Payoff

Appropriately structured arrangements for systems maintenance outsourcing can yield significant benefits to many organizations. This article provides checklists for assessing potential maintenance outsourcing suppliers, for defining service criteria, and for evaluating contract terms.

Problems Addressed

The issue of the strategic value of information systems has given rise to the concept of selective outsourcing. This approach entails outsourcing selected data processing functions or applications. Activities with little strategic implication are more likely candidates for outsourcing than functions that are more strategic in nature. It is general agreed that strategic activities should be kept in-house. One form of selective outsourcing that has significant benefits and opportunities in the current IS environment is application systems maintenance outsourcing.

IS managers who want to accelerate the move to new technology—whether it is client/server, object orientation, or multimedia—know that this migration requires qualified, dedicated resources. Because IS must continue to be responsible for the legacy systems that currently support the business, there is significant contention for management attention, knowledgeable resources, and project manager focus. Outsourcing of applications maintenance is a potential solution to this dilemma.

Benefits of Outsourcing Maintenance

Applications system maintenance is defined as the performance of those activities required to keep a software system operational and responsive after it has been accepted and placed into production. It includes two major sets of activities:

- Promptly fixing software problems that cause the system to be nonoperative or to perform incorrectly.
- Implementing changes, improvements, and enhancements to the system.

When an outside firm is selected for outsourcing software maintenance for an applications system or group of systems, it assumes responsibility not only for implementing corrections and enhancements, but also for managing the process. Although each situation is different, companies have achieved benefits from properly structured maintenance outsourcing arrangements. Opportunity areas and benefits of selective outsourcing include:

- Freeing up existing maintenance staff to work on new development activities.
- Improving internal staff morale by removing the perceived drudgery of maintenance and providing opportunity to work with new technologies.
- Offering potential career paths for employees not moving to the new technologies.
• Reducing costs of providing maintenance.
• Supporting fluctuating maintenance demand with external variable costs rather than internal fixed costs.
• Improving service to applications system users with more responsive systems modifications and enhancements.
• Allowing management to focus on high-priority areas.

Several of these benefits directly relate to IS management's need to support new business initiatives through technology.

**Staffing Issues**

The usual approach is to hire new staff to work on applications development requiring newer technologies. When it is difficult to find staff, consultants are usually engaged, but this approach poses some serious problems.

Existing staff members may feel neglected because they are relegated to maintenance work and not given the opportunity to advance their skill levels, while new employees or consultants are given the more exciting assignments using the latest technologies. Many of the IS department's current employees have knowledge about the business that could be valuable in development of the new applications. In addition, the cost of hiring consultants or new employees with the required skills is often high.

Applications maintenance outsourcing offers an effective solution to these problems. Retaining a firm to assume responsibility for maintenance of one or more legacy systems is a strategy that frees up existing staff members so they can be trained in new skills and can bring to bear their accumulated knowledge of the business. Retaining the in-house staff is usually less costly than hiring new employees and can be more cost-effective than hiring consultants. The cost of outsourcing maintenance should be significantly lower than the cost of hiring a firm to provide new development capabilities.

Use of maintenance outsourcing also provides a solution to another problem faced by organizations moving to new technologies. Studies have shown that a higher than expected percentage of the existing staff will not make the grade on newer technologies. Approximately 20% or more do not even want to learn new skills. Of those that do learn, about 20% are unsuccessful. The outsourcing arrangement can be structured so that the outsourcing supplier acquires some of the existing maintenance staff. This ensures knowledge and continuity in the systems maintenance work and accommodates those employees unwilling or unable to adapt to the new environment.

**Assessing the Maintenance Outsourcing Supplier**

The most critical factor in a successful maintenance outsourcing arrangement is finding the right supplier. Although terms and conditions must be defined and a contract executed, flexibility and mutual understanding for the other party's interests are crucial and yield the spirit of cooperation that's needed to sustain an ongoing relationship that benefits both parties.

Key issues and questions to consider in assessing an outsourcer are as follows:

• Prior track record:
· Does the firm have a history of performing similar tasks? It is advisable to evaluate the number of engagements and their success as described by the references provided by the outsourcing firm.

· Have current clients achieved the benefits they were seeking? Are these benefits similar to what your organization expects?

· Proven staff and management:
  · Does the firm have a large staff experienced in maintenance and in the applicable methodologies and approaches?
  · Will the individuals to be assigned have relevant business or applications experience?
  · What is the quality and experience level of the management team to be assigned, and how long will they be committed to the contract?

