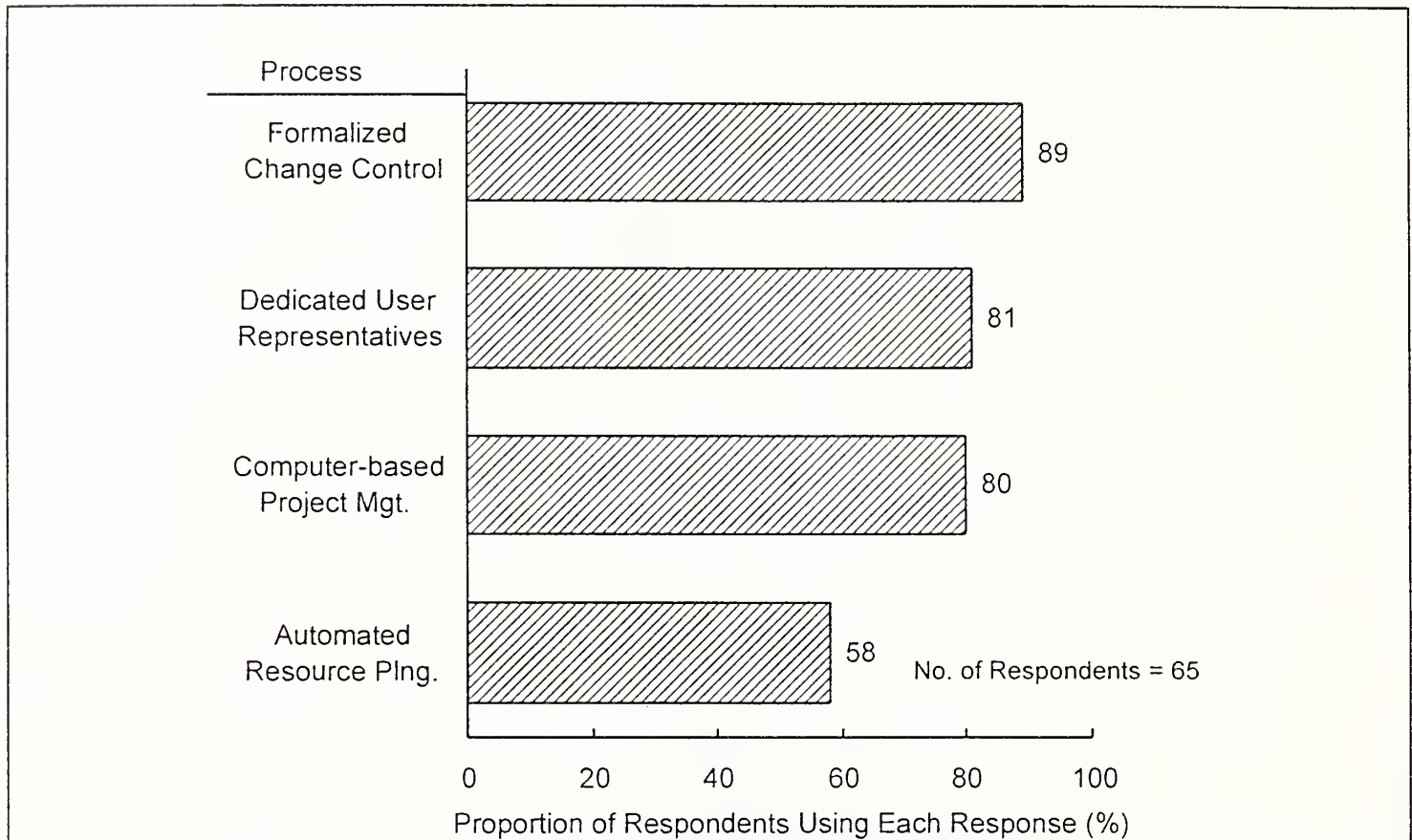
1. Risk Management—User Perspective

Users employ a variety of processes and contract mechanisms to manage the elements of risk associated with SI efforts. On the process side four key elements come into play.

- Automated planning of resource requirements
- Computer-based project management
- Formalized change control procedures
- Dedicated user representatives on the project team

Exhibit III-2 shows the proportion of respondents who utilized each process.

EXHIBIT III-2

Use of Risk Minimizing Processes by Users of SI Services

The fact that 80% or more of the respondents also used computerized project management processes and dedicated staff indicates that these approaches have become more or less standard practice. By comparison, automated resource planning appears to be less popular as a risk management tool. This is probably due to the fact that there are few tools on the market that adequately address the need.

It should be pointed out that to some degree, the use of these risk containment processes has been pushed on the buyers of SI services by vendors who see the lack of formal change control and dedicated user involvement as “red flags” in terms of escalating risk. Consequently, these processes are frequently required or mandated as part of the contract.

Users also employ a number of contract mechanisms to mitigate risk. The most frequently used include:

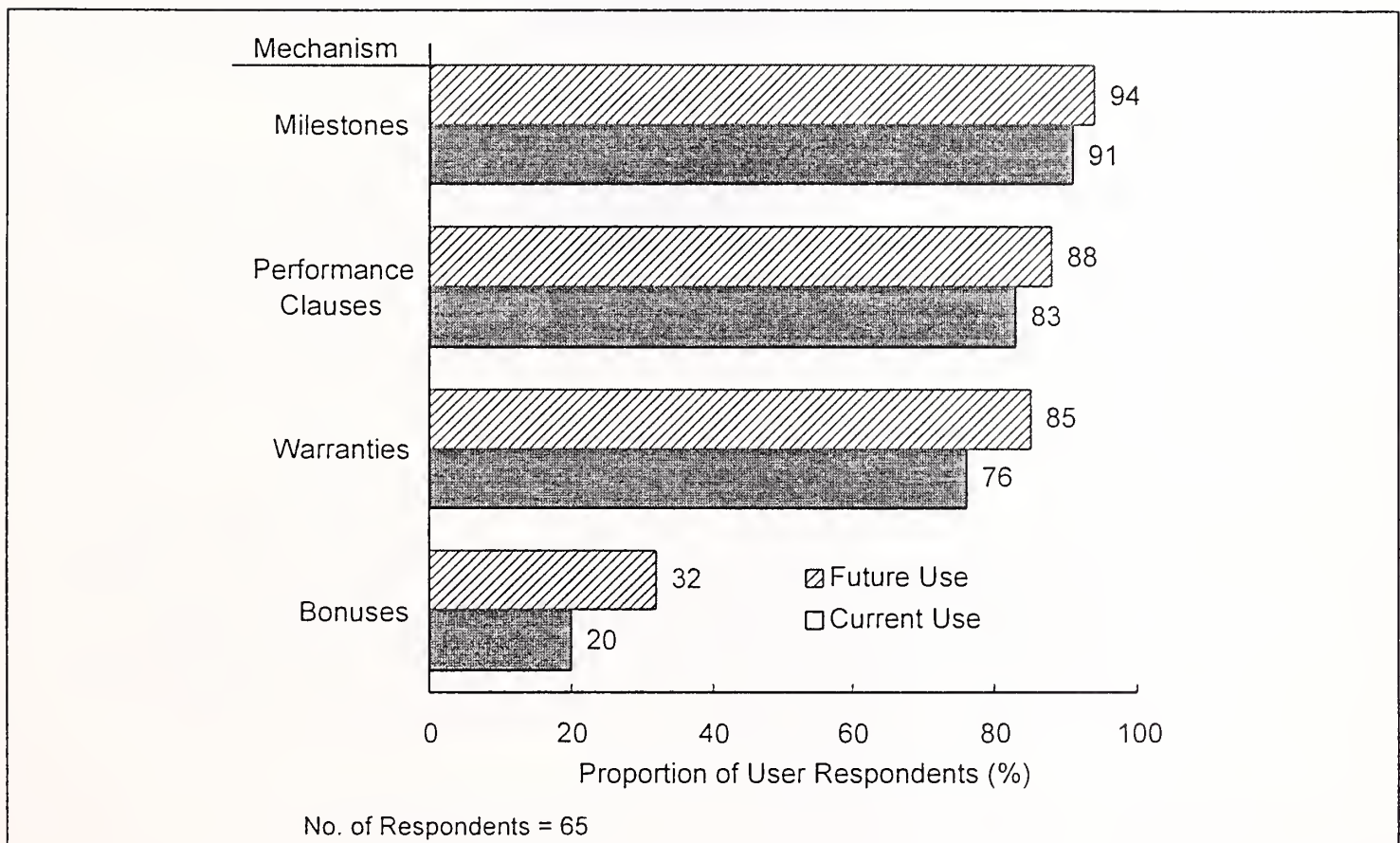
- The inclusions of milestones in formal contracts

- Performance clauses
- Guarantees and/or warranties of one type or another
- Bonus payments for early completion or under-cost performance

Exhibit III-3 shows the proportion of survey respondents currently using these mechanisms, as well as the proportion who plan to be using them within the next two years.

EXHIBIT III-3

Contract Mechanisms Used to Minimize Risk by Users—Current and Future



With regard to contract mechanisms, the inclusions of specific milestones and performance clauses (mostly related to task completions) appear to be a standard practice.

Although the use of bonus mechanisms was the least-frequently cited contract risk containment mechanism, the survey data indicates that it will experience a 60% increase in usage over the next two years. A number of factors are encouraging this growth.

- Vendors continue to push for more incentive-based pricing. Bonus payments for early completion, etc., provide a straightforward mechanism for accomplishing that objective.
- A growing number of systems integration projects are the direct result of business process reengineering initiatives. When this is the case, many vendors tend to push for value-based pricing or bonus payments by tying their revenues for SI services directly to the financial benefits achieved as a result of the business reengineering effort.
- Most users perceive the relationship with a systems integrator as a partnership where risks will be shared. Thus, sharing the financial rewards in the form of bonus or incentive payments is a logical way to reward exceptional performance on the part of the integrator.

While we can anticipate that use of financial incentives will become a growing part of SI agreements, it should be pointed out however, that contracts that use these mechanisms almost invariably balance the “carrot” with the “stick”. Of the 20 respondents who indicated that bonus payments had been part of their contracts, 19 indicated that these were balanced by penalty payments of some type or another.

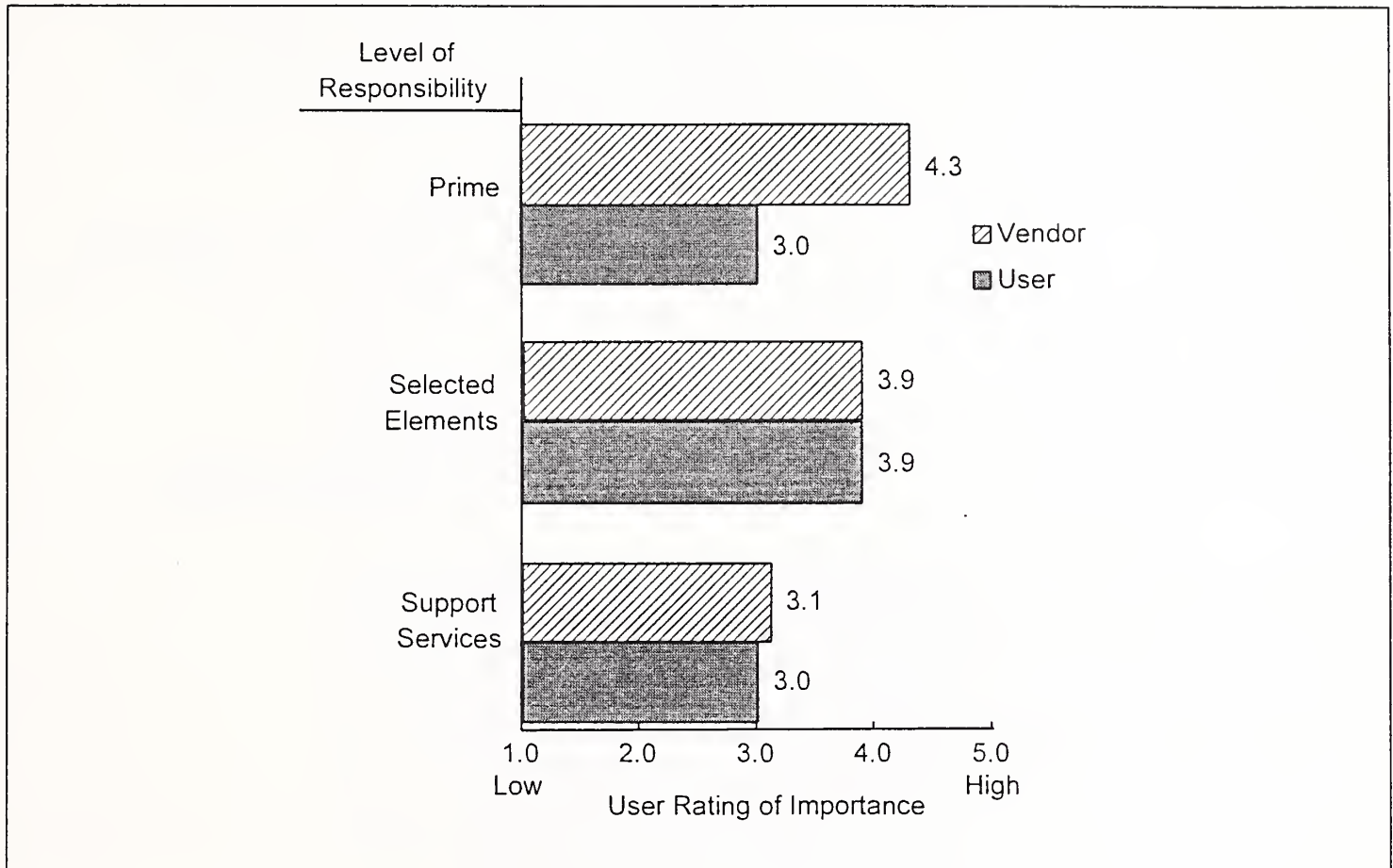
Finally, several respondents commented that even though they currently used financial incentives as a key contract mechanism for risk management, the process had to be managed carefully. Unless the definition of the reward and the processes for establishing eligibility are carefully spelled out, debate over qualification for the award or its amount could quickly reduce a partnership to an adversarial relationship.

B

Working with SI Vendors

The study’s findings support the concept that while an SI engagement is a partnership, users expect vendors to take prime responsibility for the overall effort. Exhibit III-4 shows how users rate the importance of their roles, and those of vendors in terms of assuming responsibility.

