

## The Comparison of Product Cost in Pars khazar Company by Traditional and ABC Methods

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### ABSTRACT

Nowadays in order to survive, all manufactories or service providers are controlling the cost of goods or services and are taking further steps in accounting for risk assessment and pricing, increase in marginal profit and internal auditing. It is almost impossible to use traditional methods to decrease or control the cost of goods/services. The managers would not be satisfied with these methods in cost controlling due to the usage of only few cost drivers especially in evaluation of overhead Costs. But in calculating products cost, by means of activity based costing (ABC), satisfaction might be achieved. In this research we will study the product portfolio in Pars Khazar company. The samples are 30 different products of electric fans and rice cookers which were the best-selling products in the last five years. Therefore conversion cost of each product in the last five years will be compared in both traditional and ABC methods. The results from this research show that product conversion costs with simple technology and high production rate are quite different in the two methods mentioned earlier. The costing showed that due to cost drivers and higher weights of some products, the cost of Goods was much higher.

**Keywords:** Activity Based Costing, Traditional Method, Conversion Costs, Cost Driver.

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### 1. INTRODUCTION

One of the main objectives of economical enterprises is the ability to survive among the competitors in today's unstable market where they should at least gain privilege for a short period. There are many methods such as price leading and product variation which leads them to this opportunity. In simple words price leading is meant to keep the prices of goods and services lower than the prices of goods sold by competitors [9]. On the other hand the cost of goods management helps the enterprises to use their own resources for the supply of valuable goods and services for consumers. Nowadays the battle for survival in the global cost accounting management has become a necessity. Cost accounting management for enterprises gains more importance than evaluations and reports of costs and in fact deals with philosophy [14].

The rapid progress in information technology besides day to day increase of competition in the global market has made it inevitable for the managers to produce goods and services with best qualities and low prices at the same time [19]. Expenditure management is a type of system which is used in order to control and plan for the following objectives:

- ✓ To evaluate the cost of resources used in main activities of an enterprise.
- ✓ To recognize and eliminate goods which do not have value added costs. These goods are related to the activities which could be deleted without causing any loss to revenue, cost and quality of other products.
- ✓ To determine the efficiency and the influence of activities in an enterprise.
- ✓ To determine and evaluate new activities which can improve the welfare of an enterprise [17].

The researches held by Foster in U.S proved that the traditional methods do not lead the authorities to a precise and appropriate decision. According to evaluations made by authorities in enterprises 45 % believed that the traditional method did not provide reliable data for cost accounting and 51% believed that the information wasn't complete in order to make further decisions [18].

Systems that insist on marginal sales concepts and elimination of goods or consumption are needed as accounting measure of responsibilities techniques which show controllable and uncontrollable factors [3]. In order to achieve the objective of Costs we require needed data regarding the cause and origin of current costs and their effect on management. Activity based costing and management based costing activities are

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the most beneficial tools in cost accounting objectives as the effect of product designing over consumption of different activities leads to increase of total expenditure .

We could use activity based costing in order to recognize Cost of goods for instance overhead production costs, marketing , supply , support and overhead publicity [17].

## 2. LITERATURE REVIEW

### 2.1 Theoretical bases of Cost Accounting system

The process of business or trade in an enterprise can be the transformation of resources into products or services and after the sales of products or services the income is made which can cover all the expenditure made throughout the process and at last may lead to profit. On the other hand Cost Accounting can be called as one of the tools or resources to design and control a business however in a look we might say cost accounting is a way to reach financial cost[10].



Figure 1 – Input and output of an enterprise [13].

Cost accounting may be based on various objectives but in simple the general definition can be said as an activity based on one decision for expenditure, profit and price analysis. As a result Cost accounting must be able to evaluate every expenditure according to its customer, market and product group or capital. Due to this reason in many enterprises Cost Accounting is also known as expenditure analysis system. A cost accounting system in an enterprise has three compilers which are explained below [5].

#### 2.1.1 Financial Reporting

The cost accounting for manufactures is a method in which the expenditures of production are allocated in every output made. In fact preparing the financial reports for foreign divisions is a must. As these reports require preliminary stages for cost accounting, the first step is to request for development in technology and capital in various parts of the system [5, 13].

#### 2.1.2 Economic feedback

Economic feedback is about the focus on performance which is achieved by employees and workers for instance cost control and profitability analysis which are some samples of economic feedback. Cost control are answers to questions about cost of each product in a specific time compared to past times and also in determining the deviations and changes for profitability improvement which is necessary. Understanding the profitability is the aim of profitability analysis by products group , customers or the segregation of market . The managers use cost accounting in order to support the pricing for decreasing the costs or increasing the profits. Therefore Economic feedback is tool for strategic decisions [13].