· Level of commitment:
  · Is maintenance outsourcing a key business for the outsourcer firm?
  · Is there a corporate commitment in support of maintenance outsourcing, as evidenced by a corporate support staff, corporate tools and methodologies, adequate local support, and a general sense that this business is important to the firm?

· Personnel issues:
  · Does the outsourcer have an approach for absorbing the organization's employees if necessary? Does the approach protect these employees' interests? Is it consistent with your organization's human resources policies?

· Phased approach to assuming responsibility:
  · Does the firm have a standard, proven approach for assuming total responsibility?
  · During the transition period, are tasks and responsibilities for them clearly delineated?
  · Are the costs for transition defined and attributed?

· Methodology for managing maintenance:
  · Does the supplier have a methodology that defines all the phases in the maintenance life cycle, all the tasks to be performed during these phases, and responsibilities for such tasks?

· Appropriate procedures:
• Either as part of the methodology or as standalone tools, does the supplier have formal, documented procedures for managing service requests, testing, and quality assurance?

• Project management discipline and tools:
  • Is there a management control tool that tracks service requests and the tasks required to accomplish them?
  • Are regularly scheduled status reports defined and required?
  • Is level of service (discussed in more detail in the next section) tracked and reported on?

• Use of automated tools to improve performance and service:
  • Does the supplier bring to the job automated tools that support the maintenance team in analysis, documentation, and testing?

**Level of Service**

An outsourcing arrangement, by definition, is different from typical contracting arrangements. The outsourcing supplier should assume greater responsibility for successful performance of the function being outsourced, sharing not only rewards but risks as well. The supplier should therefore be willing to provide services on a fixed-price basis.

First, however, the supplier and the contracting company need to agree on a level of service to be provided. The supplier can then guarantee the agreed-to level of service for a monthly fixed price.

The level of service should define minimal levels for each area; if additional services are needed, these can be contracted for at an additional fee. The service areas and some samples of service criteria include:

• Responsiveness to production rescue:
  • Hours for providing production rescue.
  • Approach to off-hours coverage.
  • Speed of response to emergency maintenance.
  • Number of hours per month provided for production support.

• Amount of work:
  • Number of change requests completed.
  • Number of change requests by category.
  • Amount of work completed versus estimated.
Percentage of work completed on schedule.

Function points affected or changed.

Quality of work:

- Quality of delivered product (subjective).
- Meantime between failures.
- Average number of incidents.
- Average time to correct.
- Failures per XXX lines of code.

Steps for Initiating an Outsourcing Arrangement

When initiating a maintenance outsourcing arrangement, a structured approach, with discrete predefined activities and events, is advised to ensure optimal results.

Identifying a Pilot System

In undertaking the first such initiative, it is prudent to begin with a pilot. The size of the pilot project has to be large enough to make it worthwhile for the outsourcing supplier, but from the standpoint of the user organization, starting with a pilot minimizes risk and allows the organization to devote the resources necessary to ensure success. A pilot system also provides enough information that can be used to evaluate whether the effort should be extended to additional systems.

Identifying Potential Suppliers

Although there are always advantages to soliciting several suppliers to bid, there may also be significant benefits in dealing with a single supplier. If there is a firm that meets the criteria (such as outlined previously), is familiar with the systems in question, and with whom there is an existing positive relationship, these benefits may override the advantages of competitive bidding.

Assessing the Systems Environment

A major activity is conducting an assessment of the existing environment. Some of the issues to be addressed during this assessment include:

- Defining the scope and size of the systems.
- Evaluating the quality (e.g., stability, maintainability) of the systems.
- Assessing service requests and backlog history and trends.
- Evaluating presence and quality of procedures.
- Determining current level of user satisfaction.

This assessment provides the baseline for:
Defining (with the supplier) the level of service desired or required.

- Developing a fixed-price bid.
- Determining required staff levels (during transition and beyond).
- Identifying opportunities for improving the environment.

Determining Feasibility.
Based on the results of the assessment, the feasibility of outsourcing can be evaluated. Are there opportunities for improvement? Is there reason to believe that an outside supplier with existing procedures, tools, and methodologies can be more successful? Are there issues that might preclude outsourcing?

Defining Level of Service.
Using the findings of the assessment, a minimum level of service should be defined for each of the relevant categories (e.g., production support, enhancements, user support).

