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**COSTING**

**THEORY है जरूरी**

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**CHAPTER 12 SERVICE COSTING**



# Theory Chart

## Chp12 Service Costing

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## BASICS

### Introduction

- Service sector, being a **fastest growing** sector and having a significant **contribution** towards the **GDP** in India, is a very important sector where the role of the cost and management accounting is inevitable.
- The **competitiveness** of a service entity is very much dependent on a **robust cost and management** accounting system for **competitive pricing** and identification of value adding activities.
- Irrespective of regulatory requirements to maintain cost records and get the records audited, service costing becomes **integral and inseparable part** of each service entity
- Service costing is also known as **Operating Costing**.

### Application

- **Internal:** The service costing is required for in-house services provided by a **service cost centre** to other responsibility centres as **support services**. Example: Canteen and hospital for staff, IT department services used by other departments, research & development, quality assurance, laboratory etc.
- **External:** it is also required when **services are offered to outside customers** as a **profit centre**. Example: hospitality services provided by a hotel, provision of services by financial institutions, insurance and IT companies etc.

### Service vs Product Costing

- **Tangibility:** Unlike products, services are intangible and **cannot be stored**, hence, there is no inventory for the services.
- **Cost Units:** Use of Composite cost units for cost measurement and to **express** the volume of **outputs**.
- **Material vs Employee Cost:** Unlike a product manufacturing, **employee** (labour) cost constitutes a **major cost element** than material cost.
- **Traceability of Costs:** **Indirect costs** like administration overheads are generally have a **significant proportion** in total cost of a service as unlike manufacturing sector, service sector heavily depends on support services and traceability of costs to a service may not economically feasible.

### Service Cost Unit

- To compute the Service cost, it is necessary to understand the **unit** for which the **cost is to be computed**
- A **composite cost** unit may be deemed more appropriate (**two measurement units** are combined together to know the cost of service or operation are called composite cost units.)

### Equivalent Cost Units

- To calculate cost or pricing of **two or more different grade of services** which uses common resources, each grade of service is **assigned a weight** and converted into equivalent units.
- Converting services into equivalent units make different grade of services equivalent and **comparable**.

Service industry	Unit of cost (examples)
Transport Services	Passenger- km., (In public transportation) Quintal- km., or Tonne- km. (In goods carriage)
Electricity Supply service	Kilowatt- hour (kWh)
Hospital	Patient per day, room per day or per bed, per operation etc.
Canteen	Per item, per meal etc.
Cinema	Per ticket.
Hotels	Guest Days or Room Days
Bank or Financial Institutions	Per transaction, per services (e.g. per letter of credit, per application, per project etc.)
Educational Institutes	Per course, per student, per batch, per lecture etc.
IT & ITES	Cost per project, per module etc.
Insurance	Per policy, Per claim, Per TPA etc.

### KPI (Newly Added)

- Key Performance Indicators (KPIs) are the **quantitative and qualitative factors** which are commonly used to **assess the performance** of an organization which are important to achieve its goal.
- Calculation of Cost or Revenue per KPI helps to the performance against **industry standards**

### Cost Statement in Service

- For preparing a statement of cost or a cost sheet for service sector, costs are **usually collected and accumulated for a specified period** viz. A month, quarter or a year, etc.
- It is generally based on **variability**
  - Fixed Costs or Standing charges
  - Variable costs or Operating expenses
  - Semi-variable costs or Maintenance exp.