Evaluation of operating costs, products, services and customers are a part of internal costs and evaluated according to internal data. The currents costs accounting is based on pricing especially on data which are linked to product costs. In order to achieve the lowest price we actually mean a price which can help us in finding fixed costs. Therefore the main goal of the cost accounting system is to create a link between cost accounting and pricing. Pricing is based on cost evaluation for pricing which is according to customers or competitor data [21].

### 2.2 Traditional cost accounting

Cost accounting means the devotion or consumption of resources , we can consider it as an asset or expense. Costs of good are based on three main components:

1. Direct materials which can be practically respected to the products
2. Direct wages for workers who convert materials into products

3. Cost of other goods being used in the conversion of products which can be called as production overhead [16].

### 2.3 Activity Based Costing

The rapid developments in the global production industry includes the heavy competition in global markets, technology innovations and digital systems development. These innovations have caused the companies which can coordinate themselves to the enlightened age to become successful and on the other hand the companies which aren't able to update themselves will be left behind. Activity based costing overcomes the costing limitations and is performed by the help of mathematics model by simulation of the products and product cost evaluation is made easier by the digital production system and reviews the effects of strategic planning of production control over financial production system [15]. The traditional costing methods focuses on the quantity of production and usually uses overhead costs as a base unit (direct work hours). On the other hand in Costing based on activities we can see the effects of diversification of production volume, diversity of physical products sizes and other differences in allocating the overhead costs based on activities. As a result, cost accounting based on activities despite being more complicated than the traditional costing, still the product costs are more precise [6,7].

### 2.4 Activity

The main goal of ABC is that all activities in an enterprise should result in production or products support. In fact ABC method focuses on activity group. By activity groups we actually mean the materials being used by the enterprise i.e. materials, workers and capital. In fact the cumulative activities are duties being done inside an enterprise. These activities result in outlet of products. Sometimes costing based on activity is effective in the conservation of products which at any time by using formulas and models can be used as costs [5,10].

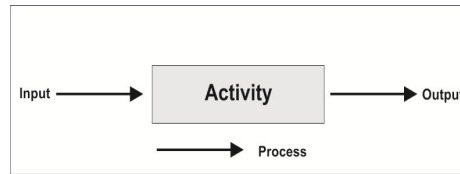


Figure 2 –diagram showing the Input and output of a process [13]

### 2.5 Resource driver

It's a criteria for showing the level of research being done in each activity as a base for allocating the activity cost. In order to identify resource driver the following points should be considered:

- ✓ Allocating activity cost to activities which leads to benefits since allocating the costs is not possible for a specific product. Therefore these activity costs should be allocated according to an appropriate and logical base.
- ✓ In order to allocate the activity costs precisely we should review the activities for real costs.
- ✓ By taking advises from experts for finding more precise costs.
- ✓ Direct and indirect costs related to activities in process should be sub divided.

### 2.6 Cost drivers

Cost drivers cause changes in activity costs since cost drivers are the main reason for activities which lead to effective drivers. A cost driver can be simply briefed in a united manner. Using cost driver in an organization shows that the costs are not managed but the causes which result in costs are managed through cost drivers [13]. Cost drivers are able to relate resources to activities in order to determine resource consumption.

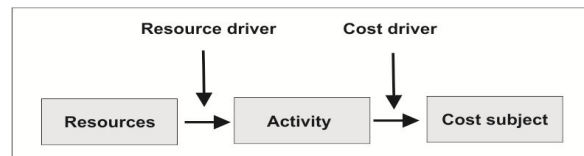


Figure 3 – diagram showing the relation between cost driver and resource driver[13]

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Systems that insist on marginal sales concepts and elimination of goods or consumption are needed as accounting measure of responsibilities techniques which show controllable and uncontrollable factors [3]. In order to achieve the objective of Costs we require needed data regarding the cause and origin of current costs and their effect on management. Cost accounting based on activities and management based on activities are the most beneficial tools in cost accounting objectives as the effect of product designing over consumption of different activities leads to increase of total expenditure .

We could use Cost accounting based on activities in order to recognize Cost of goods for instance overhead production cost, marketing, supply , support and overhead publicity [17].The usage of Cost accounting based on activities goes back to 1980 for instance a research made by Day Hizolorynik showed that after the establishment of this method , the cost of educational course was three times the fees received by the students [4].

