

# *The Project Manager's Guide to Purchasing*

Contracting for Goods and Services

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# 1

# *Introduction*

Purchasing is not new; it has been around since the invention of money, and it is even older if we include bartering as its forerunner. Consequently, we are all familiar with it. Further, we all buy goods and services if we consider the domestic as well as the business context. However, we may not be fully aware of the contracting processes involved. Fortunately, in the domestic environment we are protected by the ‘Sale of Goods’ act. In the business context the game is different. Companies are considered as being able to look after themselves, put procedures in place and have professional advisors. The Romans had a saying, ‘caveat emptor’ (let the buyer beware) which is still part of our legal philosophy. As a consequence, organizations are careful to ensure that trained personnel carry out buying. Further, the purchasing specialists have been ‘authorized’ by the organization to form contracts on their behalf. However, even then, they may not be fully aware of the implications of the contracts involved.

This book is written from a project manager’s perspective but it is not a book on project management as such. Since buying goods and services is an integral part of most project processes, there will be many instances where project management methods will be discussed. However, a specific point of view will be taken, and detailed debate over project management philosophies will be avoided. Further, the procurement manager on a project is, after all, the manager of a portfolio of smaller projects. Consequently, understanding the context in which purchasing takes place is essential if the process is to be managed effectively.

The book is intended for those who wish to improve their knowledge of the purchasing process from a project perspective. After being involved in education and training for 20 years I have concluded that you can never be sure where people lack the necessary knowledge or experience. Consequently, the book assumes little prior knowledge. However, it endeavours to extend the knowledge of experienced buyers and other project personnel.

When purchasing goods and/or services one is involved in a contracting process, and this is the focus of the book. However, the process involved in the suppliers’ or contractors’ tendering phase is not covered in detail. The intent is to focus on principles rather than the particular peculiarities of individual business or industry sectors. Nevertheless, some references to proprietary processes will be used to demonstrate the extent to which the principles are varied.

Every effort has been made to make each chapter stand, or to be read, alone so that they are not dependent on knowledge from other chapters. Nevertheless, a reference to the appropriate chapter has been included where a topic is integral to the subject under discussion but is covered in more detail elsewhere. Occasionally, some phrases are reiterated where the issue is of importance to the subject under discussion.

Each chapter deals with the general before discussing the particular, and deals with both the purchasing of goods and services. The buying of goods is used as the 'generic' element applicable to both aspects. Contracting for services is used to demonstrate the more complex issues involved.

Experiences and examples have been included to demonstrate the diversity of issues that the project manager can be involved with, but also to transpose the theory into real life.

A distinction is made between Procurement and Purchasing. Purchasing is restricted to the act of buying the goods and services; whereas procurement is managing the whole process from buying to delivery of the goods.

A term that is used more and more these days, in project organizations, to distance the procurement function from the more narrow purchasing process is Materials Management. It does focus more on what a project needs, but it is to all intents and purposes, procurement with material control and inventory control added on.

A section explaining additional terminology used appears at the end of this chapter.

## **PROCUREMENT**

A procurement department usually consists of four or five groups:

- Purchasing: responsible for buying the materials and equipment.
- Expediting: responsible for ensuring that the goods are ready on the dates required.
- Inspection: responsible for ensuring that the goods meet the desired quality and specifications.
- Shipping/Traffic/Transport: responsible for ensuring that the material is transported from the manufacturers' or suppliers' works to the project location.

A contracts group responsible for formulating the subcontracts for services, for execution and administration by the installation or construction department, is also required. In some organizations this group is part of procurement, for example, for formulating orders for design services. In some a separate contracts group is established, and in others the formulation of contracts is part of the executing department, for example, for installation and construction services.

The purchasing of 'goods' comprises both materials and smaller equipment, and will involve placing orders using a company's standard contract terms. Large equipment and packages will, more than likely, involve installation and commissioning services. Contracting for design, installation or construction services often involves the provision of materials as well as services. As a consequence, they will involve more specialized and detailed contracts.

A procurement department or group on a project will be headed by a project procurement manager, supervisor or coordinator. The project procurement manager's role is to coordinate purchasing activities and the interfaces with the other functions within the group. They are also responsible for coordinating with other disciplines such as design, installation, accounting and legal departments. They implement the procurement plan within the overall project execution plan and control the procurement schedules. They ensure that decisive action is taken should problems arise and maintain relationships with the owner.

