

Chapter 16

Outsourcing

Abstract The aim of this chapter is to outline the main things to be considered by management in regard to outsourcing of asset management and maintenance work. Both positive and negative aspects of outsourcing are indicated, with the aim of helping managers to get the best value from their outsourcing options. *Outcomes* After reading this chapter you will know what type of tasks to outsource and what types are best kept in-house. You will learn about the types of outsourcing contract and about the points to watch for in creating and management of outsourcing contracts. You will also read about outsourcing from a contractor viewpoint, which will assist both parties to an outsourcing contract to achieve a favorable outcome. You will also read about forms of contract such as Build Own Operate Transfer and Public Private Partnerships.

16.1 Introduction¹

Civilization is based on specialization and specialization involves the devolution of work to those who specialize in specific types of task. Specialization enables an individual or an organization to be equipped, trained, skilled, and experienced in a chosen range of tasks, and potentially to execute those tasks efficiently and relatively cheaply. This is the rationale for outsourcing. At the same time, outsourcing introduces communication, negotiation, and pricing activities which must be set against the advantages of specialization.

Outsourcing of maintenance activities from utilities and large-scale enterprises has occurred on a substantial scale in recent years. To some extent this is a political issue, since large-scale enterprises suit the bargaining power of labor organizations. However, our concern here is with the practicalities rather than the politics of outsourcing.

¹ ISO 55001/2 Clause 8.3 Outsourcing: “The organization shall ensure that outsourcing processes and activities are controlled.”

16.2 What to Outsource

The basic reason for outsourcing work is that it provides a cheaper and/or better service than if we try to do the work ourselves. Besides cost, it may also be simply impractical for us to cover all the supporting activities needed by our business on an in-house basis. However, we need to be sure that there is a real cost saving, that it does not lead to a loss of quality, and that it does not come at an ultimately greater cost to our business.

16.2.1 Noncore Activities

The activities required to provide a capability can be divided into core and non-core activities. For example, in running a power station, the operation of the power plant itself and of the immediate engineering support can be regarded as core, whereas site activities such as:

- gardening
- cleaning
- security

are noncore. Noncore activities are ready candidates for outsourcing to organizations which specialize in the relevant functions, and which are likely to take on similar contracts with a range of organizations whose core businesses can vary widely.

16.2.2 Minor Player

Outsourcing also makes good sense for technical activities where our organization is a relatively minor player. Examples can include:

- Electric motor repairs
- Oil condition analysis
- Heating, ventilating, and air-conditioning maintenance

16.2.3 Peak Load Resources

Another common area for the use of contract resources is in the meeting of peaks in activity, such as maintenance personnel required for shutdown work.

16.3 The Owner/Operator Model

Another scenario is for an asset owner to appoint an operator who runs the entire operation. For example, a government entity may own a railway, but contract the operation of the railway to an operating company. We often find a multiple level structure in which the operator then subcontracts some functions to more specialized organizations. The general principle here is that a prime contractor should be responsible for his subcontractors. In what follows we refer to the owner or prime operator as an “outsourcer” and the organizations which are contracted to undertake particular types of task as “contractors”.

16.4 What NOT to Outsource

16.4.1 Core Activities

It is best not to outsource activities which are central to the business, or where the business has more specialist knowledge than the potential contractor. It is important to ensure that the potential contractor knows the business for which they are bidding.

16.4.2 High Customer Impact

Another area where companies should be cautious about outsourcing is for functions with high-customer impact. It is best to keep a close watch on these activities and to be able to pick up feedback and respond effectively and quickly to problems.

16.4.3 Problem Areas

It is best not to outsource activities which are currently causing a problem. Solve the problem in-house and then consider outsourcing once a satisfactory working solution has been found. Alternatively, if this is not possible, outsource the problem-solving activity on its own and then consider your position once a proven solution has been found.

16.4.4 Examples

A paper manufacturer outsourced the maintenance of its overhead cranes to a maintenance organization. But it turned out that the contractor, although

competent in maintaining mobile and construction cranes, had no experience in factory overhead cranes of the type used by the paper manufacturer and did not understand the necessity of maintaining strict alignment of the running rails, nor were they equipped to do this. After a couple of near accidents the company brought the maintenance of the overhead cranes back in-house.