Soliciting and Evaluating Proposals.
Using the qualitative and quantitative data uncovered during the assessment, the next step is to solicit proposals from the identified suppliers. These proposals should include the desired level of service and a fixed-price bid should be requested, based on this service level. In addition, the user organization must request pricing parameters for effort to be supplied over and above the minimum level of service. Proposals should also include plans for transition and the requirements to be imposed on the contracting firm, both during and after transition.

Reaching an Understanding.
On the basis of the proposal of the selected vendor, the relationship with the vendor, and the benefits desired, the contractual agreement must be negotiated. (Pertinent issues relating to the contract are discussed in more detail in the next section.)

Initiating the Pilot Outsourcing Effort.
In addition to the steps required to initiate and phase-in the outsourcing arrangement, monitoring and tracking procedures should be defined in advance. These procedures should be designed to allow an evaluation of the success of the effort and to support a decision on whether the desired benefits were achieved. This work will help the organization decide whether to continue the arrangement or even extend outsourcing to additional systems.

The Contract
Under a partnership approach, the contract should not be viewed as the sole means for holding each party to its obligations. A strong partnership relationship, in which each organization has incentives to strive for a common goal, is far more likely to yield successful results. That said, in the end, the contract is the vehicle for articulating and reviewing what each party expects from the other, and there are several key issues to review.

Thoroughness and Comprehensiveness.
As the vehicle for ensuring that everyone understands and agrees to the terms and obligations, the contract should be as comprehensive as possible, defining all pertinent issues. It must discuss the obligations of each party, costs, duration, terms, and conditions. Care should be given to anticipating future needs as well as those known up-front. Where it may be premature to resolve or even discuss an issue, the contract can include language on how and when the issue will be raised and resolved.

**Flexibility.**
Although the contract should be explicit about issues known at the outset, it must provide flexibility for future situations. The contract can be viewed as a set of master terms and conditions, with details about the specific work required, and the compensation for that work, treated as additional components. Each system to be maintained could have a separate component defining its level of service and associated fixed price. Additional work to be defined during the course of the arrangement can be dealt with in additional components, without requiring renegotiation of the underlying contract. Unanticipated events can be treated the same way.

**Duration.**
Although the supplier will require a minimum time frame to make the effort worthwhile, there also needs to be some escape clause in case the effort does not work out as envisioned. This can be accomplished through objective criteria for termination (where possible), payments to the vendor to compensate for early termination, and lead time for termination.

**Incentive.**
The contract should be structured so that the supplier has an incentive to improve the environment. When the supplier can share in the benefit, there is an incentive to improve the stability or maintainability of the systems through restructuring, reengineering, or improved documentation. Such improvements can provide benefits to the contracting organization through better customer service or reduced cost of processing.

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**Recommended Course of Action**
The use of maintenance outsourcing can help a user organization achieve its strategic objectives. Such an arrangement relieves management of many of the day-to-day burdens of maintenance and thus allows management to dedicate more attention to strategic activities. Redeployment of IS staff currently assigned to maintenance can enhance the size and quality of staff assigned to new development activities. Reduction of maintenance costs can support increased expenditures in strategic development activities. To achieve these potential benefits, management should adhere to the following steps:

- **Developing a plan to guide the activities.** This involves identifying a set of activities to be pursued, responsibilities for all tasks, and key decision criteria. The benefits desired should be defined in advance so that ongoing monitoring can determine whether the desired benefits are being achieved.

- **Defining the baseline.** An outsourcing assessment is necessary to define the existing environment from both a quantitative and a qualitative perspective. When this is accomplished, key objectives can be defined.
· Defining a desired level of service using the findings of the assessment. Level of service is of paramount importance in selecting a supplier, in establishing a fixed price, and in evaluating ongoing performance.

· Selecting a maintenance outsourcing supplier. The selection must be made carefully and wisely, ensuring that the supplier has the required credentials, experience, and tools and resources. It may be best to select a firm with whom the organization is already comfortable or with whom it feels confident it can develop a partnership relationship.

· Exercising due diligence in establishing contract terms and ongoing expectations. At the same time, it is vital to recognize that a partnership approach or philosophy holds the greatest promise for success. Maintaining the concept of partnership during the contract process provides the opportunity to structure an arrangement that can foster an environment of shared risk as well as shared benefits.

· Monitoring performance and results on an ongoing basis.

Author Biographies

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