

# APPLYING ACTIVITY BASED COSTING IN TOURISM SERVICES IN UZBEKISTAN

Alisher ESHTAEV

Tourism Faculty, Tashkent State University of Economics, Uzbekistan

## ABSTRACT

The paper studied opportunities of applying *activity based costing and management* (ABCM) at tourism firms in Uzbekistan. The present accounting practice is analyzed and critically studied, the scientific research done to show the advantages and disadvantages of using present methods of accounting, and need to implementation of more responsive and innovative financial settings in today's dynamic business environment is proven. The methods of Cooper's 2-stage implementation, Activity-Product-Dependence matrix by Roztocki were used for Planet Tour Co. ABCM is recommended as accurate cost management of products or services in tourism firms in Uzbekistan.

## JEL CLASSIFICATION & KEYWORDS

■ L83 ■ Costing ■ Cost Management ■ Duration ■ Intensity Drivers  
■ Customer ■ Transfer Expenses ■ Expense-Activity-Dependence Matrix ■

## INTRODUCTION

Since the introduction of ABCM by two scholars Robin Cooper and Robert Kaplan a lot of research has been done. While most of the articles tried to open new advantages of this method, there was handful which through criticism at its usability and benefits for that matter emphasizing its complexity. Kaplan and Cooper classified (1998) the cost system designs according to their effectiveness in 3 key areas: measurement of costs for financial reporting; estimation of the costs of *activities* supporting the output of products and services; operational and strategic control.

In this way he fashions 4 basic stages: Stage I being unacceptable ("*Broken*") and Stage IV defined as most competitive ("*Integrated*"). The authors argue that, firms fall in one of the stages according to the effectiveness and compatibility of their financial and control systems. It should be noted that the use of ABC and ABM improve the functionality of cost system designs up to Stage III or even better to Stage IV. As Kaplan and Cooper's classification represents an established explanation and analysis of ABC it will be made an extensive use of throughout the project.

Given ABC is just a method of measurement, people question how it can improve financial position of a firm. It may be argued that value from an operation is unique at a time and it depends on actual output of goods or services not on the method of measurement. Answering this question Roztocki (2007) argues that, the way of measurement does improve financial position of a firm if the previous costing model underestimated profits.

The firm improves shareholder value through improved cost structure provided ABC indicates best estimate of true costs thus highlighting unprofitable operations. To share this view, Bouwman (2000) asserts that 54 percent of 1064 internal auditors questioned reported success from ABC implementation.

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The objectives of the research on the systems cost of tourist services providers are: highlighting the need in better knowledge of cost structure in Uzbek company as one of the foremost priorities in the first place. Secondly, ABCM is proposed as an innovative and efficient method of studying company costs and the procedure for its implementation and maintenance is offered. The third, objective concludes in proving the effectiveness of ABCM for the company and that using this method the company can achieve a competitive edge.

## CAN ABCM BE USED IN UZBEKISTAN?

The popularity of ABC in Uzbekistan has been remaining undefined as few descriptions or analysis of its use in local businesses was published. One can assume that, such companies as Nestle and UzBat probably do have competitive financial systems inherent from their parent companies. However, it is only subject to guess. Even the most up-to-date textbook provided by State Economics University, Ostonaqulov (2005) advocates basic accounting methods with no mentioning of ABC or any other analytical or more influential methods. According to Ostonaqulov (overhead) cost of promoting company name is associated two products according to volume production of each product (method of natural units of measurement) or according to price of each product (method according to sales). Needless to say, both methods are incorrect as the product with high volume is already mature and thus needs less advertising (overcosted) as with the first method. The same reason may overcost the product with higher price as in the second method.

Tuhtasinov (2005) studied obstacles for and advantages of implementing ABC in Uzbek firms. He identifies four main barriers for adopting ABC in Uzbek firms. Firstly, Tuhtasinov shows high costs associated with introducing ABC. Indeed as argued above, ABC requires high resources to be dedicated due to high rate of information exchange within the operations. In order to overcome this obstacle the management can invest in up to date information systems which cost relatively cheaper now than they used to do. Secondly, lack of interest and enthusiasm can be a serious obstacle especially for current condition of Uzbekistan where employees take any change with high alert. As the author argues, for a standard employee stability is more important than change. Thirdly, as the author argues managers are not adequately educated and lack substantial knowledge to handle such innovative methods in management as ABCM. However, this cannot be named a serious problem once the management gets it through all employees and sets a clear mission to innovate and improve. Once sound mission is formed technical issues as educating is the easy part.

Considerable amount of empirical research has been done regarding management methods in Uzbek companies in particular cost accounting and innovative solutions such as ABCM. The expectations which gave birth to the need for this research were met by reality that (1) current cost

management in Uzbek companies are not satisfactory and (2) ABCM indeed does represent one of the cutting-edge solutions for cost efficiency in organizations.

