**AFRICA CENTER FOR PROJECT MANAGEMENY**

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**(1) Outline the phases and processes of operation research study. What are their limitations?**

There are many methodologies involves in operation research are as follows: 1. formulating the Problem 2. Constructing a Model to Represent the System under Study 3. Deriving Solution from the Model 4. Testing the Model and the Solution Derived from it 5. Establishing Controls over the Solution 6. Implementation of the Solution.

Quantitative basis for decision making is provided to managers by O.R. It enhances a manager’s ability to make long range plans and to solve the routine problems of running an enterprise/ concern. O.R. is a systematic and logical approach to provide a rational footing for taking decisions.

**Operation research, like a scientific research is based on scientific methodology which involves following steps.**

**1. Formulating the Problem:**

O.R. is a research into the operation of a man, machine, and organization and must consider the economics of the operation.

**In formulating a problem for O.R. study analysis must be made of the following major components:**

(1) The environment

(2) The objectives

(3) The decision maker

(4) The alternative courses of action and constraints.

Out of the above four components environment is most comprehensive as it provides a setting for the remaining three. The operation researcher shall attend conferences, pay visits, send observation and perform research work thus succeeds in getting sufficient data to formulate the problems.

**2. Constructing a Model to Represent the System under Study:**

Once the project is approved by the management, the next step is to construct a model for the system under study. The operation researcher can now construct the model to show the relations and interrelations between a cause and effect or between an action and a reaction.

Now the aim of operation researcher is to develop a model which enables him to forecast the effect of factors crucial to the solution of given problem. The proposed model may be tested and modified in order to work under stated environmental constraints. A model may also be modified if the management is not satisfied by its performance.

**3. Deriving Solution from the Model:**

A solution may be extracted form a model either by conducting experiments on it i.e. by simulation or by mathematical analysis. No model will work appropriately if the data is not appropriate. Such information may be available from the results of experiments or from hunches based on experience.

The date collection can clearly affect the models output significantly. Operation researcher should not assume that once he has defined his objective and model, he has achieved his aim of solving the problem. The required data collection consumes time to prepare if data collection errors are to be minimized.

**4. Testing the Model and the Solution Derived from it:**

As has been pointed out earlier a model is never a perfect representation of reality. But if properly formulated and correctly manipulated, it may be useful in providing/predicting the effect of changes in control variables on overall system effectiveness.

The usefulness or utility of a model is checked by finding out how well it predicts the effect of these changes. Such an analyze is usually known as sensitivity analysis. The utility or validity of the solution can be verified by comparing the results obtained without applying the solution with the results obtained when it is used.

**5. Establishing Controls over the Solution:**

The next phase for the operation researcher is to explain his findings to the management. It may be pointed out that he should specify that condition under which the solution can be utilized.

He should also point out weaknesses if any so that management will know what risks they are taking while employing the model to generate results. Thus he should also specify the limits with in which the results obtained from using the model are valid. He should also define those conditions under which the model will not work.

**6. Implementation of the Solution:**

The last phase of the operation research methodology is implementation of solutions obtained in the previous steps. In operation research though decision making is scientific but its implementation involves so many behavioral issues. Therefore the implementing authority has to resolve the behavioral issues. He has to sell the idea of utility of O.R not only to the workers but also to superiors.

The distance between O.R. scientist and management may create huddles thus the gap between one who provides a solution and the other who wants to utilize it must be eliminated, to achieve this both the management and O.R. scientist should play positive role. A properly implemented solution obtained through application of O.R. techniques results in improved working conditions and gains the management support.

**Limitations**

1. Costly: Operations Research (OR) is very costly. This is because OR makes mathematical models for taking decisions and solving problems. The company has to make various models for solving different problems. All this increments the cost.
2. **Not Realistic**: OR experts make very complex models for solving problems. These models may not be realistic. Hence, they may not be useful for real-life situations.
3. **Complex**: OR is very complex concept. It is very difficult for an average manager to understand it. Therefore, most managers do not use OR techniques.

**(2) Explain ways in which purchasing and supply performance measurement may enhance productivity of an organization**.

When business people talk about supplier management, they refer to the systems, technology, and procedures that connect a supplier to a customer. An efficient and performing supply chain helps a business save money, thanks to faster client deliveries, shorter factory processing times, and better inventory management. This, in turns, reduces spoilage and decay. To increase your company’s performance, pay attention to the following key elements.

**1. Improve your distribution network.**

Your company’s distribution network is the operational hinge you should build around. Distribution affects everything from delivery tracking to sales strategy. The main goal is to improve your distribution network, which you can do through a holistic approach or a cluster view. In a holistic approach, you review essential parts in your distribution network and try to figure out how the parts work in sync. For example, look at your purchasing software and see how it works with your delivery system. Does it communicate well with production foreman or warehouse managers? If it’s not as efficient as you’d like it to be, you can identify where changes need to be made. Unlike a holistic approach, a cluster view groups charts, graphs, and other details together to help you keep an eye on the process for a specific function in the company.