Whilst there is a scheduled procurement phase in a project during which the bulk of the purchasing of goods and services takes place, the procurement function should also be involved in the project development process.

In the early feasibility stages of a project, the procurement function should be providing the owner's project team with information and advice about the marketplace for the key (long lead) equipment critical to the success of the project. Later in the planning and basic design phases,

detailed information concerning likely sources of supply, availability, costs, delivery times and foreign currency requirements for the key equipment will be validated. At this stage the information will be expanded to cover other specialized items and bulk materials. The procurement department will also be investigating the capabilities and workloads of potential contractors for the project. They will be developing a recommended tender list for all goods and services, and recommending appropriate contract strategies for discussion with the project manager and other members of the project team. The appropriate specialists in the department will be investigating transport routes, restrictions and constraints, methods of transport, permits and formalities required, customs clearance procedures, duties and so on. They will be checking loading and discharge capabilities as well as handling facilities at ports and transshipment locations.

Once a client has awarded a contract to a contractor to execute the project, the project procurement manager assigned to the project team prepares procedures based on the contractor's corporate procedures. The procedures will be tailored to suit the client's requirements, the specifics of the project and project management's strategy and objectives.

The project procurement manager is responsible for the issue of a multitude of status reports and will be involved in reviewing them, on a regular basis, with the project manager. During the execution phases of a project the project procurement function generates more paperwork than any other department. The following are the main generators of this paperwork:

- the buyer's report;
- the material status reports;
- vendor data and drawings.

The buyer's report lists each group of materials or equipment for which enquiries will be issued, listing the names of all the companies who have been invited to tender. The enquiry issue date and the tender due date are shown and, as each tender is received, the date and time of receipt is noted. When the order is eventually placed, the successful vendor is indicated in the report.

The material status report is a much more detailed report which lists each purchase order once it has been placed. The report then includes a complete history of the order until it is actually delivered. Input for the report comes from expeditors (desk-based and field-based), inspectors and shipping specialists. The report will show the required delivery date and the forecast delivery date.

It is the design department that generates the requests for the vast majority of vendor information and this documentation is often controlled by a separate group.

Procurement status reports or materials management systems are crucial to the project manager's ability to control a project. The systems must be sufficiently flexible to allow one to select different fields of data to produce different reports, for example, by supplier, commodity, material or equipment identification number, work area, drawing number or by promised delivery date. It seems that every company has its own favourite names and formats for each set of reports.

## **Objectives**

Many articles summarize the objectives of procurement as obtaining:

- the right goods and services;
- in the right quantities;
- to the right quality;
- at the right time;
- to the right destination;
- at the right price;
- from the right supplier.

These objectives have the same conflict as the classical Cost–Time–Quality triangle for the project as a whole, and are naturally influenced by the cost, time and quality objectives of the project.

The buying of materials and equipment for a project involving the design and construction of a plant, facility or system is different to the buying of materials for a project involving the manufacture of equipment. In manufacturing, purchasing is more volume-based for repetitive materials. Further, the cost of materials bought from suppliers can make the difference between selling the item and making a profit, or failure to make a sale.

Listen to AT&T's executive vice president for telephone products:

*'Purchasing is by far the largest single function at AT&T. Nothing we do is more important.*

*Simple fact: when the goal is boosting profits by dramatically lowering costs, a business should look first to what it buys. On average, manufacturers shell out 55 cents of each dollar of revenues on goods and services, from raw materials to overnight mail. By contrast, labor seldom exceeds 6% of sales, overhead 3%. So purchasing exerts far greater leverage on earnings than anything else. By shrinking the bill 5%, a typical manufacture adds almost 3% to net profits.<sup>1</sup>*

In process plant projects, for example, purchases are more of a one-off event customized to suit the owner's or contractor's specifications. Projects have always striven to buy the right materials, once, at the right time (Just in Time - JIT), in the right quantities, to the right destination. The issues of quality and price can be influenced by who is purchasing the materials – the owner or a contractor. If a contractor is purchasing the materials then they can be influenced by the type of contract that they have with their client. There can be other conflicts in objectives. The owner may have received approval for their project on the basis of the amount of work that the project will generate in the local area. Consequently, they will be seeking to maximize the amount of work done on site. A contractor, on the other hand, will almost always be seeking to minimize the work on site.