In another example, a large insurance company was alarmed to find that only two people had a full understanding of the workings of their computer systems, and that both were contractors. They subsequently developed in-house skills and a succession plan.

16.5 Benefits of Outsourcing

16.5.1 Concentration on Core Business

Concentration on core business tends to benefit an organization, giving greater focus to essential activities and resulting in fewer direct employees, less fringe activities, and fewer birthdays to celebrate.

16.5.2 Redress Workforce Imbalances

Outsourcing can provide an opportunity to redress imbalances in the workforce. Organizations may have taken on workers in the past whose numbers, skills, and flexibilities are out of step with current requirements. Outsourcing provides an opportunity to review the workforce position from a zero base. Subsequently, it provides greater flexibility in meeting the needs of a changing business environment.

From the workers point of view, outsourcing can mean the loss of jobs. But many workers benefit from pursuing new lines of activity, and some find employment related to their original tasks, but on a basis that, given the increased flexibility involved, provides benefits for them as well as for their original employers.

16.5.3 Reduce Fixed Costs

Outsourcing can also have the benefit of moving fixed costs into variable costs. For example, maintenance and support equipment, is now provided by the contractor as an operating expense to the outsourcer. Keeping this equipment up-to-date is now an issue for the contractor, but as this is part of the contractor's main business, it is likely to be well managed and give economies of scale.

16.5.4 Review Maintenance Practices and Resources

In the maintenance area, outsourcing provides an opportunity to review and update maintenance practices. Formalizing a contract can create a clearer definition tasks and responsibilities. The contractor, who is likely to have responsibilities across a range of plant, can bring in economies of scale across the maintenance function. Paradoxically, an asset manager can sometimes find it easier to get good performance from a contractor, whose tasks are well defined and whose performance is under routine scrutiny, than it is to get the same performance from an in-house group.

16.6 Costs of Outsourcing

16.6.1 Formalization

One of the main reasons for establishing companies in the first place is to form a team with a collective aim and identity. Within the team, all are working for the same main ends. Cooperation between members of the team is the norm and requires minimal formalities. By contrast, outsourcing means that work is assigned to an outside organization and this means a contractual relationship which requires formalization to cover such things as:

- work scoping and specification
- costing
- identification of potential contractors
- tendering process
- selection process
- contract negotiation and agreement
- formal legalities
- contract management, including variations and cost control
- progress management and on-site activity control
- auditing of contractor performance.

This introduces cost elements which were not there when the work was done in-house.

16.6.2 Intangible Effects

Outsourcing can also have impacts of a less tangible nature. One such aspect is the loss of ability to direct workers, who now work for the contractor. For example, the manager of a hydroelectric generating utility, which operates a number of

small plant scattered over a mountainous area, reports that, prior to outsourcing he was readily able to identify and dispatch suitably skilled personnel to deal with problems at any site. Now he has to refer such problems to a contractor resulting in a loss of time and flexibility and an increased likelihood that the person dispatched will be unable to solve the problem.

16.6.3 Other Potential Negatives

Other negatives can include:

- Loss of critical skills and technical knowledge which go to the contractor and then to competitors
- Loss of employees that you did not intend to lose
- Loss of internal communication
- Less opportunity for knowledge growth and development of internal expertise
- Loss of links with suppliers—suppliers are now dealing with the contractor
- Hidden costs emerge—things that you did not realize your employees were doing
- The contractor looks good initially, but then shifts the best people to the latest client
- Delays in resolving crises, response time factors
- Lack of availability of particular necessary skills
- Loss of direct control over work timing
- Loss of direct control over work standards
- Cost of monitoring work done
- Inhibits continuous improvement
- Lack of commitment by contract personnel
- Lack of responsibility by contract personnel who will disappear and not be answerable for problems
- Potential for conflict between in-house and contract workers
- Security
- Access rights
- Insurance
- Handover of tasks/equipment between contractors and in-house personnel
- Ownership of items on site
- Contractors profit motive conflicts with the main company's overall interest
- Termination of contracts
- Ownership of improvements, developments.

This list may appear formidable, but airing the potential problems may go some way toward solving them. Ultimately, the benefits of outsourcing need to be sufficient to more than offset these many factors.

