

# INTRODUCTION TO COST MANAGEMENT IN PHARMACEUTICAL AND COSMETIC PACKAGING

## Abstract

Pharmaceutical packaging is one market across the globe which is advancing at constant pace. It is expected that market will grow to worth \$78.79Billion by 2018 [1]. Packaging is a key for sale, safety and success. Like other packaged goods, pharmaceuticals packaging need to be in such a manner that it will provide speedy packaging, protection, identification, product quality, patient comfort, display and needs of security. Advancement in research of pharmaceuticals development had always being dependent on the packaging technology. Maintaining integrity of pharmaceuticals during storage, shipment, and delivery is assured by quality of packaging available. This article reviewing current pharmaceutical packaging trends and predicting the packaging outcomes in future.

**Keywords:** Pharmaceutical packaging, Current pharmaceutical packaging trends, Speedy packaging.

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## I. INTRODUCTION

Packaging is defined as the method by which a drug product remains packaged from the time it is manufactured until it is used. The role of pharmaceutical packaging is to provide essential drugs, surgical instruments, blood and blood products, nutraceuticals, powders, poultices, liquids and dosage forms, solid and semi-solid dosage forms. Pharmaceutical packaging inherently ensures sealing, drug safety, identity, ease of handling, and delivery. Pharmaceutical packaging requires consideration of many complex factors. Leaving aside relatively simple issues such as good design and communication with customers, pharmaceutical packagers must address more pressing issues, including preventing counterfeiting, encouraging patient compliance, ensuring drug product integrity, and balancing sustainability for children and affordability for the elderly. I'm interested in the problem. Environmental safety issues are also a major issue in the packaging industry in both developed and developing countries. As evidenced by recent technological advancements, pharmaceutical packaging companies are among the leading innovators in the industry. Current trends are the result of a series of ongoing challenges facing the industry. Packaging is a science that is constantly evolving and contributes significantly to the success of the pharmaceutical industry. Differentiation of pharmaceutical packaging by category:[1-5]

1. **Primary Packaging:** This is the first packaging bag that comes into contact with the dosage form or equipment. The packaging must be non-interactive with the drug and provide adequate containment of the drug product. for example. Blister pack, strip pack, etc.
2. **Secondary Packaging:** A sequential covering or packaging held to sort the packaging of a pharmaceutical product. for example. Boxes, cartons, etc
3. **Tertiary Packaging:** Designed for handling and shipping pharmaceuticals in bulk from one place to another. for example. Containers, barrels, etc. [6]

**Packing:** Packing consists of enclosing an individual item, or several items, in a container, usually for shipment or delivery. This operation is mostly done by hand and machine.

**Pharmaceutical Packaging:** Pharmaceutical packaging means the combination of components necessary to contain, preserve, protect & deliver a safe, efficacious drug product, such that at any time point before expiration date of the drug product, a safe & efficacious dosage form is available. [7]

**Primarily two types of containers are used for packaging:**

- **Glass Containers**
- **Plastic Containers**

**Glass Containers:** These need to be chemically inert, impermeable, strong and rigid proving FDA clearance.

**Four types of Glass is being used in pharmaceutical industry,**

1. **Type I-Borosilicate Glass:** Highly resistant and chemically inert glass. Alkali's and earth cations of glass are replaced by boron and/or aluminum and zinc. These are used to contain strong acids and alkalis.
2. **Type 2-Treated Soda-Lime Glass:** These are more chemically inert than Type I glass. The glass surface is de-alkalized by "Sulfur treatment" which prevents blooming/weathering from bottles.
3. **Type III- Regular Soda Lime Glass:** Untreated soda lime glass with average chemical resistance.
4. **Type IV- General Purpose soda lime glass:** Glass is not used for parenterals, used only for products intended to be used orally or topically. Colored glass is used to screen out Ultraviolet rays and is thus effective for protecting contents from light. Amber glass and red colored glass is used for this purpose. Major disadvantage of glass as a packaging material is its fragility and weight.[8]

**Plastic Containers:** Plastic containers of high quality can be easily formed with different designs. These packages are extremely resistant to breakage and leakage.

**Primarily plastic containers are made from the following polymers:**

1. **Polyethylene (PE):** Provides good barrier against moisture, relatively poor one against oxygen and other gases. High density polyethylene is used with density ranging from 0.91-0.96 leading to four basic characteristics of container, (1) Stiffness, (2) Moisture-vapor transmission, (3) stress cracking and (4) clarity or translucency based on polymer density used.
2. **Polypropylene (PP):** Polypropylene (PP): Polypropylene has the characteristics of polyethylene and does not break under any conditions. Hot aromatic or halogenated solvents soften the packaging. Its high melting point makes it suitable for boiling packages or products that require sterilization. Brittleness at low temperatures is a major drawback.
3. **Polyvinyl Chloride (PVC):** Can be produced with clear transparency and provides excellent gas insulation and rigidity. The quality of PVC is further improved by reducing residual vinyl chloride monomer. PVC is used as a glass bottle coating to provide a shatter-resistant finish.[9]
4. **Polystyrene:** A hard, transparent plastic. Not useful for liquid products. Polystyrene is highly permeable to water and gases and is prone to stretching and breaking. To increase strength and permeability, polystyrene is combined with rubber and acrylic compounds. Depending on their composition, they are classified into medium-impact, high-impact, and ultra-impact packages.[10]
5. **Nylon (polyamide):** Many diacids and amines combine to form numerous types of nylon. Nylon is extremely durable and very difficult to destroy by mechanical means. Nylon

offers resistance to a wide range of acids and alkalis. The only drawback is that it is somewhat permeable to water vapor. This can also be solved by covering the container with polyethylene. Not intended for long-term food storage.