Approximately 40 per cent of the total cost of a major engineering and construction project is spent on the procurement of materials and equipment – for a civil engineering project the materials can be as high as 65 per cent. It is, therefore, an extremely important area where it is possible to make significant savings in cost and schedule. Consequently, purchasing objectives can be cost reduction objectives or profit-making objectives. However, in addition to these, there are wider objectives of controlling financial commitments, controlling negotiations and providing information to management.

The design department is responsible for specifying the goods correctly, but, in making the choice of the right materials, different criteria and the needs of different functions should be considered.

Specifying a material that is only marginally better than another, for the service conditions, may require longer delivery and upset the sequence of planned installations operations. Nevertheless, purchasing may *not* revise any technical requirement.

Purchasing can cause a similar result by selecting a vendor's price that is lower, but for which a longer delivery period is required. On the other hand, the installation group may try to finish a job sooner in order to save on overhead type costs, without considering the extra costs that will be required for overtime in the design office, or for the premium freight costs needed to expedite deliveries. Savings in one area are only meaningful if larger expenditures are not required in others.

The right quantity for equipment is easy and straightforward, but the right quantities for bulk materials is something that few, if any, organizations can get right – despite the use of computer-aided design. Prefabricating or modularizing, in multi-locations, compounds the problem of getting the location and quantities correct.

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1 'Purchasing's new muscle' by Shawn Tully. *Fortune*, February 20 1995.

The placement of purchase orders in the right order and at the right time is crucial to the progress of a project overall. It is not uncommon for buyers under pressure to make progress in purchasing activities by placing the easy orders first leaving the difficult, but critical, ones until later. The placement of purchase orders releases a number of crucial actions. The first is the reservation of manufacturing capacity. This, in turn, starts the delivery process for the fabrication, construction or installation phase. However, before delivery there is a requirement to provide information and drawings for progressing the design or engineering of the facility concerned.

Sourcing from the right supplier may be the most important objective. Choosing a reliable supplier whose quality and delivery performance can be relied upon will save time, effort and money in expediting and inspection. Thus, sourcing at a price may be the least important.

## PURCHASING

Purchasing comprises a number of activities for which it has full responsibility, together with aspects for which it shares responsibility with other functions. In addition, it has an interest in some activities that are the responsibility of others.

Purchasing activities for which it can have full responsibility:

- selecting, assessing and rating suppliers;
- issuing enquiries, receiving and evaluating tenders;
- obtaining prices;
- awarding purchase orders;
- following up on delivery promises;
- adjusting and settling complaints and claims;
- developing and maintaining supplier relationships.

Activities for which responsibility can be shared with other functions:

- obtaining technical information and advice;
- obtaining material and equipment costs for estimating purposes;
- contributing to tenders for the sale of goods and or services;
- developing and establishing specifications;
- determination as to whether to make or buy;
- formulating and originating contracts for administration by others;
- responding to questions from suppliers;
- evaluating and settling claims;
- scheduling and timing of orders;
- issuing status reports;
- considerations of quantities and number of deliveries;
- specifying delivery method and routing;
- inspection and expediting;
- transportation, shipping and traffic;
- customs clearance;
- inventory and warehousing control;
- sale of scrap, salvage and surplus;
- forward buying and hedging;
- market research;
- invoice approval;
- purchasing for employees.

Activities of interest to purchasing but the responsibility of others:

- receiving and warehousing;
- payment of invoices;
- administration of contracts for services.

The above listings are not definitive or exhaustive. Each industry or business sector will have its own custom and practice, and specific companies and projects will have their own requirements.

It is difficult for purchasing to be accused of being wrong in what they do. They only buy what they are told to buy by the design department, and the execution/construction or fabrication/installation people tell them when equipment and materials are required. Further, their enquiry and tendering cycle tends to be fixed for each particular type of goods or services. Thus, all that purchasing can get wrong is the choice of suppliers and the contracting strategy to be used. However, even the choice of who is on the tender list and the type of contract has elements of joint decision making. Accordingly, purchasing's main responsibility focuses on administering the process, making sure that key milestones in the cycle are met and that the paperwork is correct. Perhaps their greatest contribution is in obtaining the best deal.

## **International purchasing**

The basic purchasing processes do not change to any significant extent when purchasing internationally. However, a number of aspects will take on greater importance:

- cultural and language issues;
- conformance to technical specifications;
- national standards and codes of practice;
- legal and tax differences;
- insurance;
- logistical arrangements;
- shipping terms – customs clearance and duties;
- payment in foreign currencies;
- letters of credit;
- bonds and guarantees;
- the use of agents both for purchasing and freight forwarding;
- the cost of transport, expediting and inspection.

