

Progressive Acquisition and the RUP Part III: Contracting Basics

by [R. Max Wideman](#)

Project Management Consultant
AEW Services

In [Part I](#) of this series, we identified the gap between the expectations of traditional procurement specialists and the realistic needs of the software development community and introduced a new "progressive acquisition" approach that can help bridge this gap.

[Part II](#) provided a high-level description of how to modify the traditional contracting process to fit a progressive acquisition model that meets the needs of both acquirers and suppliers in a simplified scenario. We walked through the process of obtaining a system, software product, or software service¹, through legal contract², from an independent supplier.

In [Part III](#) we will begin looking at what actually goes into a contract. First, we'll examine basic elements required for an effective contract, and then look at hurdles that tend to get in the way of constructing such a contract. Finally, we will see what specific content is required for the contracting approach we suggested in [Part II](#), and look at the reasons most companies use a centralized acquisitions approach. We hope this information will help software developers obtain what they want when they negotiate with their own organization's procurement and legal people, as well as with contractors/suppliers.³

In this article, we describe conditions that prevail mostly at mid-sized to large organizations. They typically have highly procedural acquisition policies and processes that apply for all major acquisitions, whether it be buildings, infrastructure, systems, hardware, or software.

Elements of a Valid Contract

While specific contractual requirements and interpretation of wording



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varies from legal jurisdiction to jurisdiction, certain elements are essential for a contract to be valid and supportable by applicable law: mutual assent; lawful objective; capacity of the parties to perform; consideration; and appropriate form. We will look at each of these in turn.

Mutual Assent

An offer by a supplier to an acquirer represents a proposal to enter into a contract with that acquirer. Such an offer is typically, though not necessarily, in response to a Request for Proposal (RFP) from the acquirer. A valid offer generally has the following properties:

1. It represents a genuine intent to contract.
2. It is formally communicated to the acquirer.
3. Terms and conditions are certain and definitive.
4. Neither party is under duress from the other (i.e., the contract can be entered into voluntarily).

If the offer does not have these properties, then all or part of it may be invalid and will not lead to a successful contract.

Lawful Objective

A contract must have a purpose and terms that fall within the law. A contract whose purpose violates the prevailing law (i.e., involves unlawful activity) is legally void and unenforceable.

Capacity of the Parties to Perform

Both acquirer and supplier must have the legal capacity to perform -- and be clearly capable of performing -- their respective roles and responsibilities. Of course, once the contract is signed and the project is underway, lack of capacity may be difficult to prove. Breach of contract law suits often focus on the actions, or inactions, of the project director or manager, which can have a profound influence on contractual relationships as well as schedule and cost of work.

Consideration

"Consideration" is a legal term for something promised, given, or done by one party in exchange for a reciprocal and valuable commitment by the other. Moreover, both parties must be free to enter into the arrangement voluntarily. In practical terms, an acquirer offers to pay money for a service or product, in this case software, provided by the supplier. In many jurisdictions there are limitations on the arrangements; for example, there must be evidence that the respondent is free to bid, negotiate, or withdraw. In such a case, a contract is not valid if the commitment has been imposed by one side (i.e., the other side agreed to the terms under duress). In addition, a contract cannot duplicate commitments already contained in some other agreement, and a commitment of "moral duty" is not sufficient consideration to support a contract. Finally, whether or not

the agreed-upon payment for the product is "fair" is not legally relevant, as long as both the payment and the product have some semblance of value.

Appropriate Form

Courts in most jurisdictions apply various legal rules to interpret cases involving conflict or ambiguity between the contracting parties. Consequently, it is advisable to include a number of "standard" clauses in the contract documents. Such clauses are, or should be, designed to clarify the roles and responsibilities of both parties to their mutual benefit.

Impediments to Successful Contracting

Even if all of the essential elements we discussed above are present, it is still true that the traditional contracting process is typically shrouded in traditional practices and attitudes. These can be serious impediments to achieving the type of cooperation necessary for satisfactory software development. Such practices and attitudes are deeply entrenched in the procurement industry, and one contract is not going to change that. The best that we can offer is awareness of these pitfalls, which may empower you to avoid or work around them. The essential message behind this series on progressive acquisition is that, by establishing a progressive acquisition approach, you can create an environment that fosters good cooperation at the working level between parties who might otherwise be pitted against each other.

1. For most organizations, the main criterion for contracting is "best value for least cost."

The trouble with this approach is, "least cost" can be measured more readily and consistently than "best value," and hence gets greater emphasis. The typical standard contracting approach is not only inconsistent with the cost- and risk-reducing approach embodied in "progressive" software acquisition, as described in our previous articles; it actually conflicts with the progressive approach, especially with respect to custom software.

2. Although a legal contract spells out the obligations of each party, the environment tends to be adversarial.

It is sometimes said that if both sides understand each other and everything goes right, you don't need a contract. But if all does not go well, then the contract is there to assign responsibilities for fixing the problem. If the problem is serious, and lawyers are brought in to resolve the differences, both parties typically take an adversarial stance from then on.