6. **Polycarbonate:** Repeatable sterilization possible. It is incredibly strong and can replace glasses, vials and syringes. It has properties such as high dimensional stability, high impact strength, resistance to deformation, low moisture absorption, transparency and resistance to heat and fire. Polycarbonate is five times more impact resistant than other common packaging plastics.
  7. **Acrylic Multipolymers (Nitrile Polymers):** Acrylic copolymer (nitrile polymer). These are polymers of acrylonitrile or methacrylonitrile monomers. It offers high gas barrier properties, good chemical resistance and excellent strength, providing packaging for products that would not otherwise be packaged in conventional packaging.
  8. **Polyethylene Terephthalate (PET):** A condensation polymer formed by the reaction of terephthalic acid or dimethyl terephthalic acid with ethylene glycol. Its strength and ability to provide a barrier to gases and odors make it useful as packaging material for cosmetics, mouthwash, and other products. There are many packaging materials that the FDA has approved for packaging, but it is important to note that it is the materials used, not the containers, that are approved by the FDA. The list of substances the FDA considers is published as "Generally Recognized As Safe (GRAS)." Manufacturers must demonstrate the safety of their packaging and obtain FDA approval. FDA drug regulations state: "To be suitable for their intended use, containers, closures, and other components of drug product packaging must not be so reactive, additive, or absorbent that their identity, strength, quality, or purity are compromised. "Drugs." Substances not included in GRAS may be used by manufacturers, but before doing so, manufacturers must test the substances and submit a New Drug Application (NDA) report to the FDA. [11-15] Current Trends in Pharmaceutical Packaging "Necessity is the mother of all invention" is the phrase that best describes new pharmaceutical packaging technologies. According to a report titled "India Pharma 2020: Ensuring Access and Recognition, Realizing True Potential" by McKinsey & Company, the Indian packaging market is expected to grow from \$12.6 billion in 2009 to \$55 billion by 2020. Annual losses due to counterfeiting are estimated at \$75 billion[16]. Packaging has always been at the center of the industry's self-protection strategy. To solve this problem, companies are using a variety of security technologies, including microtext, embossing and debossing, special varnishes, holographic materials, tamper-evident labels, radio frequency identification (RFID) marking, and custom graphics, with varying degrees of success. I did. font.
- a. **Ink Technology:** This is a technology where color reappears when rubbed or scratched. for example. Safety Labels, Promotional Tapes & Labels, Menomonee Falls,
  - b. **Radio-frequency Identification (RFID):** RFID is another technology with anti-counterfeiting potential. RFID tags authenticate products and help collect data for home records. Equipment that encodes and prints tags verifies the tags before and after encoding. If non-executable labels are detected before encoding, they are checked and discarded. Good labels are coded and checked again. If the tag is read correctly, the label is printed and the barcode is verified. If a barcode is scanned

incorrectly, the device removes the label, prints a checkerboard pattern on top of it, then removes it, encodes it, and prints a new label on a Smartline SL4M RFID printer from Printronix Inc., Irvine, USA. Encoding, printing and application modules are available for automated applications. Performs all RFID printer checks and applies labels at speeds up to 100 rpm. Smartline SLPA8000 label printer applicator, Printronix [18]. In multi-panel labels, at least one label converter may include an ultra-high frequency (UHF) or high-frequency (HF) RFID insert for product security, inventory management, and tracking capabilities. "InfoPac Label", Turso Companies, St. Louis Louis Paul, MN. [19]. RFID can be combined with encryption to provide authentication both inside and outside the network. Once the tags are encoded using Electronic Product Code EPC (a 96-bit serial code that can be encoded at up to 550 rpm), they are digitally signed using a public key infrastructure (PKI) based on IEEE 1363a [20]. For example, dual-function RFID tags with temperature measurement are less expensive than traditional temperature monitoring devices. For example, it combines sensors, microchips, batteries and antennas into a paper-thin label. Smart label "TempSens" 13.56 MHz, KSW-Microtec, Dresden, Germany. This type of labeled blister pack equipped with smart sensors is being used at the National Institutes of Health (Bethesda, MD) for a multi-year study of chronic obstructive pulmonary disease. This would require approximately 500,000 individual doses of the drug. Radio frequency identification (RFID) tags help simplify shipping, receiving, disposal, and monitoring. It tracks products through the supply chain, transmits and collects the data needed to prevent counterfeiting and diversion, and integrates with sensors to monitor conditions during transport and storage and issue alerts when parameters are exceeded.[21]

- c. **Tamper-evident Stickers:** You will need a special backing designed for this purpose. Cellulose acetate film has a very complex structure, making it strong enough for use in label rolls. Labels can be automatically dispensed from automatic label dispensers and will break into tiny pieces when attempted to be removed. Vinyl has now replaced acetate film because it is more cost-effective.
- d. **Holographic Materials:** A large and important segment in the security label market, making it an ideal choice for product authentication. Holographic foils (variable viewing devices) are usually made of polyester film. Holographic images are recognized by the human eye, making them ideal for branding and security. When the package is tilted towards a light source, a holographic image appears. Manufacturers can increase the complexity of holograms to make it harder for counterfeiters to replicate their products. Many holograms not only provide brand authentication but also have tamper-evident properties. Attempting to remove the hologram will cause the top layer of polyester to peel off, leaving the hologram on the packaging.[22]

## II. RELATED CONCEPTS AND THEORETICAL BASIS RELATED CONCEPTS

### The Concept of Cost Control

Cost control means that the entity exercising control is within its power. Management objectives and corresponding standards are formulated before production. During the production process, actual costs are controlled according to plans and standards, and deviations are adjusted to achieve targets. Cost management consists of "cost" and

