A STUDY ON APPLICATION OF ACTIVITY BASED COSTING IN KHOOTKA FOOD INDUSTRIAL

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ABSTRACT

In this scholar we tried to collect the data from Khootka's company and compare the cost of product in two different methods VBC &ABC and comparing the results. As you can see the allocation of cost by VBC method is not appropriate. By help of ABC the company can have insight knowledge about its cost and proper allocation of them. As the allocation of the direct material and labour is the same in both methods the difference is derived from the allocation of indirect cost or overhead cost. By effective control of the cost, management can have the economical units which can benefit the company as long as the customers by providing the appropriate product with reasonable price and prevent from wasting the sources. In a more general look even society can benefit by effective production, lesser inputs more outputs. In another aspect in the cut throat market a company can survive which can manage its cost more efficient than its rival. In nut shell having a complete control over the cost is crucial for any concern and act like a heartbeat of the body.

Keywords: Activity Based Costing , Cost Drivers , Overheads Traditional Costing.

Introduction

Whether you believe it or not, the way you measure your company affects your company. In the United States we measure profitability, and as a result, much of our efforts are centered around maximizing profitability. In Japan, the focus is on market share, and as a result Japanese companies will go to great lengths and expense in order to gain market share. For example, a Japanese company may break even one year, but if the market share increases by a fraction of a percentage, then the company celebrates. Under communism, companies in Russia measured themselves based on materials consumed. The general idea is that if more materials are consumed, then more Russians are employed mining or harvesting those raw materials, packaging those raw materials, or transporting those raw materials, etc. that measurement does have an impact on results

Activity-based costing (ABC) is a costing methodology that identifies activities in an organization and assigns the cost of each activity with resources to all products and services according to the actual consumption by each. This model assigns more indirect costs (overhead) into direct costs compared to conventional costing models.

As the project is segmented into its activities, a cost estimate is typically prepared for each activity. These cost estimates will typically contain labor, materials, equipment, and subcontracting costs, including overhead, for each activity. Each activity cost estimate is added to the others to produce an overall cost estimate for the entire project.

The accounting information remains the primary source of management information in many organizations, including food industry. However, as Johnson and Kaplan (1987, p.1) observed, "today's management accounting information, driven by procedures and cycles of the organization's financial reporting system, is too late, too aggregated, and too distorted to be relevant for managers' planning and control decision". The reason is that traditional costing systems focused on managing costs by means of cost-based budgets, standards, and variances, established at the departmental or unit level. In such a system, many of the volume-sensitive cost drivers are attached to the overhead costs as an economical means of ensuring a proper match between revenues and expenses. This approach tends to over- or underestimates the costs of products or services based on misleading measures, thus resulting in erroneous decisions (Cokins, 1996). Today, organizations including confectionary industry need to focus on processes and activities' costs, as well

as performance measurements for quality attributes such as customer satisfaction, reliability, cycle time, flexibility, and productivity. The critical success factor of any organization require continuous involvement in managing all activities to ensure that a high quality service is provided in the most efficient and effective manner.

One way to calculate the operating costs is through Activity-Based Costing (ABC), which focuses on the activities associated with running a business. According to Becky Land, sales executive with ABC Technologies, "ABC is more than an accounting tool."

She says that this technique was originally developed in the manufacturing industry as a tool to calculate the final price of a product." More than just materials and labor were considered," says Land. "Overhead and all the activities that went into creating the product were part of the equation." ABC begins by tracking activities. "

ABC information reflects the activities performed in the institution, the resources consumed, and the purpose of those activities. It provides a focus on activities not visible through traditional accounting. With this information, managers can make better decisions about "what happens in the business?", "who does what in the business?", and "what do activities cost?". This redesign process will lead to higher levels of productivity while either maintaining or decreasing costs.

This study focuses on the experiences of ABC users and non-ABC users within the food and beverage industry in Komaj Saba Food Industry of Iran.

