PURCHASING AND STORAGE

Purchasing refers to a business or organization attempting to acquire goods or services to accomplish the goals of the enterprise. Though there are several organizations that attempt to set standards in the purchasing process, processes can vary greatly between organizations. Typically the word "purchasing" is not used interchangeably with the word "procurement", since procurement typically includes Expediting, Supplier Quality, and Traffic and Logistics (T&L) in addition to Purchasing.

OVERVIEW

Purchasing managers/directors, and procurement managers/directors guide the organization's acquisition procedures and standards. Most organizations use a three-way check as the foundation of their purchasing programs. This involves three departments in the organization completing separate parts of the acquisition process. The three departments do not all report to the same senior manager to prevent unethical practices and lend credibility to the process. These departments can be purchasing, receiving; and accounts payable or engineering, purchasing and accounts payable; or a plant manager, purchasing and accounts payable. Combinations can vary significantly, but a purchasing department and accounts payable are usually two of the three departments involved.

Historically, the purchasing department issued Purchase Orders for supplies, services, equipment, and raw materials. Then, in an effort to decrease the administrative costs associated with the repetitive ordering of basic consumable items, "Blanket" or "Master" Agreements were put into place. These types of agreements typically have a longer duration and increased scope to maximize the Quantities of Scale concept. When additional supplies are required, a simple release would be issued to the supplier to provide the goods or services.

Another method of decreasing administrative costs associated with repetitive contracts for common material, is the use of company credit cards, also known as "Purchasing Cards" or simply "P-Cards". P-card programs vary, but all of them have internal checks and audits to ensure appropriate use. Purchasing managers realized once contracts for the low dollar value consumables are in place, procurement can take a smaller role in the operation and use of the contracts. There is still oversight in the forms of audits and monthly statement reviews, but most of their time is now available to negotiate major purchases and setting up of other long term contracts. These contracts are typically renewable annually.

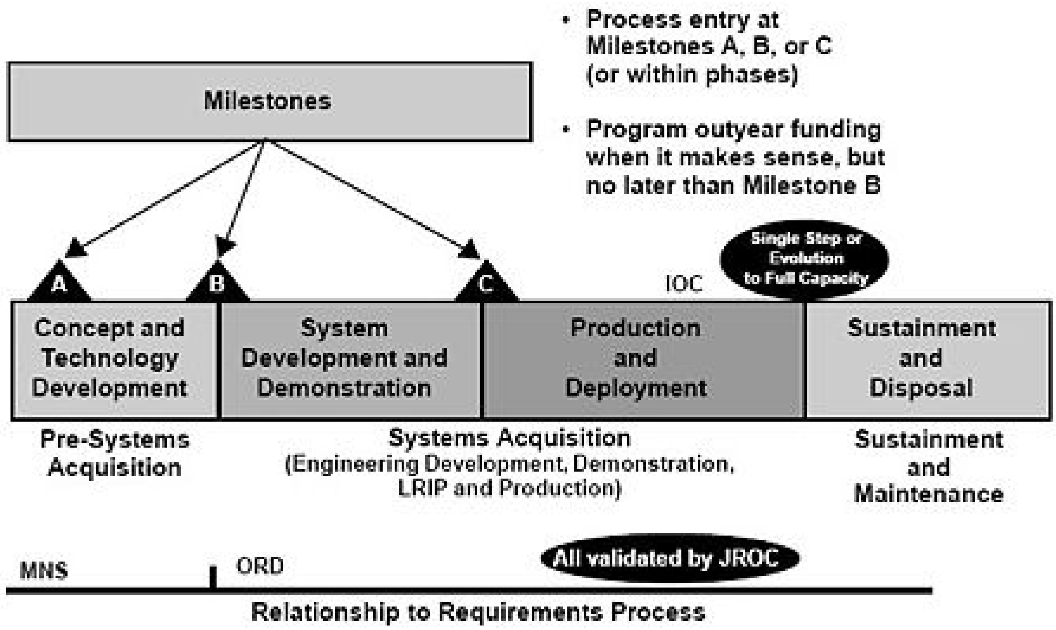
This trend away from the daily procurement function (tactical purchasing) resulted in several changes in the industry. The first was the reduction of personnel. Purchasing departments were now smaller. There was no need for the army of clerks processing orders for individual parts as in the past. Another change was the focus on negotiating contracts and procurement of large capital equipment. Both of these functions permitted purchasing departments to make the biggest financial contribution to the organization. A new terms and job title emerged Strategic sourcing and Sourcing Managers. These professionals not only focused on the bidding process and negotiating with suppliers, but the entire supply function. In these roles they were able to add value and maximize savings for organizations. This value was manifested in lower inventories, less personnel, and getting the end product to the organization's consumer quicker. Purchasing manager's success in these roles resulted in new assignments outside to the traditional purchasing function logistics, materials management, distribution, and warehousing. More and more purchasing managers were becoming Supply Chain Managers handling additional functions of their organizations operation. Purchasing managers were not the only ones to become Supply Chain Managers. Logistic managers, material managers, distribution managers, etc all rose the broader function and some had responsibility for the purchasing functions now.