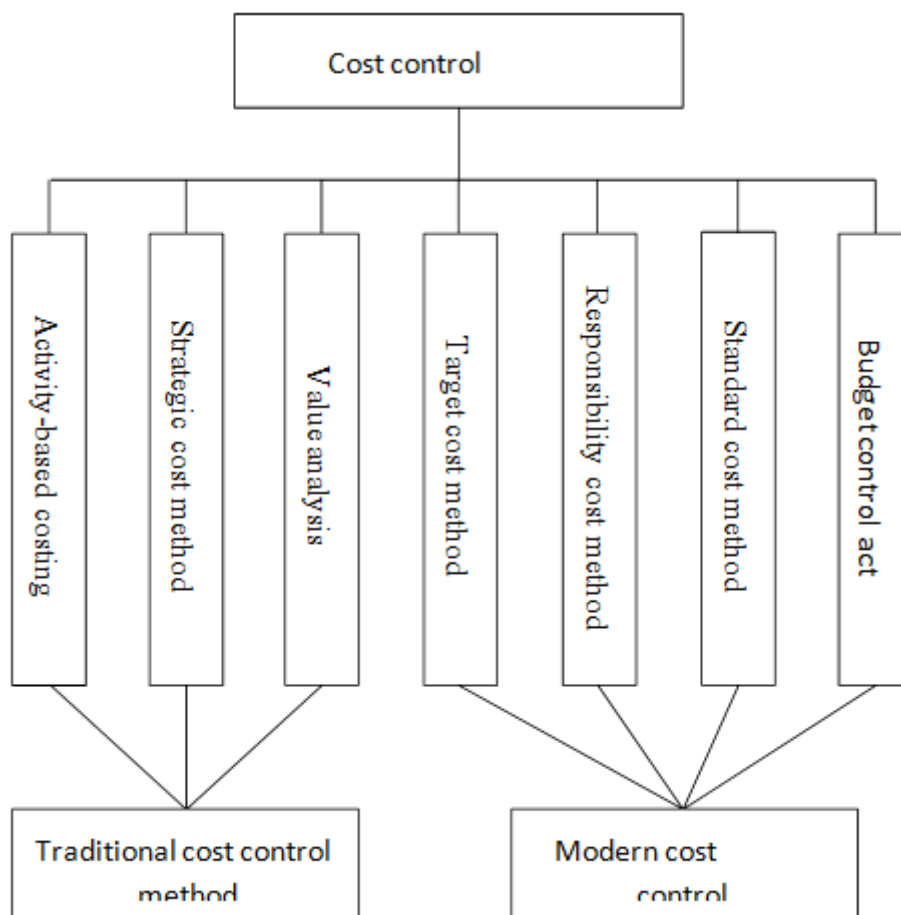
“management”. Expenses are expenses that must be paid in the course of a company's activities. Control is a process of modification and control. The scope of cost management covers a wide range, including the entire management process, including production costs, sales costs, research and development costs, human resource costs, quality costs, and crisis costs. You can fully control your process costs, taking into account your company's characteristics. Depending on the characteristics of the time flow and cost formation process of a pharmaceutical distribution company, it is divided into purchase cost management, production cost management, and marketing cost management. Cost management is the practice of identifying and reducing business expenses to increase profits, and it all starts with the budgeting process. Business owners compare actual results to budgeted expectations, and management takes action when actual costs exceed budget. For example, a company can reduce costs by receiving bids from other suppliers offering the same product or service.[23] Due to differences in corporate existence, cost management structures are also different. Trading companies mainly focus on controlling marketing costs, while logistics companies mainly focus on controlling transportation costs, and raw materials for large pharmaceutical companies are expensive and become a major cost. Figure 2-1 shows a diagram of a pharmaceutical company's cost formation. The company studied in this article is a pharmaceutical distribution company. The main points of cost control are control of marketing, purchasing and warehouse costs.[24]

## 1. Principle of Cost Control

- a. **Principle of System Control:** System control is the organization's work process and results or a combination of dynamic and static cost control. Variance is defined as the difference between planned and actual results, and managers use gap analysis to identify critical areas that require change. Each month, the company must perform a variance analysis on each income and expense account. Management may want to address the largest cash differences first. Because these accounts have the greatest impact on company results.
- b. **Principle of Differentiation:** Cost management must apply flexible and differentiated methods and means according to the needs of cost management. For example, if in fact it is expected that there will be significant differences in the processes and links of the cost management indicators during a certain period, special attention and importance should be paid to the cost management of these links to find out the reasons. .
- c. **Principle of Economic Efficiency:** An important principle of cost control is to reduce consumption and increase the economic efficiency of enterprises. The assessment of the level of economic benefit of cost control should be based on the principles of horizontal and vertical comparison to ensure that cost control is scientific.
- d. **Just-in-time Principle:** Cost management is based on time. Scientific cost management requires timely cost control measures at various stages of a company's business management to ensure effective cost control. The optimal cost control period is often missed, which can lead to huge losses.[25-28]