## **Outsourcing**

New terms describing specialist services now being used are: Outsourcing, Business Process Outsourcing and Offshoring. Outsourcing is delegating the provision of products or services to a third party. Business process outsourcing is handing an entire business process, such as procurement, to a third party. Finally, offshoring is when a company relocates processes, such as the design function, to a low cost foreign location.

Procurement as a function will, in many instances, use agents or other organizations to fulfil procurement activities. They will do so when it is economic and when they do not have the appropriate personnel available in the right locations. However, outsourcing should not be regarded as a separate process but as an integral part of the procurement function.

The setting up of the arrangements for the specialisms described will involve a procurement process. However, their benefits and the problems in implementing them are outside the scope of this book. Suffice it to say that outsourcing the whole procurement process is a route to losing competitive advantage and discovering, at some stage, that you wished that you had such a capability.

## THE BUYER

The person or individual performing the purchasing function is usually called a Buyer and will work in a procurement department or a group within a project team. On smaller projects the buyer may also be the procurement supervisor or coordinator.

Whilst a buyer manages the materials and equipment orders, they can also be responsible for the contract for the services provided by vendor servicemen, who will be commissioning their own equipment on site. The buyer then manages the contract in conjunction with the purchase order.

Whilst many project personnel could perform the middle part of the purchasing process – the more procedural aspects of inviting tenders for goods and services – the buyer brings two key areas of expertise. At the front end of the process they are the source of market knowledge and have the relationships with the suppliers. At the back end of the process they are the experienced negotiators finalizing commercial deals. Whilst all project personnel negotiate to some degree or other, they are rarely trained in negotiation skills. The buyer, on the other hand, practices the skill on a regular basis.

A principle of project management is that there should be one person in charge; namely, a project manager. A primary reason for this is to control communications across the contract interface with the client. Similarly, the buyer must be the person responsible for the contract interface with suppliers.

A primary duty of a buyer is to develop and maintain relationships with their suppliers through the preservation of high standards of professional conduct in all of their dealings with them.

The buyer must make sure that specifications, drawings and information are available for transmission to suppliers at the right time. More than this, they must check that the requisitions describe accurately and unambiguously what is wanted in terms of technical and delivery content.

In the following quotation<sup>2</sup> the term client is used to refer to an individual or user department in the buyer's own organization – although it could also be used to refer to the external client.

*...a conflict facing the buyer grows out of the division between the buyer's abilities and his clients' wishes. Given a limited amount of time and money, the buyer can only purchase what the market place is capable of supplying. The precise total specification of the product or service that the client would like the buyer to procure (including price, quality and delivery) is frequently unobtainable. Tapes of the Old Rolling Stones song, 'You can't always get what you want' should be made available for all buyers to play to unhappy clients while their calls are put on 'hold'!*

*These fundamental facts about the buyer's business life reveal his two basic activities:*

- *Persuading suppliers to do things they do not want to do, for nothing.*
- *Persuading clients to accept less than they have asked for, without feeling let down.*

*These quintessential activities reveal, in their turn, the buyer's most important skill – he must be a good persuader. The degree of skill actually required in the performance of the buyer's task is determined by the nature of each individual transaction he has to undertake in the two areas of activity – buying from suppliers and servicing clients. The difficulty of each transaction varies enormously.*

## TERMINOLOGY

Some emphasis has been placed, within this book, on the meaning of words. Consequently, it is necessary to explain how terminology that is in common usage in many different business contexts has been used.

<sup>2</sup> 'Dealing with powerful suppliers' by John Ramsay. *Purchasing and Supply Management*, January 1987.

Whilst the terms Bid, Bidding and Bidder are used extensively, they have been avoided, as far as possible, since their more strict meaning relates to a different process to that with which we are concerned. Bidding is a term used more for auctions in the broadest sense, for example, conventional auction rooms or buying goods on the Internet. In the press and financial world the words are used for the purchase of companies, shares and assets. The terms that apply during the enquiry stage, for the placing of orders or contracts, are: Tender, Tendering and the more cumbersome Tenderer.

It is generally accepted that orders do not involve site or field labour. Any activity that involves the provision of labour, at a location or on a site, is a contract. Thus, the term purchase orders or orders will be used to identify the contract for goods not involving any services using a company's standard contract terms. The term Contract or Subcontract (when placed by a contractor) will be used to identify the contract for services using either standard or tailored contract terms.