**2. Devise a distribution strategy.**

A distribution strategy is integral to an effective framework for supplier management. It allows a business to have a better idea of what it takes to shorten delivery times, reduce goods decay, and improve customer service. Supplier management and the broader field of supplier chain management help a company plant the seeds of long-term financial stability. [Supply chain management](http://www.scmr.com/images/01.SevenPrinciples_.pdf?kbid=111697&utm_source=businessorg&utm_medium=referral) experts David L. Anderson, Frank F. Britt, and Donavon J. Favre indicate that formulating an effective distribution blueprint helps a business achieve profitable growth, especially when corporate managers think strategically about revenue, cost, and asset utilization.

When formulating your distribution strategy, keep an eye on things like warehouses, cross-docks, production facilities, and customers, along with the location, number, and network missions of suppliers. Set an overall goal for your distribution and implement tactics that are in sync with your overall strategy. For example, if you want your company to receive an industry award for timely delivery, figure out all key stakeholders (delivery teams, production supervisors, etc.) to partner with and essential processes to improve.

**3. Monitor cash flows.**

Cash flow monitoring is a fundamental tool that various organizations use to improve supplier management. It is important to track payment terms and conditions with several groups within the supply chain, forging an efficient plan to understand the technology used for monetary transfers. Said simply, companies must clearly understand how to pay suppliers and logistics companies, how often to pay them, payment tools, and any expenses that get passed to customers. Payment technology, in the context of supplier management, refers to equipment used to pay vendor bills, like point-of-sale machinery, the electronic pad the warehouse staff signs when receiving goods and shipment tracking software.

**4. Establish information conduits.**

Information conduits are channels businesses use to share important data, like tracking information, with key partners. To establish proper information conduits, make sure data is distributed promptly and properly to pertinent recipients. For example, if your factory foreman needs more materials, this information should be conveyed to purchasing managers as well as store room supervisors and delivery personnel.

**5. Track your inventory.**

By utilizing tracking software or internal spreadsheets you design, you can monitor the whereabouts of your inventory. This will help you know how much of your product you have, how much you need, as well as if anything happens to it (damage, decay, theft, etc). It is important your staff knows how this system works so they can effectively log information, as well as participate in routine inventory assessments. Other things to consider are the location and quantity of inventory, including finished goods, work-in-progress items, and raw materials.

Supplier management plays an integral role in your company’s overall commercial strategy. You can improve supply chain performance by keeping tabs on what business partners do, ensuring everyone collaborates effectively, and tracking your company’s assets.

**(3) Purchasing and Supply Management differ from each other in their focus and scope. Explain pointing out the difference between the two.**

Procurement’s importance as a key business process has increased significantly in recent times. Originally, procurement was started as a means to integrate purchasing into [supply chain management](http://blog.procurify.com/2014/12/17/brief-history-modern-supply-chain-management-supply-chain-management-best-practices/) during a time when most large companies were struggling to manage their operational costs.

In fact, the exact date of procurement’s ascendance can be dated to October 1983 when Peter Kraljic [identified](https://www.nevi.nl/sites/default/files/kennisdocument/LEV-PORT-art-013-bl.pdf) that purchasing must be a strategic implementation in an organization, rather than a simple tactic in their supply chain management process. Prior to this change, organizations had only considered procurement to be a sub-discipline of the supply management process.

Over time, the result is the development of two overlapping disciplines within procurement: **indirect** and **direct** procurement.

**Direct Procurement**

Direct procurement is the act of acquiring raw materials and goods for production. These purchases are generally done in large quantities, acquired from a pool of suppliers at the best possible cost, quality and reliability. These purchases are made frequently and are necessary for key business practices, such as a baker acquiring flour to produce bread.

If direct procurement stops functioning or encounters problems, companies are no longer able to manufacture their product and create revenue.

Historically, direct procurement stems from manufacturing.

**Indirect Procurement**

Indirect procurement is the act of purchasing services or supplies required to keep the day to day business alive. One way of classifying indirect procurement is that it does not add to a business’s bottom line. This includes things such as repairing equipment, buying office supplies or acquiring services.

Without indirect procurement functions, businesses wouldn’t be able to operate in an effective fashion. Typically, indirect procurement includes somewhere from 15-27% of a company’s total revenue.

Regardless of whether the purchase is an example of direct or indirect procurement, the process of procuring an item to processing the final invoice is called [Procure to Pay](http://blog.procurify.com/2013/04/03/the-complete-procure-to-pay-cycle/).

The Procure to Pay Cycle is a system that breaks down the entire procurement cycle from identifying suppliers to the final invoice payment. The term was coined by software developers as a way to identify the procedure which needed to be optimized. [E-procurement](http://blog.procurify.com/2015/05/12/7-benefits-of-e-procurement/) software, such as [Procurify](http://www.procurify.com/) can digitalize your procure to pay process, saving valuable time and money and making it easy for your organization and employees to obtain the goods and services needed to operate.