## 2. Cost Control Methods

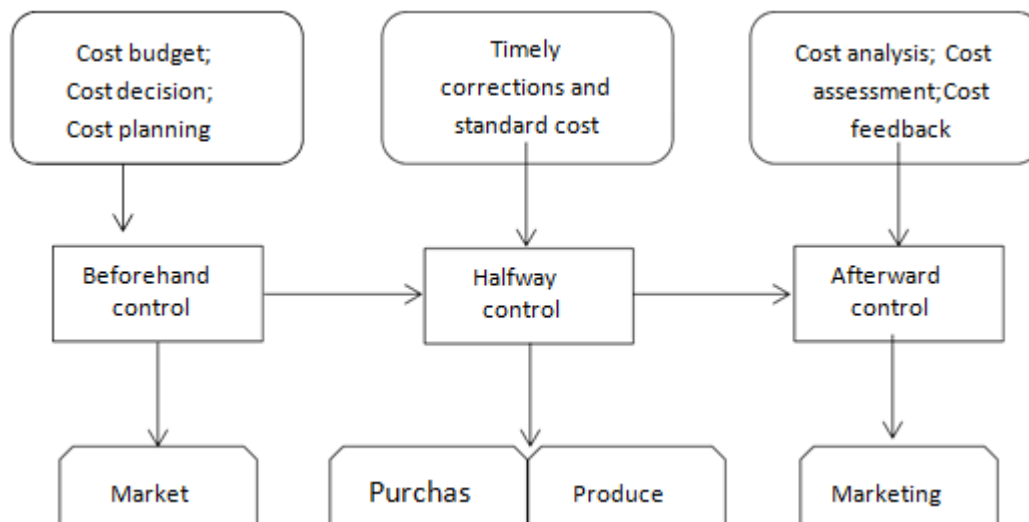
Principle of system control: System control is the organization's work process and results or a combination of dynamic and static cost control. Variance is defined as the difference between planned and actual results, and managers use gap analysis to identify critical areas that require change. Every month, the company should conduct a variance analysis by income and expenses. With in-depth study of cost management theory and practice, cost management methods have also made unprecedented progress and formed a variety of methods. Looking at Figure 2-2, you can see that cost control methods are divided into traditional methods and modern methods. Traditional activity-based costing methods refer to the cost management practices of Western developed countries, which have not been innovated and have been directly adapted and applied to cost management practices. This mainly includes activity-based costing, strategic analysis, and value analysis. Modern cost management methods innovate existing traditional cost management methods or propose new cost management methods such as target cost method, standard cost method, and budget management method. Companies generally apply differentiated cost management methods depending on the company's actual situation, and may use a single method or a combination of methods.[29]



**Figure:** The methods of cost control chart

### 3. Cost Control Procedures

In Figure 2-3, the cost control process can be found in business processes such as market research, raw material purchasing, product manufacturing, and product marketing. Predictive control is the foundation and core of the cost control process and the basis for standardized cost formation. Temporary cost controls are adjustments to cost controls to ensure costs remain within standard ranges. Post-event cost management is the analysis and feedback of pre- and in-process management based on cost management results.



**Figure:** Cost control program diagram

### 4. Theoretical basis

- a. **Constraint Theory:** The theory of constraints is a conclusion drawn by Israeli physicist Goldratt based on research and optimization of production technology. This opens up new perspectives on people management. An enterprise's production and operations are limited by resources, and maximum production capacity is often determined by the shortest resource shortage. Theory of Constraints (TOC) is a management paradigm that views control systems as limited in achieving more goals with very few constraints. There is always at least one constraint, and TOC uses a focused process to identify that constraint and reorganize the rest of the organization around it. TOC uses the common idiom "a chain is stronger than its weakest link." This means that processes, organizations, etc. are vulnerable because the weakest person or part can always damage, destroy, or at least negatively affect the results. In general, limitations in organizational activities come from two aspects: internal resource limitations and external resource limitations. Constraints on external resources or the environment are generally the same, but constraints on internal resources can vary widely. A pharmaceutical manufacturing company's internal resources mainly include production capacity, equipment throughput, and personnel efficiency. The resource constraints of pharmaceutical distribution agencies are mainly related to marketing capabilities, warehousing capabilities, and related management capabilities. The theory of constraints is based on narrow resources to set the company's strategic goals and business goals, and are mutually integrated to



help the company achieve maximum efficiency through rational investment or control. It is essentially a management philosophy and control method. TOC deployment solutions are effective when used to address one link in the supply chain, and indeed the entire system, even if that system includes multiple companies. The goal of TOC distribution solutions is to create a decisive competitive advantage based on superior availability by significantly reducing the damage that occurs when the flow of goods is interrupted due to shortages or surpluses. In terms of cost control, the theory of constraints made the company's business purpose more scientifically clear and objectively analyzed the business cost control status and cost control principles. The theory of constraints states that earning more profits is the ultimate goal of every company. This limits the constraints a business faces in pursuing profits, making it a "bottleneck" or "constraint." These limitations manifest themselves in several ways. These include corporate resources, institutional aspects, and market demand in supply and demand chains. Enterprises must gradually identify and eliminate these bottlenecks to determine the company's improvement direction and improvement strategy to effectively achieve the company's profit goals. Pursuing internal logistics balance rather than production capacity balance, so that all aspects are synchronized with bottlenecks to achieve the shortest production cycle and maximum productivity and sales concept, formed the basis of the famous theory of constraints concept.[31-33]

- b. Value Chain Theory:** Value chain cost control theory was developed from the value chain theory presented by Michael Porter. It mainly refers to scientifically controlling the costs of the internal value chain and external value chain in a company's business process. Businesses achieve maximum profit with minimum investment. The content of value chain cost control is mainly divided into two aspects: value chain management level and value chain management entity. Value chain management level cost control mainly includes strategic level cost control, management level cost control and operational level cost control. Cost control of a value chain entity includes cost control in the supplier value chain, cost control in the internal value chain, cost control in the customer value chain, and cost control in the competitor's value chain. Cost driver analysis is performed based on cost control theory of the value chain. Strategic level motivations are primarily structural and execution drivers, while operational level motivations are operational and resource drivers.[34] By interpreting the concept and content of the value chain, we can see that cost control in the value chain has the following characteristics. First, it is systematic, open and dynamic. Systematic mainly refers to cost control of the value chain throughout the business operation process, openness refers to the cost control department and entities participating in the value chain, and everyone clearly states the purpose and content of cost control in advance, and dynamic refers to the cost control of the value chain. Cost control is based on the company's objective to take dynamic control measures at different time periods. Second, good cost control is control over the previous control period. It is primarily based on the company's development strategy and sets clear cost management targets. The assigned scope of work is primarily related to cost control in process and operational phases, with a focus on controlling manageable costs and improving metrics. Third, control costs outside the original organization. Crossing boundaries is a cost management method that realizes a company's goals by comparing the cost management of the value chain with the company's own cost

management. It controls all internal and external organizations in the enterprise value chain.[35]