#### DIRECT COSTING CURRENTLY IN USE

Currently the company uses direct costing for managerial accounting purposes while absorption costing is used for financial accounting and reporting. Given these two methods produce differing profits, at the end of accounting period adjustments are made to taxable profit. Direct costing is found a common practice in most companies in Uzbekistan. It is said to be more accurate than absorption costing because it does not allow the stock affect profitability (Kadirova (2007)). In direct costing the cost of the product includes all variable costs and all fixed costs are regarded as period expenses. It not only is unsatisfactory in calculating cost of overheads which make up more than half of company's total expenses but is also fails to produce fair cost of direct materials. For instance, as it will be discovered later in the report, the calculation of the cost of concentrate and puree is questionable as they do not incur some overhead costs such as support labor, technical support and employees' dining in direct costing method of the company. The calculation is presented in Appendix 1. However, company managers wrongfully (needless to say) believe that current costing they use is accurate enough. As noted by Nilufar Tursunova: *Using direct costing we obtain true cost as it comprises all expenses related to producing one unit of product. All other (fixed) expenses are there to maintain the businesses thus are period expenses.*

Through this method variable costs starting from direct materials are added up to give operating cost. Sales minus operating cost give marginal income. Then all fixed expenses are subtracted from the marginal income to obtain operating income. In direct costing method used tourism firms direct materials make up prime cost and are subtracted from the sales in the first place. Variable part of production overheads such as dining, transportation, maintenance and utilities first redistributed to production department after which are traced to services (varieties) based on labor hours consumed by each juice. At each stage volume drivers either machine or labor hours are used. Regarding fixed expenses, they include fixed part of production overhead, administrative and commercial expenses all of which are regarded as period expenses as confirmed above.

#### ACTIVITY BASED COSTING AND MANAGEMENT FOR PLANET TOUR CO

*Planet Tour Co.* is in huge need of appropriate costing method provided the current method in use is not satisfactory and produces inaccurate costs. As a result the management does not possess sufficient information about its cost structure in order for it to manage the business effectively. ABCM can offer a remedy. It makes logical assumption that production uses resources (creates expenses) through support activities which make up the business. It uses different drivers (few of which are volume based) to trace resources usage to activities and consequently to products. In process sources of costs can be easily observed and acted upon (e.g. reengineer or outsource to eliminate).

#### IMPLEMENTATION

The introduction of two-stage implementation and use of ABCM in operation was undoubtedly the major innovation toward popularity of this method. It was adequate answer to critics of the model who questioned the usability of the model in real life due to its complexity. Cooper's 2-stage makes it simple and straightforward to use ABCM in any

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company. As showed in the diagram below, at the first stage the expenses resulting from use of tangible and intangible resources are associated to activities via allocation basis. At the second stage total cost of each activity is spread over products and customers with the help of cost drivers such as machine hours, number of set ups and number of set ups according usage of these activities (drivers) by each product.

This method is taken as a benchmark by most practitioners for implementation and use of ABC for the easy and comfort it produces. Regarding, cost drivers Cooper (1998) proposed them in three types in accordance with the nature of the activity; transaction; duration and intensity drivers

*Transaction drivers* do not make difference by volume or complexity of products treated by a particular activity. For instance setting up the equipment for the production of ten products does not differ from doing so for one thousand products. In the same way the procedure of ordering ten units of material does not differ from doing so for ten thousand. Therefore for such activities transaction drivers are most appropriate. Examples of transaction drivers are making orders, processing orders, engendering and planning production, setting up the machinery, dining, business travel and so on.

*Duration drivers* take into account complexity of objects treated by a particular activity. For example shipping final goods is classified by weight-distance which is duration driver. In this case using transaction driver would give distorted cost of shipping products of different size and weight if for instance just distance was taken as driver disregarding weight of the goods or vice versa. Examples of duration drivers are processing heterogeneous orders, moving materials, processing, storing final products and shipping.

*Intensity drivers* treat each product or customer individually given their distinct and heterogeneous features. For instance marketing activity of one product is best measured when it is calculated according to all resources *actually spent* on it. Any driver specified above can be taken as intensity driver if each product or customer is distinct. Shipping can be duration driver if the product is wooden furniture whereas it is intensity driver if the product is granite sculptures.

In this part of the research we looked at two of the most important innovations in ABCM model which make it simpler and user friendly. Cooper's introduction of two stages help the managers employ ABCM model in two simple steps. First step being deriving the cost of activities through activity cost drivers while the second actual costing of products through product cost drivers.

#### FOUR EASY STEPS OF IMPLEMENTING ABCM

ABCM model is very handy for *Planet Tour Co* as it produces fair costs of each activity done by the business. Implementation can be done:

sorting the expenses into categories; building the activity dictionary; identifying operating costs of each activity (EAD matrix); identifying cost of each product (PAD matrix).