EXHIBIT III-4

User Importance Ratings for Levels of Project Responsibility

The results can be interpreted as follows:

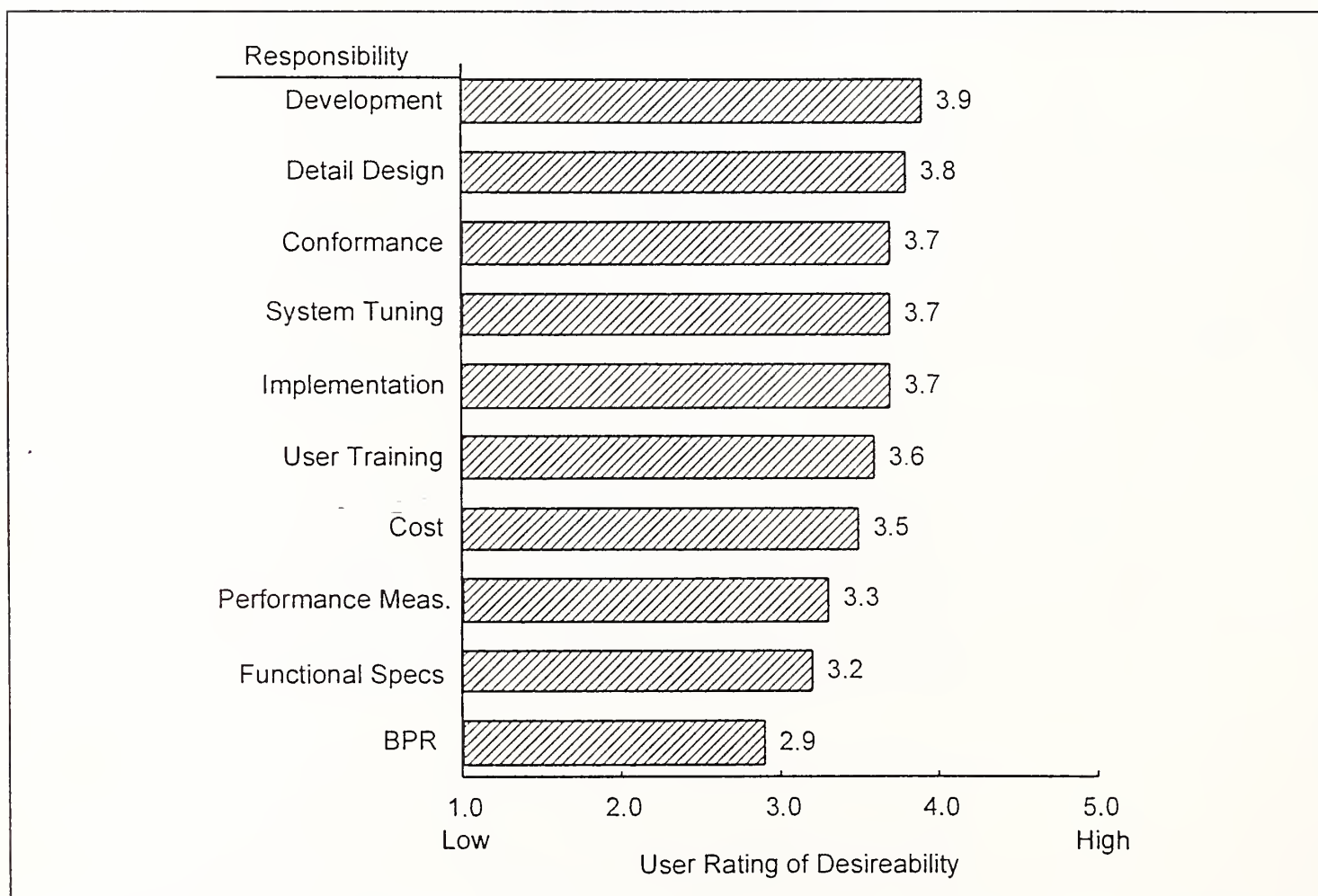
- The 4.3 for vendors, in terms of assuming prime responsibility for the completion of the contract, is consistent with the notion that the main reason for hiring an integrator is to provide overall leadership in the effort from the planning stages through implementation.
- The relatively high 3.9 importance rating for “selected elements” for vendors and users reflects the partnership aspect of the arrangement. In other words, within the overall framework of the vendor-managed project, responsibility for various subtasks may be assigned to either partner, and it is relatively important that the assignments be clear.

- The lower ratings for support services indicate that from a users perspective either partner can assume responsibility for these services. However, it is not nearly as important as establishing overall responsibility with the vendor and insuring that clear responsibility for subtasks is assigned to one party or the other.

Exhibit III-5 indicates how users rate the importance of vendors assuming responsibility for various components of a typical systems integration project.

EXHIBIT III-5

User Ratings of Desireability of Vendor Assumption of Responsibility



Development, detail design, implementation, user training, cost and performance measurement should be pretty much self-explanatory. Some of the other responsibility areas shown in the exhibit warrant additional explanation.

- *Conformance* as used here means that the final product or system meets the planned business needs.
- *System tuning* is the process of making modifications to the finished systems to improve operational performance.
- *Functional specifications* in the context of this study should be interpreted as the activity of creating the specifications.
- *BPR* is the abbreviation for business process reengineering.

Given these definitions, there are a number of observations that can be made about the relative importance users attach to the role of vendors in terms of responsibility for various aspects of the project.

With the exception of BPR, users seem to think that vendors should assume some significant level of responsibility in most of the activities associated with the project. This view is certainly consistent with the earlier observation that they want vendors to be responsible for the overall effort. However, there does not appear to be a lot of significant variation between specific types of responsibility. Average ratings varied only 1 point between 2.9 and 3.9 across the various categories.

There does appear to be one grouping of activities where users clearly see the vendor as the primary responsible party. These activities all relate to development and implementation. Design, development, tuning and implementation all received average ratings in excess of 3.7. Interestingly enough, in the area of BPR and the creation of functional specifications, users do not rate the desirability of vendor participation nearly as high (2.9 and 3.0 respectively). Yet, these are the areas where vendors are promoting their expertise. This is probably attributable to the fact that despite the amount of press on BPR, most SI agreements are still initiated at the point where some broad functional specification has already been developed, either in-house, or as the result of some prior BPR effort. In effect, it is too early in the evolution of BPR as part of the systems process to get an accurate measurement.

C

Evaluation of the Relationship

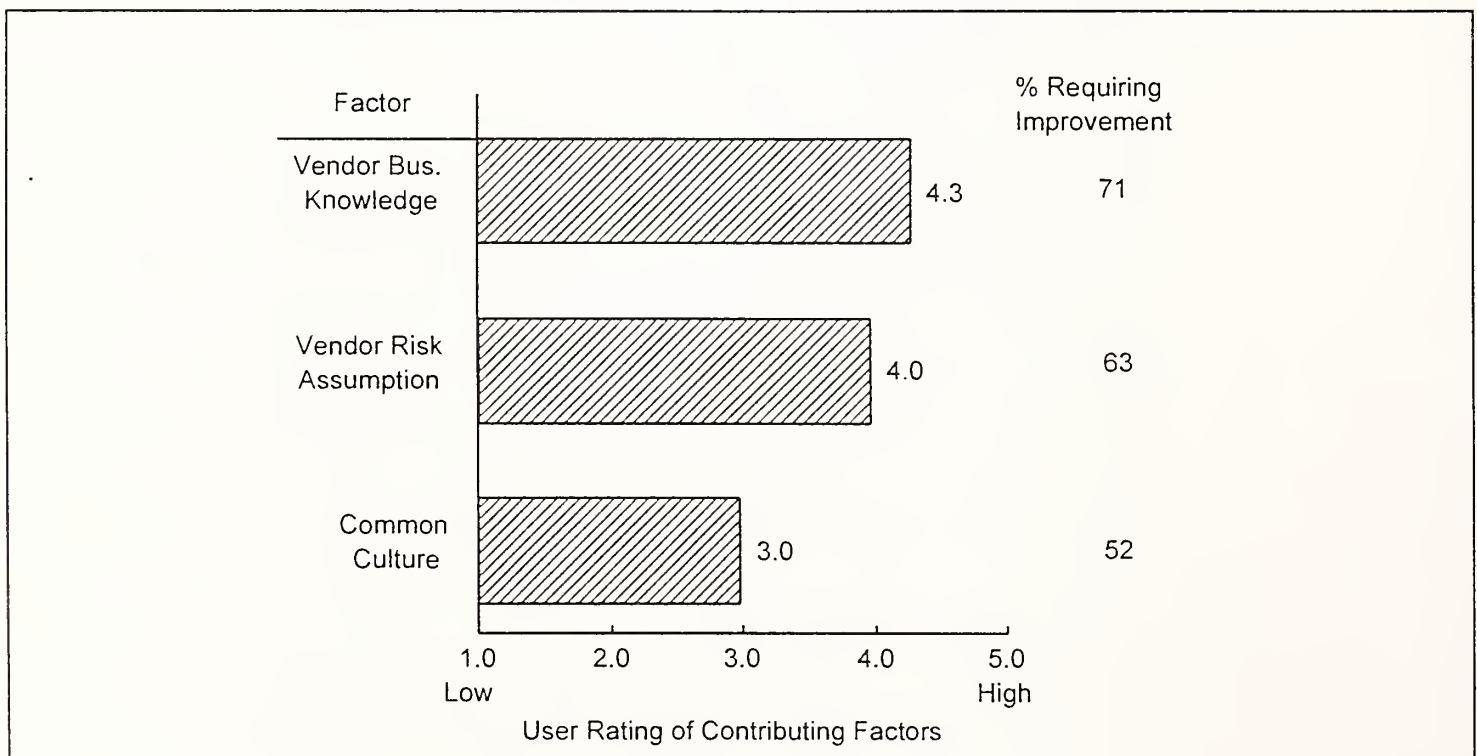
The research indicates that most companies perceive the quality of the partnership relationship between their organization and their systems integrator to be above average. The average rating for the sample indicated a satisfaction level of 3.7 on a scale of 1-5, with 5 high. However, the same group felt that there were lots of opportunities for improvement, rating the desirability for improvement in the relationship at 4.4 on the same 1-5 scale.

Users represented in the survey identified three key areas that are critical to success in the partnership including: a vendor's understanding of their business, the willingness of the vendor to assume risk and cultural compatibility.

As shown in Exhibit III-6, business understanding is key from the users perspective.

EXHIBIT III-6

User Ratings of Factors Contributing to Partnership Success



The fact that cultural fit rated significantly lower than the other factors is partially explainable by the fact that 74% of the sample had already adopted one or more preferred suppliers of SI services.

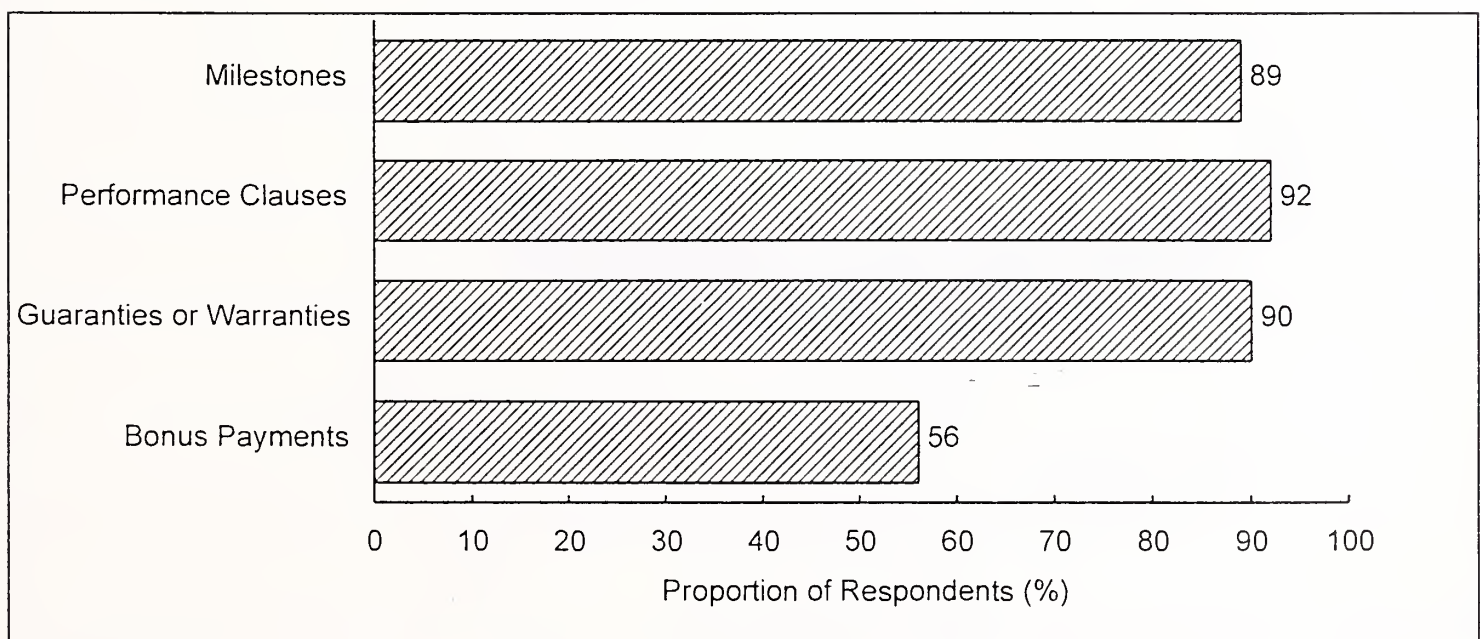
Thus, cultural fit and familiarity with the partner was already established.

Exhibit III-6 also shows the percentage of respondents who felt that improvement could be made in each area. Interestingly, the need for improvement correlates directly with the ratings on each factor. This reinforces the notion that in most instances there is room for improvement in the key areas critical to the success of most vendor/user partnerships.

As shown in Exhibit III-7, most users feel that the addition or modification of some contract components would help improve the partnership.