- c. **Cost Driver Theory:** Cost driver theory is proposed in the book “Cost Planning and Control”. He pointed out that cost drivers are factors that influence or change the value of a company. Traditional cost driver theory was the only cost control theory for many years, with business volume seen as the only factor influencing cost changes. Given the complexity of company workflows, tasks are considered a critical part of cost management. This is the job cost motivation theory. With the increasing role of strategy theory in corporate management, the theory of strategic cost factors has emerged. By reviewing cost control theory, we can see that traditional cost drivers, activity cost drivers and strategic cost drivers represent three stages of cost driver development. This is the relationship between foundation, development, and sublimation. The development of the three-stage theory is not a next-stage theory that can replace the previous stage theory, but the results of in-depth research on cost motivation theory are the result of diversification and differentiation based on the need for practice. There are signs of liquidity in the healthcare companies studied in this article. When analyzing cost motivation theory, the sales department uses traditional cost driver analysis as its main analysis, and the distribution link mainly focuses on operating cost driver analysis.[36-38]
- d. **Basic Competitive Strategy Theory:** Basic competitive strategy was first proposed by Porter in his book Strategy and Management. He pointed out that it meets the demands of market competition. Adopt one or more organic combinations of cost leadership strategy, differentiation strategy, and centralized strategy. Each company can leverage its strengths and make appropriate strategic choices based on the characteristics of its products and resources. A cost leadership strategy is also a low-cost strategy. It refers to products or services that a company produces in the course of its business. Our operating costs are significantly lower than our competitors. A cost leadership strategy can ensure a company's ability to generate profits and leverage its cost advantage to drive competitors out of the market. Differentiation strategy is also called innovation strategy, which adopts various strategies to manage products, services, channels, prices and promotions based on the company's own development needs. A centralized strategy is also called a centralized strategy. This refers to a strategy in which a company focuses its limited advantage resources on a product, service entity, or market segment. According to the types and characteristics of basic competitive strategy theory, pharmaceutical companies have limited capital and marketing capabilities. Therefore, the distributor's products must be differentiated and focused on specific markets according to a multi-use strategy. At the same time, in order to reduce the company's operating costs, the cost leadership strategy is always implemented through all parts of the company to ensure both open source and cost reduction
- e. **Uses the Fixed Cost Method to Control the Cost:** The fixed cost method is currently used by pharmaceutical companies to manage costs. Fixed costs are one of the two main inputs, along with variable costs, in cost accounting that company management uses to set budgets and control costs in relation to revenue. Finance plans the current year's annual cost plan based on the company's completion of cost management in the previous year. A company's sales increase or decrease, and its

profits increase or decrease. The company's cost management goals for this year have been formalized. Finally, cost figures (cost breakdown and total cost percentage) are communicated to each department in the company. The Treasury has an obligation. Annual evaluation standards and regulations are established based on the principle of not exceeding the 'ratio of selling expenses to total sales of the previous year'. However, the purpose of ongoing cost control in pharmaceutical companies is primarily the overall cost of the company's core activities (mainly focused on purchasing and sales). The normal activities of various departments and companies cannot be separated from these general costs. This part of the Ministry of Finance's expenditures is subject to unified supervision and inspection by the responsible departments. The supervision of each department is carried out according to the company's allocation indicators to control costs, and the supervision simultaneously inspects cost reduction in various sectors. The division is complete. Sales and marketing play an important role in the pharmaceutical industry and represent a barrier to entry for small and medium-sized businesses. Sales and marketing activities are very expensive because advertising is strictly limited and pharmaceutical companies must contact hospitals and doctors through sales agents. Covering the entire market with sales agents requires large fixed costs. Therefore, large pharmaceutical companies have a competitive advantage over smaller companies because they already have a large market share and can add other drugs to their portfolio more cheaply.[39-40] Another important cost element that businesses consider when calculating costs is variable costs. Variable costs, unlike fixed costs, are direct manufacturing costs that vary depending on the level of production or sales. Variable costs are generally referred to as cost of goods sold, and fixed costs are costs that are generally not included. If unit prices include elements such as sales commissions, changes in sales and production levels can affect variable costs.[41]

### **III.THE COUNTERMEASURES OF COST CONTROL OF PHARMACEUTICAL COMPANY**

The pharmaceutical segment's strategic goal is to double its sales revenue over the next three years. To achieve strategic development, it is urgent to implement comprehensive and effective cost management. In order for a company to achieve high cost management efficiency, it must first use advanced cost control techniques to find key factors that affect the company's costs and determine the target of cost control. We must fully consider the company's actual performance, establish a target cost system for reliable products, and strive for cost control. Full implementation in all aspects of the company's operations ultimately solves the cost management problem for pharmaceutical companies.

#### **A. Establishing a Target Cost System**

In production and economic activities, companies' current cost control is based on the fixed cost method and ignores the target cost method. The target cost method is a method that matches the actual development situation of the pharmaceutical industry. This method is more valuable than the fixed cost method currently used by the company. Establishing a target cost system in the pharmaceutical field is also helpful in improving a company's cost management. This method is based on the target cost principle and combines a realistic development strategy for the pharmaceutical industry, which is more conducive to the sustainable development of the company. The target cost method is a method of calculating

the difference between planned costs and actual costs, establishing a strict budget for the difference, and providing effective control and supervision. We use effective means to minimize the occurrence of unfavorable balances, minimize variances by streamlining business operations, and reduce unnecessary costs in the company's operational and administrative activities. It is a method of controlling a company's actual costs within the target cost range.

