

Activity Based Costing as a Measure to Improve Cost Structure at JCI-ETCL, Pune

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Automobile electronics at a boom increases the need to implement various cost reduction measures. Activity Based Costing helps identify cost drivers and measures performance of activities. The purpose of the research was to understand the cost structure of Johnson Controls India Pvt. Ltd. and to analyze and gain insights of its implementation. The researcher identifies various costs of business activities as-

- Manpower Costs
- Information Technology Costs
- Travel Costs

The researcher during the time of 2 months observed that these costs can be controlled by some effective management activities in the company.

1. Introduction

1.1 Concept of Activity Based Costing

The project is all about “Activity Based Costing” (ABC). It is an accounting technique that allows an organization to determine the actual cost associated with each product and service produced by the organization without regard to the organizational structure. ABC systems recognize that many organizational resources are required not for physical production of units of product but to provide a broad array of support activities that enable a variety of products and services to be produced for a diverse group of customers.

An organization performs activities to do its business. These activities define the kind of business you are in: a ship owner has an activity to unpack boats; an accounting firm prepares tax returns; a manufacturer produces products; a council delivers services; a university teaches students. All activities consume resources. It is the consumption of these resources that adds to overhead costs. The activities consume resources and the cost of these can be calculated. The amount of activity required for each product and service is determined, hence the real cost can be determined. Activity Based Costing (ABC) emerged to meet the need for accurate information about the cost of resource demands by individual products, services and customers and these systems also enable indirect and support expenses to be driven first to activities and processes and then to products or services. In this way, managers have obtained a clearer picture of the economics of their operations. Moreover ABC have aimed at helping business decisions and taking control more sophisticated way and has proved to be a flexible and up-to-date decision support system that could handle the problem of increasing overhead and simultaneously provide strategic information.

The growing automotive industry and continuous technological developments have transformed the driving experience completely. Cars in today’s world are equipped with unprecedented numbers and types of advanced gadgets. Be it the GPS systems or entertainment systems, everything is going digital and driving the global market for automotive electronic devices. Rise in disposable income, development of infrastructure, and growing urbanization is influencing the demand shift towards vehicles with advanced features and improved safety.

The researcher has selected this method to improve the cost structure of the company. This method is different from the traditional costing as most of the traditional costing utilizes a single basis. The reason for selecting this topic for the project is to help Johnson Controls India Pvt. Ltd ETCL-Pune, study their cost structure and implement the method of Activity Based Costing. JCIPL-ETCI Pune is a software testing unit for automobile electronics company. Automobile electronics is on a growth and with many companies targeting the Asian countries to outsource some of their activities to these countries to get their costs down and raise their profit margins. Rise in profits being the main objective of the company needs to focus not only on the revenue generation but also on costs that it is incurring. In this scenario, it becomes important for a unit to have a control over its costs. There are various activities in the organization, all this contribute to incur some cost to the organization. With increasing technological development customers now require innovative products in the market. The customers of JCIPL-ETCI-Pune are its subsidiary companies that are- JCI Japan, JCI Bulgaria, JCI USA, JCI Brazil, JCI France, JCI Germany and few more.

1.2 Scope of the Project

The scope of the study was limited to JCIPL-ETCI-Pune. ABC identifies the cost of each activities of the company and help measure the change in costs so that it becomes easy for the company to figure out its efficiency and control. There are many activities of JCIPL-ETCI-Pune but the study has been limited to five major costs that are as follows:

- Manpower Costs
- Information Technology Costs
- Travel Costs

This paper details the implementation of Activity Based Costing in Johnson Controls India private limited, analyze the various cost drivers and take active measures to control its costs. The contribution of this project will help company to

identify various heads as in a part of activities. This project will help company in future to implement a new method of costing and have total control over its activities.

1.3 Automobile Electronics in India

In the current economic scenario, it seems more so as demand in emerging markets like India will continue to grow. Passenger car production in India is projected to cross three million units in 2014. Today, the Indian automotive industry is riding the next wave of growth, evolving into a hub for compact car production and automotive R&D. Global OEMs have in the recent years shifted their automotive design centers to India to leverage the country's IT expertise in design, development and simulation. India is seen as a base for prototyping, testing, validation and production. This suggests great potential for the automotive electronics market.