EXHIBIT III-7

**Proportion of Users Who Feel Relationships
Could be Improved by Contract Changes**



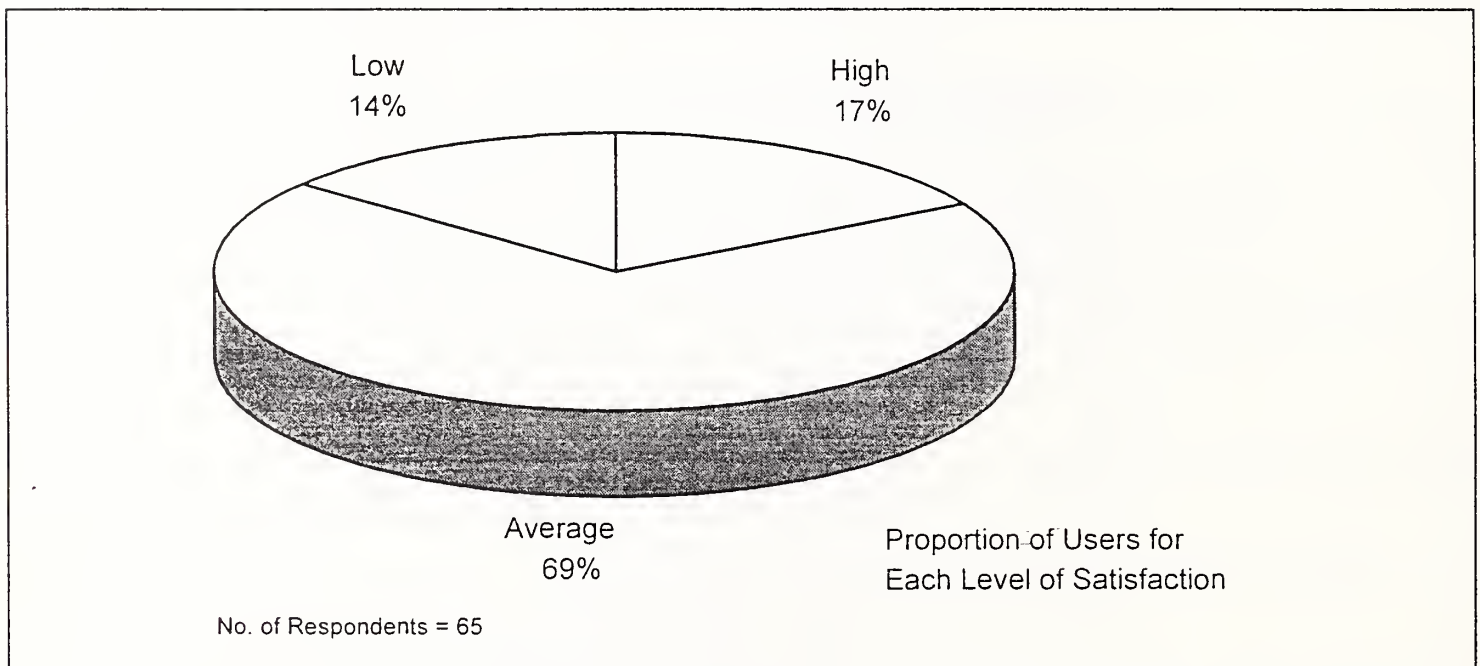
As discussed earlier, most respondents already use milestones, performance clauses and guaranties or warranties to reduce or mitigate risk. The fact that approximately 90% of the sample rates these three mechanisms as key to improving the partnership implies that their presence in the agreement helps clarify the understanding between the vendor and user at the beginning of the effort, without setting up an antagonistic relationship.

While only 20% of the respondents indicated that they currently use bonus payments or other financial incentives in their current agreements, 56% feel that the addition of these types of contract mechanisms would help to improve the quality of the partnership. This reinforces the idea that users are becoming more receptive to this type of contractual agreement and will most likely promote the concept more heavily over time.

Finally, despite the issues associated with dealing with risk, the vast majority, as shown in Exhibit III-8, seem to feel that the risk is being addressed adequately.

EXHIBIT III-8

User Levels of Satisfaction with Risk Containment



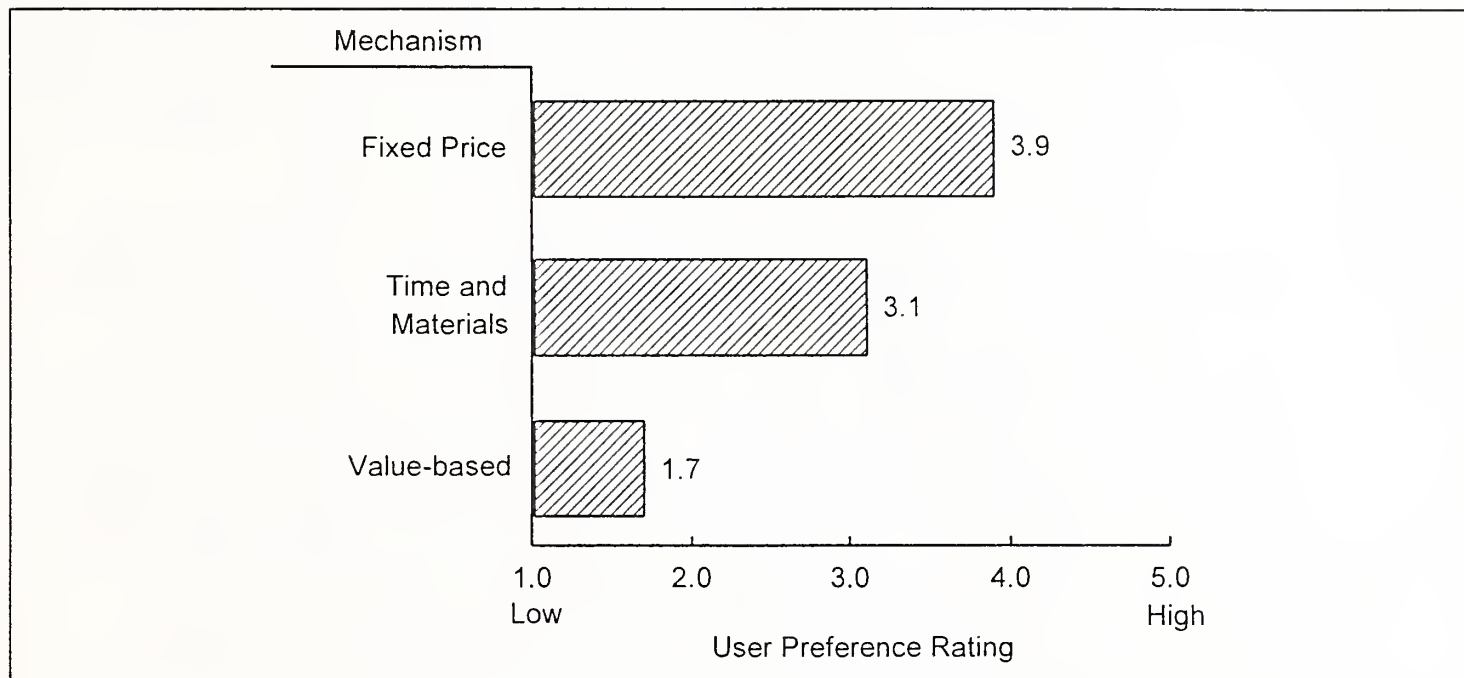
D

The Impact on Pricing

1. General Views on Pricing Strategy

Users perceptions about risk are reflected in their preferences to various approaches to contract pricing. As shown in Exhibit III-9, users clearly prefer fixed-price contracts when possible.

EXHIBIT III-9

User Preferences for Pricing Mechanisms

Fixing the price at the beginning of the project, at least on the surface, certainly reduces the financial risk associated with an SI effort, and clearly appears to be a reasonable strategy when the scope of the effort is extremely well defined. However, it does have some disadvantages.

- In situations where the vendor senses high levels of risk that are either denied or ignored by the prospect, vendors will factor the risk into the pricing, thus increasing the cost to the buyer.
- Fixing the price will clearly reduce the vendor's interest in being flexible with regard to changes in specifications, etc.
- When unanticipated events develop during the project that require midcourse adjustments in the level of resources or changes in schedules, the fixed-price approach can be a barrier to effective negotiations—turning the partnership into a potentially adversarial relationship.

Advocates of the time-and-materials approach (average user rating of 3.1) say that the obvious risk of significant overruns in cost can be managed using other types of contract mechanisms.

- They cite milestones tied to task schedules as one technique of controlling cost, and use processes jointly agreed to prior to the initiation of the project to assess early warning conditions for potential overruns or other deviations from plan.
- Another approach recommended by some users is fixing the price by major project phase. For example, an SI project that covers the generation of functional specifications through implementation, and user training may be planned as a four-phased effort. The contractual arrangement will provide for a fixed price for the first phase, and estimated prices for phases two through four. At the onset of phase two, the price will be fixed, and so on throughout the remainder of the project. In these types of agreements the contract may, or may not, provide for a fixed-ceiling price for the subsequent phases.

A number of users also indicated that they preferred a mixture of the fixed-price and time-and-materials approaches. In situations where the vendor and the buyer see a particular phase or subtask of the effort as having significant unknowns, they may agree to time-and-materials for that phase or task, and use fixed-pricing for other parts of the effort.

Clearly from a buyers perspective, fixed-pricing and time-and-materials, or some combination of the two, are the most popular pricing mechanisms today. The average of user ratings for value-based pricing was only 1.7 on the 1-5 scale. However, as already pointed out, other data gathered in the survey indicates that value-based approaches are likely to increase in popularity over time.

2. Perceived Advantages of Each Pricing Approach

Despite the preference for fixed-price, users see some advantages to each of the three major categories of pricing. The following sections list the advantages users cited for each method. The advantages are listed in descending order based on their frequency of mention by survey respondents.

a. Fixed-Price

- *Budget Management*—Clearly the dominant advantage cited by users for fixed-price approaches was the fact that it provides them with a way to guarantee the budget for the effort. Besides the obvious advantage of providing a fix on the budget, users indicated that fixed-pricing, allowed for more effective comparison of competitive bids, and made it easier to sell projects to executive management.
- *Risk Management*—This was the second most frequently cited advantage to fixed-pricing. Respondents expressed this advantage in a number of ways. Some indicated that “for a price” it met their objective of forcing the majority of the risk on the vendor. Other’s indicated that it forced the user and vendor to a more careful examination of project objectives, scope and specifications in advance—reducing the overall risk.
- *Project Control*—Although third in the ranking, at least 10 respondents believed that using fixed-priced contracts encouraged vendors to keep projects on track by placing the burden of resource and schedule management directly on the vendor.

b. Time-and-Materials

- *Cost*—This was the most frequently cited advantage. Essentially, users feel that a properly managed time-and-materials contract will yield them the lowest cost for a large variety of projects, by eliminating the “padding” that vendors include in fixed-price deals to cover the risk. To quote one respondent, “You only pay for what you’re getting.”
- *Flexibility*—A significant number of users felt that the ability to change course or refine specifications during the project could only be accomplished through the use of time-and-materials contracts. They expressed concern over the quality of the results in situations where fixed-pricing was used and changes needed to made midstream.

c. Value-based

Only 12 respondents elected to comment on the advantages of value-based pricing. Their comments indicate that the primary advantages of this approach are:

- It creates an environment to support more visionary thinking about overall benefits to the buyer.
- It encourages “partnership” thinking. Working together to obtain a financial object that will directly benefit both parties encourages rapid and creative problem resolution.

3. Preferred Pricing by Type of Activity

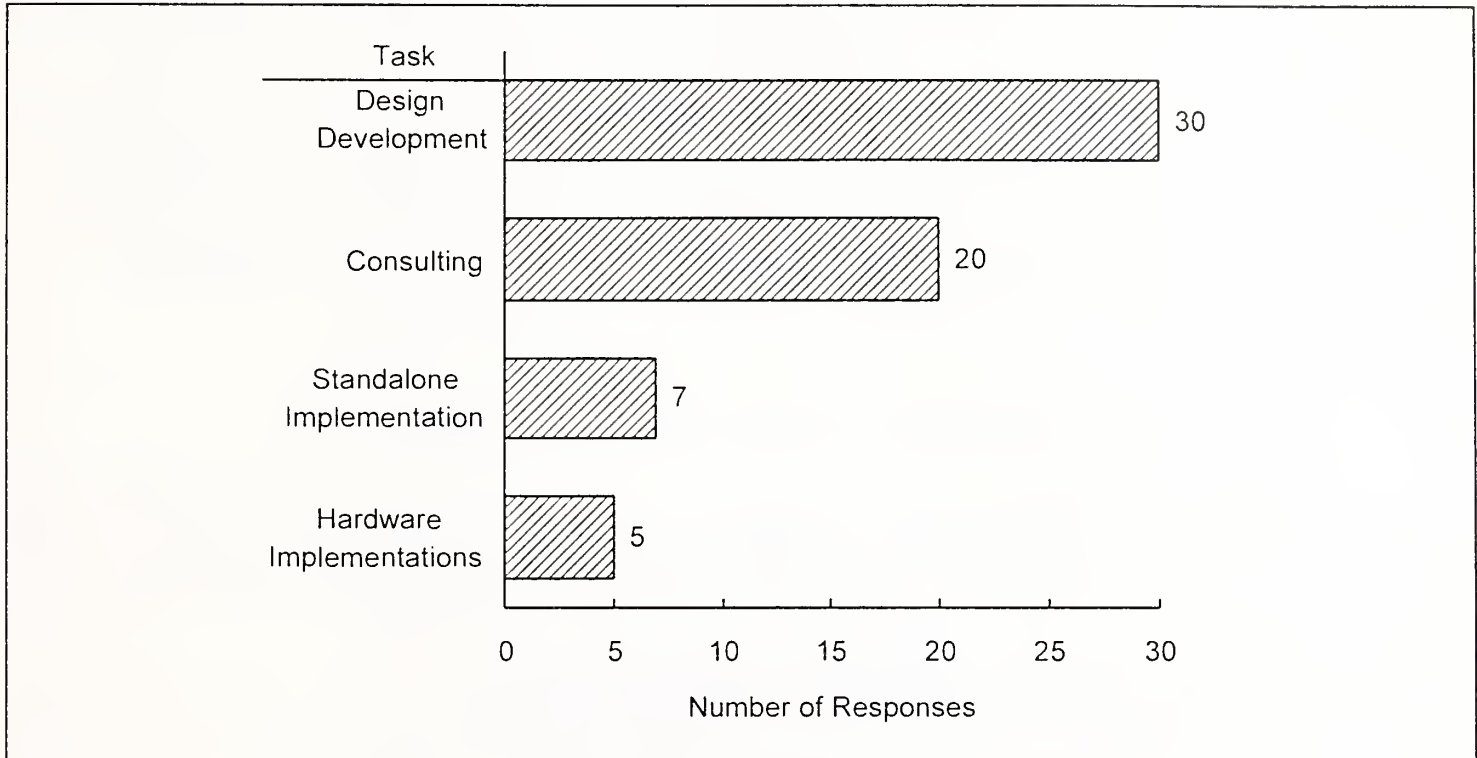
Survey respondents were asked to provide information on their preferences for pricing strategy as a function of task type. Exhibit III-10 shows the frequency of mention for various types of tasks for fixed-price contracts.

Design and development activities dominate the group, representing just over 50% of the responses. Eight respondents commented that they used fixed-price contracting for virtually all of information systems work contracted to vendors. Five of those who indicated that they used fixed-price contracting for design and development activities added the caveat that they only did so for well-defined projects.

Approximately 30% indicated that they contracted consulting on a fixed-priced basis as well, but the majority undertook consulting projects on a time-and-materials basis.

But essentially the data does not delineate any specific preferences for contract price. Other than indicating a strong general tendency to prefer fixed-priced contracting for design and development efforts, most users indicated that they would use any of the three methods depending on the characteristics surrounding the particular systems integration project.

EXHIBIT III-10

User Preferences for Fixed-Price Contracts by Type

Furthermore, users make little differentiation on the type of contracting used based on the size of the project. Rankings by survey respondents were identical for large and small projects with fixed-price ranking first, and time-and-materials and value-based pricing ranking second and third respectively.