## 1. Establish Product Target Costs

### a. Set the Target Price of the Product

Set target price for product In the pharmaceutical market, pharmaceutical companies sell various types of drugs. Therefore, market competition becomes more intense and our products gain more stable customers in the market. When formulating a target selling price for your product, you should consider the following three questions:

- Consider the requirements of different regions. Whether it's hospitals at various levels, other pharmaceutical companies, or pharmaceutical retailers, everyone wants to buy at the lowest price. However, each region has different levels of economic development and different demands for the effectiveness and quality of medicines. Therefore, pharmaceutical companies must meet the demand. Define your offer and perform a specific analysis of your specific situation as well as the situational differences associated with using differential pricing methods.
- Consider the drug prices of competitors in the same industry. In today's highly competitive pharmaceutical industry environment, some need to understand in real-time the strengths and weaknesses of industry competitors compared to the company and conduct relatively comprehensive research on the company's pricing. Therefore, in order for Pharmaceutical Company X to make a decision, it must obtain actual key information about the other party in advance. Our prices cannot be much higher than similar products, we cannot violate market laws, and we cannot blindly lower prices. Therefore, based on market dynamics, we adjust our prices in a timely manner, taking into account the prices of our competitors in the same industry. .
- Consider the purchase price of the product. Drug distribution companies are only responsible for sales and cannot manufacture drugs without approval. You can only get medicine by purchasing it. Therefore, when setting a target price, the purchase price and costs incurred during the procurement process must be fully considered.[41]

- b. Establish Product Target Profit:** A significant increase in profits and overall sales over the next few years is a short-term goal for the pharmaceutical sector. Therefore, a pharmaceutical company's management activities must be based on the total target profit of the product. Companies that sell high-quality products achieve higher profit goals. Accordingly, we lower the profit target for low-priced products and try to adjust it to within 6% points. Developing reasonable product profit targets will help improve your company's competitive advantage, which in turn will help increase your company's operating income and market share.

- c. **Develop Product Target Costs:** The difference between the target selling price and target profit is the target cost. As a pharmaceutical company, a pharmaceutical company sets a final profit target by combining the company's purchase price with a certain target price, and also considers the overall cost structure of the company. Determine your target cost..

## 2. Implementation Target Cost Control

- a. **Calculate the Cost Difference:** Marketing department, finance department, purchasing department and other departments perform cost gap accounting at various levels under the guidance of company leaders. In the current market economy, the difference between planned costs and actual costs is calculated based on value chain theory and cost factors. Ultimately, every organizational unit and every employee achieves cost management goals.
- b. **Decommissioning Target Cost:** The total target cost is disassembled, and the total costs after various disassemblies are added up one by one and analyzed. Establish appropriate actions and action plans for various cost factors and ultimately improve the cost management efficiency of each department.
- c. **After follow-up:** Follow-up research is conducted after target cost control and before determining the target cost and price of the product. Mainly, it is checked in advance whether the expected behavior of other competitors is consistent with the current behavior, whether adjusting the target sales price will affect the achievement of the target value, and whether it will affect the achievement of the target value. Through follow-up, we can make full use of the role of the market mechanism and timely adjust target costs according to changes in the external environment.[42]

## B. Improve Procurement Process Cost Control

Purchasing activities are an important activity for pharmaceutical companies, improving the cost management of the purchasing process and directly increasing the company's profits. International purchasing of products, company office supplies, fuel, etc. is the main form of purchasing activity. X Medicine Public can be used as a product processing company. The purchase link is the company's logistics branch. Purchase price and purchase time together provide a comprehensive indicator of purchase price. Satisfying the purchase price beyond the purchaser's needs is a measure of purpose. To clarify procurement costs, the following aspects must be ensured:

### 1. Improve the Basic Work of Purchasing Cost Control

Work Pharmaceutical companies engage in a variety of activities. To prevent gray transactions, a stable procurement system and standardized procurement process are required. This article considers that improving a company's purchasing system mainly includes

- a. Establish a strict procurement system. Responsibilities for each procurement process must be clear and procurement efficiency must be ensured. This helps standardize the company's purchasing activities and control purchasing costs. Effectively preventing unwanted situations during the procurement process ensures that the company's

profits are not affected. The procurement system includes criteria for submitting a purchase application, proof of the buyer's identity and rights, the quoted price of the product being purchased, and the final transaction price. Setting standards for departmental rights guidelines (departmental guidelines related to the procurement department) and other procurement-related details, for example, supplier and quotation management to check for unreasonable high prices during the procurement process, accounting department to calculate purchase price, accounting department to approve, establish a comprehensive procurement system for the company, and the system is effectively implemented in all stages of procurement [ 43 ]