**(4) Discuss the four principles that might guide a supply chain manager.**

**1 Adapt Supply Chain to Customer’s Needs**  
Both business people and supply chain professionals are trained to focus on customer’s needs. In order to understand customer better, we divide customers into different groups and we call it “segmentation”. The most primitive way to segment customer is ABC analysis that groups customer based on sales volume or profitability. Segmentation can also be done by product, industry and trade channel.

Back then, Anderson et al suggested that customer be segmented based on service needs, namely, “sales and merchandising needs” and “order fulfillment needs”.

I totally agree that we should focus on customer’s needs but this doesn’t seem to be enough these days. The reason is that your customers may not know what they need until your competitors offer something different.

For example, in 2011 Amazon initiated a program called [Amazon Prime](https://www.amazon.com/Amazon-Services-LLC-Prime/dp/B00DBYBNEE) (free 2-day shipping and discounted 1-day shipping). Today, people are still discussing if this program makes sense.

But one thing for sure, [customer turns to Amazon more and more](https://www.supplychain247.com/article/online_retailer_amazon_is_changing_the_rules_of_the_supply_chain_game). The morale of this story is that you should “anticipate” customer’s needs as well.

**2 Customize Logistics Network**  
when you segment customer based on service needs, you may have to tailor different logistics networks to serve different segment. However, this principle doesn’t hold true for all situations.

For example, if you were contract manufacturer in China, you might already have different logistics networks for different customers. Each customer in US or EU might already control source of raw materials, ask you to provide dedicated production lines, nominate 3pl companies and air/sea carriers. So, logistics network design is kind of initiative driven mainly by customer.

**3 Align Demand Planning Across Supply Chain**  
Supply chain practitioners are taught to share demand data with trading partners so nobody has to keep unnecessary stock. In general, this principle holds true. But in reality, only Walmart is actively sharing demand data to trading partners.

There is a very interesting [paper by Williams and Waller 2011](http://newswire.uark.edu/articles/15691/suppliers-dilemma-top-down-versus-bottom-up), the result of research found that;

The implication is that the absence of demand sharing is not necessary bad. But when you got demand data from trading partners, you must use it the right way.

**4 Differentiate Products Close to Customer**  
The is something that Dell is very famous for, keeping components and assemble them only after customer places the order in order to increase product variety. This principle is still true, but, there is another principle that you should consider.

“Standardization” is in the opposite polarity of “Differentiation”. For example, some cosmetics manufacturers formulate products and choose packaging and labelling that complies with regulations of multiple countries in Asia. So they only make one SKU that can be sold in 15 countries instead of 1 SKU/Country. By standardizing product appropriately, they can drive cost down drastically due to economy of scale. So standardization is something that you should also consider.

**5 Outsource strategically**  
this is the principle that stands the test of time. In short, don’t ever outsource your core competency. More information about outsourcing can be found from the infographic named “[7Pitfalls of Outsourcing and How to Avoid Them](http://www.supplychainopz.com/2013/06/7-pitfalls-outsourcing-in-supply-chain.html).

**6 Develop IT that Support Multi-Level Decision Making**  
If you search Google for the term “[critical success factor erp](https://www.google.com/search?q=critical+success+factor+erp), you’ll find lots of information about how to implement [Enterprise Resource Planning](https://www.supplychain247.com/topic/category/erp) (ERP) successfully.

My opinion is that IT project shouldn’t be done in isolation, business process reengineering is something that you have to do before IT project. This will equip you with full understanding about process deficiencies then you can determine what kind of technology that you really need.

**7 Adopt Both Service and Financial Metrics**  
Anderson et al suggested that activity based costing (ABC) be implemented so you can determine customer’s profitability. However, there is the interesting twist about ABC concept.

In 1987, Robert Kaplan and W Bruns defined the activity based costing concept in his book “[*Accounting and Management: A Field Study Perspective*](https://www.amazon.com/Accounting-Management-Field-Study-Perspectives/dp/0875841864)”. However, in 2003 Robert Kaplan said that it’s difficult to maintain ABC costing model to reflect changes in activities, processes, products and customers. Then, he introduced the refined concept called [Time Driven Activity Based Costing](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=485443).

To my understanding, practitioners are still using traditional ABC and supply chain researchers are still citing traditional ABC articles. My question is, does traditional ABC really work.

**(5) Explain the circumstances under which the supplier bargaining power may be higher than the buyer’s.**

The Bargaining Power of Suppliers, one of the forces in Porter’s Five Forces Industry Analysis Framework, is the mirror image of the bargaining power of buyers and refers to the pressure suppliers can put on companies by raising their prices, lowering their quality, or reducing the availability of their products. This framework is a standard part of [business strategy](https://corporatefinanceinstitute.com/resources/knowledge/strategy/).