Survey of Literature

Devinaga, Rasiah(2011) compares activity-based costing (ABC) model and traditional costing method in Malaysia. Activity based costing (ABC) which was developed into the manufacturing/service sectors in Malaysia. They calculated the cost and performance of activities, resources and cost objects. They opine that it can be considered as an alternative model to Traditional Cost-based accounting systems. In this study the results indicated that most operations managers believed that their present cost systems were adequate for decision making. In certain circumstances, operations managers evaluated their cost systems as more effective than those using other cost systems. Activity-based costing systems were evaluated as somewhat more useful, but no relevant literature was found to indicate that either the external or internal environment of the firm was correlated with the choice of cost system.

S. S. Abuthakeer, P.V. Mohanram, G. Mohan Kumar (2010) attempted to integrate Value Stream Map (VSM) with the cost aspects. A value stream map provides a blueprint for implementing lean manufacturing concepts by illustrating information and materials flow in a value stream. The objective of their work is to integrate various cost aspects. The idea is to introduce a cost line, which enhances the clarity in decision making. The redesigned map proves to be effective in highlighting the improvement areas, in terms of quantitative data. TAKT time calculation is carried out to set the pace of Production.

Katja Antikainen, Tarja Roivainen, Mirva Hyvärinen, Juhani Toivonen and Timo Kärri(2005) state that there were two phases also helped the employees to see how the ABC works and how the ABC becomes ABM. It was thought to be quite natural that at first they built a model to get the cost information and at the second phase the planning and control point.

Cokins, G. (2002) found that ABC data can be used to provide feed-forward data that can be used for target costing. ABC provides data on cost centers, which product-related costs are traced to. ABC uses activity-driver quantity measures to transmit a component's usage on the equipment costs. ABC data can be used to cost the components that comprise a product. This is known as feature-based costing. In feature-based costing, the driver is now thought of as a feature equivalent, rather than based on another measure such as time. It is a conversion of the time measure to make the component into the types of features that require the time. These feature-based costs can be used to project costs of a proposed new product, hence making it useful for target costing.

Objectives of the Study

The present study is undertaken with the object to compare the effect of ABC in cost allocation . and comparing the cost of products in to method of VBC ans ABC.

Methodology

The present study is an applied research. The study uses both the primary and secondary data. Primary data is collected through personal discussion with executives of Komaj Saba company of Iran. The study mainly relies on secondary data though data has been used at relevant places.

Finding:

Comparing the results from two methods of

VBC and ABC shows a significant different in the last three products.

For biscuit product the EBIT calculated by VBC method is 25.61 and by ABC method is 29.78.

For wafer product the EBIT calculated by VBC method is 14.46 and by ABC method is 10.69.

For chocolate product the EBIT calculated by VBC method is 66.94 and by ABC method is 76.4.

For candy product the EBIT calculated by VBC method is 45.02and by ABC method is (36.74).

For cake product the EBIT calculated by VBC method is 24.26 and by ABC method is (68.62).

For spaghetti product the EBIT calculated by VBC method is 92.53 and by ABC method is (116.39).

As it is shown by the features the difference for the first three products are mere but for products: candy, cake and spaghetti is considerable ,by VBC method shows profit on these products but by ABC method shows loss on these products.

The differences (VBC-ABC) are as follows: biscuit = -4.17, wafer= 3.95, chocolate=-9.46, candy= 81.76, cake= 92.88, spaghetti= 208.92.

For the products Biscuit, Wafer and Chocolate the Difference between the profits in both VBC & ABC is little this can be due to high volume of production in these three units. But the profit shown in ABC method is more real because the allocation of cost is more efficient.

For the products Candy, Cake & Spaghetti, there is a great gap which due to the inefficiency of the concerns. As the number of product is low and the place is allotted to the production is wide the depreciation of building and machine leading the loss on these lines of production. But in VBC method this cost is distributed among the other production with high volumes.

It is better for company to increase the production of allot these areas to producing the other products.

Research limitation :

1- The society culture towards ABC.
2- Managers culture towards ABC.
3- Supervision manager in company.
4- High cost execution.

Conclusion :

1- Improving of company's costing system.
2- Specifying of and price of products in an actual & logical way.
3- Evaluation of manager's performance.
4- Reducing costs of on compassing high expenditure.
5- Omission of non-value added activities.