1.4 Growth of Automotive Electronics Industry in Asia Pacific

The automotive industry in Asia Pacific grew out of the offshore transfer of multinational manufacturers shifting production to Asia for cost and local content reasons. These are often in form of joint-ventures in order to gain market access. Such ventures focused on manufacturing products developed in the central design centers in Europe and US, often consigning parts purchased centrally. Of course, an increasingly competent component industry has established itself in Asia Pacific to support the growing needs of the automotive electronics industry.

The growth of the automotive electronics industry takes place at three levels:

- a) Adoption of automotive electronics
- b) Rapidly growing car markets
- c) Consumer behavior and wants

1.5 Company Overview

Johnson Controls India Pvt. Ltd. is a 100% subsidiary company of Johnson Controls (Mauritius) Pvt. Ltd. established in 1995 and has present registered office at Mumbai, since 1997. Johnson Controls India Pvt. Ltd. has set up a STP unit in association with parent Company at Pimpri, Pune, an Engineering Design Center to design Electronics products such as Driver Interaction products, Information Displays, Instrument Clusters, Home link Compass, Blue Connect/hands free, head Medium Displays, Clock, Hybrid Battery Management, Intelligent Power Distribution Module, Access Control System, Park Distance Indicator, Display solution for RSE, Mobile Device Gateway. This would replace the outsourcing activities through IT companies globally and will be providing the support to our global entities from STP unit at Pimpri, Pune, India to be a part of the India in the Export of Software Services.

2. Theoretical Background

Activity based costing has been claimed as a method of arriving at more accurate costs, often in order to set selling prices. In a market economy, the idea of selling prices based on costs is dangerous, with serious consequences for a business competitive stance. Activity Based Costing (ABC) is an accounting technique that allows an organization to determine the actual cost associated with each product and service produced by the organization without regard to the organizational structure. With the variety of conventions and concepts used in cost determination, there are no absolutes in determining product costs hence the objective of accurate costs is diluted. However, the technique of ABC is being seen more as a cost-distortion alarm; more as an attention directing tool; more as a cost management tool. Activity Based Costing is a methodology for understanding the activities, processes, services and products of a business; understanding what drives the cost of these activities and processes; and thus reducing the non-value-adding activities/processes.

The activity is the work that is done. The resource is what the activity uses to do the work e.g. people, equipment, and services. Resources cost money. The cost of the activity depends on the quantity of resources used to accomplish the activity. The cost driver for an activity is the factor that influences the amount of the resources that will be consumed by this activity. Example: the activity is delivering goods. The costs of this activity include the truck drivers' wages, fuel, depreciation of the truck, insurance, etc. The quantities of the resources that will be consumed by this activity are influenced by the number of deliveries made per year. Hence the cost driver could be the number of deliveries. A cost driver is designed to allocate the delivery activity cost pool to the cost objects. The activity driver measures how much of the activity is used by the cost object. Example: Product A is delivered once a month, whereas product B is delivered once a week. Products A and B require a different number of deliveries, hence the cost of the delivery activity should be assigned to each product on the basis of the number of deliveries each uses. The cost object is whatever it is you wish to cost. It could be a product, service, process, job or customer. While traditional costing arbitrarily allocates overhead costs, ABC traces overhead costs by looking at the activities that each product and service calls upon. With ABC the products consume the activities. It is the activities that cost money.

Traditional financial reporting does not reveal the separate profits and losses of products and customers for three reasons-

1. It examines and reports department level expenses but not the work-efforts within a department that matter.
2. The Indirect product and non-base service costs are usually allocated but not traced to products or base services.
3. Customer related activity costs are isolated and directly charged to the specific customer segments causing these costs.

2.1 Why Activity Based Costing over Traditional Cost Accounting?

Most traditional costing systems utilize a single basis, (e.g. direct labor) to distribute the indirect costs to all products and services. This method of allocating indirect costs commonly results in erroneous cost data. Often products which have high volume (and high labor cost) are over cost. Likewise, the cost of lower volume products are often understated, and many of the indirect costs of these products are overlooked. Rather than relying on a single basis to distribute costs, ABC assigns costs to activities and products based on how the costs are actually consumed by the process or product. By moving away from traditional cost allocation methods and using improved ABC methods of tracing and assignment, ABC provides managers with a clearer picture of cost of processes and the profitability of customers and products.