The bargaining power of the supplier in an industry affects the [competitive environment](https://corporatefinanceinstitute.com/resources/knowledge/economics/barriers-to-entry/) and [profit potential](https://corporatefinanceinstitute.com/resources/knowledge/finance/net-profit-margin-formula/) of the buyers. The buyers are the companies and the suppliers are those who supply the companies.

The bargaining power of suppliers is one of the forces that shape the competitive landscape of an industry and helps determine the attractiveness of an industry. The other forces include competitive rivalry, bargaining power of buyers, the threat of substitutes, and [the threat of new entrants](https://corporatefinanceinstitute.com/resources/knowledge/strategy/threat-of-new-entrants/).

**Types of Suppliers**

Depending on the industry, there are various types of suppliers. A list of suppliers includes:

* **Manufacturers and Vendors:**Sells products to distributors, wholesalers, and retailers.
* **Distributors and Wholesalers:**Purchases goods in medium/high quantity for sale to retailers or local distributors.
* **Independent Suppliers / Independent Craftspeople:** Sells unique products directly to retailers or agents.
* **Importers and Exporters:**Purchase products from manufacturers in one country and [export](https://corporatefinanceinstitute.com/resources/knowledge/economics/balance-of-payments/) to a distributor in a different country.
* Drop shippers: Suppliers of products for different kinds of companies.

Determining Factors: Bargaining Power of Suppliers

There are five major factors when determining the bargaining power of suppliers:

1. Number of suppliers relative to buyers
2. Dependence of a supplier’s sale on a particular buyer
3. Switching cost (switching costs of supplier)
4. Availability of suppliers for immediate purchase
5. Possibility of forward integration by suppliers

When is Bargaining Power of Suppliers High/Strong?

* Switching costs of buyers are high
* Threat of forward integration is high
* Small number of suppliers relative to buyers
* Low dependence of a supplier’s sale on a particular buyer
* Switching costs of suppliers are low
* Substitutes are unavailable
* Buyer relies heavily on sales from suppliers

When Bargaining Power of Suppliers is Low/Weak

* Switching costs of buyers are low
* Threat of forward integration is low
* Large number of suppliers relative to buyers
* High dependence of a supplier’s sale on a particular buyer
* Switching costs of suppliers are high
* Substitutes are available
* Buyer does not rely heavily on sales from suppliers

Purpose of Bargaining Power of Suppliers Analysis

When doing an analysis of supplier power in an industry, low supplier power creates a more attractive industry and increases profit potential as buyers are not constrained by suppliers. High supplier power creates a less attractive industry and decreases profit potential as buyers rely more heavily on suppliers.

Learn more in CFI’s [Corporate & Business Strategy Course](https://courses.corporatefinanceinstitute.com/courses/corporate-business-strategy-course).

Bargaining Supplier Power in the Fast Food Industry

To determine whether [McDonald’s](https://en.wikipedia.org/wiki/McDonald%27s) faced high or low bargaining power from suppliers in the fast food industry, consider the following analysis:

1. **The number of suppliers relative to buyers**: There are a significant amount of suppliers relative to buyers (companies). Therefore, supplier power is low.
2. **Dependence of a supplier’s sale on a particular buyer:**If we assume that suppliers have few customers (i.e. a small/medium-sized firm), they are likely to give into the demands of buyers. On the other hand, if we assume suppliers have several customers, they have more power over buyers. Since we do not know whether these suppliers have few or many buyers, a middle ground would be a reasonable answer. Therefore, supplier power is medium.
3. **Switching costs:** Since there are a significant amount of suppliers in the fast food industry, switching costs are low for buyers. Supplier power is low.
4. **Forward Integration:** There is low forward integration in the fast food industry.

Overall, McDonald’s faces low bargaining power of suppliers. Therefore, supplier power is not an issue for McDonald’s in the fast food industry.

However, bargaining power of suppliers alone does not determine the overall attractiveness of an industry. The remaining forces (bargaining power of buyers, rivalry among existing competitors, the [threat of new entrants](https://corporatefinanceinstitute.com/resources/knowledge/strategy/threat-of-new-entrants/), and the threat of substitutes) must be taken into consideration when determining overall industry attractiveness.

**(6) Highlight five strategic issues in purchasing and supply that may be put in place to ensure value of money without sacrificing the environment.**

As if the largest economic crisis since the Great Depression wasn’t enough of a challenge to the supply chain industry, the introduction of the smartphone and advanced analytics into the marketplace disrupted the industry further by providing an exponentially growing consumer base and easy access to goods and information. Companies tripped over themselves to build ecommerce portals, and one-click purchasing grew in relevance.