### Treatment of special items

Depreciation Fixed or Variable	<ul style="list-style-type: none"> <li>• If related to <b>effluxion of time</b> or calculated on <b>time basis</b>, will be treated as <b>fixed</b>.</li> <li>• However, if the depreciation is calculated on the basis of <b>activity level or usage</b>, it will be treated as <b>variable cost</b>.</li> </ul>
Interest	<ul style="list-style-type: none"> <li>• Interest and finance charges shall be presented in the cost statement as a <b>separate item of cost of sales</b>.</li> <li>• In general, interest is treated as <b>fixed</b> cost, unless otherwise given.</li> </ul>

KPI (Newly Added)		
Industry	KPI	Meaning
Transportation	Number of Shipments,	This logistics metric monitors the number of orders that are shipped out of the warehouse.
	Truck Turnaround Rate (Truck Turning),	The time from when a delivery truck enters the warehouse to collect or deliver products to when it exits the facility.
	Lead Time (Order Cycle Time)	The amount of time in between order placement by customer and receipt of order.
	On-Time and In-Full (OTIF)	The number of orders delivered according to the schedule and quantity specified.
Hotel Industry	Cost per Occupied Room (CPOR)	The average cost per occupied room.
	Occupancy Rate	The ratio of rented or used rooms to the total amount of available rooms.
	Revenue per available room (RevPAR)	The average revenue per available room days.
Hospitals/ Health care Industry	Bed Occupancy Rate	The proportion of hospital beds in use at any one time.
	Staff-To-Patient Ratio	The number of staff resources present to attend to the patients in a hospital over a certain period of time.
	Average Treatment Charge	The average amount that a facility charges a patient for a treatment.
Insurance Sector	Average Cost Per Claim	The average cost of each claim made.
	Components of Claim Costs (CCC)	Costs which are associated with a claim like legal fees, time to settle, administration costs, and report delays.
	Cost Per Quote	The costs that the company incurs in order to get a quote in front of a potential client.
	Administrative Costs Per Policy	The cost of the policy administration to number of policies outstanding.
	Average Policy Size	The total amount of premium collected by the number of policies issued for a given time period.

KPI (Newly Added)		
IT & ITES sector	Gross Burn Rate	The rate at which the company uses up its available cash to cover operating expenses.
	Customer Acquisition Cost (CAC)	The amount it takes to attract new customers.
	Customer Lifetime Value (CLV)	The typical net profit a company generates over the entire life cycle of a single customer.
	Monthly Recurring Revenue (MRR)	The amount earned each month through subscription renewals, new sales, upsells, and fluctuations on a monthly basis.
	Churn Rate	The percentage of customers that cancel their recurring subscriptions over a given time period.
	Cost Per Feature	How much a specific feature costs your business, based on usage and cloud costs.
Telecom	Average return per user (ARPU)	How much money a company is making for each person using its service.
	Subscriber acquisition cost (SAC)	Costs involved with gaining new subscribers.
	Network Operating Cost	Expenditure incurred on continual upkeep to telecom's network.
	Gross Revenue Retention (GRR)	How well a company is retaining its customers based on factors such as sales price increases, organic customer growth, and more.
Education Sector	Instructional Costs	The cost of part-time and full-time faculty members
	Administrative Costs Per Student.	How much an institution is spending on administrative services on a per-student basis.
	Tuition Costs	Costs accrued by students on a semester or annual basis.
	Student-to-Faculty Ratio	The number of students per faculty member, on a campus-wide basis or by department.

## APPLICATIONS OF COSTING METHODS IN SERVICE COSTING

### Costing techniques vis-à-vis Service Sector

- In general, the service sectors are **either labour or capital intensive** or both, that is the reason the proportion of costs of cost elements differs from manufacturing sectors.
- A manufacturing sector may have higher material cost than the labour, but in case of service sector the situation reverses.
- The system and techniques for cost **collection, accumulation and valuation is similar** as that has been learnt in previous chapters for each cost elements. The overhead allocation, apportionment and absorption techniques are also very similar.

### Method of costing vis-à-vis Service sector

- The choice of method of costing **depends on nature of service provided**. For example, Job costing method may be suitable for a business which is engaged in development of customized software, healthcare etc.
- **Process costing** may be suitable for utility business like **power**, water supplies etc.,
- **Joint products costing** may be suitable for businesses which are providing **bundled service** like **telecom**, event management, educational institutes etc.