In accounting, purchases is the amount of goods a company brought throughout this year. They are added to inventory. Purchases are offset by Purchase Discounts and Purchase Returns and Allowances. When it should be added depends on the Free On Board (FOB) policy of the trade. For the purchaser, this new inventory is added on shipment if the policy was FOB shipping point, and the seller remove this item from its inventory. On the other hand, the purchaser added this inventory on receipt if the policy was FOB destination, and the seller remove this item from its inventory when it was delivered.

Goods brought for the purpose other than direct selling, such as for Research and Development, are added to inventory and allocated to Research and Development expense as they are used. On a side note, equipments brought for Research and Development are not added to inventory, but are capitalized as assets.

PURCHASING: ACQUISITION PROCESS

The revised acquisition process for major systems in industry and defense is shown in the next figure. The process is defined by a series of phases during which technology is defined and matured into viable concepts, which are subsequently developed and readied for production, after which the systems produced are supported in the field.



The process allows for a given system to enter the process at any of the development phases. For example, a system using unproven technology would enter at the beginning stages of the process and would proceed through a lengthy period of technology maturation, while a system based on mature and proven technologies might enter directly into engineering development or, conceivably, even production. The process itself includes four phases of development:

? Concept and Technology Development: is intended to explore alternative concepts based on assessments of operational needs, technology readiness, risk, and affordability.

? Concept and Technology Development phase begins with concept exploration. During this stage, concept studies are undertaken to define alternative concepts and to provide information about capability and risk that would permit an objective comparison of competing concepts.

? System Development and Demonstration phase. This phase could be entered directly as a result of a technological opportunity and urgent user need, as well as having come through concept and technology development.

? The last, and longest, phase is the Sustainment and Disposal phase of the program. During this phase all necessary activities are accomplished to maintain and sustain the system in the field in the most cost-effective manner possible.

SELECTION OF BIDDERS

This is the process where the organization identifies potential suppliers for specified supplies, services or equipment. These suppliers' credentials (qualifications) and history are analyzed, together with the products or services they offer. The bidder selection process varies from organization to organization, but can include running credit reports, interviewing management, testing products, and touring facilities. This process is not always done in order of importance, but rather in order of expense. Often purchasing managers research potential bidders obtaining information on the organizations and products from media sources and their own industry contacts. Additionally, purchasing might send Request for Information (RFI) to potential suppliers to help gather information. Engineering would also inspect sample products to determine if the company can produce products they need. If the bidder passes both of these stages engineering may decide to do some testing on the materials to further verify quality standards. These tests can be expensive and involve significant time of multiple technicians and engineers. Engineering management must make this decision based on the cost of the products they are likely to procure, the importance of the bidders' product to production, and other factors. Credit checks, interviewing management, touring plants as well as other steps could all be utilized if engineering, manufacturing, and supply chain managers decide they could help their decision and the cost is justifiable.

Other organizations might have minority procurement goals to consider in selection of bidders. Organizations identify goals in the use of companies owned and operated by certain ethnicities or women owned business enterprises. Significant utilizing of minority suppliers may qualify the firm as a potential bidder for a contract with a company or governmental entity looking to increase their minority supplier programs.

This selection process can include or exclude international suppliers depending on organizational goals and criteria. Companies looking to increase their pacific rim supplier base may exclude suppliers from the Americas, Europe, and Australia. Other organizations may be looking to purchase domestically to ensure a quicker response to orders

as well as easier collaboration on design and production.
Organizational goals will dictate the criteria for the selection process of bidders. It is also possible that the product or service being procured is so specialized that the number of bidders are limited and the criteria must be very wide to permit competition. If only one firm can meet the specifications for the product then the purchasing managers must consider utilizing a “Sole Source” option or work with engineering to broaden the specifications if the project will permit alteration in the specifications. The sole source option is the part of the selection of bidders that acknowledges there is sometimes only one reasonable supplier for some services or products. This can be because of the limited applications for the product cannot support more than one manufacturer, proximity of the service provided, or the products are newly designed or invented and competition is not yet available.