All of these changes in the marketplace meant that supply chains had been disrupted forever. The world after this period was not the same for the supply chain industry, and [supply chain professionals had to respond](http://ora.cl/4Uk6s) to what was quickly becoming an outside-in, demand-driven world. The pace of change hasn’t slowed, and now the [Internet of Things](http://ora.cl/dO4Qg), digital operating models, and predictive analytics are further enhancing the end-to-end capabilities of the business.

Company leaders did what they could to adapt. They prioritized projects that reduced inventory and [logistics](https://www.oracle.com/applications/supply-chain-management/solutions/logistics-cloud.html) expenses. Although this helped matters in the short term, professionals risked ignoring the long-term demand-driven vision of the business operating model. Organizations prepared for the rebound while responding to the conditions of the new normal: a reduced labor pool, analytics-based demand insights, stagflation and deflation, issues surrounding energy and sustainability, and a burgeoning omnichannel marketplace. Effective strategies coupled with a well-defined plan and the right tools helped supply chain professionals alleviate fulfillment pressures and readied managers for market changes in the future.

What are the strategies that helped the best survive? They were then and remain today, the following:

**Strategy 1: Adopt a demand-driven planning and business operating model based on real-time demand insights and demand shaping.** The right prediction and contingency [planning tool s](https://www.oracle.com/applications/supply-chain-management/solutions/supply-chain-planning.html)will ensure a complete view and an effective response to risks such as suppliers going out of business, political upheaval, and natural calamities affecting manufacturing. Companies then can adjust pricing and promotions strategies to shape demand, move additional product quickly, drive revenue growth, or further expand margins for a high-demand product with limited market supply.

The key is to have the foresight to leverage opportunities and mitigate challenging events so that your business not only survives but succeeds. With the arrival and maturation of cloud supply chain technologies, businesses now have the ability to see exactly where all of their inventory is in real time from the store shelf back to the manufacturer. An agile demand-driven supply chain requires end-to-end visibility across the business from buyers and the market to supply. With cloud technology, businesses can have it.

**Strategy 2: Build an adaptive and agile supply chain with rapid planning and integrated execution.** Once executives are able to better understand and shape demand and risk, they need to adapt their supply chains to changing market opportunities and events. Companies must deploy dynamic planning capabilities and continually fine-tune operations to ensure responsive agility to meet changing demand.

The old model was to wait until the end of the month or quarter to shift production and supply based on shipments and sales. The new model calls for more continuous, dynamic supply chain adjustments to rapidly respond to market changes. This can minimize or even eliminate shocks across the supply network. The results include better visibility; enhanced collaboration across the value chain, including reliable and predictable sourcing and supply, manufacturing, transportation, warehousing, and distribution; and accelerated decision-making with better analytics and support. Agility is the name of the game. Market reactivity, in the moment, has never been easier to achieve than it is today again, with cloud technology and the right people, process, and technology capabilities.

**Strategy 3: Optimize product designs and product management for supply, manufacturing, and sustainability to accelerate profitable innovation.** Innovation is crucial for being one step ahead of the competition. But innovation doesn’t exist in a vacuum. To be successful, products must be manufactured at the right cost, place, and time. Decisions made in the early cycles of product development can make or break the product. Designs must be optimized for supply, manufacturability, and supply chain operations. All true costs to deliver must be accurately captured and analyzed to maintain balance across the end-to-end business.

In addition, [product innovation](https://www.oracle.com/innovation-management/) and competitive advantage increasingly stem from the selection and management of suppliers and technologies. If a company can manage the information, people, processes, and decisions regarding a product throughout its lifecycle, it can achieve strong results and market leadership. There’s no better way to achieve this than with seamless and clear collaboration processes across the end-to-end supply chain—from demand, the market, and customers back to manufacturing and suppliers. The ability to orchestrate this conversation across the end-to-end business and use demand-driven insights has never been more in reach. Oracle’s cloud collaboration tools for supply chains help product designers innovate solutions that customers are demanding.

**Strategy 4: Align your supply chain with business goals by integrating sales and operations planning with corporate business planning.**Although [sales and operations planning](https://www.oracle.com/applications/supply-chain-management/solutions/supply-chain-planning/integrated-business-planning.html) processes provide coordination among sales, manufacturing, and distribution, there still are disconnects and gaps among finance, strategy, and operations in many companies. One way to bridge these gaps is with integrated business planning that involves people, process, and technology elements of the business. This process integrates financial strategic budgeting and forecasting systems with operations planning and allows smart trade-off decisions to be made for the business.

The resulting marriage of end-to-end processes ensures revenue goals and budgets developed in finance are validated against a detailed, bottom-up operating plan and responsively executed. Concurrently, the strategy reconciles the operating plan against financial goals. True integrated business planning made possible with cloud technology connects sales and operations planning processes with corporate business planning and enables companies to achieve the right balance of supply and demand, aligned with strategic business goals. It provides real-time visibility to all the key dimensions for success demand, supply, product, risk, and performance across the organization and throughout the extended supply chain.