## COSTING OF TRANSPORT SERVICES

### Introduction

- Transport organizations can be divided into two categories viz. **Goods** transport and **Passenger** transport.
- The **cost unit** for Goods transport organization is **Ton-Kilometer** – that means cost of carrying one Ton of goods over a distance of one kilometer.
- Cost unit for Passenger transport organization is **Passenger-Kilometer** – that means cost of carrying one Passenger over a distance of one kilometer.

### Types of Costs

- **Standing Charges or Fixed Costs:** These are the fixed costs that remain **constant irrespective** of the **distance** travelled. Example: Insurance, License Fees, Salary to Driver, Conductor, Cleaners, etc. if paid on monthly basis, Garage Costs, Garage Rent, Depreciation if based on time, Taxes, Administration Expenses
- **Variable costs or Running costs:** These costs are generally **associated** with the **distance travelled**. Example: Petrol and Diesel, Lubricant oils, Wages to Driver, Conductor, Cleaners, etc. if it is related to operations, Depreciation (if related to activity), Any other variable costs identified.
- **Semi-Variable Costs:** Example: Repairs and maintenance, Tyres, Spares etc.

### Types of Ton KM

- **Weighted Average or Absolute basis:** This is the sum total of Tonne-Kms arrived by **multiplying various distances by respective load quantities** carried in each trip.  
$$\sum(\text{Distance} \times \text{Respective Load Quantity})$$
- **Simple Average or Commercial basis:** It is derived by multiplying total distance of all trips by simple average of load quantity.  
Average Load in tons  $\times$  Total Distance covered

## COSTING OF HOTELS AND LODGES

- Service costing is an **effective tool** in respect of hotel industry. Hotels runs for **Profits**. Hence it is necessary to compute the **cost - to fix the price** of various services provided by the hotel and to find out the **profit or loss** at the end of a particular period.
- In this case, the costs associated with different services offered should be identified and cost per unit should be worked out.
- For calculation of cost per Guest day or Room day, estimated **occupancy** rate – at different point of time, for example – Peak season or Off season, are taken into account.
- There is no requirement of format – Standing, running etc.
- **Cost Unit:** Guest-day or Room day.

## COSTING OF HOSPITALS

### Introduction

A Hospital is providing various types of **medical services** to the patients. Hospital costing is applied to decide the cost of these services.

### Cost Unit

Common unit of costs of various departments are: Out Patient – **Per Out-patient**, In Patient – **Per Room Day**, Scanning – **Per Case**, Laundry – **Per 100 items laundered**

### Types of Costs

The cost of hospital can be divided in to **fixed costs and variable costs**.

- Fixed costs are based on **timelines and irrespective of services** provided. For example, Staff salaries, Depreciation on Building and Equipment, etc.
- Variable costs **vary with the level of services rendered**. For example, Laundry charges, Cost of food supplied to patients, Power, etc.

## COSTING OF TOLL ROADS

### Introduction

- The Construction of roads brings about a variety of **benefits** that are enjoyed practically by **all sectors** of the economy.
- **Highway economic analysis** is a technique whereby the **cost and benefit** from a scheme are quantified over a selected time horizon and **evaluated** by a common yardstick.

### Capital Costs

- The total **expenditure** to be incurred **during the construction period** is termed as capital cost.
- It includes the cost of construction of **road and other structures** and **consultancy** charges and construction of **tollbooths**.
- Construction expenses can be broadly classified as: Preliminary and Pre-Operative Expenses, Land Acquisition, Materials, Labour, Overheads during actual construction period, Contingency allowance, Interest during construction period.

### Operating and Maintenance Costs

- **Routine maintenance** cost would be incurred once the Toll road is **operational**.
- Routine maintenance involves Patching of **potholes**, sealing of **cracks**, Edge **Repair**, Surface Renewal etc.
- Annual operating cost includes the cost of operating **tollbooths**, **administrative** expenses, **emergency services**, communications and security services and other costs of operation.

