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## Abstract

This chapter is concerned with the selection and management of a software supplier. It discusses how candidate suppliers may be identified, formally evaluated against defined selection criteria, and how the appropriate supplier is selected. We discuss how the selected supplier is managed during the project.

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## Keywords

Request for proposal • Supplier evaluation • Formal agreement • Statement of work • Managing supplier • Service level agreement • Escrow • Acceptance of software

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## 8.1 Introduction

Supplier selection and management is concerned with the selection and management of a third-party software supplier. Many large projects involve total or partial outsourcing of the software development, and it is therefore essential to select a supplier that is capable of delivering high-quality and reliable software on time and on budget.

This means that the process for the selection of the supplier needs to be rigorous and that the capability of the supplier is clearly understood, and the associated risks are known prior to selection. The selection is based on objective criteria such as cost, the approach, the ability of the supplier to deliver the required solution, and the supplier capability, and while cost is an important criterion, it is just one among several other important factors.

Once the selection of the supplier is finalized, a legal agreement is drawn up between the contractor and supplier, which states the terms and condition of the contract, as well as the statement of work. The statement of work details the work to be carried out, the deliverables to be produced, when they will be produced, the personnel involved their roles and responsibilities, any training to be provided, and the standards to be followed.

The supplier then commences the defined work and is appropriately managed for the duration of the contract. This will involve regular progress reviews, and acceptance testing is carried out prior to accepting the software from the supplier. The following activities are generally employed for supplier selection and management (Table 8.1).

**Table 8.1** Supplier selection and management

Activity	Description
Planning and requirements	This involves defining the approach to the procurement. It involves: <ul style="list-style-type: none"> <li>– Defining the procurement requirements</li> <li>– Forming the evaluation team to rate each supplier against objective criteria</li> </ul>
Identify suppliers	This involves identifying suppliers and may involve research, recommendations from colleagues or previous working relationships. Usually, three to five potential suppliers will be identified
Prepare and issue RFP	This involves the preparation and issuing of the Request for Proposal (RFP) to potential suppliers. The RFP may include the evaluation criteria and a preliminary legal agreement
Evaluate proposals	The received proposals are evaluated and a shortlist was produced. The shortlisted suppliers are invited to make a presentation of their proposed solution
Select supplier	Each supplier makes a presentation followed by a Q&A session. The evaluation criteria are completed for each supplier and reference sites were checked (as appropriate). The decision on the preferred supplier is made
Define supplier agreement	A formal agreement is made with the preferred supplier. This may include the following: <ul style="list-style-type: none"> <li>– Negotiations with the supplier/involvement with Legal Department</li> <li>– Agreement may vary (statement of work, service level agreement, Escrow, etc.)</li> <li>– Formal agreement signed by both parties</li> <li>– Unsuccessful parties informed</li> <li>– Purchase order raised</li> </ul>
Managing the supplier	This is concerned with monitoring progress, project risks, milestones and issues, and taking action when progress deviates from expectations
Acceptance	This is concerned with the acceptance of the software and involves acceptance testing to ensure that the supplied software is fit for purpose
Roll-out	This is concerned with the deployment of the software and support/maintenance activities

## 8.2 Planning and Requirements

The potential acquisition of software arises as part of a make-or-buy analysis at project initiation. The decision is whether the project team should (or has the competence to) develop a particular software system (or component of it), or whether there is a need to outsource (or purchase off-the-shelf) the required software. The supplied software may be the complete solution to the project's requirements, or it may need to be integrated with other software produced for the project. The following tasks are involved:

- The requirements are defined (these may be a subset of the overall business requirements).
- The solution may be available as an off-the-shelf software package (with configuration needed to meet the requirements).
- The solution may be to outsource all or part of the software development.
- The solution may be a combination of the above.

Once the decision has been made to outsource or purchase an off-the-shelf solution, an evaluation team is formed to identify potential suppliers and evaluation criteria is defined to enable each supplier's solution to be objectively rated.

A plan will be prepared by the project manager detailing the approach to the procurement, defining how the evaluation will be conducted, defining the members of the evaluation team and their roles and responsibilities, and preparing a schedule of the procurement activities to be carried out.

The remainder of this chapter is focused on the selection of a supplier for the outsourcing of all (or part) of the software development, but it could be easily adapted to deal with the selection of an off-the-shelf software package.

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## 8.3 Identifying Suppliers

A list of potential suppliers may be determined in various ways including:

- Previous working relationship with suppliers.
- Research via the Internet/Gartner.
- Recommendations from colleagues or another company.
- Advertisements/other.

A previous working relationship with a supplier provides useful information on the capability of the supplier, and whether it would be a suitable candidate for the work to be done. Companies will often maintain a list of preferred suppliers, and these are the suppliers that have worked previously with the company and whose capability is known. The risks associated with a supplier on the preferred supplier

list are known and are generally less than those of an unknown supplier. If the experience of working with the supplier is poor, then the supplier may be removed from the preferred supplier list.

There may be additional requirements for public procurement to ensure fairness in the procurement process, and often-public contracts need to be more widely advertised to allow all interested parties the opportunity to make a proposal to provide the product or service.

The list of candidate suppliers may potentially be quite large, and so short listing may be employed to reduce the list to a more manageable size of around five candidate suppliers.

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## 8.4 Prepare and Issue RFP

The Request for Proposal (RFP) is prepared and issued to potential suppliers, and the suppliers are required to complete a proposal detailing the solution that they will provide, as well as the associated costs, by the closing date. The proposal will need to detail the specifics of the supplier's solution, and it needs to show how the supplier plans to implement the requirements.