The implementation of ABCM into any business is made stress free through these steps. However, the practitioner still has to take adequate caution in each steps listed above.

*Sorting the expenses into categories* did not involve much hardship; following expense categories were derived from company accounts. Main accounts assessed were 16<sup>th</sup> – regarding administrative, commercial and other non production expenses and 94<sup>th</sup> – on production overhead expenses. Besides, company balance sheet, profit and loss

account and cash flows were also examined in order to have clearer picture of the business expenditures.

**Table 1: Operating Cost By Expense Categories in Planet Tour Co. 2009**

Expense Categories (Resources) for one person for 10 days tour to Kyrgyzstan	USD	Allocation Basis
Return Tickets	250	actual use
Living expenses	470	nights
Administration	10	actual use
Business Insurance and Legal Expenses	10	actual use
Excursion costs (to lakes Issiqkoul and Sarichelek)	95	kilometers
Depreciation	4	Dollar use of resources
Dining	100	number of tourists
Electricity	14	machine & labor hours
Fix, License & Other Services	5	number of services
Office expenses	6	actual use
Guide expenses	13	days
Transfer expenses (airport-hotel-airport)	12	kilometers
Taxes	7	actual use
Rent	12	space & actual use
Commissions	4.7	number of garbage service calls
Miscellaneous	2.3	none
Total	1015	

Source: Planet Tour Co.

- *Building the activity dictionary* was one of the most challenging parts as neglect or misspecification of any activity would distort the whole model. Many people in the company were interviewed both managers and front line employees in order to construct appropriate activities dictionary. As a result the list of activities given in Appendix 2 was achieved.
- As a next step expenses were associated with each activity using allocation basis of each expense category to form expenditure-activity-dependence (EAD) matrix. EAD matrix on its own was formed in 2 steps; first the proportion of usage was determined, then the expenses were divided among activities according to these proportions (Appendix 3). Determining these particular proportions required going through every expenditure incurred during the year and identifying which activity brought about it. At the final step the cost of each product, concentrate, puree and juice was identified through product-activity-dependence (PAD) matrix as exhibited in Appendix 4. This matrix was formed in 2 steps as well. Just like in previous case first the proportions of activity consumption (e.g. drivers – number of orders, machine hours) by each product was identified through studying the company accounts and interviewing with the personnel. Then the operating cost of each activity was distributed over each product or service in accordance with these proportions.

### Interpretation of results

The last 2 steps of Cooper's 2-stage implementation method for ABCM model was developed further by Roztocki (2007). Namely he introduced matrices for both stages; EAD for the first stage and APD for the second stage which make it easier to derive costs of activities and products. As displayed in Appendix 3 (the matrix was not put in the text for it is too large) deriving the cost of individual activities is made trouble-free with expense-activity-dependence matrix. The activities ranging from Marketing to Managing the Business take their portion in each expense category (resources) through determined allocation basis. The portions of expense associated to an activity then add up to for the operating cost of that activity. Mathematically it looks like

$$OCA(i) = \sum_{j=1}^M Expense(j) \times EAD(i, j)$$

where:

$OCA(i)$  – Operating cost of activity  $i$

$M$  – Number of expense categories

$Expense(j)$  – Dollar value of expense category  $j$

$EAD(i, j)$  – Entry of  $i, j$  of Expenditure -Activity-Dependence matrix (portion of Activity  $i$  in Expense  $j$ )

Using this formula the operating cost of each activity was determined. Given likeliness of cost drivers in 10 activity groups, they were used rather than 36 individual activities.

Activity	Operating Cost
Marketing	25.8
Purchasing of air tickets	250
Plan services	24.9
Guiding	34
Manage Hotel services	470
Control Quality	33.7
Organize tourists trips	76
Service Customers	35.6
Develop Employees	27
Manage Business	38
Total	1015

The second matrix proposed by Roztocki, Activity-Product-Dependence matrix implies deriving cost of each product as sum of the portions of each activity consumed by this product through amount of cost drivers associated to each activity. Mathematically

$$CP(i) = \sum_{j=1}^M OCA(j) \times APD(i, j)$$

where:

$CP(i)$  – Cost of product (or service)  $i$

$M$  – Number of activities

$OCA(j)$  – Operating cost of activity  $j$

$APD(i, j)$  – Entry of  $i, j$  of Activity-Product-Dependence matrix (portion of Product  $i$  in  $OCA(j)$ )

Using this formula the production cost of each service stage was determined.