3. Implementation of Activity Based Costing

The cost structure of Johnson Controls India Pvt. Ltd. (JCIPL-ETCI-PUNE) consists of various activities. These activities are further divided into various types of costs. JCIPL-ETCI-PUNE is a software development company providing software testing and IT enabled services to its customers. Out of various costs a company incurs the researcher has identified 3 activities classified as follows:

- Manpower Costs
- Information Technology Costs
- Travel Costs

The data taken for analysis was limited to a time period of 6months, from Dec-2013 to May-2014. JCIPL-ETCI-PUNE is now acquired by another company named as Visteon Technical Service Centre India Pvt. Ltd (VTSC). This acquisition took place in the month of July. 30th June 2014, was the last day for the existence of JCIPL-ETCI-PUNE electronics business and all the bank accounts and legal rights were been taken off from its employees on that day. JCIPL-ETCI-PUNE electronics business was no more in existence. But since it's a software development and IT enabled company which takes project which are usually long-term. JCIPL-ETCI-PUNE and VTSC has agreed to continue the pending projects on the name of JCIPL-ETCI-PUNE only, but all the liabilities and the cost from Day1 of acquisition will be a part of Visteon Technical Service Centre India Pvt. Ltd.

3.1 Direct Manpower Costs

Two companies can have similar machinery, similar capital, similar process, and all other resources as same, but cannot have same human resources. So this makes manpower the most important resource for every organization. Direct manpower consists of cost of all the employees both permanent and contract employees in the organization, it also includes the recruitment costs for new employees.

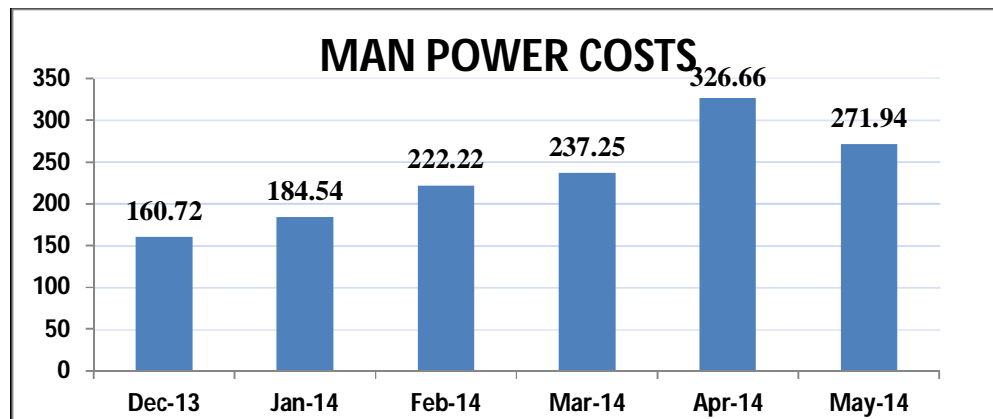


Figure 3(a)

Table 3(1)

MANPOWER COST (in Rs)						
Month	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14
Particulars	INR	INR	INR	INR	INR	INR
Direct Manpower	15288271	18159743	17900660	19070136	26589364	20538839
Sub contracting cost	0	0	3881722	4238208	5455762	6143259
Recruitment Cost	784250.4	295142.1	440472.5	417400.6	621683	512131.2
Total	16072521	18454886	22222854	23725744	32666809	27194229
In Lakhs	160.7252	184.5489	222.2285	237.2574	326.6681	271.9423

Interpretation

As seen in the figure-3 (a) the man power cost of JCIPL-ETCI-PUNE is increasing from Dec-13 to April-14, this is because from Dec-13 there was a need of employees and so the company was in a process of hiring new employees from Dec13-May-14, which has added a new cost named as recruitment cost of the company. Since all this recruitment was taking place, it has resulted in an increase the number of employees and their cost as well. Another major aspect was Sub contract cost it was the cost of hiring all the intern and management trainees during this time and some employees who were working on a contract basis for the company.

Note-The method of Activity based costing suggests that Travel and accommodation should be included in the Manpower Cost rather than in facility cost as it is an indirect cost and is ultimately the cost the company is incurring on manpower.