- b. Create a vendor file and access system. The supplier is the entity directly affected by the purchase, and the supplier's selling price determines the company's purchasing price. Therefore, a company with a good reputation on record and a good volume of cooperation on record in real time must provide various types of information about the registered company. Detailed records, all information about suppliers cannot be ignored, supplier files must be checked and updated every month and try to obtain the most up-to-date information yourself. A supplier access system is a prerequisite for ensuring supplier quality. To achieve this, all departments within the company (especially the purchasing department) must jointly evaluate suppliers, approve high-quality, low-cost suppliers, and build long-term cooperative relationships.
- c. Create a price file and price evaluation system. When creating a detailed pricing file, the focus is on the company's core products and commonly used materials, so a link to the historical pricing file is created for each purchase. You can easily determine the approximate price of your product based on current actual market dynamics. This helps companies to some extent avoid spending a lot of unnecessary money on procurement. For some major procurement products, the company must establish a price evaluation system, and the company's relevant departments will form an evaluation team to conduct evaluation, collect and comprehensively analyze supply price information, predict the current price level, and predict future prices. Predict trends and update prices. Store it at any time.
- d. Determine the standard purchase price of materials. The company provides standard purchase prices based on transfer pricing files, supplier profiles, and market dynamics established by the finance department prior to quarterly purchases. Buyers use the standard purchase price as a guide to find a better price. At the same time, build an appropriate reward and punishment mechanism to reward those whose purchase price is lower than the standard, provide appropriate incentives according to the degree of reduction, and conversely punish those whose purchase price is higher than the standard. . , consider the corresponding punishment according to the level of promotion. These clear and useful mechanisms can greatly mobilize the enthusiasm of the purchasing department and ultimately reduce the company's purchasing costs.[44]
- e. According to the principles of the systems approach, every system must first study its internal structure only and its relationship with the external environment. In order to advocate for the development of a logistics information system, the principle of consistent development must be established at the system construction stage. Information systems must be viewed functionally and organizationally. The functional structure can be expressed as a pyramid based on the functional logistics information

of the pyramid. The system is a system of transactions between logistics systems and determines the relationships between the functional departments of the company..

## 2. Reducing Purchase Costs

Purchasing criteria consider quality as the top priority and price as the top priority. The product must meet the manager's requirements and the buyer offers the best price based on perceived quality. They will try their best to get you the best price with the best quality. Purchasing staff will do their best to find a balance between price and quality, but “quality is the most important.”

- a. Change your payment method. Please change your existing account purchasing method, as it is impossible to get a large price discount this way. If the company has sufficient funds, it can be paid in a lump sum or directly in cash..
- b. Consider the timing of price changes. Prices are not fixed and change based on changes in market supply and demand, climate, time of year, and other factors. This is a test for purchasing department employees. Procurement managers must accurately understand changes in the market environment and the nature of procurement to ensure they are in the best position to obtain the most advantageous price discounts at the lowest purchase price.[45]
- c. Change the supplier selection method. Creating a fair competitive environment and selecting the most suitable suppliers through bidding not only ensures the selection of the best suppliers, but also increases the intensity of competition among suppliers. In the end, the company should be the biggest beneficiary..
- d. Purchase directly from the manufacturer. If a business can buy from a manufacturer directly from a dealer when making a purchase, it will certainly reduce the cost of the purchase by saving the middleman and keeping the profits earned by the seller. Talking directly with the manufacturer can also provide you with better communication capabilities, better technical service, and after-sales service
- e. Choose a reputable supplier and sign a long-term contract with him. Companies should look for reputable suppliers with similar brand reputations. This ensures product quality and ensures the rights and interests of consumers. For the company itself, working with a reputable vendor can eliminate many pesky links and improve service efficiency. If we can maintain a long-term and stable cooperation relationship with such suppliers, we can receive more preferential treatment..
- f. Procurement market research and information collection. Only with complete access to various procurement information in the market can a complete understanding of the market and price trends be established to establish a sound procurement strategy to make the company a price powerhouse. For this purpose, pharmaceutical companies have specially formed research personnel. Generate research reports regularly for your reference.

### C. Strengthen Transportation, Storage, Handling, Distribution Cost Control

Storage, processing and distribution costs. To optimize the results of external and internal impact assessment, it is necessary to use important information sources of subsystems to monitor the behavior of logistics managers of the logistics system in the corporate environment. Aspects to consider. First, we use information from company employees to evaluate the effectiveness of logistics solutions. For example, financial information or a competitor's finished product prices can provide a comprehensive answer to management efficiency issues. Information on product dimensions is available from the company's shipping department. Second, the company's logistics partners, including material suppliers, distributors, operators, and finished goods partners, can also use information subsystems to improve collaboration and coordination and reduce costs. Initially, it was important to collect input data to make predictions and use the most effective prediction methods..

- 1. Transportation Cost Control:** Transportation plays an important role in pharmaceutical companies because a company's procurement, sales, and other business activities cannot be separated from logistics support and security. To optimally manage transportation costs, an enterprise's logistics management department must study, consolidate and analyze some costs associated with transportation (e.g. unit price, vehicle cost, etc.). Specific transport tasks need to be analyzed in detail, choosing the optimal route, using specific vehicles, and choosing load limits. Finally, you should develop a rough weekly transportation plan. Based on mathematical analysis methods, we integrate transportation costs with transportation plans to maximize cost savings when achieving goals. Achieve optimal vehicle scheduling program, most reasonable vehicle scheduling time, maximum load and most perfect transportation route. Between production and transport, transport and consumers must always maintain age-appropriate capabilities and strive to eliminate imbalances in the production, consumption and production cycles of various transport operations. In this respect, material flows from the supply chain of producers and consumers should be included in the overall facilitation of the network with various storage systems.[46]
- 2. Storage Cost Control:** Improving warehouse cost management requires a reliable warranty system. The Logistics Management Department and the Finance Department jointly strictly control storage, warehousing, and accounting. Accurately calculate the difference between actual warehouse costs and planned costs and control all activities within planned costs. When determining target costs, increasing the level of storage mechanization and improving operational efficiency should also be achieved. Modern network systems should be used to create cash barcode identification systems and automated machine platforms, reduce the workload of warehouse workers, minimize human errors while reducing labor costs. Additionally, warehouses should be viewed as an integral part of the supply chain rather than in isolation. Only this way can successfully implement the main functions of the warehouse and ensure high profitability
- 3. Loading and Unloading Cost Control:** Costs because the characteristics of goods are different, loading and unloading equipment and methods vary. Using reasonable loading and unloading patterns will help you move your goods in an orderly manner and avoid unnecessary damage and losses to your business. For this reason,



pharmaceutical companies will take effective measures to increase the efficiency of loading and unloading transportation at the destination, effectively plan loading and unloading operations, eliminate inappropriate transportation cases, and prevent product damage. Intensive efforts will be made to move from fragmentation to intensification to improve transport efficiency.[47]

