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SOME IMPORTANT FACTORS AFFECTING EVOLUTION OF ACTIVITY BASED COSTING (ABC) SYSTEM IN EGYPTIAN MANUFACTURING FIRMS

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Abstract

The present investigation aims to determine the factors affecting evolution of Activity Based Costing (ABC) system in Egyptian case. The study used the survey method to describe and analyze these factors in some Egyptian firms. The population of the study is Egyptian manufacturing firms. Accordingly, the number of received questionnaires was 392 (23 Egyptian manufacturing firms) in the first half of 2013. Finally, the study stated some influencing factors for evolution this system (ABC) in Egyptian manufacturing firms.

Key words**:** *Activity Based Costing, affecting factors, Egyptian firms, manufacturing , profitability management*

INTRODUCTION

Research on Activity-Based Costing and its applications has mainly been focused on organizations in developed countries. Little has been learnt as to whether ABC techniques can be implemented successfully in organizations in developing countries (Liu and Pan, 2007). Although ,Activity-Based Costing (ABC) is developed to improve the accuracy of product cost data derived from the Activity Based Costing (ABC) is developed to improve the accuracy of product cost data derived from the traditional cost system (Tsai,1996). This helps manufacturing firms in developing countries to improve their competitive position, it has many applications until it became a tool to manage the integrated performance and to support the economical units.

The main objective of the research is determining factors affecting evolution of Activity Based Costing (ABC) system in Egyptian manufacturing firms.

MATERIALS AND METHODS

The authors used the survey method to describe and analyze the factors affecting evolution of Activity Based Costing (ABC) system in Egyptian firms. The population of the study was Egyptian manufacturing firms.

The Activity-Based Costing (ABC) system has passed through many stages of development. Several researchers studied the changes required to implement these systems. Aiyathurai et al. (1991) showed that the Activity Based Costing (ABC) systems has passed through three stages to reach the currently familiar form:

First Stage: The Activity Management (AM): The concentration on the concept of value chain was greater than the financial analysis, where the object from activity management was to specify the activities that do not contribute to this chain to discard them through transforming to use the buying method for just in time selling which results in expelling the activity which keeps the stock. This Stage aimed also to support and improve the contributions of the remainder through quality and speed of response to the customers' requirements.

Second Stage: The Activity Cost Accounting (ACA): This stage was to ensure that all costs were minimized through specifying the cost drivers and their links with the activities and follow up their reactions with other activities.

Third Stage: Activity-Based Costing System (ABC): This system gives great importance to analyze the costs to specify accurately the costs of supplied products or services which enable the decision-makers to take wise pricing decisions. In addition that this system is considered the best one in analyzing and estimating the costs for special objectives.

Turney and Stratton (1992) stated two dimension model for the Activity Based Costing (ABC) system (Fig.1).

They added process views to the view related to the costs i.e. cost view where the costs view concentrates on allocating the costs which occurs through the following two stages:

First Stage: The resources costs are allocated to the activities through cost drivers which are linked to these resources.

Second Stage: The activities costs are loaded on the cost target regardless if it was a product or a service.

The process view concentrates on continuous improvement of performance through providing non-financial information about the cost drivers, which in turn added a strategic view to these activities.

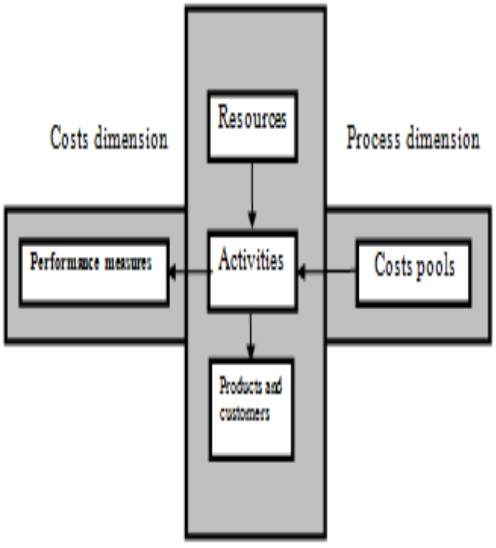

Fig.1. Two dimension model for Activity Based Costing (ABC) system.
Source: Turney and Stratton (1992).

Attempts to develop Activity Based Costing (ABC) system continued. Kaplan and Anderson(2004) gave a modernization of Activity Based Costing (ABC) systems which is Time-Driven Activity-Based Costing (TDABC). They used the modern concept to overcome the difficulties which appeared when implementing ABC systems widely.

On the same subject, Namazi (2009) stated that the important differences between the well-known Activity Based Costing (ABC) systems which were called the Traditional ABC systems and between the new system called the Time-Driven Activity Based Costing (TDABC) system which takes the following forms:

a.Using the Time-Driven Activity Based Costing (TDABC) for the targets of costs(Departments, deals, products, services, customers).

b.The new system cancels the first step of the traditional system steps (Design various activities) where according to this new system, the activities are not specified.