BIDDING PROCESS

This is the process an organization utilizes to procure goods, services or equipment. Processes vary significantly from the stringent to the very informal. Large corporations and governmental entities are most likely to have stringent and formal processes. These processes can utilize specialized bid forms that require specific procedures and detail. The very stringent procedures require bids to be open by several staff from various departments to ensure fairness and impartiality. Responses are usually very detailed. Bidders not responding exactly as specified and following the published procedures can be disqualified. Smaller private businesses are more likely to have less formal procedures. Small private firms are more likely to have informal procedures. Bids can be in the form of an email to all of the bidders specifying products or services. Responses by bidders can be detailed or just the proposed dollar amount.
Most bid processes are multi-tiered. Acquisitions under a specified dollar amount can be “user discretion” permitting the requestor to choose who ever they want. This level can be as low as $100 or as high as $10,000 depending on the organization. The rationale is the savings realized by processing these request the same as expensive items is minimal and does not justify the time and expense. Purchasing departments watch for abuses of the user discretion privilege. Acquisitions in a mid range can be processed with a slightly more formal process. This process may involve the user providing quotes from three separate suppliers. Purchasing may be asked or required to obtain the quotes. The formal bid process starts as low as $10,000 or as high as $100,000 depending on the organization. The bid usually involves a specific form the bidder fills out and must be returned by a specified deadline. Depending of the commodity being purchased and the organization the bid may specify a weighted evaluation criterion. Other bids would be evaluated at the discretion of purchasing or the end users. Some bids could be evaluated by a cross-functional committee. Other bids may be evaluated by the end user or the buyer in Purchasing. Especially in small, private firms the bidders could be evaluated on criteria or factors that have little if anything to do with the actual bid. Examples of these factors are history of the bidder with the company, history of the bidder with the company's senior management at other firms, and bidder's breadth of products.

TECHNICAL EVALUATION

Technical Evaluations, evaluations of the technical suitability of the quoted goods or services, if required, are normally performed prior to the Commercial Evaluation. During this phase of the procurement process, a technical representative of the company (usually an engineer) will review the proposal and designate each bidder as either technical acceptable or technically unacceptable.

COMMERCIAL EVALUATION

? Payment Terms.

? Cost of Money - Cost of Money is calculated by multiplying the applicable currency interest rate multiplied by the amount of money paid prior to the receipt of GOODS. If the money were to have remained in the Buyer's account, interest would be drawn. That interest is essentially an additional cost associated with such Progress or Milestone payments.

? Manufacturing Location - The manufacturing location is taken into consideration during the evaluation stage primarily to calculate freight costs and regional issues which may be considered. For instance, in Europe in is common for factories to close during the month of August for Summer holiday. Labor agreements may also be taken into consideration and may be drawn into the evaluation if the particular region is known to frequent labor unions.

? Manufacturing Lead-Time - the manufacturing lead-time is the time from the placement of the order (or time final drawings are submitted by the Buyer to the Seller) until the goods are manufactured and prepared for delivery. Lead-times vary by commodity and can range from several days to years.

? Transportation Time - Transportation time is evaluated while comparing the delivery of goods to the Buyer's required use-date. If Goods are shipped from a remote port, with infrequent vessel transportation, the transportation time could exceed the schedule an adjustments would need to be made.

? Delivery Charges - the charge for the Goods to be delivered to a stated point. Bid Validity Packing Bid Adjustments Terms and Conditions Seller's Services Standards Organizations Financial Review Payment Currency Risk Analysis - market volatility, financial stress within the bidders Testing.

NEGOTIATING

Negotiating is a key skillset in the Purchasing field. One of the goals of Purchasing Agents is to acquire goods per the most advantageous terms of the buying entity (or simply, the "Buyer"). Purchasing Agents typically attempt to decrease costs while meeting the Buyer's other requirements such as an on-time delivery, compliance to the commercial terms and conditions (including the warranty, the transfer of risk, assignment, auditing rights, confidentiality, remedies, etc).