A research by Doyall in the year 1993 was subject to the effect of coast accounting based on activity for the costs of educational board [18]. Some have used this method for the evaluation of expenses per capita of graduates. In 1993 Blanaachandar used logarithms for improving selected variable costs and a year later Duckin found logical relations for selecting variable costs and at last Vagravin in 1997 used AHP method for variable costs. Besides many such researches regarding the description of this method and its influences were studied in British and American universities [2]. But the first complete form of this method was carried out by Ernest and Young in 1991. Kim K and Han also added an article regarding the application of genetics logharithm and nervous system in cost accounting based on Activities. In 1999, Hermison added University Cost accounting system named "MAATY TOOBA" in Canada and carried on accounting principles.

Also in Islamic republic of Iran, a research was held by Dr. Ebrahim Abassy and Mahmud Sabery on the application cost accounting based on activities and traditional in evaluation of educational cost for students in higher graduate levels where they used the overhead Regression method for cost accounting based on activities allocated for each group and later compared it to traditional method. In the research held by Dr. Ahmad Barati and Iraj Karimi 2125 Expenditure Documents were studied during the years 1378 to 1381 which belonged to the university of medical sciences of Ghom and another research by Dr. Alireza Shoghly and Dr. Yadollah Hamidi about Health and care services cost accounting based on activities held in Zanjan Province health centre in the year 1378 [1,11,12,20].

## 4. DATA AND METHODOLOGY

### 4.1 Data

In this study the statistical population is the total products in Pars Khazar industry in 21 groups and the statistical sample are 30 products from two groups of electric fans and rice cookers which had the highest production rate and sales in the last five years. Costs included direct material, direct wage and overhead (direct wage and overhead is considered as conversion cost), among which the direct material is calculated in the same way in both traditional and ABC method and the only difference in calculating cost in these 2 methods is simply in conversion cost. In this research the needed data was evaluated in both ways .The conversion costs in the first method was collected from profit and loss statements and data bases available in industrial accounting department, whereas the needed data in the second method was extracted from the information based on implementing ABC.

### 4.2 Methodology

In order to implement activity based costing the following six steps should be applied according to Grrison model, as follows:[8]

A. Identification of activities and determination of cost pools:

In this step eight main activities in the organization were identified which were classified into four groups according to ABC model as follows

1. Products category
2. Products group
3. Facilities and equipment

The cost pools are a category of cost center of whole organization which has been collected in an activity.

The main activities which have been detected by traditional costing method of cost pools are considered and the eight main activities deserve the converted costs (wages and overhead costs)

#### B. Detection of direct costs according to cost subjects

In this step the required resource cost for each activity should be detected considering the required resource for each activity.

#### C. Costs with respect to cost pools.

The cost pools available in an organization are used in the allocation of organization cost with respect to activities.

#### d. Extraction of cost drivers

In order to obtain the appropriate cost drivers for each activity the experts of an organization should conduct an evaluation known as expert opinions which will result in the extraction of most appropriate cost drivers for sharing converted costs for each activity by which experts can determine the cost drivers according to their knowledge .

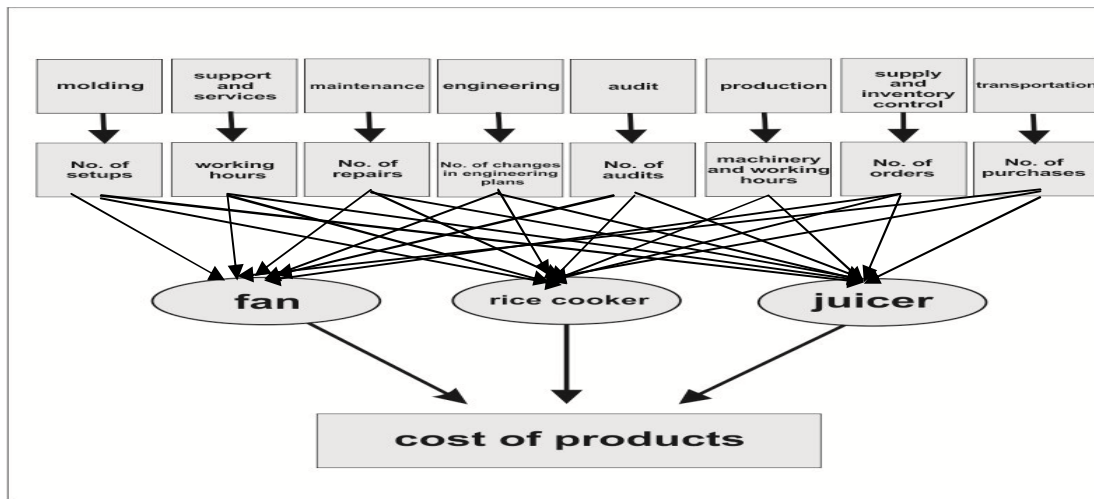


Figure 4: Activity identification concept model and cost driver determination for activities