Table 3(2)

MANPOWER COST (Percentage Change)					
Month	%change	%change	%change	%change	%change
Particulars	Dec-Jan	Jan-Feb	Feb-Mar	Mar-Apr	Apr-May
Direct Manpower	19	(1)	7	39	(23)
Sub contracting cost	-	-	9	29	13
Recruitment Cost	(62)	49	(5)	49	(18)
Total	15	20	7	38	(17)

5months % Change 69.19704

From the table-3(2) it is clear that Total Manpower cost is increasing from Dec13-May14 at a rate of 69.19%. Direct Manpower has increased till April14 but it decreased in May14 due to some employees leaving the job. Sub Contract cost was only for a limited time from Feb14-May14, due to hiring interns and it also keeps on increasing at a nominal rate. Recruitment cost was high in Dec13 but then it kept on moving up and down in the respective months. Recruitment cost involves all the cost related to travel of HR managers for interviews, accommodation and other facilities at the place of interview. All the travels done by the employees for recruitment drives are been recorded under the head Recruitment cost. An overall increase in the cost by 69% is big worry for the company as it has definitely affected the profit for the company during that time period but this cost has been done to increase the productivity in the operations and for successful transition to the new company.

3.2 Information Technology Cost

This is the cost for all the IT solutions and facilities provided in the organization. A company's IT department plans, operates, and supports an organization's IT infrastructure, enabling business users to carry out their roles efficiently, productively and securely. In any company's IT department the major requirements would be network, infrastructure, data, security, support and many more. The IT cost of JCIPL-ETCI-PUNE is categorized in many different types as follows:

Table 3(3)

IT COST						
Month	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14
Particulars	INR	INR	INR	INR	INR	INR
IT Server room Computer room & equipment	20,000	25,000	25,000	25,000	25,000	25,000
Phone system	3,500	4,927	5,370	3,067	6,750	4,370
BackUp Library / Software / Tapes	15,000	15,000	15,000	15,000	10,000	10,000
Eng Tools Cost - Global Allocation	1,922,000	1,922,000	1,922,000	1,922,000	1,922,000	1,922,000
Server Rentals	32,000	32,000	32,000	32,000	45,000	45,000
Desktop/Laptops	645,864	780,268	925,397	601,258	1,058,612	885,026
Printers/MFD	15,000	15,000	15,000	15,000	25,000	25,000
Video Conference	37,200	56,000	58,500	42,500	40,000	40,000
AMC - Local Network/Switches/UPS/AC-PAC	77,500	77,500	77,500	77,500	77,500	77,500
AMC - Access Controls/Electric Main.-Fire Extinguisher	20,000	20,000	20,000	20,000	20,000	20,000
Engineering Tool Purchase	200,000	200,000	200,000	200,000	200,000	200,000
Total	2,988,064	3,147,695	3,295,767	2,953,325	3,429,862	3,253,896
In Lakhs	29.88064	31.47695	32.95767	29.53325	34.29862	32.538959

Interpretation

The **Table-3 (3)** above shows the infrastructure cost which is a small part of total IT cost and during the time period Dec-Feb it increased on a constant rate per month that is 5%. If we analyze the above table one can observe that there are some costs like IT server rooms, backup library and software tapes, printers lease rentals, server rentals, all costs related to AMC and tool purchase are almost the same or there is a very little change during these 6months. This is because of the fact that these are paid as rentals by the company and these have been a part of a long term agreement so they rarely tend to change. There are some variable costs as well that are phone system and desktop/laptops, they change according to the need in the organization. For example- the major change in cost of laptops/desktops took place during the time Mar14-Apr14 by 76%, this was because there were new recruitments and company has a policy to provide a laptop/desktop for company’s operations.

NOTE- Activity Based Costing in this cost suggests that Video Conferencing, IT server room costs, fire extinguishers etc are indirect costs for the company. Every employee would not use this facility and neither each service provided is driven by this cost so it is inappropriate to put this cost to other activity and find a vague cost structure.