**Strategy 5: Embed sustainability into supply chain operations.** The triple bottom line of people, profit, and planet has never been more important than it is today. Studies show that companies striving for social and environmental sustainability achieve major competitive advantages, especially with regard to production efficiency, supplier management skills, and attractiveness to employees. Substantial opportunities exist for sustainability in supply chain operations:

* Company leaders first need to embed sustainability as a core strategic component and capability of their supply chain strategy. This means incorporating it as a key requirement across all supply chain processes.
* Second, professionals initially should focus on the basics to achieve quick wins through real-time visibility and analyses to energy and resource consumption and resource or material movement. This enables reduction of carbon inefficiencies, minimized energy consumption, less waste with “recycle-reuse-refurbish” materials, and optimized travel and transportation.
* Businesses can keep the momentum by ensuring continuous improvement through systemic measurement, audit, and knowledge management. Compliance audits, best practices, and benchmarks provide a governing framework for sustainable supply chain operations and ensure clarity around the environmental impact of specific actions.

**Strategy 6: Ensure a reliable and predictable supply.** Without reliable supply to customer-facing stakeholders to meet agreed-upon service levels, a manufacturer will tend to hold inventory buffers to ensure meeting customer service levels. This costs the business and, even worse, may mean the wrong products are at the wrong place at the wrong time, resulting in supply shortfalls. Working on continuous improvement and operational excellence strategies is a foundation for successful end-to-end supply chain operations.[Oracle and the cloud](https://www.oracle.com/applications/supply-chain-management/" \t "_blank) provide the infrastructure, analytics, and application processes to support the digital manufacturing thread across the end-to-end supply chain, which ensures that manufacturing operations are synchronized, connected, and integrated with customer- and demand-facing and planning processes.

**The right processes, practices, and tools can help.**   
The demands on supply chain managers to rapidly respond to change and increase profitability are greater than ever. The good news is that effective strategies and solutions exist that support each one of the previous five strategies, and they can deliver immediate return on investment. The tools also exist. They have been battle tested, end-to-end, across some of the most valuable supply chains in the world. The way in which companies implement these strategies can mean the difference between success and failure. The tools they use should be low-risk and proven.

**(7) What is the difference between a purchase order and purchase requisition. Prepare a standard purchase requisition form with all the entries filled.**

When a company orders merchandise, equipment, or supplies, for example, the order should be documented to avoid any misunderstandings. Suppose a maintenance department head at a plant seeks to order an item. Generally, the documentation process begins when the order is written on a standard form known as a **purchase requisition**. This form may also be completed in the company computerized accounting information system. The purchase requisition lists, among other things, the originator (who placed the order), the date, the item, a description, justification for need, and cost. Once the originator completes the purchase requisition and makes a copy for filing, superiors approve or disapprove the purchase and sign the requisition. If it is approved, the purchasing department reviews the purchase requisition and selects the best vendor. The purchasing staff completes a prenumbered purchase order. Copies of the purchase order are sent to the originator, the receiving department, and the accounts payable department; the purchasing department retains the original purchase order. The **purchase order** contains, among other things, the originator, the item, quantity, possibly an item code number from a vendor catalog, and the cost. The purchase order is sent to the vendor. Upon fulfillment of the order, the vendor sends an **invoice** to the buyer's accounts payable department. An invoice contains the names and addresses of both the buyer and the vendor, cost, item, quantity, date, and method of shipment.

When the accounts payable department receives the invoice, it checks the invoice for accuracy by comparing it with a copy of the purchase order. Cost, type of item, proper quantity, and address of buyer are checked.

The receiving and purchasing departments of the buyer receive copies of the invoice to check it for accuracy. To decrease the possibility of mistakes (or collusion), the purchase order and invoice sent to the receiving department may have the number of items deleted. When the merchandise arrives, the receiving person records the number of items and type, and checks for irregularities (e.g., damage). This form often becomes a **receiving report**. Copies are sent to the purchasing and accounts payable departments. The purchasing department compares the receiving report with the invoice. The accounts payable department makes payment after examining the purchase order.

**(8) Identify and briefly explain some important documents that purchasing departments should have a record of.**

Introduction

In order to understand procurement documents, it is important to understand the term.

Procurement is the purchase of goods and services at the best possible price to meet a purchaser's demand in terms of quantity, quality, dimensions and site.

The procurement cycle in businesses work, which follows the below steps:

* **Information Gathering a** potential customer first researches suppliers, who satisfy requirements for the product needed.
* **Supplier Contact** When a prospective supplier has been identified, the customer requests for quotations, proposals, information and tender. This may be done through advertisements or through direct contact with the supplier.
* **Background Review** The customer now examines references for the goods/services concerned and may also consider samples of the goods/services or undertake trials.
* **Negotiation** Next the negotiations regarding price, availability and customization options are undertaken. The contract regarding the purchase of the goods or services is completed.
* **Fulfilment** Based on the contract signed, the purchased goods or services are shipped and delivered. Payment is also completed at this stage. Additional training or installation of the product may also be provided.
* **Renewal** Once the goods or services are consumed or disposed of and the contract has expired, the product or service needs to be re-ordered. The customer now decides whether to continue with the same supplier or look for a new one.