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Tabe 1
Raw data of Khootka;s company (2004-2005)

Products	Biscuit	Wafer	Chocolate	Candy	Cake	Spaghetti	Sum
Direct material(to rupee)	19929510	10668780	17002476	1977570	498494	103424	
Direct labour(to rupee)	6469805	3407033	5530680	582390	332083	45441	
Number of item sold (to number)	374114	186526	152890	23832	15183	2385	
Price of different item (to rupee)	113.85	108.54	251.55	177.75	99.63	175.41	
Amount of time spend per activity(to hour)	13500	11700	9000	10800	7200	1800	54000
Activity cost electricity , machinery working hours(to hour)	6570	5040	4500	3150	2520	270	
Activity cost : warehousing average of store goods(to average of number of products)	270	261	297	126	81	45	
Building depreciation (square meter)	1800	1540	3080	1540	1200	840	10000
Cost of activity repairs based on the number of repairs(to number of repairs)	9	5	6	4	2	1	
Machinery depreciation : based on working hours(to hours)	6570	5040	4500	3150	2520	270	
Activity cost : distribution & sale , time spent for sale(to hours)	5850	4950	4500	1800	720	180	

Source: annual Report of Khootka's industry(2004-2005)

Cost over head per activity : TABLE 2

Supervision	Electricity	Storekeeper	Building depreciation	Machinery depreciation	Cost of distribution	Repair cost
234000	835383	2298717	2533913	5197620	3645421	1354185

Source: annual Report of Khootka's industry(2004-2005)

Calculation of VBC system

Product	Biscuit	Wafer	Chocolate	Candy	Cake	Spaghetti	Total
Number of sale	374114	186259	152895	23832	15183	2385	
Sale price per box	113.85	108.54	251.55	177.75	99.63	175.41	
Sales amount	42592879	20216552	38459479	4236138	1512682	418353	107436083
Direct material	19929510	10668780	17002476	1977570	498494	103424	50180254
Direct labour	6469805	3407033	5530680	582390	332083	45441	16367432

Source : annual reports of khootka's company 2004-2005

Sales amount is equal to number of sale to sale price per box , for instance sales amount of biscuit is =374114×113.85=42592879.

Real overhead cost for 2004-2005(to rupee)

Supervision	2340000
Electricity	835383
Storekeeping	2298717
Depreciation on building	2533913
Depreciation on machinery	5197620
Repairs	1354185
Total	14559818

Source : annual reports of khootka's company 2004-2005

Overhead consumed rate = total real overheads ÷ total direct labour

14559818÷16367432=0.89

Calculation of overhead cost per box on VBC (2004-2005)

Product	Direct labour	Overhead consumed rate	Real overhead cost	Number of unit sold	Overhead cost per box
Biscuit	6469805	0.89	5758126	374114	15.39
Wafer	3407033	0.89	3032259	186529	16.26
Chocolate	5530680	0.89	4922305	152890	32.20
Candy	582390	0.89	518327	23832	21.75
Cake	332083	0.89	295554	15183	19.47
Spaghetti	45441	0.89	40442	2385	16.96

Source : annual reports of khootka's company 2004-2005

For calculating the overhead cost per box for example biscuit , first multiplying the direct labour of biscuit (6469805) to overhead consumed rate which has been calculated in previous table (0.89) the product would be real overhead cost for biscuit . for finding the overhead cost per box we divide the real overhead cost (5758126) by number of unit sold (374114) so the result is overhead cost per box (15.39)

Calculation of per unit expenses and income using the VBC system for the year 2004-2005

Product	Biscuit	Wafer	Chocolate	Candy	Cake	Spaghetti
Cost of material per box	53.27	57.20	111.21	82.98	32.83	43.36
Cost of labour per box	17.30	18.27	36.17	24.44	21.87	19.05
Overhead cost per box	15.39	16.26	32.20	21.75	19.47	16.96
Total cost per box	85.96	91.73	179.58	129.17	74.17	79.37
Selling cost per box	113.85	108.54	251.55	177.75	99.63	175.41
Gross income	27.89	16.81	71.97	48.58	25.46	96.04
Less sales cost 2% of sales	2.28	2.17	5.03	3.56	1.20	3.51
EBIT	25.61	14.64	66.94	45.02	24.26	92.53