16.7 Types of Contract

Labor Only

Labor is hired and works as directed by in-house staff.

Time and Materials

The time taken and materials used are recorded and paid for at agreed rates. The contractor has no specific motivation to be economical, but this is not to say that he will be needlessly extravagant.

Survey and Quote

The contractor estimates the work required and then quotes a price for doing it. There will be checking by technical experts on behalf of the outsourcer. Often the same contractor then goes on to carry out the work.

Work Package

Labor, tools, and spares are provided to execute defined work.

Examples: Building contracts; Inspection and routine maintenance of fire safety system.

Lump Sum

The contractor agrees to maintain a system in return for an agreed sum of money. The maintenance policy details are left with the contractor. Level-of-service standards are defined.

Performance Based

Similar to Lump Sum except that the payment is adjusted (up or down) in accordance with agreed performance standards, such as:

- Availability of plant,
- Response time to failures,
- Keeping to schedule, and
- Turnaround time for rotables.

This is suitable for situations where the performance criteria can be readily defined. This is generally the preferred type of contract for operational situations.

Alliance

The outsourcer and the contractor work in an integrated way to achieve a target result. This type of contract may be necessary for projects involving technological development and/or systems integration. It is important that the outsourcer and the contractor agree on:

- Project target outcomes,
- Commercial incentives, and
- Intellectual property rights.

Conflicts can easily arise in these areas and on-going cooperative goodwill is necessary for success. Risks tend to revert to the outsourcer—be careful of this.

16.8 Contract Features

Some common features of outsourcing contracts are as follows:

- Performance criteria
- Level of service
- Incentives, bonus for good performance, and penalty for poor performance
- Availability of equipment or service by time and duration
- Security
- Access rights
- Continuous improvement—and partnering for improvements
- Ownership of intellectual property
- Insurance cover
- Contract termination options, procedure, and handover
- Ownership of equipment used
- Prime contractor to remain responsible for subcontractors, however, health and safety liabilities cannot be contracted out.

The contract must allow the contractor sufficient funds to cover costs, deliver a reasonable profit, and allow for contingencies. The nature and range of services must be well defined, and also the performance level.

Consider a contract for lawn mowing and edge trimming. The performance level should state how high the grass is to be in terms of a range! The choice of frequency of mowing is with the contractor, provided that the range of height is maintained, and may vary with the weather. Some fine details will need to be ironed out, for example, who is responsible for clearing the lawn of toys, and what rules govern the disposal of clippings.

Emergency response issues are covered in some contracts. Factors to be considered include the following:

- range of situations to be covered, definition of the emergencies,
- period for which covered,
- nature of response,
- time to respond,
- acceptable cost rules for dealing with emergencies, and
- exclusions.

16.9 Limiting Risks in Outsourcing

- The contractor must have necessary skills and management competence.
- Address sources of potential problems at the contract stage.
- Be prepared to stay with in-sourced solutions, or to revert to in-sourcing if necessary, particularly to cover urgent tasks, critical machines, or critical services.

- Keep links with affected employees.
- Use more than one contractor.
- Keep contracts to moderate length.
- Use performance-based contracts.
- Have contract provisions allowing you to react to an emergency by funding overtime, extra resources, or specific direction of resources to the emergency on hand.
- Primary contractor to have responsibility for their subcontractors. However, when problems occur, the contractor will still blame the subcontractors. It is advisable to involve the subcontractors in meetings and ensure that their opinions are heard and that they are party to all necessary information, without letting the main contractor pass off the risk.
- Create and retain in-house strength in:
 - Highly skilled technicians—have a minimal number and look after them
 - Asset management
 - Technical specialists
 - Contract negotiators
 - Contract managers and performance auditors
 - Customer support resources
- Succession planning is needed for all of the above
- Expect the contractor to make a reasonable profit, otherwise he may go out of business and you will be left to pick up the pieces.

16.9.1 Audit

An audit system should be established to check and report on contractor performance. This should compare actual service levels and other performance indicators against targets, and should check on performance of equipment in terms of reliability and availability.

16.10 Outsourcing Result

Outsourcing means that the outsourcer becomes an Asset Manager rather than a maintainer. There will be a need to continually deal with issues related to service delivery. *So hat jener seiner Sorgen*, to quote a German proverb.