3. The terms of the contract agreement are biased in favor of its authors.

This is surely understandable, especially when a lawyer hired to protect that organization's interests does the writing.

4. Contracts may be written in language that is legally sound, but arcane and obscure to those endeavoring to honor the contract's terms -- especially when disputes arise.

For some reason I have yet to fathom, lawyers are reluctant to use modern, simplified English. They say it is because the arcane English has been truly tested in court. Well, perhaps.

5. The contract package contains standard contract templates, or "standard conditions" inserted indiscriminately.

Standard templates or contract conditions are often written for obsolete or inappropriate paradigms, by those more concerned with the integrity and defensibility of the procurement process than with the results the contract is intended to produce. If you question them, you may hear the answer: "We've always done it this way!" It could take considerable effort to convince such people to use a different approach.

6. Software development projects involve three parties, but most contracts are written as two-party agreements between buyer and seller (acquirer and supplier).

The problem here becomes obvious when we look at Figure 1. In software development especially, there are three parties: the acquirer, the supplier, and the user. Although the contractual relationship between the acquirer and the supplier is usually spelled out in the contract, that between the supplier and the user may be unclear. This may well become an area of conflict and risk that should be mitigated in the interests of both parties.

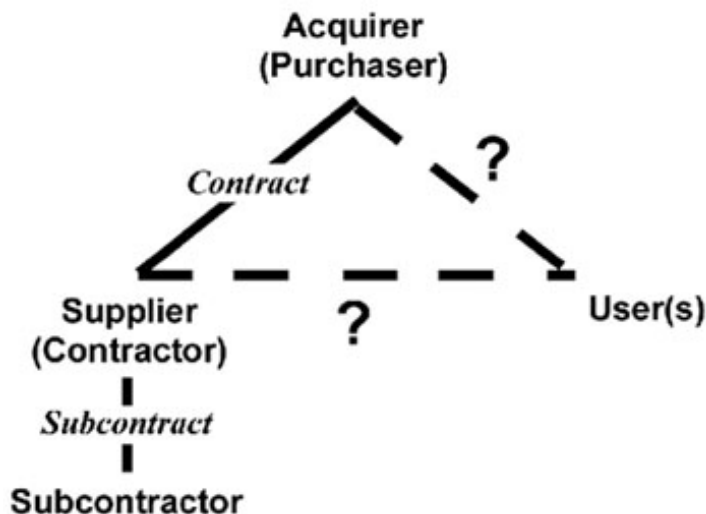


Figure 1: Software Development Involves a Non-Contracting Third Party: The User

Software developers recognize that users do not necessarily have the same interests as the official acquirers of the product under contract, and that user interests are not necessarily spelled out in the contract. Yet user satisfaction is a paramount concern in software development, and a critical factor in project success and product acceptance. User satisfaction may well depend on how extensively users were consulted, and how effectively their comments and concerns were integrated into the requirements. It

may also depend on how well the product is rolled out into the working environment. All of these variables may well be beyond the actual terms of the contract.

7. It is difficult to estimate for a "fixed-price" contract.

It is difficult enough to estimate how much code will be required to achieve a given function, let alone how much effort will be required to write and test that code. Also, interacting with people at the acquiring organization requires a major amount of time on the supplier's part, but that is also highly variable.

Suppose you are dealing with one organization that follows the ISO/IEC 12207 Standard, which defines "acquisition" as:

The process of obtaining a system, software product, or software service⁴ through contract.⁵

Then, suppose you have another client who goes by the following definition of "acquisition":

The acquiring by contract with appropriated funds of supplies or services (including construction) by and for the use of the organization through purchase or lease, whether the supplies or services are already in existence or must be created, developed, demonstrated, and evaluated.⁶

It is not difficult to imagine that the number of hours you would spend dealing with the second organization will be considerably greater than the number you'd spend dealing with the first organization!

These variations make it very difficult to estimate for a long-term fixed price contract.

8. Although contracting is very flexible, contract arrangements can be very complex.

Complexity can arise from a number of sources in the contracting process: the manner in which the contract is formulated, the number of stakeholders that must be consulted, and so on. And any increase in complexity is accompanied by an increase in risk.

On large projects, parcels of work may be assigned to different contractors and subcontractors with different areas of expertise. This is a significant source of risk -- and the risk increases exponentially as the number of contracts increases. Why? Because it becomes unclear who will take responsibility for coordinating, integrating, and configuring the various elements. The lack of consistent interface and communication procedures is a frequent source of contractual conflict, delays, and unnecessary expense. Consequently, all parties should take great care to ensure that responsibility for this function is written into one of the contracts, and that corresponding obligations to respond are written into all of the others.⁷

Progressive Contracting Overcomes Impediments

As we saw in [Part II](#), a new, progressive approach to software acquisition can accommodate the growing complexity of today's projects. Because of its flexibility and adjustability, a progressive contracting scheme can also help overcome many of the other barriers we noted above. We recommend that a software development acquisition contract be structured on two levels: 1) A Head Contract that sets the stage for 2) a series of overlapping Contract Work Orders (CWOs). The CWOs progressively describe the full technical details of the work to be done and the functionality or features to be delivered in the product. And they can be planned, developed, and delivered using the iterative, four-phase approach embodied in the Rational Unified Process,[®] or RUP[®] (see [Part II](#) for details).