### BOT Approach

- In recent years a growing trend emerged among Governments in many countries to solicit **investments for public projects from the private sector** under BOT scheme. BOT is an option for the Government to **outsource** public projects to the private sector.
- With BOT, the **private sector designs, finances, constructs and operate** the facility and eventually, after specified **concession period**, the **ownership** is transferred to the Government. Therefore, BOT can be seen as a developing technique for infrastructure projects by making them amenable to private sector participation.
- The fundamental principle in determining user levy is, 'if the price for a transport facility is set at a level that reflects the benefit, each user gains from improvements in the facility, it will result in traffic flow levels that equate social costs with user benefits.'

## COSTING OF IT/ ITES

### Introduction

- Information Technology (IT) and Information Technology Enabled Services (ITES) organizations **provide** their customers with **services or intangible products**. These organizations are highly **labour intensive**.
- The services of IT and ITES organizations may be used for – provision of services to **outside customers** or provision of services **internally** (captive consumption)
- In this sector employee (labour) cost constitutes a significant portion of the total operating costs. In addition to employee cost, significant overhead costs for offering the services are incurred and are classified as service overhead.

### Concept of Project

- In general – IT & ITES industries, the **jobs** undertaken are considered as Project.
- Each project is **unique** in **nature** and varies in **size**, functionality **requirements**, **duration**, and **staffing** requirements.
- When a project is taken up, a detailed planning is done – by breaking down the project into number of **activities** and their dependencies. Based on the above, project **scheduling** are developed.
- Then the **skill level requirement** for carrying out each of the activities is identified and the duration of each and every activity would be ascertained. This process is known as **effort estimation**.
- Once the skill level and duration is identified, then required man-power is identified for carrying out the activities.

### Types of Cost in IT/ ITES

- **Direct Manpower:** Depending on the nature and complexities of the projects being implemented, the **number of persons engaged**, **their levels and duration** of the engagement varies. Usual roles are Software Engineers / Functional Consultants / Business Analysts, Project Leaders, Project Manager, Program Manager, etc.
- **Support Manpower:** In addition to the above persons, who are directly engaged in project, there could be **support persons or indirect manpower**, who are **indirectly involved** in the project. Examples: Quality Assurance Team, Testing Team, Version Control team, Staffing Manager, etc who are indirectly support the projects by providing required level of support services over the life of the projects.
- **Other Costs:** Hardware, Software, Travel, Training, etc.

## COSTING OF EDUCATIONAL INSTITUTIONS

### Introduction

- Educational institutions like schools, colleges, and technical institutes for education and training, are run to impart education and training to students.
- The objective of running these institutions may be '**Not-for profit**' or '**For profit**'.
- Like other business entities, cost and management accounting is also **inevitable** for this sector.
- The Government, Local body of any other organisation which provides education and training to students with an objective to benefit and upliftment of the society, are also **need** cost and management accounting system for **cost-social benefit analysis**, allocation of funds and **budgeting** (zero-based budgeting), performance measurement and evaluation etc.

### Incomes

- **One-time fees:** These are the fees which are **collected once** in a course period or for a definite period like Admission fee, Development fee, Annual fee etc.
- **Recurring fees:** Tuition fee, laboratory, computer and internet fee, library fee, training fee, amenities fee, sports fee, extracurricular activities fee etc.
- **Other incomes:** The indirect income like **transport, hostel, mess and canteen** for the students and staff are provided by the educational institutions normally on no profit no loss basis.

### Expenditure

- **Operational Cost:** salaries – teaching/ non-teaching, lab maintenance, computer maintenance, internet, building maintenance, repairs and maintenance of equipments/ furniture, admin expenses, finance charges etc.
- **Cost Centre Structure:**
  - Primary or **Direct** cost centres (like **Civil Engineering** department, **Mechanical Engineering** department, etc.)
  - **Service** cost centres (like **Laboratory**, Library, Sports, etc.)
  - Student's **Self-Supporting** Services (like Transport, Hostel & Mess, etc.)
  - **Administration** Cost centres (like Research & Improvement, Examination)

### Expenditure

- **Research and Development Cost:** it is collected through cost centre approach and set off is done against revenue from research projects, any balance left out will be distributed to course cost centres with the heading named "research costs"
- **Cost of Publication of research and other materials:** there will be a separate department for conducting research publication related exercise.