In summary, it seems clear that risks do have an impact on users preferences for pricing strategies, at least for the moment, along with increasing the emphasis on fixed-price deals. Nevertheless, users are open to creative-pricing arrangements, and will adopt a different pricing approach depending upon the situation. This willingness to adapt their strategy is strongly motivated by a belief that whatever pricing mechanism is used, it should encourage a stronger partnership relationship.

This indicates that the industry should continue to move to creative-pricing concepts that are tailored to the particular vendor/client situation.

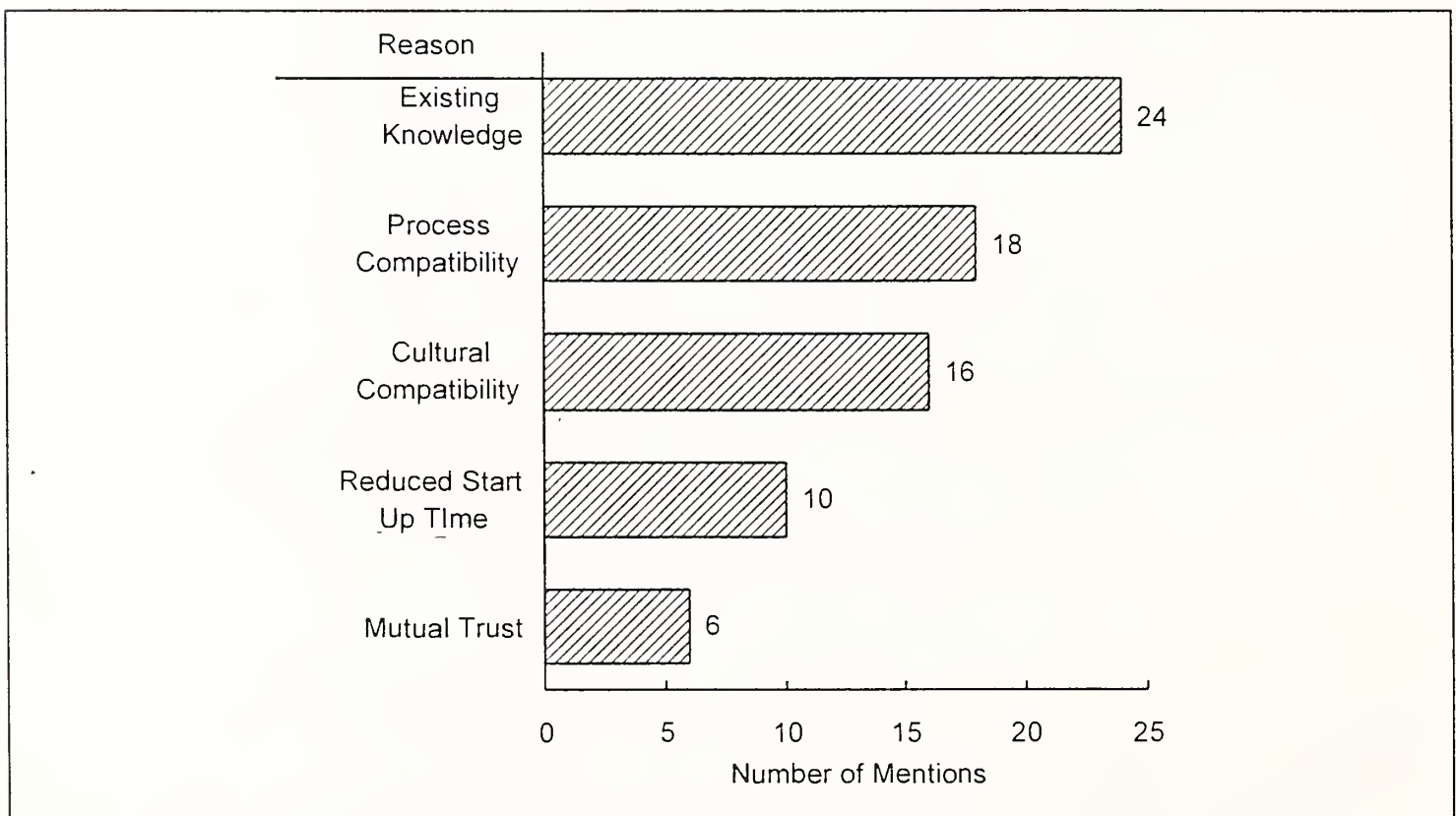
E

Preferred Suppliers

Seventy-four percent (74%) of the survey respondents had used the same systems integrator on two or more projects, and felt that doing so had a significant impact on reducing risk. They cited long-term relationships, established communications modes, personal relationships, mutual goals and common experience as key factors in the risk reduction equation. Exhibit III-11 shows the frequency of mention of the reasons that users feel multiple engagements reduce risk.

EXHIBIT III-11

User Reasons for Using Preferred Suppliers



Clearly the common linkage for all of these factors is the “learning curve” phenomena. There is a lot to be said for familiarity as a sound basis for building an on-going relationship.

Even one out of three of the 26% of the respondents who indicated that they did not use “preferred suppliers” said there were clearly advantages to using a supplier they had previously worked with,

but felt that designating a supplier as “preferred” would reduce their ability to:

- Get the best price for each deal as it arose
- Gain the benefit of new approaches or technologies that a new supplier might be able to bring to a particular situation

The evidence from this part of the study certainly sends a signal to vendors. Top-notch performance on the first job with a client will go a long way toward insuring future engagements, reducing marketing expense and having a positive impact on risk reduction over time.

F

Overall Attitudes

Analysis of data gathered during the survey on overall user attitudes provides a good vehicle for summarizing this chapter on user perspectives. Survey respondents were asked to rate the extent to which they agreed or disagreed with ten statements about systems integration risk management and contract issues. A rating of 1 indicated strong disagreement, and a 5, strong agreement. Exhibit III-12 shows the statements and average ratings for the survey sample.

EXHIBIT III-12

**User Agreement Levels with Selected Statements
Regarding SI Risk Management and Contract Issues**

Statement	Agreement Rating*
Improved partnerships would lead to improved ability to meet the client's business needs	4.4
Vendor profitability is adequate to cover their risk	4.1
Vendors should take more responsibility for project risk	3.9
Client and vendor should share the risks and the rewards	3.8
A fixed-price project is essential for budgeting purposes	3.8
Clients should take an equal share of project risk	3.7
Vendors should not be offered incentives beyond fixed-price	3.3
Fixed-price projects lead to an adversarial relationship	3.2
Value-based pricing would lead to increased project success	3.0
Vendor incentives should be based on a value-based component	3.0

* 1 = Low, 5 = High

Based on these ratings there appears to be no question that users believe that improved partnerships will go a long way toward meeting their needs and reducing risks. Yet, beyond that there seems to be little flexibility about how contract mechanisms, beyond fixed price, can be used to achieve that objective.

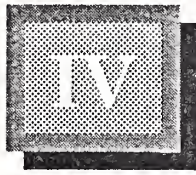
In the minds of the buyers fixed-price contracting, the preferred method of pricing for the majority of survey respondents, already includes a premium to the vendor to cover the risk. Therefore, its not surprising that:

- They do not feel strongly that additional incentives are warranted, or would increase the probability of success.

- They agree that clients and vendors should share in the risk, and are already doing that through the premium payment for fixed price.

As more innovative contracting mechanisms are tried, undoubtedly users may begin to see the advantages of (lower-priced) fixed plus value-based payment schemes. In the meantime, these more innovative approaches are likely to be acceptable to a less than 25% of the buying community.

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Vendors' Perspectives on Risk

Users are exposed to the risk associated with systems integration projects on an engagement-by-engagement basis. And while the impact of a “project gone bad” can be damaging from a business perspective, it is unlikely to pose a serious long-term threat to the user’s core business. Furthermore, in all but a handful of cases, their vendor partners will persevere, regardless of the severity of the situation, in order to deliver on their commitments.

On the other hand, managing risk effectively on a project-by-project basis is a vendor’s lifeblood, impacting the bottom line through:

- Cost overruns caused by unanticipated problems encountered in an engagement, particularly if it is fixed-price
- The potential damage to a vendor’s reputation resulting from a failed project, and its negative impact on future revenue streams

Consequently vendors tend to take a much more thorough and sophisticated approach to identifying and managing the risk in a potential SI engagement.

This chapter examines:

- Vendors’ assessments of the importance of the various risk elements associated with SI engagements
- Their methods for assessing overall risk for individual projects
- The contracting, pricing and management processes they use to control exposure to risk

A

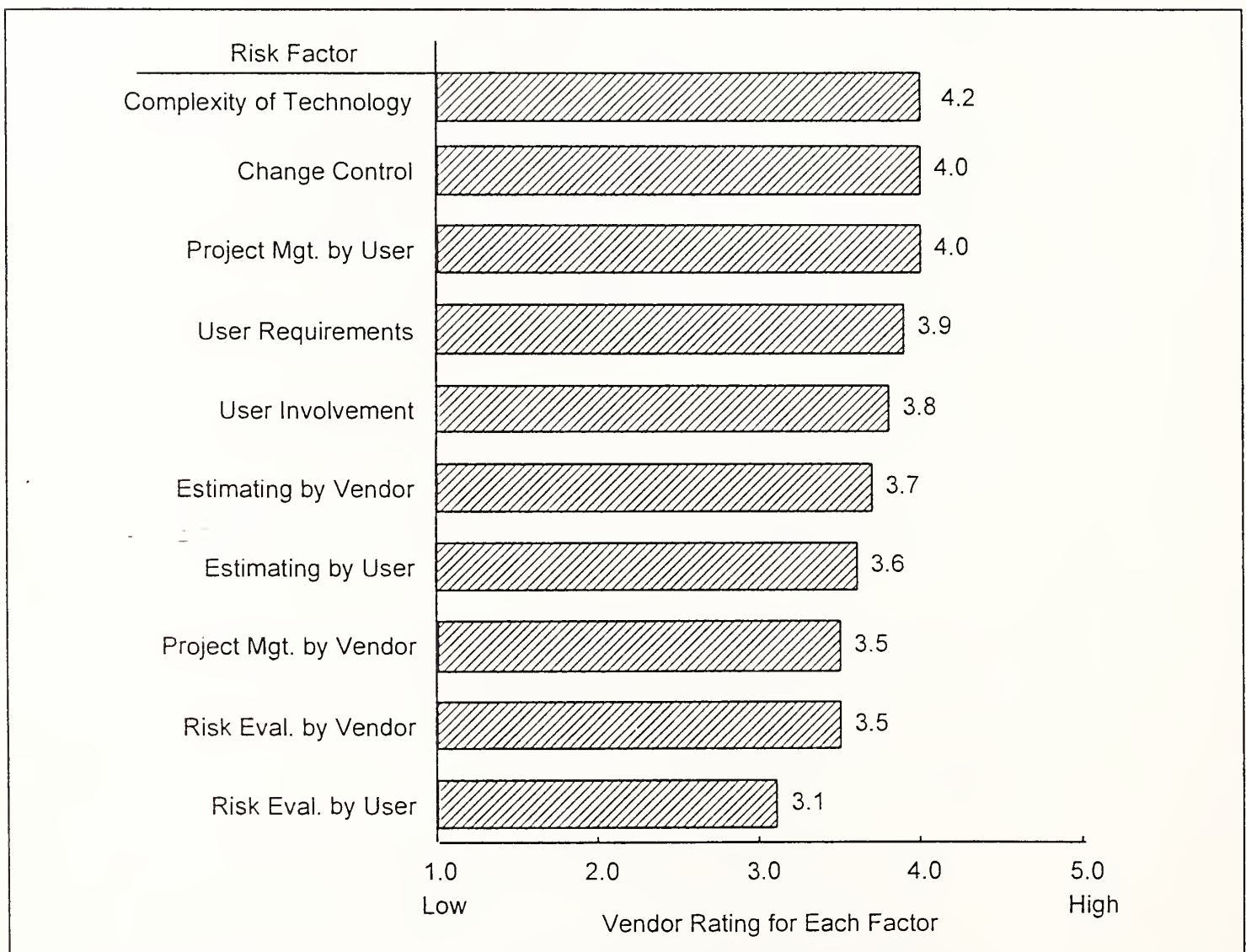
Measuring Risk

1. Key Risk Factors—Vendor's Perspectives

Vendors were asked to give their ratings on the 1-5 scale of the same nine sources of risk that were rated by user respondents. The results showing the average ratings of the vendors are contained in Exhibit IV-1

EXHIBIT IV-1

Vendor Ratings of Key Risk Factors



As was the case with the user respondents, vendors saw all the sources as relatively important with average ratings for each of 3.1 or greater.

Furthermore, vendors rated the potential sources of risk associated with the buying organization, or user, as most critical. In that regard, these ratings are consistent with those obtained from the user survey. However, there are two areas where the perceptions of users and vendors differ significantly.

- Vendors rate user project managers as a much more significant source of risk than do users. Vendor respondents show it tied for first place compared to users, who as a group, ranked it last. This is probably because users and vendors see the role of the user project manager quite differently. Users perceive the role as one of contract manager. Vendors look to the user project manager as the chief source of liaison to the buyer organization—the key player on the user side once the contract has been signed. They look to this individual not only to be well informed about the project but possessing the ability and authority to make day-to-day decisions, as well as being connected to the key executive management of the buying company. From the perspective of vendors, a user project manager without those attributes can rapidly become a road block and consequently, a significant risk.
- Another area where the users and vendors tend to have a different view is risk estimating. Users tend to see their role in that process as a greater source of risk than the estimating of the vendor. Vendors take exactly the opposite view, most likely because:
 - Despite the use of some relatively sophisticated risk assessment techniques, vendors are betting their profitability on the project when they use their risk estimates to factor pricing,
 - In the end, the vendor's assessment of the risk is likely to be controlling. Regardless of the users assessment, the vendor is expected to assume the lion's share of the risk.

Finally, the majority of the vendors identified and rated above 4.0, the complexity of the technology required for project. This indicated that the risk was frequently overlooked or underestimated by the buyer. Perhaps the best way to sum up their collective view is by quoting one respondent who said, "Executives are beginning to believe what they read in airline magazines and the trade press... and are coming away with the

false impression that the technology part of the equation contains few unknowns.”

At least six of the eleven vendors felt this user dismissal of the technology as a significant risk factor was a growing problem and could haunt the success of project from beginning to end unless identified and discussed openly on the front end. The hype about client/server is a contributing factor. To quote a respondent, “Never have so many thought they could do so much with a few PCs and a LAN.” Vendors also acknowledge that they contribute directly to the problem in the way they package and present their offerings. At least four indicated that the trend toward selling the high-end services such as BPR, and placing emphasis on methodologies and tools, is a contributing factor. It leaves users with the impression that once all those wonderful processes have been applied, code development and implementation is a snap.

So while users and vendors generally agree on the sources of risk, their respective roles in the SI partnership cause variations in their perceptions about the significance of specific elements of risk. The way in which vendors address these risk issues is discussed later in this chapter.