Good negotiators, those with high levels of documented "cost savings", receive a premium within the industry relative to their compensation. Depending on the employment agreement between the Purchasing Agent (Buyer) and the employer, Buyer's cost savings can result in the creation of value to the business, and may result in a flat-rate bonus, or a percentage payout to the Purchasing Agent of the documented cost savings.

Purchasing Departments, while they can be considered as a support function of the key business, are actually revenue generating departments. For example, if the company needs to buy 30 million INR of widgets and the Purchasing Department secures the widgets for 25M INR, the Purchasing Department would have saved the company 5M INR. That savings could exceed the annual budget of the department, which in effect would pay the department's overhead - the employee's salaries, computers, office space, etc.

SELECTION & AWARD

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POST-AWARD ADMINISTRATION

Post-award administration typically consists of making minor changes, additions or subtractions, that in some way change the terms of the agreement or the Seller's Scope of Supply. Such changes are often minor, but for auditing purposes must be documented into the existing agreement. Examples include increasing the quantity of a Line Item or changing the metallurgy of a particular component.

PURCHASING TECHNIQUES

TECHNIQUES, TIPS AND RULES FOR PROFESSIONAL BUYERS, PURCHASING AND SUPPLIES MANAGEMENT - A STRATEGIC APPROACH TO BUYING

Effective purchasing management and professional buying works better when a good strategic framework exists. Commonly, relationships between suppliers and customers are driven by personalities, or the needs of the moment, whereas relationships and purchasing strategy should ideally be based on a combination of factors reflecting the nature of each purchasing area, including: risk, complexity, value, the market and basic matters of supply and demand.
Bear in mind also that when buying anything you should be aware of the principles and techniques of effective negotiation. It is likely that the person selling to you will be using them, so even if you do not wish to adopt the approach and methods concerned, it's as well that you be able to recognize the tactics.

1. Check you know where your purchase is positioned

Every buyer wants the maximum choice of compliant suppliers. This is a rare occurrence. Buying is often involved late, given specifications that are too tight or not enough information to allow flexibility. The classic 'power matrix' always helps to assess how to engage suppliers:

	low item value, product complexity, buyer strength	**high** item value, product complexity, buyer strength
high market complexity, risk, supplier strength	**Critical** yet **infrequent** contract negotiations, which is the challenge. Can be difficult to attract and maintain priority and attention from suppliers, so buyers need to find ways to maximize the **appeal** and **interest** for the supplier. Buyers therefore need to be **creative, pragmatic and adaptable**, so as to find ways of increasing the appeal and priority for the supplier. The likelihood is that **contracts** will be more important than relationships, due to the difficulty in sustaining senior level interest from the supplier.	Develop and maintain **strategic alliances or partnerships** with sustainable **high-quality strategic suppliers**. Ongoing **collaboration** and **review** are essential. **Relationships** are likely to be more important than contracts. **Multiple relationships** between buyer and seller organizations are likely to be very beneficial, and should be encouraged and enabled between as many counterpart levels and functions as necessary to attain **mutual understanding** of operational issues and implications for both sides. Investment in **'coaching' suppliers** to improve their strategic partnering capabilities can be worthwhile.
low market complexity, risk, supplier strength	Often involves **'commoditized' products** and services. Generally try to **automate arrangements** and processes, so as to **reduce transaction costs**, variability and amount of time and effort required to maintain supply and renegotiations. Establish **efficient processes**. Minimize time and activity for both sides.	Buyers have **extensive choice** because of the number of suppliers available and the competition between them. Buyers can exercise **volume leverage** to get the best deals. More **aggressive buying tactics** are acceptable and you should **swap between the many undifferentiated yet adequate suppliers**.

The important step is to remember that even if you have little information, it doesn't actually effect where the real market pressures are. In other words let the market decide their position, not your lack of knowledge.

1. Get involved with your sales people

Buying is a critical function. Despite this for many years it has been regarded somewhat as a second class citizen in the commercial rankings. If, as a buyer, you can get involved with your own sales people this will make a difference. Firstly you could consider running training courses for them. Secondly see if they can get you to one of their key customers to talk to their buyers - it establishes good relations and can facilitate product development.

2. Segment your staff

Buying covers a very wide spectrum. Strategic sourcing at one end, and invoice entering at the other. This is a broad skill set, and not all buyers can do both. If you want to develop your buyers skills then start by really checking who is capable, and or willing. Some of your best staff may not actually want to be developed into strategic relationship managers. If you need to sell your department better internally - then pick your best presenter to do this, not simply the buyer who deals with that group.