As it can be seen the total of cost of each activity is spread over individual service steps via the number of cost drivers used by this product. And the total of portions of each activity consumed by individual products gives the cost of this product. Besides giving precise cost indicators Cooper's two-stage and Roztocki's consequent matrices on ABCM make it easy to track each cost back to resources (expense categories) which is very important. Once the managers see

Activity	Operating Cost of Activity	On Preparation	On Performance	On Controlling and Monitoring
Marketing	25.8	21.4	0	4.4
Purchasing of air tickets	250	250	0	0
Plan services	24.9	22.9	0	2
Guiding	34	0	30	4
Manage Hotel services	470	460	0	10
Control Quality	33.7	0	23.2	10.5
Organize tourists trips	76	21	43	12
Service Customers	35.6	11.4	14.3	9.9
Develop Employees	27	8	9	10
Manage Business	38	13	15	10
Total	1015	807.7	134.5	72.8

the source of each cost component of products they can decide on degree of processing and reengineering. For instance if the managers see that production of concentrate is highly electricity intensive, they may invest in new equipment in order to cut on electricity consumption of this product or decide not to process this product at all. The following is explanation of cost structure of *Planet Tour Co.* by activities and service steps.

*Activities, Allocation Basis and Operating Costs of Activities*

As said in previous chapters, there were identified 36 activities in 10 activity groups. These activities each consumed a portion of resources specified in Table 1. The process is explained through EAD matrix. Given the likeliness of activity cost drivers, expenditures are spread over activity groups rather than each activity. The last column of Table 1 shows allocation basis for each expense category.

**CONCLUSIONS**

The research showed that, companies in Uzbekistan are not paying enough attention to their efficiency. Studied companies are trapped with unprofitable products where profitable projects are being neglected. Traditional costing methods such as direct costing and absorption costing are obsolete in today's dynamic business environment where overhead costs make up majority of company expenses. These methods are sufficient only for businesses whose expenses are mainly direct costs which are quite rare currently in Uzbekistan. On the other hand activity based costing and consequently activity based management try to study activates of the business as drivers of costs. Therefore it is logical that they generate fair and accurate costs of products.

Traditional costing methods distribute overhead costs either according to volume or price of the product or service. While this method is partially acceptable in production of standard products with little or no diversification, it gives distorted information about complex production with mixture of standard and specialty products. However, this condition is usually not met in modern business environment of

Uzbekistan where companies try to increase their product range to capture more market niches resulting in buildup of non-volume based cost subjects such as order placement, product engineering and setting up the machines (from production of one product into another). Therefore, for such firms ABCM is highly advocated as they can dig deeper into costs of each activity behind volume output and act upon this information making the firm more efficient and dynamic thus competitive.

What a typical Uzbek company in example of *Planet Tour Co.* can benefit from activity based costing? In the first place it provides the management with *the truth*. ABC discloses the true picture of the business highlights problematic areas and indicates at challenges and opportunities for improvement. *Firstly*, the company may improve its efficiency through small changes which in accounting dictionary is called total quality management (TQM) and kaizen costing in Japan. TQM may include reducing wastage, better employee management (e.g. monitoring cameras) and producing more units in runs (economies of scale). And *secondly*, management may decide to leave out the production of concentrate and outsource instead if it cannot achieve either of the suggestions given above. Even though companies can benefit from vertical integration due to economies of scale, specialization is playing major role in today's business world and one can observe a lot of outsourcing. Another prospect related to activity based costing and management is joining theories in economic value added (EVA) into the process. EVA is an accounting tool which sorts activities of the business according to the level of value they contribute. EVA in its purest message compares marginal productivity of each activity within the organization. Said otherwise EVA scrutinizes in how much resources are spent on each activity and how much value is produced by each of them. Incorporating principles of EVA into ABCM would produce more accurate costs of activities and consequently of products given ABC does not investigate the use of capital by activities. To be more concrete ABC specifies how much activities *spend* but does not specify how much *capital they need* to operate whereas EVA identifies how much *capital each activity requires* to function normally but does not say a thing about their *expenditure*. Therefore EVA would fulfill the gap and perfect the ABCM model. Use of capital by each activity can be identified by a Roztocki matrix with capital resources instead of expenditure categories. Once the company supervisors manage to implement and run ABCM well enough it is the next task for them to construct ABC-EVA model for even better cost management and efficiency.

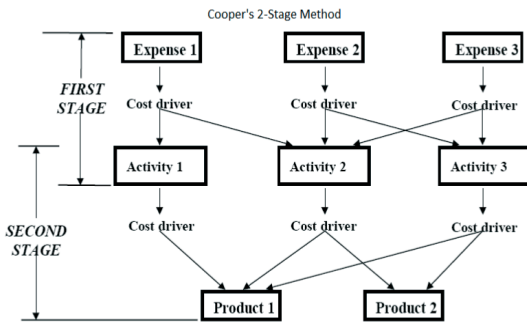
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## APPENDIX



Source: Narczyk Roztocki (2007)