Source : annual reports of khootka's company 2004-2005

For calculating the EBIT , firt we have to find the direct material and labour per box, for calculating them we need to divide direct material and labour by number of product . next we add the overhead cost per box . subtracting the total cost from sale price . in this stage we have the gross income which should subtract the two percent of sale price in order to calculate the EBIT. For example ; total cost of biscuit = 53.27+17.30+15.39=85.96

Calculation ABC system:

Activity cost of supervision

Product	Biscuit	Wafer	Chocolate	Candy	Cake	Spaghetti	Total
Number of supervision hour	13500	11700	9000	10800	7200	1800	54000
Cost of supervision per hour	43.33	43.33	43.33	43.33	43.33	43.33	
Total supervision per activity	584955	506961	389970	467964	311976	77994	
Number of product	374114	186529	152890	23832	15183	2385	
Supervision cost per box	1.54	2.72	2.55	19.64	20.55	32.7	

Source : annual reports of khootka's company 2004-2005

Cost of supervision per hour = 2340000÷54000=43.33

Activity cost of electricity (to hour)

Products	Biscuit	Wafer	Chocolate	Candy	Cake	Spaghetti	Total
Electricity working hours machinery	6570	5040	4500	3150	2520	270	22050
Cost electricity per working hour	37.89	37.89	37.89	37.89	37.89	37.89	
Total electricity per product	248937	190966	170505	119354	95483	10230	
Number of products	374114	186529	152890	23832	15183	2385	
Electricity cost per box	0.67	1.02	1.12	5.01	6.29	4.29	

Source : annual reports of khootka's company 2004-2005

Cost electricity per working hour= 835383÷22050=37.89

Activity cost for stored item

Products	Biscuit	Wafer	Chocolate	Candy	Cake	Spaghetti	Total
Stored goods average	270	261	297	126	81	45	1080
Holding cost per average	2128	2128	2128	2128	2128	2128	
Total stored keeping per product	574560	555408	632016	268128	172368	95760	
Number of products	374114	186529	152890	23832	15183	2385	
Holding cost of product per box	1.54	2.98	4.13	11.25	11.35	40.15	

Source : annual reports of khootka's company 2004-2005

Holding cost per average = 2298717 ÷ 1080 = 2128

Activity cost of depreciation on building (to square meter)

Products	Biscuit	Wafer	Chocolate	Candy	Cake	Spaghetti	Total
Square	1800	1540	3080	1540	1200	840	10000
Cost of depreciation per production	253.4	253.4	253.4	253.4	253.4	253.4	
Total depreciation cost per production section	456120	390236	780472	390236	304080	212856	
Number of products	374114	186529	152890	23832	15183	2385	
Cost of depreciation per box	1.23	2.09	5.1	16.37	20.03	89.25	

Source : annual reports of khootka's company 2004-2005

Cost of depreciation per square = 2533913 ÷ 10000 = 253.4

Activity cost of depreciation on machinery (to hours)

Products	Biscuit	Wafer	Chocolate	Candy	Cake	Spaghetti	Total
Machinery depreciation based on machinery working hours	6570	5040	4500	3150	2520	270	22050
Cost depreciation per an machinery working hours	235.72	235.72	235.72	235.72	235.72	235.72	
Cost of machinery depreciation per product	1548680	1278749	1060740	742518	594014	63644	
Number of products	374114	186529	152890	23890	15183	2385	
Cost of depreciation per box	4.14	6.86	6.94	31.08	39.12	26.69	

Source : annual reports of khootka's company 2004-2005

Cost depreciation per an machinery working hours = 5197620 ÷ 22050 = 235.72

Activity cost of repairs (to number)