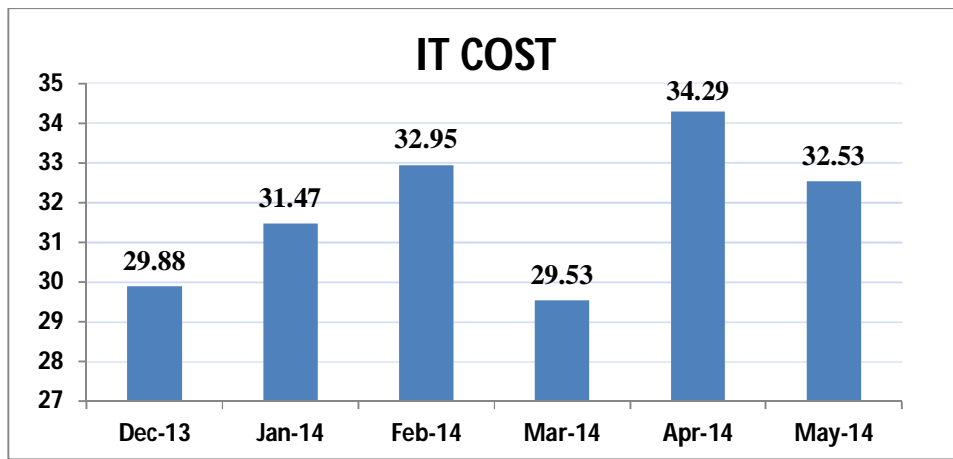


Figure 3(b)

Table 3(4)

IT COST					
Month	%change	%change	%change	%change	%change
Particulars	Dec-Jan	Jan-Feb	Feb-Mar	Mar-Apr	Apr-May
Total IT Costs	5.34	4.70	(10.39)	16.14	(5.13)

5months % Chnge 15%

The **Table 3 (4)** shows the Total IT cost in percentage (change) for the time period Dec13-May14. In the table above only during the time period Mar14-Apr14, the cost has increased by 12% due to more use of laptops/desktop. The company bought these laptops for a lease agreement. Also if we compare to the percentage increase in cost from Dec13-May14 (6month) it is close to 9%.But this much increase in cost can be accepted keeping in mind the fact that the company is increasing its business and so it requires some more investment for its efficiency.

3.3 Travel Cost

This is the cost of the travel by the employees for some business purpose. For software development unit which is as IT enabled company and having its clients outside India travel becomes a must for providing value in your delivery of service. A business unit is said to some part of a big organization and JCIPL-ETCI-PUNE Pune is a small part of JCIPL-ETCI-PUNE, and so it becomes important for one to travel to have proper synergy of activities in the organization. The travel cost includes the following expenses:

- Domestic and international Air charges
- Domestic and international road conveyance
- Visa Processing Fees for international travelers
- Insurance facility to all the travelers
- Employee meals and other facility charges during the time of travel
- Luggage charges and agent charges for booking of tickets.

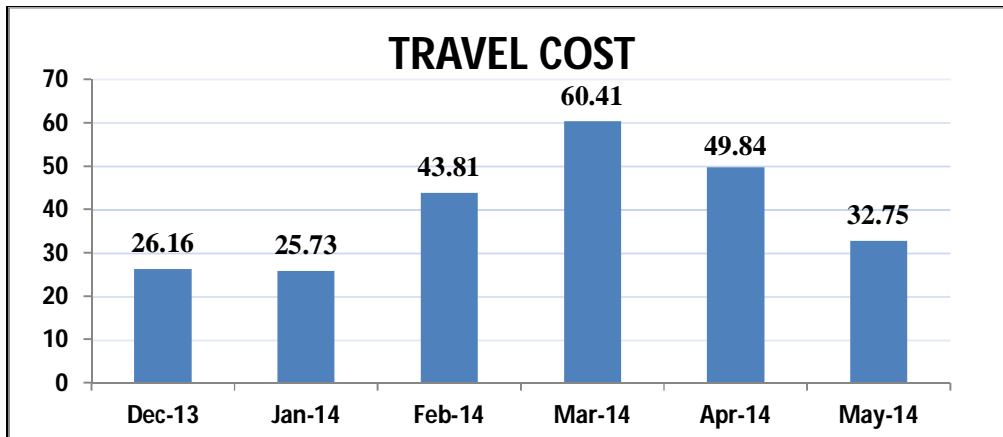


Figure 3(c)

Table 3(5)