2. Risk Situation Assessment

There is clearly a limit of risk beyond which a vendor will refuse to act on a potential opportunity. However, approaches for assessing the risk, determining whether or not to pursue and opportunity vary from vendor to vendor.

On average, the vendors included in the survey turned away 20% of their potential opportunities on the basis of risk. But this number is difficult to assess due to some widely varying practices for soliciting business.

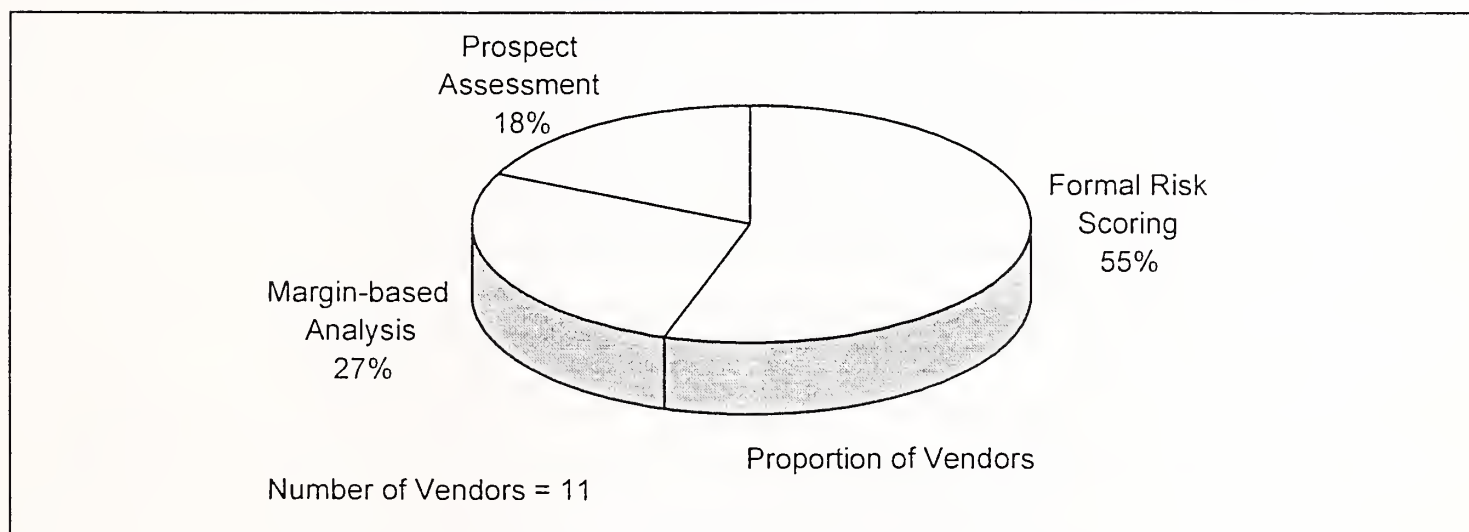
- Some of the vendors said they would go to preliminary proposal stage on literally any project that they felt they had the competency to undertake. Consequently, they back away from 30 to 50% of the opportunities they pursue.

- Others indicated that they hardly “put pencil to paper” on many of the opportunities they see, due to their preliminary subjective assessment of the risks involved. Therefore, they only back away from under 5% of the opportunities that actually go to the proposal stage.

Although the actual detailed process of risk assessment varies significantly, the vendors surveyed tended to use one of three approaches. Exhibit IV-2 shows the proportion of respondents using each approach.

EXHIBIT IV-2

Vendors' Use of Various Approaches for SI Project Risk Assessment



a. Formal Risk Scoring

Formal risk assessment involves the assignment of point scores to various elements of the proposed project to reflect risk. The scores are totaled to establish an overall risk for the project. In some instances this is done on a task-by-task basis. In others, the project is scored in its entirety. Once the high risk tasks or aspects of the project have been identified, most vendors apply additional analysis to assess the risk in more detail and develop strategies to reduce. The overall scoring is then adjusted to reflect the revisions. Some vendors actually conduct this analysis phase jointly with the prospect. By doing so, they establish a joint understanding with the client of the risk and set mutually agreed to expectations for what would be required to contain it.

Once the scoring process has been completed, most vendors apply guidelines or standards to assist them in determining whether they are willing to accept the risk level indicated by the scoring.

The kinds of factors considered in risk scoring techniques cover a wide variety of issues related to the project itself, as well as the prospect. The following is a composite sample of the types of factors vendors mentioned as candidates for risk scoring.

- The overall length of the project
- The complexity of the technology required
- The proposed pricing scheme
- The prospect's clarity on specifications
- Previous experience with the industry or application suite
- An assessment of the strength of the prospect's project coordinator
- Level of competency of the prospect's IS personnel
- Willingness of the prospect to utilize the vendor's methodology
- Cultural fit
- Previous experience with the prospect
- Experience of the vendor project manager

Since many of the factors require subjective evaluation, most companies who use risk scoring have developed formal guidelines based on historical data to make these judgments. The scoring guidelines are updated periodically to reflect history from recent projects using a history database.

A number of different processes are used to make the final go/no-go decision. One firm indicated that it did not bother to score projects under a certain size, and applied scoring only to projects it considered highly risk-prone. Two others said they used the process on all projects. Another indicated that they used the risk scoring as a part of a process for escalating the go/no-go decision within their firm. When scores exceed a certain level, the project is submitted to

a more senior level or review committee to obtain approval for a go-ahead.

b. Margin-based Analysis

This approach uses resource costs and volumes as the key parameters in assessing the risk associated with a project. The scheme works as follows:

- An overall project plan at the task level is prepared for the project and the firm's standard pricing applied by task.
- An independent risk assessment team examines the proposed pricing, and through interaction with the proposal team, identifies high risk tasks.
- Adjustment factors (multipliers) are agreed to by the risk assessment and proposal teams then applied to each task. The result is a "worst case cost" scenario.
- A standard margin is applied to determine the final price and an assessment is made as to whether the resulting price will be acceptable (or within an acceptable bandwidth in competitive bidding situations).
- Assuming a positive judgment is made, the proposal will be submitted using the factored pricing.

As in risk scoring, individual vendors' internal processes for using the technique vary with project size and type. Proponents of this type of analysis say that it has advantages over risk scoring, because the output can be used directly by proposal teams to discuss the cost impact of risk with the prospect on a task-by-task basis.

c. Prospect Assessment

This technique emphasizes the prospect's contribution to the risk equation. Judgments are made (and may be scored) regarding the prospect's organization, systems skills, political commitment to the effort, etc. The project is priced using the vendor's normal pricing scheme and a factor is applied to the margin to cover the risk.

This is clearly the simplest approach and on the surface does not appear to be as thorough or sophisticated as the other approaches.

However, defenders of this approach indicate that their normal pricing scheme accounts for the risk contribution inherent in the project, making a separate analysis unnecessary.

Despite, the relatively methodical way vendors seem to approach risk assessment, they admit that other overriding factors sometimes play a role in deciding whether or not to pursue and opportunity.

- Most indicated that if they could not come up with an acceptable price that would yield a 25-30% margin for large fixed-price projects, the deal probably was not worth doing.
- The subjective desirability of the prospect can also have considerable influence. If the prestige of having the prospect as a client, or the opportunity to work with a client (that will add credibility to a vendor's industry expertise), most vendors are willing to accept higher risk.

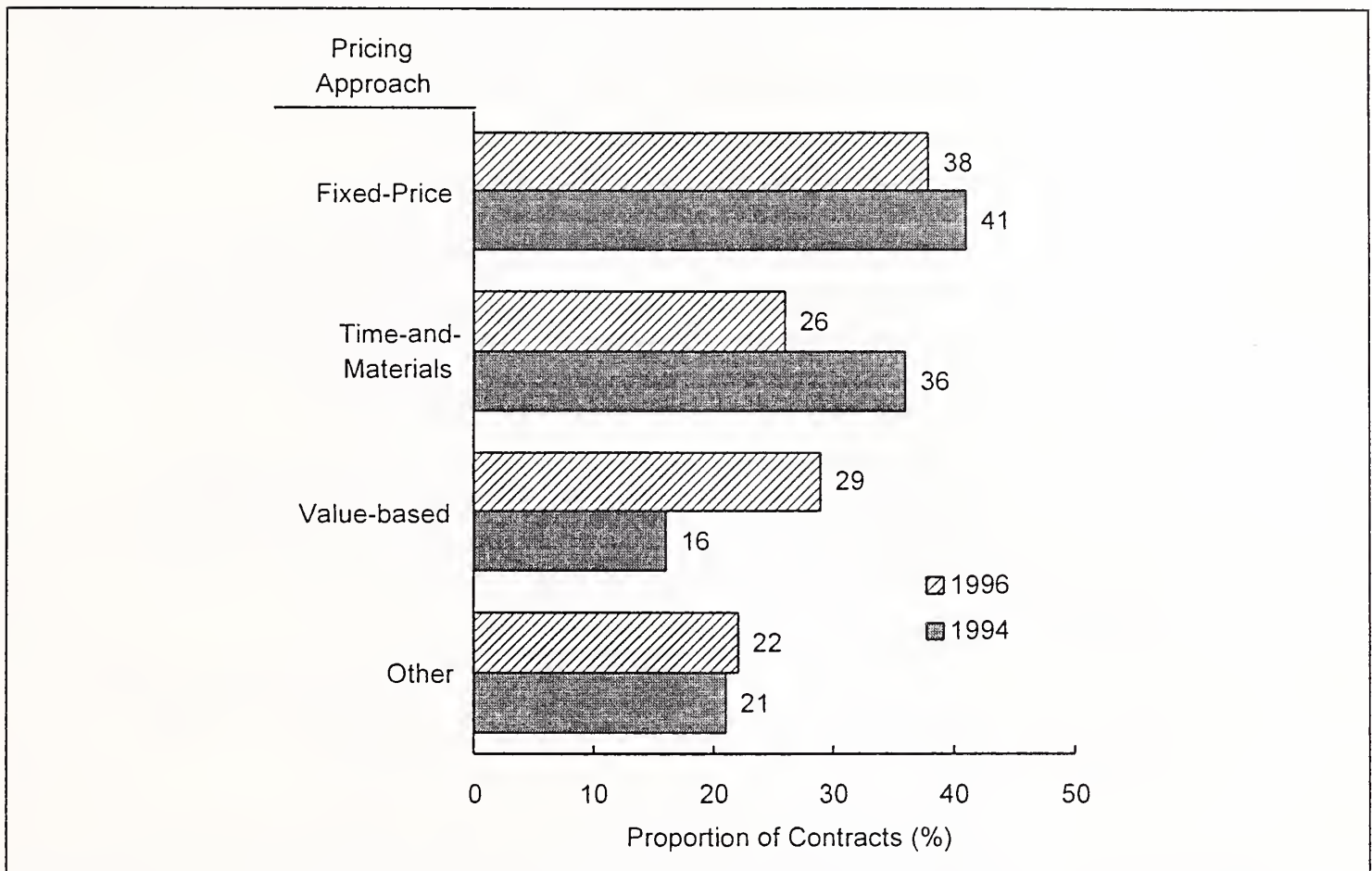
B

Pricing for Risk Containment

Regardless of the approach used to assess risk, the vendor's price is going to reflect the assumption of risk. Exhibit IV-3 shows the proportion of contracts priced under fixed-price, time-and-materials, and value-based approaches. The averages and a two-year projection are shown.

EXHIBIT IV-3

Proportion of Vendor Projects Using Various Pricing Approaches, 1994 and 1996



In general, the proportion of usage in the exhibit is consistent with the user preferences for contract types states shown in Exhibit III-9, Chapter III-13. That is, the relative use of fixed-price, time-and-materials, and value-based contracts cited by vendors, are in the same rank order as user preferences for these types of contracts, 3.9 for fixed-price, 3.1 for time-and-materials, 1.7 for value based.

However, vendors anticipate a significant shift in the mix over the next two year period with more than an 80% increase in the usage of value-based contracts, largely at the expense of 27% decrease in time-and-materials engagements. This shift is probably attributable to a number of influences.

- A growing number of projects involving business reengineering efforts frequently identify large pools of cost savings or profit improvements. In most instances, implementation will require major systems changes resulting in large systems integration opportunities. By linking some portion of their profit margin to a percentage of the savings or improved profits, vendors accomplish two objectives.
 - Since the potential savings or profit improvement related to a major business reengineering effort is typically large, being rewarded with even a small percentage of the total dollar benefits can create profit potential well in excess of that usually achieved on a standalone SI project.
 - The larger profit potential generated by value-based contracts provides a more substantial cushion to cover the potential risk, and provides incentive for outstanding performance on the part of the project team.

Given the potential benefits, vendors will continue to push for value-based pricing where business reengineering or other situations create the right opportunity.

- Although fixed-price contracts pose the highest risk to the vendor, they clearly are the buyer's preferred method of doing business. Therefore, as indicated in Exhibit IV-3, it is unlikely that vendors will be able to reduce user interest in fixed-price contracts. However, they may be able to convince users to share the financial gains associated with business reengineering-based projects by offering lower fixed-prices.

However, the degree to which vendors can convert users to value-based pricing is still an open question. Vendors who offer a full spectrum of services such as EDS and Andersen Consulting, claim high-levels of success with this approach. Also, the growing number of business reengineering efforts underway will create additional opportunities. However, with an average-interest level in value-based pricing of 1.7 on a scale of 1-5, users do not appear to be expressing much enthusiasm for the concept at the moment.

A number of vendors indicated they used pricing strategies other than the three major types just discussed. The two methods most frequently cited were phased-fixed and range-based pricing.

- Phase-fixed is most popular in situations where a vendor is brought in prior to the generation of any detailed specifications, or when the project will involve the application of leading edge technology. In these cases, there are too many unknowns to fix the price for the entire engagement at the start. Instead, a fixed-price is established for the first phase and rough estimates for the follow-on phases. As one phase is completed, fixed-prices are established for one or more of the following phases.
- A range-based pricing agreement establishes a bandwidth of prices for one or more of the phases. This approach is used in many of the same situations as phase-fixed pricing. Risk conditions and their effect on the price for the work are explicitly spelled out in the contract. At the conclusion of a phase, or at the end of the contract, payments are made in accordance with the actual conditions that took place. From a user's viewpoint, this approach has the advantage of putting a ceiling on the price almost regardless of contingencies.

These approaches tend to promote a higher level of risk sharing between vendors and users than the standard fixed-price approach, resulting in reduced vendor risk, and the cost to the user as well.

Various combinations of all of the pricing approaches discussed in this section are being used today. The analysis indicates that vendors will be encouraging (and users will become more receptive to) more sophisticated approaches to pricing, relying on combinations of approaches to encourage greater risk sharing in the future.