Documents involved in the procurement cycle are called procurement documents. Procurement documents are an integral part of the early stages of project initiation.

The purpose of procurement documents serves an important aspect of the organizational element in the project process. It refers to the input and output mechanisms and tools that are put in place during the process of bidding and submitting project proposals and the facets of work that make up a project.

In a nutshell, procurement documents are the contractual relationship between the customer and the supplier of goods or services.

Examples of Procurement Documents

Some examples of what constitutes procurement documents include the buyer's commencement to bid and the summons by the financially responsible party for concessions.

In addition, requests for information between two parties and requests for quotations, and proposals and seller's response are also parts of procurement documents.

Basically procurement documents comprise of all documents that serve as invitations to tender, solicit tender offers and establish the terms and conditions of a contract.

Types of Procurement Documents

A few types of procurement documents are:

* **RFP** A request for proposal is an early stage in a procurement process issuing an invitation for suppliers, often through a bidding process, to submit a proposal on a specific commodity or service.
* **RFI** A request for information (RFI) is a proposal requested from a potential seller or a service provider to determine what products and services are potentially available in the marketplace to meet a buyer's needs and to know the capability of a seller in terms of offerings and strengths of the seller.
* **RFQ** A request for quotation (RFQ) is used when discussions with bidders are not required (mainly when the specifications of a product or service are already known) and when price is the main or only factor in selecting the successful bidder.
* **Solicitations:** These are invitations of bids, requests for quotations and proposals. These may serve as a binding contract.
* **Offers** This type of procurement documents are bids, proposals and quotes made by potential suppliers to prospective clients.
* **Contracts** Contracts refer to the final signed agreements between clients and suppliers.
* **Amendments/Modifications** This refers to any changes in solicitations, offers and contracts. Amendments/Modifications have to be in the form of a written document.

Structure of a Procurement Document

Most procurement documents adopt a set structure. This is because it simplifies the documentation process and also allows it to be computerized.

Computerization allows for efficiency and effectiveness in the procurement process. In general, procurement documents have the following attributes:

* Requires potential bidders to submit all particulars for the employer to evaluate the bidder.
* All submissions to be set out in a clear and honest manner to ensure that the short-list criterion is unambiguous.
* Clear definition of the responsibilities, rights and commitments of both parties in the contract.
* Clear definition of the nature and quality of the goods or services to be provided.
* Provisions without any prejudice to the interests of either party.
* Clear and easy to understand language.

Commonly Encountered Procurement Documents

* **Engineering and Construction Work**
  + Minor/Low Risk Contracts: In this type of contract, services are required by an organization for a short period and the work is usually repetitive. Hence, this type of contract does not require high-end management techniques.
  + Major/High Risk Contracts: Here, the type of work required is of a more difficult nature and here the implication of sophisticated management techniques is required.
* **Services**
  + Professional - This requires more knowledge-based expertise and this requires managers, who are willing to put more time and effort into seeking research in order to satisfy the customer's criteria.
  + Facilities - More often than not, in this type of service the work outsourced is the maintenance or operation of an existing structure or system.
* **Supplies**
  + Local/Simple Purchases - Goods are more readily available and hence does not require management of the buying and delivery process.
  + International/Complex Purchases: In this case, goods need to be bought from other countries. A manager's task is more cumbersome and a management process is required to purchase and delivery. In addition, the manager needs to look into cross-border formalities.

Conclusion

In most organizations, the procurement department is one of the busiest. Managers need to purchase goods or services required for the smooth running of their organization.

For example, in a hospital, a procurement manager needs to purchase medicines and surgical instruments among others. These goods and services need to be purchased at the lowest possible cost without any deficit in quality.

The documentation that passes between the procurement manager of an organization and a supplier are the procurement documents.

**(9) Identify and explain some of the attributes to look for when choosing a supplier.**

Selecting the right suppliers for your business needs is vital to ensure that you are able to deliver your products and services on time, at the right price, and in compliance with your quality standards. By implementing specific supplier’s selection criteria, it’s possible to identify companies that will work with you to meet the demands of your customers.

Here are five tips for finding the right suppliers for your raw materials or other company procurement requirements.

**1. Set your criteria.**

Create a list of the supplier’s selection criteria that companies need to fulfill to be able to provide you with the items you need. This could include issues like:

* Lead times from receipt of your order to delivery
* Minimum and maximum order quantities
* Storage and handling facilities
* Specific methods of delivery
* Quality assurance processes
* Payment terms and conditions
* Return policy
* Contactable references

Setting the criteria in advance will enable you to evaluate potential suppliers on each of the listed items and ensure that you don’t overlook any important requirements.