The RFP details the requirements for the software and must contain sufficient information to allow the candidate supplier to provide a complete and accurate response. The completed proposal will include technical and financial information, which allows a rigorous evaluation of each received proposal to be carried out.

The RFP may include the criteria defined to evaluate the supplier, and often weightings are employed to reflect the importance of individual criteria. The evaluation criteria may include several categories such as the following:

- Functional (related to business requirements).
- Technology (related to the technologies/non-functional requirements).
- Supplier capability and maturity.
- Delivery approach.
- Overall cost.

Once the proposals have been received further short listing may take place to limit the formal evaluation to around three suppliers.

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## 8.5 Evaluate Proposals and Select Supplier

The evaluation team will evaluate all received proposals using an evaluation spreadsheet (or similar mechanism), and the results of the evaluation yield a short list of around three suppliers. The shortlisted suppliers are then invited to make a presentation to the evaluation team, and this allows the team to question each

supplier in detail to gain a better understanding of the solution that they are offering, and any risks associated with the supplier and their proposed solution.

Following the presentations and Q&A sessions, the evaluation team will follow up with checks on reference sites for each supplier. The evaluation spread sheet is updated with all the information gained from the presentations, the reference site checks, and the risks associated with individual suppliers.

Finally, an evaluation report is prepared to give a summary of the evaluation, and this includes the recommendation of the preferred supplier. The project board then makes a decision to accept the recommendation; select an alternate supplier; or restart the procurement process.

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## 8.6 Formal Agreement

The preferred supplier is informed on the outcome of the evaluation, and negotiations on a formal legal agreement commences. The agreement will need to be signed by both parties and may (depending on the type of agreement) include the following:

- Legal contract.
- Statement of work.
- Implementation plan.
- Training plan.
- User guides and manuals.
- Customer support to be provided.
- Service level agreement.
- Escrow agreement.
- Warranty period.

The *statement of work* (SOW) is employed in bespoke software development, and it details the work to be carried out, the activities involved, the deliverables to be produced, the personnel involved, and their roles and responsibilities.

A *service level agreement* (SLA) is an agreement between the customer and service provider which specifies the service that the customer will receive as well as the response time to customer issues and problems. It will also detail the penalties should the service performance fall below the defined levels.

An *Escrow agreement* is an agreement made between two parties where an independent trusted third party acts as an intermediary between both parties. The intermediary receives money from one party and sends it to the other party when contractual obligations are satisfied. Under an Escrow agreement, the trusted third party may also hold documents and source code.

## 8.7 Managing the Supplier

The activities involved in the management of the supplier are similar to the standard project management activities discussed in Chap. 2. The supplier may be based in a different physical location (possibly in another country), and so regular communication is essential for the duration of the contract. The project manager is responsible for managing the supplier and will typically communicate with the supplier on a daily basis. The supplier will send regular status reports detailing progress made as well as any risks and issues. The activities involved include the following:

- Monitoring progress.
- Managing schedule, effort and budget.
- Managing risks and issues.
- Managing changes to the scope of the project.
- Obtaining weekly progress reports from the supplier.
- Managing project milestones.
- Managing quality.
- Reviewing the supplier's work.
- Performing audits of the project.
- Monitoring test results and correction of defects.
- Acceptance testing of the delivered software.

The project manager will maintain daily/weekly contact with the supplier and will monitor progress, milestones, risks, and issues. The risks associated with the supplier include the supplier delivering late or delivering poor quality, and all risks need to be managed.

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## 8.8 Acceptance of Software

Acceptance testing is carried out to ensure that the software developed by the supplier is fit for purpose. The supplied software may just be a part of the overall system, and it may need to be integrated with other software. The acceptance testing involves the following:

- Preparation of acceptance test cases (this is the acceptance criteria).
- Planning and scheduling of acceptance testing.
- Setting up the test environment.
- Execution of test cases (UAT testing) to verify acceptance criteria is satisfied.
- Test reporting.
- Communication of defects to supplier.
- Correction of the defects by supplier.
- Re-testing and Acceptance of software.

The project manager will communicate the identified defects with the software to the supplier, and the supplier makes the required corrections and modifications to the software. Re-testing then takes place, and once all acceptance tests have successfully passed, the software is accepted.

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## 8.9 Roll-out and Customer Support

This activity is concerned with the roll-out of the software at the customer site, and the handover to the support and maintenance team. It involves:

- Deployment of the software at customer site.
- Provision of training to staff.
- Handover to the Support and Maintenance Team.

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## 8.10 Review Questions

1. What are the main activities in supplier selection and management?
2. What factors would lead an organization to seek a supplier rather than developing a software solution in-house?
3. What are the benefits of outsourcing?
4. Describe how a supplier should be selected.
5. Describe how a supplier should be managed.
6. What is a service level agreement?
7. Describe the purpose of a statement of work?
8. What is an Escrow agreement?

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## 8.11 Summary

Supplier selection and management is concerned with the selection and management of a third-party software supplier. Many large projects often involve total or partial outsourcing of the software development, and it is therefore essential to select a supplier who is capable of delivering high-quality and reliable software on time and on budget.

This means that the process for the selection of the supplier needs to be rigorous, and that the capability of the supplier is clearly understood, as well as knowing any risks associated with the supplier. The selection is based on objective criteria, and the evaluation team will rate each supplier against the criteria and recommend their preferred supplier.

Once the selection is finalized, a legal agreement is drawn up (which usually includes the terms and condition of the contract as well as a statement of work). The supplier then commences the defined work and is appropriately managed for the duration of the contract.

The project manager is responsible for managing the supplier, and this involves communicating with the supplier on a daily basis and managing issues and risks. The software is subject to acceptance testing before it is accepted from the supplier.