C

Risk Control

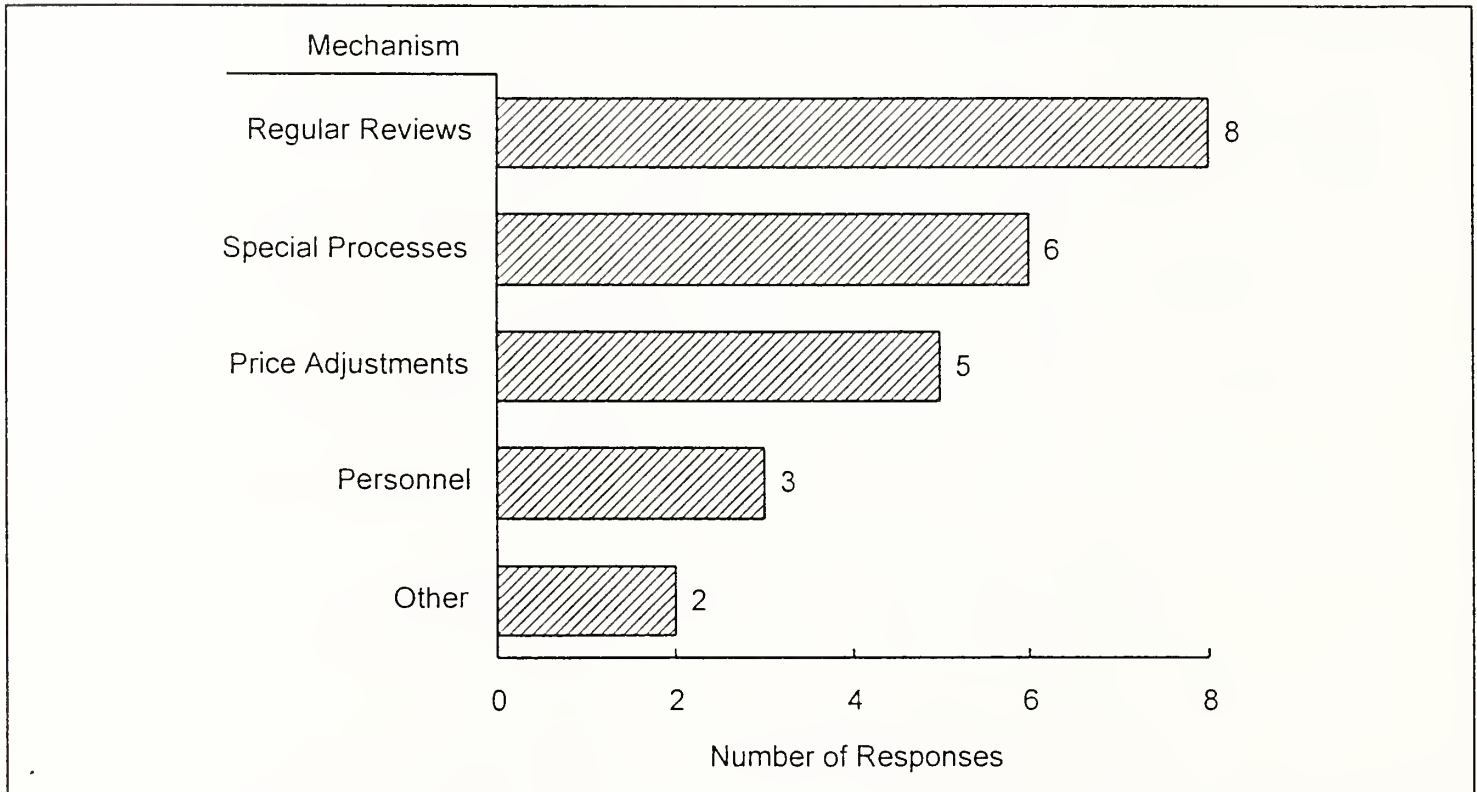
As the partner carrying the greater burden of risk, vendors use a variety of strategies and techniques to insure that the elements of risk are managed once a contract has been signed. This section examines the overall strategies and specific approaches used by vendors.

1. Key Strategies for Risk Control

For higher risk projects, vendors have a number of approaches they apply throughout the project. Exhibit IV-4 shows the number of times specific strategies were mentioned by survey respondents.

EXHIBIT IV-4

Vendor Mechanisms For Risk Management



Further explanation of each approach follows.

- The use of *regular reviews* are a time-honored tool for project control and was the most frequently cited strategy mentioned by respondents for managing risk throughout a project. On the surface, this would seem like a simplistic approach, based on the principle that you “can expect what you inspect.” However, to deal with higher levels of risk and the financial implications of penalty clauses and performance bonus payments based on milestone completions, etc., vendors have evolved much more sophisticated approaches to project reviews than most internal IS departments.

- Independent audit groups or quality control organizations are frequently used rather than relying on status reporting from the SI team itself as the sole indicator of the health of the project. These outside organizations frequently have authority to mandate specific actions to realign projects that are off track.
- Review cycles are usually adjusted on the basis of identified problems; e.g., a project where corrective action is prescribed will certainly undergo more frequent scrutiny than one that is meeting schedule and milestone commitments.
- Special review processes and shorter review cycles may be set up to deal with high-risk project tasks.
- Conservative reporting of accomplishment is used by some vendors to insure that project teams are focused on upcoming milestones. Under this approach the project team is only given credit at a review for milestones actually completed. No credit is given or reported to the customer for partially completed tasks. The review focuses on the status of the work in process and obtaining commitment to, or resolving the problems associated with, meeting the upcoming milestones.
- *Special processes* or systems, the second most frequently cited risk containment technique, are also widely used.
 - A risk reassessment process may be used prior to the initiation of each new phase of a project to re-evaluate the risk and adjust the containment strategy based project experience to date.
 - Continuous or on-line problem resolution systems are also growing in popularity. This approach involves networking the project team into experience databases and the vendor's subject experts using a technology such as Lotus NOTES. Project team members utilize these resources on an on-going basis to gain access to the best thinking and experience that the vendor has on handling technical and management problems as they arise.

- *Price adjustments* are also a popular mechanism with vendors. Although, in and of themselves, they certainly do not contribute to risk containment, they do reduce the risk of financial loss. Obviously, the terms and conditions under which adjustments can be made must be carefully negotiated at the front end of the project. The phase-fixed and range-based pricing strategies discussed earlier are two methods of building the ability to adjust prices into the contract.
- The selection and assignment of *personnel* as a risk containment strategy was only mentioned as a major strategy by three of the vendors. However, every vendor pointed out the importance of staffing somewhere during their interview. Populating new projects with people whose experience and skills match the task at hand is essential. Furthermore, some vendors use highly formalized processes to make the selections.
 - The use of experience and skills databases is not uncommon, some even dealing with personality profiles.
 - The assignment of subject-area specialists to high-risk tasks is almost universal.

Both vendors in the “other” category indicated that although they had internal strategies and processes, they felt that the most effective way to contain or manage risk was proactive inclusion of the customer in the risk assessment and management aspects of the project. From their viewpoint, this ongoing involvement helped set customer expectations and frequently yielded user suggested approaches to risk management that resulted in more equitable risk sharing.

2. Task Specific Risk Control Mechanisms

In addition to the broad-based strategies discussed above, vendors have a wide variety of techniques, models and tools they employ to deal with risk in the specific aspects of an engagement such as:

- Estimating
- Project Management
- Subcontractor Management

- Project Pricing

- a. Estimating

Vendors have invested considerable effort in developing and refining estimating techniques. Competitive bidding and the frequent requirement to commit to fixed-prices provides a strong incentive to have estimates be as accurate as possible.

Furthermore, a major error during this phase will make a project unprofitable regardless of how well it is executed.

Most vendors have evolved a proprietary methodology to deal with estimating. However, there appears to be a number of components that these methodologies have in common.

- The use of function point analysis to establish general resource requirements and overall scope was mentioned by eight of the eleven respondents.
- Independent of (yet in addition to) function point analysis, most firms have established costing standards to price projects on a task-by-task basis.
- Virtually all the proprietary methodologies use models, frequently based on experienced database, to factor projects for risk. In addition to dealing with technical complexity, etc., many of the models also account for the experience levels of assigned personnel. Some incorporate components of CASE methodologies such as IEF.

A technique used by many firms is to apply multiple estimating methods to the same project, frequently using different estimating teams. Results are compared and where there are significant discrepancies between estimates for a given task additional analysis is performed to arrive at a reconciled estimate.

Although not as common as the just mentioned approaches, monte carlo simulation was mentioned by a few respondents as a means of providing a probability distribution of project costs.

- b. Project Management

Every vendor has its own approach to project management, but as in the case of risk management processes, there are some common themes.

- All involve milestone tracking and regular reviews, and the direction appears to be moving toward automated systems that facilitate this activity through continuous monitoring of resource usage, etc.
- Most have built-in problem identification and escalation processes to catch potential problems and resolve them at the earliest possible stage.
- Although generally proprietary, many incorporate tools such as the Project Management Workbench and Microsoft Project.

A number of vendors have developed formal quality assurance processes that rely on specialists to monitor project processes and assess the quality of deliverables as they are produced. Some incorporate users directly into the quality team, encouraging a partnership approach to the project management process.

c. Subcontracting

Most vendors do not believe that the use of subcontractors contributes a significant element of risk to most projects. Prequalifying subcontractors and repeated use of preferred suppliers are the most frequently used techniques to keep whatever risks do exist to a minimum.

Other approaches to minimizing risk in this area include:

- Full integration of the subcontractor's personnel into the vendor's project team. In many instances integration starts at the estimating phase.
- Consistent alignment of the performance and payment terms of the subcontractor's contract with the terms and conditions of payment that will apply to the vendor.

d. Pricing




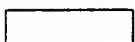




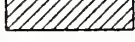




Vendors indicate that the best protection against making an error in pricing is to make sure that solid resource estimating techniques are in place. The approach must break the project down into specific tasks, and explicitly account for risk. In other words, insure that the costing has been done properly. Assuming the project gets estimated properly, vendors will promote incentive

mechanisms, range-based and phase-fixed contract mechanisms wherever possible to reduce the exposure to financial loss resulting from unforeseen events.

Exhibit IV-5 summarizes the techniques used by vendors to manage risk in key SI management processes, and gives INPUT's account of the degree to which each technique is currently used.

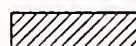
EXHIBIT IV-5

Techniques Used by Vendors to Minimize Risk in Key SI Management Processes

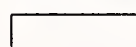
Process	Tool or Technique	Level of Use
Estimating	Function Point Analysis	
	Proprietary Methodologies	
	Multiple Estimates	
	Monte Carlo Techniques	
Project Management	Continuous Tracking and Review	
	Proprietary Project Mgt. Process	
	Quality Assurance System	
Subcontracting	Prequalified/Preferred Suppliers	
	Full Integration into Team	
	Payment or Contract Mechanisms	
Pricing	Task Estimating Including Risk	
	Incentive Mechanisms	
	Range-based/Phase-fixed	



= Heavy Use



= Medium Use



= Light Use

D

Summary

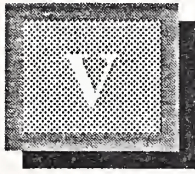
In systems integration projects, vendors generally assume the bulk of the risk. Consequently, they have invested heavily in processes to identify sources of risk, approaches to measuring its impact on costs and methods to manage or contain it.

In general, a vendor's management of risks takes two paths:

- Insuring that key processes and activities, such as estimating, project management, subcontractor selection and management and project pricing, explicitly recognize and account for risk
- Incorporating, to the degree possible, contract mechanisms that encourage risk sharing with the buyer and allow for adjustments to fixed-price deals based on contingencies

To accomplish the former, vendors have invested heavily in developing proprietary processes to deal with risk from the proposal stage through delivery. These processes frequently incorporate off-the-shelf technologies or standard offerings such as nonproprietary CASE tools. However, it is probably safe to assume that each vendor's system for risk identification and management is unique.

From a vendor's perspective the fixed-price contracts represent the highest risk situation—and conversely, time-and-materials agreements present the least exposure. To strike a balance between these positions, vendors are encouraging the use of newer and more innovative pricing strategies, including phase-fixed and range-based approaches to promote risk sharing and reduce financial exposure.



Risk in Contracts

How risk is managed from a process and contractual point of view, clearly has impact on the relationship between users and vendors. While users and vendors like to talk about systems integration projects as partnerships, contract mechanisms employed to contain risk can have a negative effect on the partnership concept.

This chapter discusses the impact of risk management strategies on the relationship and discusses contract trends that may offer some solutions to the problems that current contract mechanisms can have on effective user/vendor relationships.

A

User/Vendor Relationships

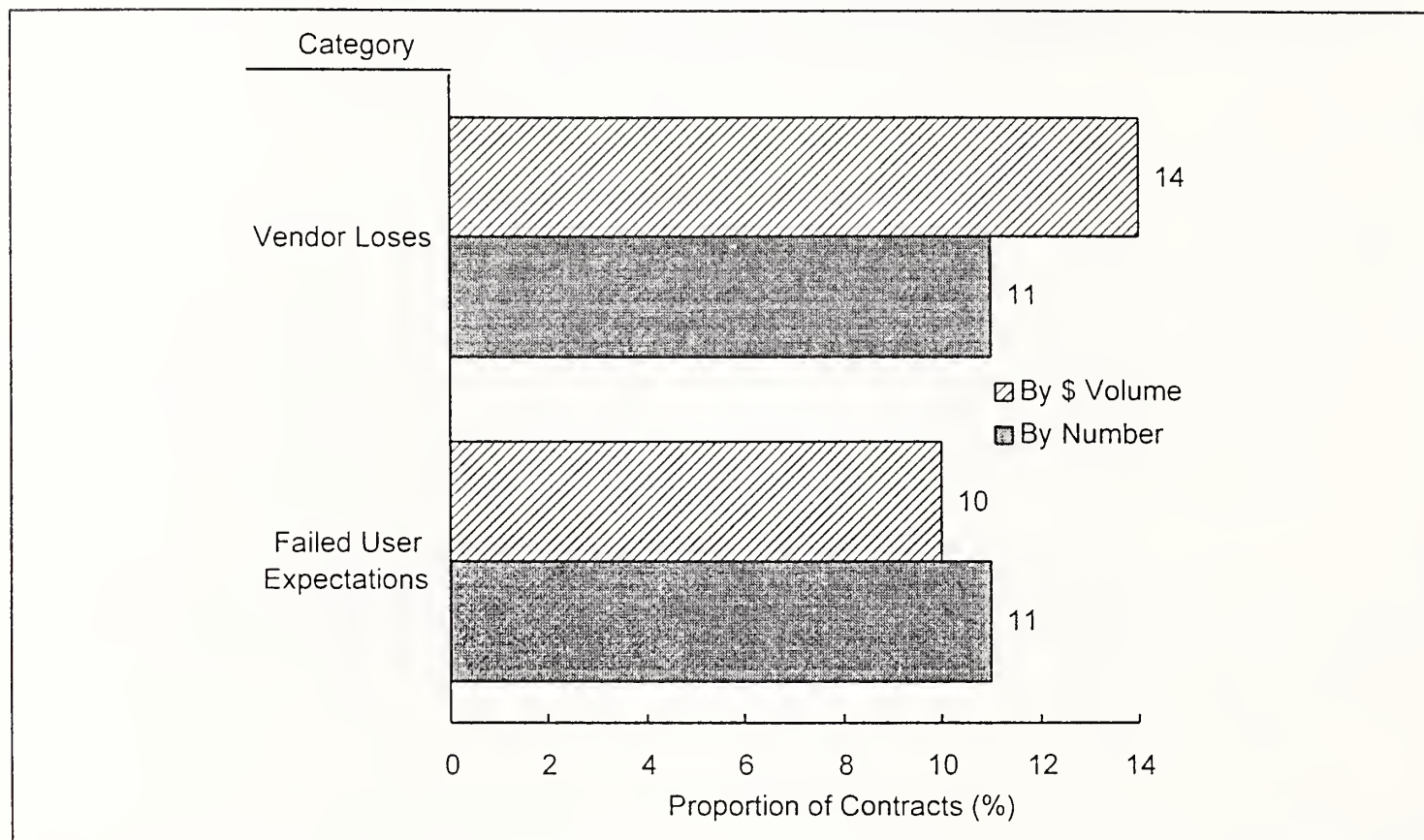
By and large, the vast majority of systems integration projects prove to be successful. The partnership works and client satisfaction is generally high.