#### E. Allocation of converted costs based on activities into products:

After the fourth step of converted costs based on each activity, they are allocated into products and each product is considered as a part of converted costs of each activity which later will be allocated to cost drivers.

These converted costs are added to direct resources with the help of algebraic formulas and finally we gain a new cost price based on activity.

### 5. Empirical Findings and Discussion

In order to test the hypothesis T-value test was applied, using SPSS software. The result of testing hypothesis is illustrated in table 1 as follows:

Table1. Comparing conversion cost by 2 traditional and ABD methods

Row	Product Model	H0	Sig	Difference
1	ES-2030MKAI	REJECTED	0.169	DO NOT HAVE
2	ES-2030WKAI	REJECTED	0.197	DO NOT HAVE
3	ES-2040MKAI	NOT REJECTED	0.04	OK
4	ES-3010-MKAI	REJECTED	0.393	DO NOT HAVE
5	ES-3010-WKAI	REJECTED	0.867	DO NOT HAVE
6	ES-4010WKAI	REJECTED	0.695	DO NOT HAVE
7	ES-4010MKAI	NOT REJECTED	0.021	OK
8	ES-4020WKAI	NOT REJECTED	0.027	OK
9	ES-4030MKAI	REJECTED	0.098	DO NOT HAVE

10	ES-4030WKAI	NOT REJECTED	0.019	OK
11	ES-4060RW	NOT REJECTED	0.005	OK
12	ES-4010RWKAI	NOT REJECTED	0.028	OK
13	ES-4010RMKAI	NOT REJECTED	0.016	OK
14	ES-4010SWKAI	NOT REJECTED	0.02	OK
15	ES-4010SMKAL	NOT REJECTED	0.00	OK
16	ES-4070R	NOT REJECTED	0.016	OK
17	ES-5020MKAI	NOT REJECTED	0.017	OK
18	ES-5030MKAI	REJECTED	0.125	DO NOT HAVE
19	ES7010 MKM	NOT REJECTED	0.017	OK
20	ES-7020W	NOT REJECTED	0.016	OK
21	ES-7020M	NOT REJECTED	0.032	OK
22	ES-9010R	NOT REJECTED	0.026	OK
23	RC-101TS	NOT REJECTED	0.017	OK
24	RC-101E230	NOT REJECTED	0.017	OK
25	RC-101E110	NOT REJECTED	0.016	Ok
26	RC-181TS	NOT REJECTED	0.017	Ok
27	RC-181E110	NOT REJECTED	0.019	OK
28	RC-271TS	NOT REJECTED	0.20	Ok
29	RC-271E230	NOT REJECTED	0.018	Ok
30	RC-271E110	NOT REJECTED	0.019	OK

As we can see there is not a significant relation between the average of conversion costs of Pars khazar products in both traditional and ABC methods in some products such as electric fans model 2030, 3010 and some models of 4000 , while there is a significant relation between the average of conversion costs in most products. But as an overall assumption  $H_0$  is rejected with 5% error but the assumption can be approved up to 95%.

## 6. Conclusion

In the present study, we attempted to compare cost of Pars Khazar products by traditional and activity based costing methods during the 2005-2009 periods. For this reason, we applied T-value test. The results revealed that there is such a relation in some of the products among those under examination. The reasons of the proved significant relation can be classified as follows:

1. As the base of costs and the products in ABC are based on activities in many products the engineering activities weight products are heavier and result in increase of costs as it is obvious in rice cooker designed for export.
2. In products similar to Kandoj rice cookers or slow –cookers, the preparation and molding process had more weight which resulted in higher converted costs.
3. Some products for instance the electric fans models 9010 or 401R or 7020 and some rice cookers designed for export are produced in a very small amount daily and even monthly by which increase in production may lower the converted costs . The planning for these products are based on higher amounts but the production is kept low due to some problems.
4. There exists some other complicated products for instance in the electric fans having remote controls or digital rice cookers effect the costs.

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