4. **Distribution Cost Control:** Distribution cost control mainly includes several aspects, such as selection of distribution location, preferred distribution method and distribution channel, reasonable labor cost of distribution personnel, and other management costs related to the product. Accordingly, the management team established a target distribution strategy, implemented each link in distribution, and improved the level of distribution management based on the analysis and research issues and fact finding of the above control contents..

#### **D. Perfecting the Control of Capital Cost**

1. **Strict Control of Payment Recovery:** Strict control over chargebacks Most pharmaceutical company funds are managed by mining companies and downstream hospitals. This portion of funds is an important part of a company's assets. If the purchase price is not refunded within the deadline, it may have a serious adverse effect on the normal operation of the company. The Treasury Department's audit department worked together to reduce the number of bad loans by comparing purchase prices one by one. At the same time, it helps improve employee performance by establishing an orderly reward and punishment mechanism that rewards employees for late loan repayment and punishes employees who take out more bad loans.[48]
2. **Strictly Controlling Product Funding:** As a distribution company “pharmaceutical company”. There is significant funding available to backlog products. The backlog of product funds increased the company's operational risks. To ensure that this portion of capital is controlled within ideal limits, sales and finance departments carry out comprehensive control in conjunction with user demand and product transportation costs, establish detailed inventory plans, minimize risks, and enforce strict rewards and penalties. We need to build a system. Ensures that these controls are implemented smoothly. .[49]

#### **E. Strengthen Human Resource Cost Control**

Costs Pharmaceutical workforce costs are primarily reflected in employee salaries and benefits, as well as the cost of training required to acquire skills. As pharmaceutical companies grow in size, the number of employees increases, and human resource costs inevitably increase to a level that cannot be ignored. In order to achieve the company's long-term development and effectively control human resource costs, the most important thing is to improve employee performance and continuously increase employee salary allowances and training costs. Instead of blindly cutting employee salaries, reduce employee training costs. The company mainly manages labor costs based on detailed wage standards and a strict employee system.

1. **Formulate Salary Standards and Distribution System:** Establish appropriate wage standards at the right time. On the one hand, internal economic inflation, prices have increased significantly compared to last year. Only by increasing wages can the needs of the past be met and the stability of employees' lives and minds be ensured. On the other hand, while taking into account the needs of employees, the company's ability to recover its costs must also be considered and salary standards should not be increased blindly. Organizational professional evaluation evaluates the company's business volume growth and the company's profit growth to obtain professional data and generate a professional evaluation report. Combining the company's current operations with previous reference data determines the salary base for each position. In the process of formulating the salary index, the company's long-term development must be taken into account, and the company's target value, profit costs and employee salary standards must be taken into account.[50]
2. **Strict Staffing:** The pharmaceutical industry is currently dominated by mid-sized companies, so the number of company managers and temporary support staff must be strictly checked. On the one hand, if the actual demand is less than the number of employees, it will have a negative impact on the company. It does not contribute to improving the level of management, does not contribute to increasing the enthusiasm of employees, and on the other hand, increases the company's wages and cost benefits beyond what the company can afford, and does not contribute in the long run. Company development. Urgent development. Accordingly, the human resources department must conduct good market research during the previous period to determine a reasonable number of managers and support personnel for the company, strictly control the hiring of new employees, and improve the company's management efficiency while controlling costs[51].

## F. Improve Cost Control Responsibility

After many years of development and growth, the current cost management accountability system was originally created in the pharmaceutical sector. Now that this system is not perfect, there is an urgent and necessary need to improve the system and overcome the problems that exist in the system. It is essential to improve the pharmaceutical industry's cost management responsibility system based on cost driver analysis and value chain analysis. Clear division of work and clear responsibilities are the basic requirements of a cost management accountability system. Obviously, certain departments are responsible for specific cost management tasks. In Figure 5-1, we can draw the following:[52]

The company's general manager is the main person responsible for cost management of the company's products and distributes cost management tasks to each department. The company's Deputy Manager is the assistant to the General Manager and helps coordinate the General Manager's cost management efforts. The Finance Department is the company's general management department. He not only manages key heads of various functional departments but also actively controls the costs of the department. The quality control department mainly controls quality costs. The main aspects of the control of the sales department are the timeliness of repaying standard revenues, compliance with the standards of planned revenues, use of surplus funds from finished products and whether selling expenses are excessive. The HR department is primarily responsible for controlling costs associated with human resources. The purchasing department is mainly responsible for

controlling purchasing costs, especially controlling the ownership of proprietary materials. the storage of the goods, which mainly includes warehouse rental fees, delivery charges, and handling costs.[53]

## G. Improving Employees Awareness of Cost Control

Raise employee awareness of cost management and significantly improve employee cost reduction planning. Cost management for pharmaceuticals is cheap, they neglect building a corporate culture, lack awareness of cost management, and believe that cost management is the job of managers. Employees do not realize that their profits are closely tied to the company's level of cost control. To this end, we must adhere to the principle of comprehensive application, strengthen the ideological awareness of all employees, eliminate indifferent attitudes toward cost control, and ensure that cost control theory receives public support. This paper suggests the following actions to increase employee awareness of cost control:[54]

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