Still, vendors admit that although almost all projects go to completion, there is some percentage that fails to meet the client's originally stated business needs. Likewise, there is a percentage that results in a financial loss to the vendor.

Exhibit V-1 shows how the vendors estimated those percentages by number of projects and dollar volume.

EXHIBIT V-1

**Proportion of Contracts Failing to Meet User Needs
and/or Representing Losses to Vendors**



The data indicates that there is a one in ten chance that the project will fail to meet user expectations and/or lose money for the vendor. In fact, several of the vendors commented that they have just about as many failures of each type (failing to meet user expectations, or losing money) on large and small projects. In either case, users tend to place the blame on vendors, and vendors, who by contract usually assume the bulk of the responsibility for delivering acceptable results, tend to agree, indicating that:

- In situations where user expectations were not met, the problem is most likely been with their management of the early phases of the project
- When they lose money they have usually underestimated the risks.

However, vendors also point out that the terms and conditions of the contract can make the difference between a successful and a merely tolerable working arrangement, as well as the probability of success of the project.

- Most vendors and about 25% of the users felt that penalty clauses worked against the partnership concept. In fact, when enforced to the “letter of the law” they can cause major disruptions and refocus energy that should be spent on joint problem solving to various kinds of defensive maneuvering.
- Liquidated damage clauses are, for the most part, considered simply unacceptable. Over half of the study’s vendor participants indicated that they simply would not sign an agreement that called for liquidated damages.
- Processes prescribed by contract which focus on pinpointing blame rather than problem identification and resolution, fall into the same category.

Obviously, most vendors favor contract mechanisms that encourage some level of risk sharing and joint problem solving. They are willing to lower base prices, particularly on fixed-price proposals, if the opportunity exists to share in a project’s financial benefits through value-based pricing or other incentive mechanisms.

In general, the more the project feels like a joint venture, the better the relationship is likely to be—and from the vendors perspective, the higher the probability of success.

B

Trends in Risk Management

The most dominant trend in risk management today is a movement toward increased risk sharing in systems integration engagements. This movement is impacting both the nature of the contracts and the management of systems integration projects.

- Vendors are promoting more risk sharing in the belief that it will increase the probability of success as well as improve profits over the long run.

- Users are becoming more receptive to the increasingly sophisticated pricing and contracting approaches required to accomplish risk sharing.
- Improved processes and technology are providing the information necessary to identify, assess and assist in the process of managing risk.

These underlying forces are impacting the nature of the contract arrangements between users and vendors and the management processes used throughout an engagement.

1. Contract Trends

The major trends impacting contracts are:

- An accelerating shift from time-and-materials pricing to value-based or other incentive based approaches
- A movement toward pricing schemes such as range-based and phase-fixed which encourage risk sharing (with or without incentive clauses) and acknowledge at the start of a project that there may be elements of risk that simply cannot be properly estimated in financial terms.
- A growing tendency to include detailed contract specifications for user resource requirements down to the level of phase and task.
- The use of joint venture development efforts between buyers and vendors to deal with extremely high-risk projects involving advanced or unproved technology.

Exhibit V-2 lists the major trends in SI contracts and gives INPUT's assessment of their potential benefits and impacts.

EXHIBIT V-2

Trends in Systems Integration Contracts

Trend	Impact/Benefit
Shift to Value-based and Incentive Pricing	<ul style="list-style-type: none"> • Increased incentive for integrators to apply innovative approaches • Improved partnership relationship • Lower user costs to cover risk
Movement Toward Range-based and Phase-fixed Pricing	<ul style="list-style-type: none"> • Objective recognition of the inability to define certain elements of risk • Lower costs to user and an inducement to user participation to the partnership
Contractual Commitment to User Involvement	<ul style="list-style-type: none"> • Insures user resources will be available to meet contract commitments • Increases sense of partnership and participation
Join Venture for Leading Edge Efforts	<ul style="list-style-type: none"> • Formalizes the concept of risk sharing with shared benefits • Promotes user involvement in the design process

2. Process Trends

The tendency toward increased risk sharing is also impacting the nature of, and user involvement in, the management processes used for implementation.

- An increase in the use of computer-assisted continuous monitoring processes supported by on-line computer applications.
- A growth in the use of specialized quality assurance assessment teams to provide early problem identification and recommended solutions.

- An increase in the inclusion of user personnel in quality assurance, ongoing risk assessment and other project monitoring and control processes, formerly considered internal to the vendor.
- A growing use of prototyping and application modeling to ensure user satisfaction with the end product.

Exhibit V-3 lists the major trends in the processes that impact risk management of SI engagements, including INPUT's assessment of their benefits.

EXHIBIT V-3

Trends in Systems Integration Project Management Processes

Trend	Impact/Benefit
Computer-assisted Monitoring Process	<ul style="list-style-type: none"> • Early identification of problems, and access to expertise for resolution • Integration of user into the monitoring and management process • Provision of the data necessary for management of more sophisticated contract schemes
Commitment to Formal QA Processes	<ul style="list-style-type: none"> • More objective evaluation of current status and suggested changes • Ongoing monitoring of quality through the use of computer-based tools
Inclusion of User Personnel in Vendor-managed Processes	<ul style="list-style-type: none"> • Promotes the partnership concept by direct participation in an open setting • Provides more direct user feedback than formal status reviews, etc.
Prototyping and Application Modeling	<ul style="list-style-type: none"> • Provides cost effective method of testing the quality and reality of specifications early in the process • Helps set user expectations for functionality of the delivered system

As these trends continue to evolve, they are likely to be reinforced by the fact that there is a growing community of users who have

been through multiple SI engagements. As user comfort levels rise with the use of outside SI services, receptivity to more innovative approaches to contracting and management processes that promote risk sharing is likely to grow as well. The opportunity to reduce costs by risk sharing will provide an additional incentive.

C

Longer Range Directions

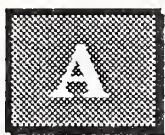
Clearly most vendors would rather have a long-term relationship with what they consider to be quality customers.

- Risk is reduced in long-term relationships simply because of the common understanding generated by the relationship.
- The cost of business to the vendor, as well as the potential cost to the buyer, is reduced due to the fact that vendor marketing expenses to a long-term customer are significantly lower than first-time prospects.

In support of this concept is the fact that at least two of the vendors in the survey considered the potential for a long-term relationship the most significant factor in evaluating the desirability of potential SI prospects.

As a consequence, long-term relationships, evolving for all practical purposes into systems operations applications management agreements, probably represent the wave of the future. As these agreements are developed it is likely that the actual contract between supplier and buyer will decrease in importance in terms of day-to-day management of risk and vendor compensation. Instead, they will specify the processes by which risk and other issues are managed, providing a framework for the relationship rather than a blueprint for a specific engagement.

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Definition of Terms

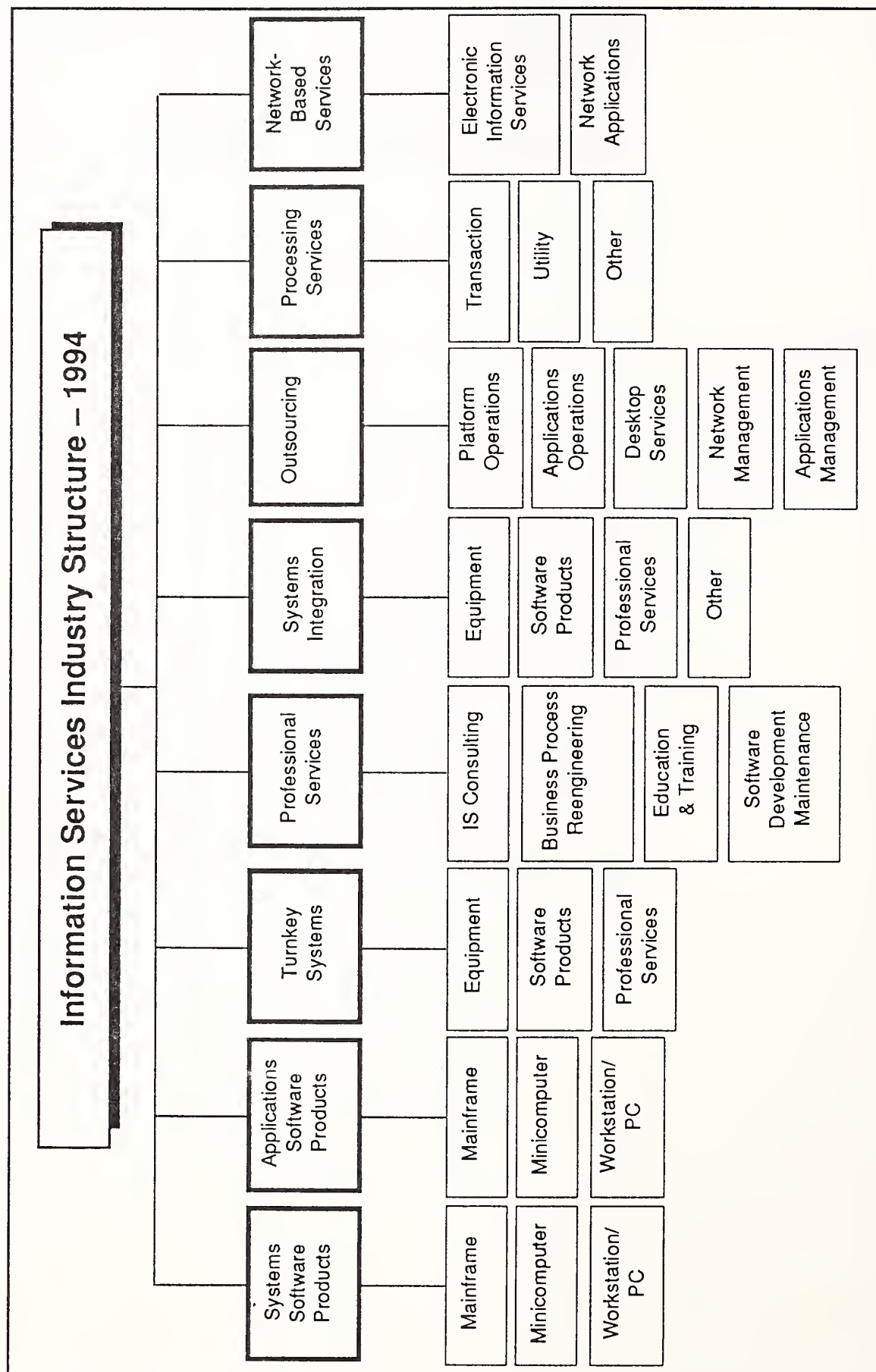
A

Introduction

INPUT's *Definition of Terms* provides the framework for all of INPUT's market analyses and forecasts of the information services industry. It is used for all U.S. programs. The structure defined in Exhibit A-1 is also used in Europe and for the worldwide forecast.

One of the strengths of INPUT's market analysis services is the consistency of the underlying market sizing and forecast data. Each year INPUT reviews its industry structure and makes changes if they are required. When changes are made they are carefully documented and the new definitions and forecasts reconciled to the prior definitions and forecasts. INPUT clients have the benefit of being able to track market forecast data from year to year against a proven and consistent foundation of definitions.

Exhibit A-1



B

Overall Definitions and Analytical Framework**1. Information Services**

Information Services are computer/telecommunications-related products and services that are oriented toward the development or use of information systems. Information services typically involve one or more of the following:

- Use of vendor-provided computer processing services to develop or run applications or provide services such as disaster recovery or data entry (called *Processing Services*)
- A combination of computer equipment, packaged software and associated support services which will meet an application systems need (called *Turnkey Systems*)
- Packaged software products, including systems software or applications software products (called *Software Products*)
- People services that support users in developing and operating their own information systems (called *Professional Services*)
- The combination of products (software and equipment) and services where the vendor assumes total responsibility for the development of a custom integrated solution to an information systems need (called *Systems Integration*)
- Services that provide operation and management of all or a significant part of a user's information systems functions under a long-term contract (called *Outsourcing*)
- Services that support the delivery of information in electronic form—typically network-oriented services such as value-added networks, electronic mail and document interchange (called *Network Applications*)
- Services that support the access and use of public and proprietary information such as on-line databases and news services (called *Electronic Information Services*)
- Services that support the operation of computer and digital communication equipment (called *Equipment Services*)

In general, the market for information services does not involve providing equipment to users. The exception is where the equipment is part of an overall service offering such as a turnkey system, a systems operations contract or a systems integration project.

2. Systems Integration (SI)

Systems integration is a vendor service that provides a complete solution to an information system, networking or automation development requirement through the custom selection and implementation of a variety of information system products and services. A systems integrator is responsible for the overall management of a systems integration contract and is the single point of contact and responsibility to the buyer for the delivery of the specified system function, on schedule and at the contracted price. (Refer to Exhibit A-2.)

The components of a systems integration project are the following:

- *Equipment* - information processing and communications equipment required to build the systems solution. This component may include custom as well as off-the-shelf equipment to meet the unique needs of the project. The systems integration equipment category excludes turnkey systems by definition.
- *Software products* - prepackaged applications and systems software products.
- *Professional services* - the value-added component that adapts the equipment and develops, assembles, or modifies the software and hardware to meet the system's requirements. It includes all of the professional services activities required to develop, implement, and if included in the contract, operate an information system, including consulting, program/project management, design and integration, software development, education and training, documentation, and systems operations and maintenance.