Scope of a Head Contract

In addition to the requirements listed above under **Elements of a Valid Contract**, the Head Contract should contain the following:

1. Clearly articulated definitions of terms used in the contract, preferably at the beginning of the document.
2. Detailed descriptions of any special responsibilities of either party to the contract, such as responsibility for coordination or obligation to respond, as mentioned earlier.
3. Permissions or limitations regarding subcontracting.
4. Descriptions of acquirer-furnished property or facilities, such as existing hardware or software to be used in the course of the work.
5. Specifications regarding ownership of patents, copyrights, or licenses applicable to the software and documentation involved in the contract.
6. Provisions for inspection, testing, and correction of defects.
7. Guidelines and restrictions regarding changes to the contract scope, with corresponding changes in schedule and price for the work.
8. High-level schedule milestones and completion dates, as well as reasons for excusable delays and any incentives or penalties.
9. Terms of payment and/or allowable expenses for remuneration.
10. Regulations regarding overtime, staff premiums, and other forms of compensation.
11. Circumstances under which the acquirer may terminate the contract, along with the terms of compensation under each circumstance.
12. Penalties for default -- that is failure to perform on the part of the supplier.
13. Notification and resolution procedures for disputes.
14. Product warranties provided by the supplier.

15. Clear ownership provisions for the resulting product or portions of it (e.g., source code for particular functions or components).

If this seems like a lot to digest and execute, it is! Even if they use a progressive approach, companies will typically rely on standard boilerplate clauses to fulfill many of these content requirements for the Head Contract.

Scope of a Contract Work Order

The scope of a contract work order (CWO) focuses on the technical content of the next iteration in the series, the nature of which will change as the project progresses to maturity. In general, and assuming the work has been discussed and agreed-upon during original contract negotiations or during the last stage of the previous CWO, as discussed earlier, the CWO should contain the following:

1. Instructions to proceed.
2. Technical Instructions, or the increment's technical scope of work.
3. Any special instructions relating to this increment, such as product testing and acceptance.
4. Requirements for CWO administration, such as coordination requirements, and a schedule of milestones and delivery instructions for this increment.
5. Form of payment for this increment -- in other words, whether it is cost **reimbursable** or fixed price.
6. Acquirer's and supplier's authorizing signatures, typically of those at the working management level.

This "two-tier" contracting approach lays out the main legal content at the outset and greatly simplifies the content of CWOs, which represent supplementary agreements. This enables the technical people on both sides of the agreement to focus on content, to the advantage of both parties as well as the end product.

Advantages of Centralized Procurement

Another way that companies make contracting a little easier for themselves is to centralize procurement. This has the following advantages:

- A department with a staff of acquisition specialists can know the market better than the managers of individual projects.
- These specialists can buy more efficiently and reduce duplication of common activities across a number of projects.
- Under certain circumstances they may also be able to buy more competitively because they know competing suppliers, or they may know of other work that the company can offer to make the

package more attractive.

- Senior management can establish better control of corporate contracting terms and practices.
- It is easier to limit signing authority, and the extent to which the organization is committed legally and financially.
- Centralized buying also helps to reduce bias, or personal favoritism in the project environment.
- The buying process can be separated from the process of managing technical requirements.

These issues are especially important for public agencies. If you are attempting to introduce a progressive acquisition approach into your organization, it will be part of your job to convince your company's centralized procurement people of its advantages. You should carefully explain to your administrative counterparts the potential for cost and risk reduction that progressive acquisition affords.

Next month, Part IV of this series will take a closer look at the contents we've outlined for progressive acquisition documents, and at how to build flexibility into Head Contracts and CWOs.

Notes

¹ ISO/IEC 12207 International Standard, Section 3: **Definitions**.

² Software Acquisition Capability Maturity Model, 1999: **Appendix B: Glossary of Terms**.

³ Note: This article is not intended to offer definitive legal recommendations and advice, since these vary from country to country and jurisdiction to jurisdiction. In practice, all contract wording, whether "boilerplate" or specific to a contract, should be reviewed by competent acquisition personnel or legal advisors. For a detailed discussion of contract law, refer to legal texts on the subject that are relevant to the governing jurisdiction.

⁴ ISO/IEC 12207 International Standard, Section 3: **Definitions**

⁵ Software Acquisition Capability Maturity Model, 1999: **Appendix B: Glossary of Terms**.

⁶ US Federal Acquisition Institute, 1998: "A Glossary of Acquisition Terms."

⁷ Although multiple contracting is increasingly common, this is largely a legal issue; to keep it simple, this article focuses on the processes related to a single contract.



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