## **The two basic contract types**

Contract categories and specific contract types are covered in detail in Chapter 4, however it is useful to define briefly the two basic types at this stage. At one extreme the client accepts the risks by reimbursing the cost of the service provided by the supplier or contractor. A Client Managed Risk Contract. At the other extreme, the supplier or contractor supposedly accepts the risks involved by delivering an end result for a fixed price. A Contractor Managed Risk Contract. In a BBC<sup>3</sup> Panorama programme, entitled 'Bad Deal for Britain' analyzing the Nimrod Airborne Early Warning System project, the reporter and presenter Tom Mangold explained these contracts as follows:

*The Ministry of Defence Procurement Executive (MOD-PE) had the power to buy Nimrod for the RAF on one of two contract systems. Either a fixed price contract (which means the full contract, in terms of specification and price, are agreed in advance) or a cost plus contract (which means that month by month the firm charge the Ministry whatever costs they incur and then charge an agreed profit on top of that). MOD-PE chose to buy Nimrod on a cost plus contract.*

The words Fixed Price, used in relation to contracts, means that the price does not change for a defined scope. This meaning has been chosen in order to cover a wider section of business and industry contexts. In the process industries, (represented by the Institution of Chemical Engineers standard contracts) the term Lump Sum is used to describe the same contract type. The more generic term, Reimbursable Cost, will also be used instead of Cost Plus.

The Nimrod project will be revisited later to illustrate how there was, and still is, a lack of understanding regarding the contracting process. However it should be stated that, despite the project title of Nimrod, there was nothing wrong with the aircraft. It was the computers that did not work.

## **Other terminology**

The term Client will be used to identify the party initiating the purchasing and contracting arrangements. This can be both the project owner of a facility or a contractor initiating purchasing activities on behalf of the owner. For example, the project owner acts as the client when they purchase goods and services, but a contractor can also be a client when they employ a manufacturer. Similarly, the manufacturer is a client when they buy components from a subsupplier. In government the client can termed the Sponsor. This term can also be used for the client of a project that is internal to an organization. The term Customer will be used for people, or other stakeholders, external to a project. The term user is, more often than not, utilized to identify the operators of a facility.

However, the term will also be utilized to indicate the next party in the work process chain who uses the work produced from the previous function.

The terms functional manager and line manager are one and the same. It is generally recognized that the term, ,manager of, say, procurement is a functional manager with line management responsibilities for that particular discipline. Whereas, it is custom and practice in certain industry contexts to use the term procurement manager to distinguish the role of the person responsible for procurement on a project. They may have line management responsibilities for the people within their project team but only for the duration of the project. They will report to the project manager and also to the manager of procurement, that is, they work in a matrix organization (discussed later in Chapter 2).

The words Buyer and Purchaser are synonymous, as are Seller, Supplier and Vendor. The words buyer and seller tend to be the words used in contracts by the legal profession. The term buyer can be an individual as well as an organization, whereas the term purchaser tends to be used to describe an organization. Whilst the term vendor is commonly used to describe the organization supplying the goods (after order placement) it is also used in conjunction with other words to describe some of the activities performed by them, for example, vendor servicemen and vendor drawings.

Whilst the term supplier can be used generically to describe the supply of goods and/or services, it will tend to be used to indicate the supply of materials and equipment. Similarly, the term Manufacturer will be used for fabricated items, for example, rotating machinery, electrical cabinets or window units.

Engineered or designed items are items of a unique nature that have been designed or specified to meet the particular requirements of a project.

Bulk materials are commodity items that have a uniform catalogue type description or standard material specification, such as: piping, cabling, structural and civil building materials.

Services are provided by consultants (for example, architectural, engineering or other specialists) or contractors. Services also include the use of vendors' commissioning and start-up specialists for equipment supplied by them that involves site work. A distinction is made in the project world between those that provide only design type services – consultants; and those who perform a whole range of services (for example, design, procurement and installation or construction) – contractors. They are also distinguished by the risks that they are willing to carry. Consultants' organizations have, in the past, been partnerships and accepted personal liabilities, but have not been willing to accept construction risks. Contractors, on the other hand, tend not to take personal liability but are distinguished by taking on construction risks.

Where imperial units of measurement are used they relate specifically to the process and oil industries.