Exhibit A-2

Products/Services in Systems Integration Projects

<p style="text-align: center;"><i>Equipment</i></p> <ul style="list-style-type: none"> • Information systems • Communications
<p style="text-align: center;"><i>Software Products</i></p> <ul style="list-style-type: none"> • Systems software • Applications software
<p style="text-align: center;"><i>Professional Services</i></p> <ul style="list-style-type: none"> • Consulting <ul style="list-style-type: none"> - Feasibility and trade-off studies - Selection of equipment, network and software • Program/project management • Design/integration <ul style="list-style-type: none"> - Systems design - Installation of equipment, network, and software - Demonstration and testing • Software development <ul style="list-style-type: none"> - Modification of software packages - Modification of existing software - Custom development of software • Education/training and documentation • Systems operations/maintenance
<p style="text-align: center;"><i>Other Miscellaneous Products/Services</i></p> <ul style="list-style-type: none"> • Site preparation • Data processing supplies • Processing/network services • Data/voice communication services

- *Other services* - most systems integration contracts include other services and product expenditures that are not classified elsewhere. This category includes miscellaneous items such as engineering services, automation equipment, computer supplies, business support services and supplies, and other items required for a smooth development effort.

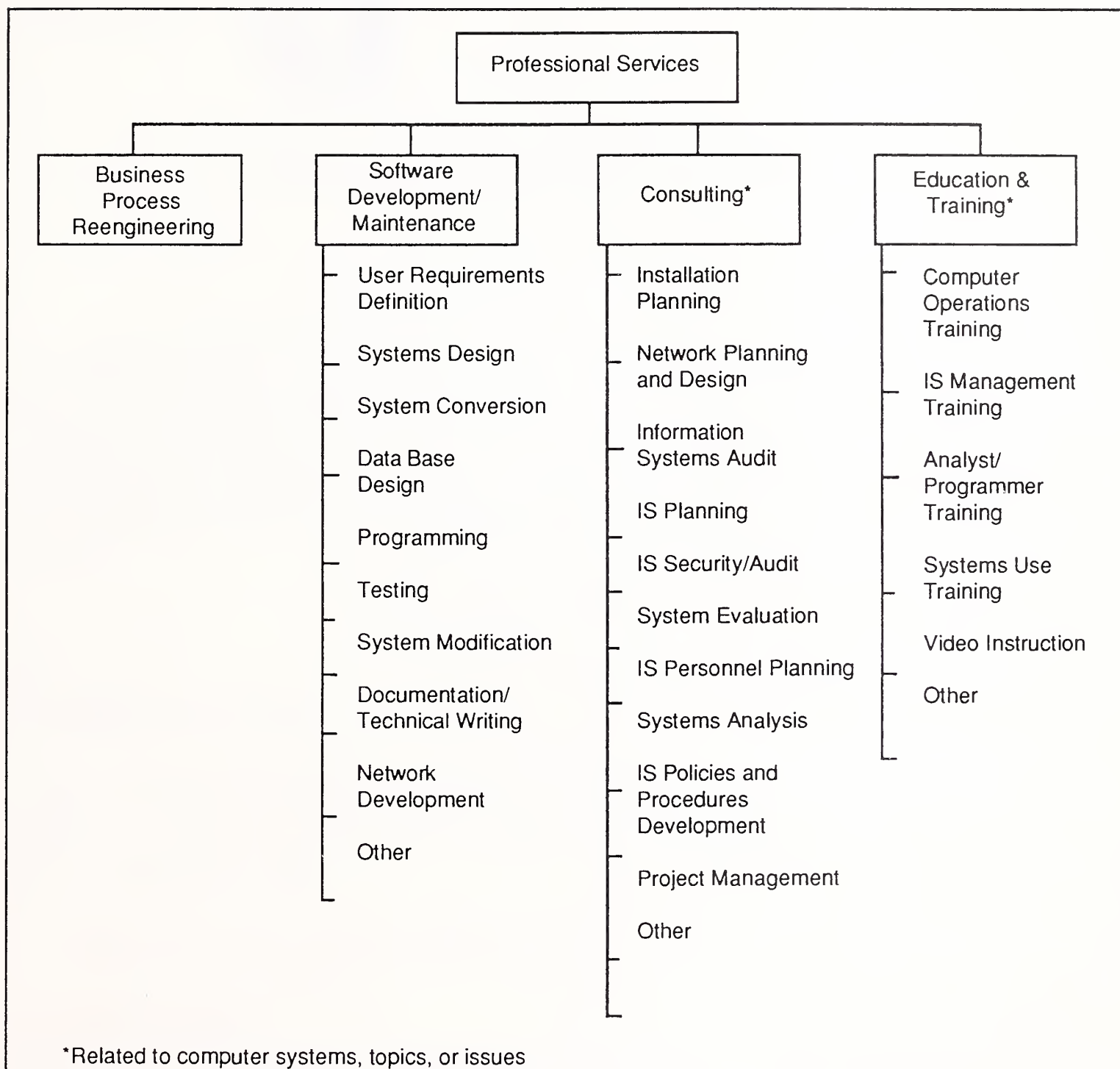
3. Professional Services

This category includes four segments: consulting, education and training, software development, and business process reengineering. Exhibit A-3 provides additional detail.

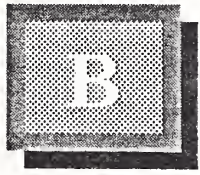
- *Consulting*: Services include management consulting (related to information systems), information systems re-engineering, information systems consulting, feasibility analysis and cost-effectiveness studies, and project management assistance. Services may be related to any aspect of the information system, including equipment, software, networks and systems operations.
- *Education and Training*: Services that provide training and education or the development of training materials related to information systems and services for the information systems professional and the user, including computer-aided instruction, computer-based education, and vendor instruction of user personnel in operations, design, programming, and documentation. Education and training provided by school systems is not included. General education and training products are included as a cross-industry market sector.
- *Software Development*: Services include user requirements definition, systems design, contract programming, documentation, and implementation of software performed on a custom basis. Conversion and maintenance services are also included.
- *Business Process Reengineering*: This is a new segment within the INPUT definition of professional services. BPR is defined as the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service and speed.

Exhibit A-3

Professional Services Market Structure



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User Interview Guide

I am calling from INPUT, an international research and consulting company. We are conducting a study on customers' approaches to estimating and managing risk in SI projects and the associated impact on contracts between SI vendors and their customers. The information that you provide will be confidential and neither your name nor your company's name will be connected with any information in the study. In return for your assistance, we will provide you with a summary of our findings at no charge.

A

Management of Risk

There are many potential areas of risk and uncertainty in bidding for and performing projects. Examples include: estimation of costs, definition of schedules, availability of skills etc. I would like to start by asking some questions regarding the identification and management of risk.

1. On a scale of 1-5, where 1 = negligible and 5 = very significant, how much risk would you say there is in each of the following areas :

Factor Rating

Initial identification of requirements by users _____

Lack of user involvement during course of project _____

Project management by SI vendor's project manager _____

Project management your project manager _____

Factor Rating

Resource estimating by the vendor _____

Resource estimating by your organization _____

Risk evaluation by vendor at start of the project _____

Risk evaluation by users at start of the project _____

Control over end-user requests for change _____

Other (please specify) _____

2. Which of the following steps do you take to minimize the risk in projects?

Automated planning of resource requirements (Y / N)

Computer-based project management (Y / N)

Formalized change control procedures (Y / N)

Dedicated user representatives on the project team (Y / N)

Other (please specify) Y

3. What contractual mechanisms do you include to minimize risk in projects ? Also, are there any you do not use now but may use in the next 2 years?

	Currently Use	Future Use
Project milestones included in contracts	(Y / N)	(Y / N)
Performance clauses	(Y / N)	(Y / N)
Guaranties or warranties	(Y / N)	(Y / N)
Bonus payments for early completion/ costs less than estimates, etc.	(Y / N)	(Y / N)
Others (please specify)	(Y)	(Y)

B**Working with an SI Vendor**

4. Please rate on a scale of 1-5, (where 1 = not at all desirable and 5 = extremely desirable), how desirable is it for the following responsibilities to be taken by your organization and/or by the vendor to ensure successful information systems projects:

User		Vendor
___	Take prime responsibility for the complete project	___
___	Take prime responsibility for selected elements of the project	___
___	Supply supporting services as required without responsibility for the entire system	___
	Other (please specify)	
___	_____	___
___	_____	___

5. Please, rate each method on a scale of 1-5, (where 1 = not at all desirable and 5 = extremely desirable), how desirable is it for an external vendor to take responsibility for each of the following types of activity:

Activity	Rating
Business process reengineering	___
Functional specification	___
Detailed systems design	___
System development	___
System implementation	___
Training of users	___
System performance measurement	___
System tuning	___

Activity**Rating**

Conformance to business needs _____

Cost of system _____

6. On a scale of 1-5, (where 1 = extremely poor and 5 = excellent), how would you rate the quality of partnership between your organization and SI vendors you have used?

Rating = ____

7. Please rate on a scale of 1-5, (where 1 = not at all desirable and 5 = extremely desirable), how desirable is it to improve the quality of partnership between vendor and client ?

Rating = ____

8. On a scale of 1-5, (where 1 = not important and 5 = extremely important), how would you rate the following as contributors towards partnership success ? Do you think current partnerships need improvement in each of these areas ?

	Rating of Importance	Requires Improvement
Common culture	_____	(Y / N)
Willingness of vendor to assume risk for the project	_____	(Y / N)
Vendor understanding of your business	_____	(Y / N)
Other (please specify) _____	_____	(Y / N)

9. Do you feel the contract between the vendor and your organization could be changed to encourage improved partnerships by inclusion of the following?

Project milestones	(Y / N)
Performance clauses	(Y / N)
Guaranties or warranties	(Y / N)

Bonus payments for early completion/
costs less than estimates etc

(Y / N)

Others (please specify)

(Y)

C

Pricing Mechanisms

10. Rating on a scale of 1-5, (where 1 = not at all and 5 = very favourably), to what extent do you use each of the following pricing mechanisms when subcontracting information systems projects ?

Basis

Rating

Fixed-price

Time-and-materials

Value-based

(i.e. the SI vendor receives a
proportion of the increased
revenue or cost savings)

On another basis (please specify)

11. For what types of project or project element are each of these pricing mechanisms most appropriate? (For example: Systems Design projects, Programing, IT consultancy)

Fixed-price

Project types

Time-and-materials Project types _____

Value-based (ie. the SI Project types _____
 vendor receives a
 proportion of the increased
 revenue or cost savings) _____

On another basis (please specify)
 _____ Project types _____

12. What do you see as the advantages, if any, of each of these approaches ?

Fixed-price

Time-and-materials

Value-based (i.e. the SI vendor receives a proportion of the increased revenue or cost savings)

On another basis (please specify)

13. Please rank your usage of the different pricing mechanisms for large projects < (\$500K).

Price Mechanism	Rank
Fixed-price	—
Time-and-materials	—
Value-based (i.e. the SI vendor receives a proportion of the increased revenue or cost savings)	—
On another basis (please specify)	—

14. Please rank your usage of the different pricing mechanisms for small projects

Price Mechanism	Rank
Fixed-price	—
Time-and-materials	—
Value-based (i.e. the SI vendor receives a proportion of the increased revenue or cost savings)	—
On another basis (please specify)	—

D**Overall Attitude**

15. To what extent do you believe that :

(Please rate the following on a scale of 1-5 where 1 = strongly disagree and 5 = strongly agree)

Vendors should take more responsibility for project risk _____

Vendor profitability is adequate cover their risk _____

Clients should take an equal share of project risks _____

Fixed-price projects lead to an adversarial relationship between client and vendor _____

Improved partnerships would lead to improved ability to meet the clients' business need _____

Value-based pricing would lead to increased project success _____

Client and vendor should share the risks and the rewards of projects _____

A fixed-project price is essential for budgeting purposes _____

Vendor incentives should be based on a valued-based price component _____

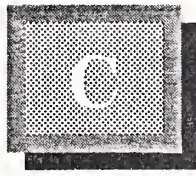
Vendors should not be offered incentives beyond the fixed-price agreed _____

16. Do you favour the use of a preferred supplier for information services projects ?

(Y / N)

Why ?

Thank you for your assistance.



Vendor Interview Guide

I am calling from INPUT, an international research and consulting company. We are conducting a study on vendors approaches to estimating and managing risk in SI projects and the associated impact on contracts between SI vendors and their customers. The information that you provide will be confidential and neither your name nor your company's name will be connected with any information in the study. In return for your assistance, we will provide you with a summary of our findings at no charge.

There are many potential areas of risk and uncertainty in bidding for and performing projects. Examples include: estimation of costs, establishment of profit targets, definition of schedules, availability of skills etc. I would like to start by asking some questions regarding the identification and management of risk.

1. On a scale of 1-5, where 1 = negligible and 5 = very significant, how much risk would you say there is in each of the following areas :

Factor	Rating
Initial identification of requirements by users	___
Lack of user involvement during course of project	___
Project management by customer's project manager	___
Project management by your project manager	___
Resource estimating by the customer	___
Resource estimating by your organization	___
Risk evaluation by customer at start of the project	___
Risk evaluation by vendors at start of the project	___

Factor	Rating
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Control over end-user requests for change	_____
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Other (please specify) _____	_____
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2. Is there a level of risk above which you will not accept a project? What is this threshold ? (For example, if estimated profit is less than 25% of revenue)
3. What percentage of Invitations to Tender (or Requests for Proposal) that you receive do you decline because of the risks involved (rather than because of strong competition) ? _____%
4. What steps do you take to minimize the risk in projects which you perceive comparatively high potential risk?

5. How often do you use each of the following pricing methods as a basis for pricing of contracts? Please, rate each method on a scale of 1-5 where 1 = rarely and 5 = very frequently

Basis	Rating
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Fixed price	_____
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Time and materials	_____
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Value-based (i.e., the SI vendor receives a proportion of the increased revenue or cost savings)	_____
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On another basis (please specify)	_____
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6. What do expect these ratings to be in two years time ?

Basis	Rating
-------	--------

On a fixed price	_____
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On a time and materials	_____
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On a value-based	_____
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Basis

On another basis (please specify)

7. Would you, please, outline the approaches you use for each of the following tasks, identifying any models, tools or methodologies used ? What are the key methods of evaluating risk in each of these areas ?

a) Estimating

b) Overall Project Management

c) Sub-contractor Management

d) Project Pricing

8. Roughly, what percentage of projects do not satisfy the clients business needs as defined at the start of the project ?

By number ____% By value ____%

9. Roughly, in what percentage of projects do costs exceed revenue ?

By number ____% By value ____%

10. Has consideration of risk reduction resulted in any of the following becoming included in your client contracts?

Project milestones (Y / N)

Performance clauses (Y / N)

Guaranties or warranties (Y / N)

Bonus payments for early completion/
costs less than estimates etc (Y / N)

Others (please specify) (Y / N)

Thank you for your assistance.

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