## COSTING OF POWER HOUSES

### Introduction

- Power houses are engaged either in **electricity generation or steam generation** use the concepts of service costing i.e. 'Power House Costing.'
- Service cost statement can be prepared by identifying the costs associated with the power generation or steam generation.
- The cost unit for electricity generation organization is **cost per kilowatt-hour (kWh)** – that means cost of generating one kilowatt of power per hour

### Types of Costs

- **Standing Charges/ Fixed Costs:** Rent, Rates & Taxes, Insurance, Depreciation, Salaries, Administration Expenses etc.
- **Variable Costs:** Fuel Charges, Water Charges, Wages, etc.
- **Semi-variable Costs:** Meters, Furnaces, Service Materials, etc.

## COSTING OF INSURANCE COMPANIES

### Introduction

- Insurance or assurance industry operates in providing **social security** to the persons who **subscribe** for the policy.
- The Insurance companies are broadly **classified** as **Life** insurer and **Non-Life** Insurer (General Insurance providers).
- Life insurers provide insurance to the policy holders' **life for the insured value**.
- The Non-life insurers are providing insurance to the policyholder for **actual loss up to insured value** for the policy.
- The insurance companies are in need to analyse its various insurance product for **profitability**.

### Products offered by Insurance Companies

- **Life Insurance policies** - with or without maturity benefits
- **General insurance** - Health, Fire, Property, Travel Insurance etc.
- **Other services** - Re-insurance, Fund management- Pension, Gratuity and other etc.

### Sources of Income

- **Premium** on policy (periodic or onetime)
- **Commission** on re-insurance
- **Fund administration fee** and return on investment of funds etc.

### Expenditure of Insurance Companies

- **Direct Costs:** **Commission** paid to agents, claim **settlement**, cost of **valuation**, **premium** for re-insurance, **legal** and other costs etc.
- **Indirect Costs:** **Actuarial** fees, market and **product development** costs, administration cost, **asset management** cost etc.

### Cost Object

The cost object in an insurance company may be a product, a policy, a department or region, an agent etc.

### Costing using ABC

Activity based costing (ABC) is used for analysis of cost-benefit of a product (Direct Product Profitability), policy profitability (Customer Profitability Analysis) etc.

### Identification of Activities

- **Pre-Product development activities:** These are the activities which are carried out before a product is made. It includes market research, product development like specification of coverage, conditions, amount of premium, insurance contract, policy forms and provision for sales channel etc.
- **Post-Product development activities:** This activity is further divided into parts i.e. (a) Selling of policy and (b) Processing of claims. (a) Selling of policy refers to appointment of distribution of sales channel (direct selling or through agencies), soliciting for policy, processing of applications etc. (b) Processing of claim includes claim inception, claim estimation, claim settlement, legal actions.

## COSTING IN FINANCIAL INSTITUTIONS

### Introduction

In the past two decades financial institutions have undergone **major changes** – in terms of increased **regulations**, **competition** from new entrants from both locally and globally, **innovation** of new products and services, **technological** advancement and increased **expectations** of new generation customers, etc.

### Cost

- **Manpower cost**, other than interest cost and finance charges, is one of the **largest** single cost components in financial institutions. Hence, it is needless to say, that financial institutions are more interested in understanding and discovering the ways to more accurately **allocate** such costs to various product ranges offered by them and its customers.
- Concept of **ABC** applies in FI also.

### Cost Measurement in FIs

- Objectives of Cost Measurement
  - Understand the **profitability** by **products** offered and by customers
  - Establishing a mechanism for **pricing** the products, by identifying the **product level and activity level** unit costs
  - Understanding **productivity issues** and their relationship with strategic goals of the organization

### Activity Based Costing in Financial Institutions

- Activity based costing can help financial institutions to –
  - Identify and analyze the profitability **by product**
  - Analyze the profitability **by customer**
  - Identify the activity level unit costs and build up product level costs, which in turn forms basis for product level pricing / customer level pricing