3. Repetition is the key to supplier measurements

There are probably more supplier measurement processes than there are suppliers. Everyone is constantly inventing and re-inventing some set of magic criteria that will measure supplier performance, and now of course the trend is to make it all 'e-capable' and self managing. Don't get tempted down this path. All of the processes do basically the same thing - i.e., get a series of aspects of supply and give you some sort of rating on a scale between 'hero' and 'plonker'. The key to success is to stick with the same simple measure - and do it over time. It is by definition going to be a relative movement that you want to see, not an absolute one. Only if you repeat the same process time and time again is this possible.

4. Supplier rationalization an ends or a means

Any self respecting buyer has gone through some sort of supplier rationalization program. It probably makes up one of your objectives and probably has a firm number - e.g. 'reduce supplier base to 300 suppliers'. Beware these sorts of targets - why 300? Why not 307 or 289? The issues is that this target loses sight of the reason for reduction - ie., you want to simplify processes, increase supplier dependency and therefore reduce costs. However everyone also knows that if you reduce too far you become locked into certain suppliers and prices can rise. What is more if you are going to go down an 'e-auction' route your first step may well be to increase the amount of suppliers. Rather than set an arbitrary number for suppliers, focus on the outcome - reducing costs - and see if this one particular tool is useful or not.

5. Price versus cost understanding and calculating actual total cost

Price is different from cost. The terms are often interchanged in business, which can lead to confusion in negotiations, and wrong decisions based on 'false economy'. The key rule is that 'price' is only one of the elements that makes up 'cost'. There are many other factors to consider and factor into the overall value judgment, and whether one proposition or supply arrangement is truly better than another.

ACTUAL TOTAL COST

price = basic cost of product or service	**Rs.**
value = cost of quality (including maintenance, disposal, and costs relating to environmental and corporate social responsibility factors)	**Rs.**
transaction = cost of acquisition (including buying resources, effort, time, payment terms, change management, training related to implementation)	**Rs.**
actual total cost	**Rs.**

The price is the label on the packet, or the basic price of the product or service, but it is no indication of true value or cost. For example, a chair has a **price** tag on it of Rs.10/- or Rs.20/-. The **value** however, is related to useable benefits that the chair gives, and the cost implications of using it for its intended purpose. It may be a very cheaply-made chair, in which case if its role is just to last one season in a rented holiday flat and then be thrown away, then that is fine. If however the chair is required for visitors in the reception of high quality business, then its style, comfort and durability are important required features, and therefore form a real part of its value (or not as the case may be). So in this instance a chair is likely to warrant a relatively high 'price' in order to provide the necessary value and benefits, which ultimately produce a significantly lower 'actual total cost' than paying a low price for an inferior product which fails to perform, endure, give a suitable impression, etc. The CEO of a potential $20m client who sits in a Rs.20/- reception chair might decide after all that he doesn't want to place his business with a company who put such a low value on its visitors. What's the actual total cost of the Rs.20/- chair then?...

NB the term 'added value' is used a lot in business today. Often it is just a smokescreen for a price increase so be aware. To really **add value** any feature should have some real and tangible effect on the longer term use/replacement value/cost of transaction/reputation for the buyer's business. When confronted with claims of added value, ask, 'exactly what is the added value?' By the same token, if you use the term 'added value' when selling to a buyer, make sure you can demonstrate it.

The **cost of the transaction** is what it actually costs your organization to do the deal (and also to review it and renegotiate it in months and years to come). Costs of transaction are regularly overlooked - by buyers and sellers alike, and everyone else who thinks that selling and buying are all about price. For example professional buyers often receive suggestions from users or staff who say they can buy cheaper copier paper from their local discount store. They ignore the **cost of the transaction** - that to purchase the cheaper paper from a local store involves someone spending time to go there, with cost of travel, the time to complete and fulfill an expense claim - all of which mean the cost of the transaction far outweighs any initially apparent 'price' savings.

Consider also the cost of change, implementation and training. These are also costs of the transaction, and can be enormous - in some cases greater than the basic price of the product or service. IT hardware and software are notable examples where the costs of executing the transaction through to implementation can produce frightening implications for costs, and also for process integrity and continuity.