Products	Biscuit	Wafer	Chocolate	Candy	Cake	Spaghetti	Total
Repairs on number of repairs	9	5	6	4	2	1	27
Cost repair per time	50155	50155	50155	50155	50155	50155	
Total repair activity per section	451395	250775	300930	200620	100310	50155	
Number of product	374114	186529	152890	23832	15183	2385	
Cost repair per box	1.21	1.34	1.97	8.42	6.61	21.03	

Source : annual reports of khootka's company 2004-2005

Cost repair per time = 1354185 ÷ 27 = 50155

Activity cost of distribution and sales (to spent time)

Products	Biscuit	Wafer	Chocolate	Candy	Cake	Spaghetti	Total
Sale time spent for sale per section	5850	4950	4500	1800	720	180	18000
Sale time spent per hour	202.52	202.52	202.52	202.52	202.52	202.52	
Total cost per section	1184742	1002474	911340	364536	145814	36454	
Number of products	374114	186529	152890	23832	15183	2385	
Sale time spent per box	3.17	5.37	5.96	15.3	9.6	15.28	

Source : annual reports of khootka's company 2004-2005

Sale time spent per hour = 3645421 ÷ 18000 = 202.52

Income statement of khootka's company (to rupees)

Products	Biscuit	Wafer	Chocolate	Candy	Cake	Spaghetti
Direct material	53.27	57.20	111.21	82.98	32.83	43.36
Direct labour	17.30	18.27	36.17	24.44	21.87	19.05
Overhead cost						
Supervision	1.54	2.72	2.55	19.64	20.55	32.7
Electricity	0.67	1.02	1.12	5.01	6.29	4.29
Store keeper	1.54	2.98	4.13	11.25	11.35	40.15
Building depreciation	1.23	2.09	5.1	16.37	20.03	89.25
Machinery depreciation	4.14	6.86	6.94	31.08	39.12	26.69
Repair	1.21	1.34	1.97	8.42	6.61	21.03
Total cost	80.9	92.48	169.19	199.19	158.65	276.52
Sales	113.85	108.54	251.55	177.75	99.63	175.41
Cost of goods sold	(80.9)	(92.48)	(169.19)	(199.19)	(158.65)	(276.52)
Less or gross income	32.95	16.06	82.36	(21.44)	(59.02)	(101.11)
Sales cost	3.17	5.37	5.96	15.3	9.6	15.28
EBIT	29.78	10.69	76.4	(36.74)	(68.62)	(116.39)

Source : annual reports of khootka's company 2004-2005

Comparing of final Price per box of estimated product in traditional & ABC

Product	biscuit	Wafer	chocolate	candy	cake	spaghetti		biscuit	wafer	chocolate	candy	cake	Spaghetti
Cost of material per box	53.27	57.2	111.21	82.98	32.98	43.36		53.27	57.20	111.21	82.98	32.83	43.36
Cost of direct labour	17.30	18.27	36.17	24.44	21.87	19.05		17.30	18.27	36.17	24.44	21.87	19.05
Indirect costs: overhead cost per box+2% for sale	17.67	18.43	37.23	25.31	20.67	20.47							
							supervisor	1.54	2.72	2.55	19.64	20.55	32.7
							Electricity	0.67	1.02	1.12	5.01	6.29	4.29
							Store keeper	1.54	2.98	4.13	11.25	11.35	40.15
							Building depreciation	1.23	2.09	5.1	16.37	20.03	89.25
							Machinery depreciation	4.14	6.86	6.94	31.08	39.12	26.69
							repair	1.21	1.34	1.97	8.42	6.61	21.03
							Sales cost	3.17	5.37	5.96	15.3	9.6	15.28
							Total indirect cost	13.5	22.38	27.77	107.07	113.55	229.39
Total cost per box	88.24	93.9	184.61	132.73	75.37	82.88		84.07	97.85	175.15	214.49	168.25	291.8
Sales	113.85	108.54	251.55	177.75	99.63	175.41		113.85	108.54	251.55	177.75	99.63	175.41
EBIT	25.61	14.64	66.94	45.02	24.26	92.53		29.78	10.69	76.4	(36.74)	(68.62)	(116.39)