TRAVEL COSTS						
Month	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14
Particulars	INR	INR	INR	INR	INR	INR
Total Costs	2616211	2573123	4381260	6041700	4984506	3275883
In Lakhs	26.16211	25.73123	43.8126	60.417	49.84506	32.75883

Interpretation

JCIPL-ETCI-PUNE has its customers in France, Germany, USA, Japan, China, Bulgaria, Brazil, Russia and many more. JCIPL-ETCI-PUNE is a software testing unit and all these customers are JCI subsidiary companies, which outsource their software testing process to JCIPL-ETCI-PUNE Pune, because of low cost and efficient labor facilities in India. There are many employees in the organization who are on-site employees, out of which some are for a long period of time and with some based on completion of project. These employees frequently need to visit certain places for some business operations and company has to pay the cost of their conveyance. For any IT enabled service company travel cost is an important and unavoidable cost to incur.

NOTE- This cost of travelling is for all the employees who are part of the company. Now considering this cost as incurred by all the employees as a whole it becomes difficult for the management to sort out where they can take active measures to reduce or control this cost. Activity Based Costing suggests that all the travel cost should be a part of manpower cost and been allocated to people itself or to be put it department wise so that it becomes easy for a company to identify the loop holes and thus increase its profitability.

The **Table-3 (5)** shows the travel cost of JCIPL-ETCI-PUNE from the period Dec13-May14. Looking at the table it seems that during Dec13-Jan14 the cost decreased month on month, but there was a sudden increase during Jan14-Mar14 and then again during Mar14-May14 it came down.

Table 3(6)

TRAVEL COSTS					
Month	%change	%change	%change	%change	%change
Particulars	Dec-Jan	Jan-Feb	Feb-Mar	Mar-Apr	Apr-May
Total Costs	(2)	70	38	(17)	(34)

5months %Change 25.21478

The **Table-3 (6)** shows the percentage change in travel cost of JCIPL-ETCI-PUNE from the period Dec13-May14. During Dec13-Jan14 it decreased by 2%, but during the month of Jan14-Feb14 it went up by 70% which is huge increase in cost. This was because in Jan14, Visteon Technical Service Center signed a deal to buy Johnson Controls electronics business and for which many employees travelled for decision making and transition process for this acquisition to be completed in the 3rd quarter of 2014. This was a very crucial period for both the companies. JCIPL-ETCI-PUNE created a new account of all its travel expenses for this acquisition purpose under the head named as 'Project Nina'. This increase in cost continued even for next month but the percentage change was close to 38%. After this from Mar14-May14, these expenses were reduced by the company to some extent.

4. Conclusion

Activity based costing utilizes the activity concept and by using activities, it can successfully link companies costs to its various activities. This method is a dynamic tool for continuous improvement. With ABC to its benefits, any organization can built in competitive cost advantage and can continuously add value to its customers and stakeholders. Looking at the increasing inflation rate due to macro-economic factors it could be considered that cost can increase to extent of 10%, which can be set as a standard to measure increase or decrease in cost. The conclusions drawn from the analysis are as follows:

- Out of the 3 activities analyzed only Information Technology cost is one which is below the standard rate of 10%.
- Travel costs have increased by 25% which is not a good sign for a company. Travel is one of the most important activities for such organizations but a good control in place can help the organization cut its cost.
- There has been a major increase in manpower cost by 69% that clearly shows that there has been some increase in number of employees, but still a 69% increase is a big margin of cost to incur and yet to be utilized and severe control is required for such cost to improve profitability.
- Here the role of Activity Based Costing comes in helps company to identify cost through its actual cost drivers and thus facilitates in reducing cost.
- So as a whole all this suggests that there is a strong need to control some of these costs, as it is directly affecting the profitability of the company.

5. Limitation of the Study

The limitations of the of the study are as follows-

- a) The study is limited to JCI Pvt. Ltd.
- b) In order to maintain confidentiality some information was not disclosed by Johnson Controls.
- c) The sample size out of various activities is just 5activities.
- d) The sample selected was also on the basis of convenience to the researcher.

6. References

1. Websites

- www.jci.in
- <http://www.freepatentsonline.com/article/International-Journal-Business-Strategy/237533592.html>
- Internal data provided by JCIPL

2. Books Referred

- Cost Accounting by M.Y. Khan
- Cost Accounting ICAI