An increasingly relevant factor is **'total cost of ownership'** (TOC or TCO). Total cost of ownership includes all of the factors above, but will also consider **costs of disposal**, and increasingly for all industries, **the cost of reputation** - for example the effect that sourcing low priced third-world goods can have on an organization's reputation - notably its reputation for **Corporate Social Responsibility** (CSR).

In summary, whether buying or selling, **price** is only a part of the **actual total cost**. Costs of quality including maintenance, disposal, CSR (corporate social responsibility) and environmental factors, and costs of the transaction including buying resources, effort, time, payment terms, and renegotiations (all largely dictated by the seller's relationship capabilities) must all be considered when assessing or comparing the **actual total costs** of propositions, products or services.

FOOD STORAGE

Food storage is both a traditional domestic skill and is important industrially. Food is stored by almost every human society and by many animals. Storing of food has several main purposes:

- ? preparation for periods of scarcity or famine
- ? taking advantage of short term surplus of food as at harvest time
- ? enabling a better balanced diet throughout the year
- ? preparing for special events and celebrations
- ? planning for catastrophe or emergency
- ? protection against predators or others

DOMESTIC FOOD STORAGE

GRAIN

Grain is stored in rigid sealed containers to prevent ingress of moisture or attack by vermin. For domestic quantities metal cans are used.
Storage in grain sacks is not effective. Mold and pests destroy a 25kg cloth sack of grain in a year even if stored off the ground in a dry area. On the ground or damp concrete, the time is as little as three days, and the grain might have

to be dried before it can be milled. Food stored under unsuitable conditions should not be purchased or used because of risk of spoilage. To test whether grain is still good, sprout some. If it sprouts, it is still good, but if not, it should not be eaten. It may take up to a week for grains to sprout. When in doubt, throw it out.

MEAT

Unpreserved meat has only a relatively short life in storage. Pork should be eaten within one day but beef and venison improve with up to 5 days storage in a cold room. Dry aging techniques are sometimes used to tenderize specialty gourmet meats by hanging them in carefully controlled environments for up to 21 days. Semi-dried meats like salamis and country style hams are processed first with salt, smoke, sugar, or acid, or other "cures" then hung in cool dry storage for extended periods, sometimes exceeding a year.

FISH & SHELLFISH

It is unsafe to store fish or shellfish without preservation. Fresh shellfish and whitefish should be eaten within a few hours of harvesting..

USE OF STORED FOOD

Guidance for surviving emergency conditions in many parts of the world recommends acquiring a limited range of grains (usually corn, wheat and beans supplemented with oil, dried milk, and vitamins) and then preparing them in simple ways for long-term survival. This may not be wholly practical because of appetite exhaustion. An unvarying diet of staples prepared in the same way causes most people to eat less. Garden-grown fruits and vegetables, freeze-dried, canned, and fresh-baked foods are essential supplements to such a program.

A special virtue of home stored foods is their low cost. Costs of dry bulk foods (before preparation) are often less than 1/4 of convenience and fresh foods purchased at supermarkets.

COMMERCIAL FOOD STORAGE

Grain and beans are stored in tall grain elevators, almost always at a rail head near the point of production. The grain is shipped to a final user in hopper cars. In the former Soviet Union, where harvest was poorly controlled, grain was often irradiated at the point of production to suppress mold and insects. In the U.S., threshing and drying is performed in the field, and transport is nearly sterile and in large containers that effectively suppress pest access, so irradiation is not required. At any given time, the U.S. usually has about two weeks of stored grains.

Fresh fruits and vegetables are either packed in plastic cups in cardboard boxes for fresh premium markets, or placed in large plastic tubs for sauce and soup processors. Fruits and vegetables are usually refrigerated at the earliest possible moment, and even so have a shelf life of two weeks or less.

There is a thriving but small market in bulk vegetables and convenience foods for campers.

In the USA meat animals are usually transported live, slaughtered at a major distribution point, hung and transported for two days to a week in refrigerated rail cars, and then butchered and sold locally. Before refrigerated rail cars, meat had to be transported live, and this placed its cost so high that only farmers and the wealthy could afford it every day. In Europe much meat is transported live and slaughtered close to the point of sale. In much of Africa and Asia most meat is for local populations is reared , slaughtered and eaten locally which is believed to be much less stressful for the animals involved and requires very little meat storage capacity. In Australia and New Zealand where a large proportion of meat production is for export meat is stored in very large freezer plants before being shipped overseas in freezer ships.