If problems arise you can invoke the contract, but if the arrangements fail the problems revert to the outsourcer. You can outsource the task, but you cannot outsource the (ultimate) responsibility.

16.10.1 Example

The Victoria State Government outsourced the operation of part of its suburban railway network to a contractor. However, the contractor later walked away when they decided that they could not make a profit from the arrangement. The passengers still needed to be carried, however, so the problem landed back with the government. Fortunately, they had used another contractor for another part of the railway and they were able to get that contractor to pick up the slack. In these circumstances, the outsourcer often realizes that the original contract did not allow enough profit margin and is willing to make a more generous deal the second time around.

16.11 Contractor Viewpoint

Avoid sovereign risk, that is, situations where someone else (e.g., a regulator or government entity) can change the rules after your costs are fixed. Contract for a known service at a known cost. For example, contract for delivering system availability, rather than for operational utilization or actual sales revenue, or for any measure which depends on factors outside your control.

The contract must be sufficiently profitable in terms of the usual investment criteria and contain adequate provision to cover contingencies and to encourage further investment and growth. Identify risks, and ensure that the contract protects you against these as far as possible. Remember that politics can change and that public servants are interested (like the chicken providing the breakfast egg) but they are not involved (unlike the pig providing the bacon).

Consider business continuity. A one-off contract may require initial investment which requires significant continuity of business in order to recoup.

Consider payment terms and cash flow issues. Insist on being paid on time.

16.12 Build Own Operate Transfer (BOOT)

A contractor bidding to build a building will aim to provide value in terms of \$ per square meter. However, if the same contractor was also going to operate the building (e.g., residence, warehouse, and prison) the design would take more account of operational and maintenance factors. The owner should focus on through life costs of the entire operation and not just initial costs. BOOT contracts can assist in this process.

16.13 Public Private Partnerships (PPP)

Public Private Partnerships are arrangements whereby government and industry get together to work on a major project. Examples include roads, railways, and desalination plants. The reasoning behind these arrangements is that the public sector and the private sector each have different areas of strength, and bringing them together can produce an effective and timely result. The strengths which the different parties bring to a ppp are summarized in Fig. 16.1.

An example of a ppp is the building of a cross-city toll tunnel in Sydney. The tunnel was duly completed and the government and contractors were happy, but the public became resentful, because the government closed some alternative road routes and the toll charges were high. Public opinion forced the government to back down on some closures and charges. This led to legal conflict with the contractor and to the contractor losing money.

The positive side of ppp is that the project generally gets built! Without the cooperation of both sectors, the combination of political, financial, and technological delays can drag a project out over many years.

Expertise	Public Sector	Private Sector
Cost management		☺
Construction skills		☺
Technology skills		☺
Operation and Maintenance		☺
Finance	☺	
Land availability, access and approvals	☺	
Legislative changes	☺	
Environmental approvals	☺	
Political support	☺	

Fig. 16.1 Organizational strengths in public private partnerships

16.14 Exercises

16.14.1 Self-Assessment Exercise

1. What types of activities are suitable for outsourcing?
2. What types of activities should not be outsourced?
3. Identify four potential sources of benefit from outsourcing.
4. Identify five potential negative effects of outsourcing.
5. Identify five things that you might do to avoid risk in outsourcing.

16.14.2 Self-Assessment Exercise Solution

1. *What types of activities are suitable for outsourcing?*
 - a. Noncore activities
 - b. Activities where we are a minor player
 - c. Activities involving a peak load resource requirement
2. *What types of activities should not be outsourced?*
 - a. Core activities, central to our business where we have particular expertise.
 - b. Activities with high customer impact.
 - c. Activities which are currently causing a problem unless we know the solution.
3. *Identify four potential sources of benefit from outsourcing.*
 - a. Concentration on core business
 - b. Redress workforce imbalances
 - c. Reduce fixed costs
 - d. Review maintenance practices and resources
4. *Identify five potential negative effects of outsourcing.*
 - a. Any five of the things mentioned in Sect. [16.6.3](#)
5. *Identify five things that you might do to avoid risk in outsourcing.*
 - a. Any five of the things mentioned in Sect. [16.9](#).