**2. Define your process.**

Identify the methods that you will use to find suitable suppliers. Decide whether you will publish your requirements in trade publications and call for bids, or whether you will approach selected companies directly for proposals and estimates. Allocate a time frame for conducting your supplier’s selection process. Appoint qualified members of your team to review the proposals and recommend a short list of suppliers to choose from.

**3. Call for bids.**

Put out a call for bids according to the selection process you chose. This could be a Request for Proposal (RFP) or a Request for Quotation (RFQ). Whatever form it is, it should include full details of the products or services you need, along with quantities, delivery dates, and quality standards identified in your criteria. Ask bidders to provide detailed information on the processes they use, the stability of their raw material suppliers (if applicable), and reasons why you should choose them.

**4. Evaluate the bid submissions.**

Compare each submission you receive against a checklist of criteria for suppliers and question any items that appear to be lacking in clarity. The [American Society for Quality](http://asq.org/learn-about-quality/supplier-quality/overview/tutorial.html?kbid=111697&utm_source=businessorg&utm_medium=referral) suggests taking steps to ensure the validity of the submission. Review the scope of the services outlined in the proposal and considers whether they match your requirements. Decide on each criteria’s importance and score all submissions against this for an objective method of evaluation. Identify what the agreement or contract period with each potential supplier comprises to ensure you aren’t drawn into a situation that could be damaging to your business.

**5. Monitor the supplier performance.**

Even the most reliable supplier can occasionally slip up. Make sure they have a direct contact point at your company and conduct regular performance reviews. This will help you keep tabs on their work and make sure they’re fulfilling their end of the agreement. These reviews will also help you when it comes time to talk about contract renewal, so you know where you stand.

Following these tips will enable you to successfully select suppliers who can support your business requirements by delivering the appropriate goods and services you need on time and within budget. This will help you improve your productivity and ensure you produce quality goods/services.

**(10) What is inventory management? What is the importance of keeping an inventory in organization? Identify the different types of inventory.**

Inventory management is a technique of controlling, storing, and keeping track of your inventory items. Inventory management is an essential component of supply chain management, as it regulates all the operations that are involved from the moment an item enters your store until it has been dispatched.

To put it in simple words, inventory management helps you streamlining your operations, organize your resources, and maximize your returns.

Understanding what you have, where it is in your warehouse, and when stock is going in and out can help lower costs, speed up fulfillment, and prevent fraud. Your company may also rely on inventory control system to assess your current assets, balance your accounts, and provide financial reporting. Inventory control is also important to maintain the right balance of stock in your warehouse. You don’t want to lose a sale because you didn’t have enough inventories to fill an order. Constant inventory issues (frequent backorders) can drive customers to other suppliers entirely. The bottom line when you have control over your inventories, you are able to provide better customer service. It will also help you get a better, more real time understanding of what’s selling and what is not. You also don’t want to have excess inventory can trigger profit losses whether a product expires, gets damaged, or goes out of season. Key to proper inventory control is a deeper understanding of customer demand for your products.

**Raw Materials**

This type of inventory includes any goods used in the manufacturing process, such as components used to assemble a finished product. Raw materials may also include partially finished goods or materials. For example, for an orange juice company, oranges, sugar and preservatives are raw materials; while for a computer manufacturer, chips, circuit boards and diodes are raw materials. Inventory items may be classified as raw materials if the organization has purchased them from an outside company, or if they are used to make components.

Work-in-Process

Work-in-process inventory items are those materials and parts that are waiting to be made into something else. These may include partially assembled items that are waiting to be completed. Work-in-process inventory items may include finished goods that have not yet been packaged and inspected, as well as raw materials that have moved from storage to a preassembly area. For example, in an orange juice company, the oranges may come in to a storage area, where they are raw goods, but once they have been moved out of the storage area and onto the assembly line for juicing, they become work-in-process inventory. In a small company, work-in-process goods may be stored in the same area as raw materials and finished goods.

**Finished Goods**

Finished goods are any products that are ready to be shipped out or sold directly to customers, including to wholesalers and retailers. Finished goods may be waiting in a storage area or on a shop floor. If the amount of inventory of finished goods increases faster that the amount of raw goods and work-in-process goods, then production may need to slow down until more finished goods are sold. In some businesses, goods are not included in the finished goods inventory until they are sold. For example, in companies where goods are made to order.

**Other Types of Inventory**

Maintenance, repair and operating inventory are all the items an organization needs in order to operate, such as office equipment, packing boxes and tools to repair equipment. There are also other types of inventory that are classified based on the purpose they serve. These include transit inventory, which are products or components that are being moved from one location to another, such as from a warehouse to a factory; buffer inventory, which are excess inventory items that are kept on hand to protect against supply problems, such as poor quality or slow delivery of raw materials; and anticipation inventory, which are items that an organization stocks up on in case of excess demand -- such as in the build up to Christmas shopping.