The new system shows the costing process without relying on allocating the cost of resources on the activities before allocating them to various costs targets.

c.The new system determines the un-exploited energy through determining the general costs in advance through estimating them on basis of the practical capacity and determining the costs based on average use of the activities.

d.The new system can deal with the complications of production or services and determining the distribution the exploitation of the various resources.

On a related subject, Everaert and Bruggeman (2007) showed that the new concept can be implemented to the Activities Based Costing (ABC) system by depending on Time-Driven Activity Based Costing(TDABC) system and by using the following steps:

-Determining the various resources collections required to perform the activities.

-Estimating the costs for each group of resources.

-Estimating the practical capacity for each group of the resources.

-Collecting the cost of the producing unit for each group of resources so that the total costing can be divided for each group of resources based on the practical capacity.

-Determining the time required for each of the activity events based on various time pools.
-Calculating the cost for the cost target through multiplying the Unit Cost (Step D) by the required time (Step E).

Turney (2010) studied the stages of development of Activities Based Costing (ABC) system. He showed that the beginning of ABC was during the period from 1984 until 1987 as an attempt to face the severe competition imposed buy the Japanese Companies on the Western Companies. These accounting systems passed through four generations during the Period of 1987 – 2010. He also added that these systems gained additional values and features with the successive generations which may be explained as follows:

1)**The period (1987 – 1991): The first generation:** During this period, the concentration was in an attempt to reach an accurate costing for the products and maximizing the profitability through determining reasons to increase the costs and reduce profitability or losses. The cost measure in this stage was extended to cover customer costing measure and cost of the activity.

2)**The period (1991 – 1995): Appearance of criticisms:** Appeared many criticisms to these systems because of change of attention to some other administrative methods such as: Re-engineering the processes, Enterprise Resource Planning (ERP), Balanced Scorecard (BSC), Theory of Constraints (TOC). The study also showed that this subject led to confusion on the Activity Based Costing (ABC) systems.

3)**The period (1995–2000): The second generation:** The concentration in this stage was on correcting the overhead costs and customer profitability analysis. Also, attention was transformed to utilizing from these systems to various other scopes on costs accounting systems such as: administration, sales, marketing, research and development, supply chain and logistics. During this time period, predictive modeling was built to calculate the costing of resources, capacity planning and opportunities for costs reduction.

4)**The period (2000 – 2006): The third generation:** During this period, the rates of implementing these systems in the economical units were increased and many methods appeared to reduce the efforts and costs related to implementing these systems. This period showed the use of following system such as: enterprise ABC solutions because the Enterprise Resource Planning (ERP) systems were not able to direct the managements of economical units towards the products or services to improve the financial performance of these units. The Activities Based Costing (ABC) systems performed this role well. Many improvements on the above mentioned systems appeared such as sharing in building models to services pricing models and determining target costing for product design and other uses.

5)**The period (2006 – 2010) : The fourth generation:** During this period, Activity Based Costing (ABC) systems were used as an integrated system to manage the performance in the economical units which included profitability management, performance management, financial management and Human Capital Management (HCM).

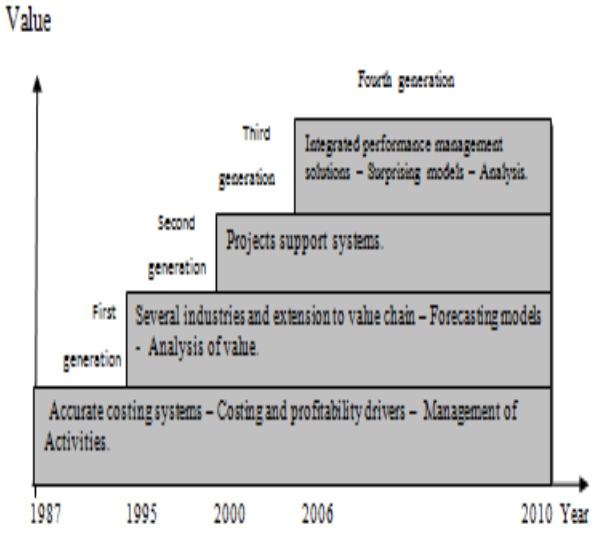

Fig.2. The four generations of Activity Based Costing (ABC) system.
Source: Turney(2010).

These system played an important role in the financial planning, capacity planning, implementing the strategies, supporting the products, markets and targeted customers through analytical models which were built Fig.2 shows the four generations of Activity Based Costing (ABC) system.

It may be noticed that Activity Based Costing (ABC) systems passed through many developments during period of 1987 – 2010.

It was directed towards accounting the costs; but it passed through stages and developments made it has many applications until it became a tool to manage the integrated performance and support to the economical units.

The authors used the questionnaire instrument in addition to the test approach to confirm the correctness of views collected. The number of questionnaire instruments sent was 478 and the number of the received questionnaires was 392 with a response percentage of 82%.

The study used a Statistical Package for the Social Sciences (SPSS) for application of reliability, descriptive and inferential statistics.

RESULTS AND DISCUSSIONS

Reliability

The correlation coefficient between the dimensions (factors) was significant (at level 1%) and the Cronbach - Alpha Coefficient was 79.83.

Descriptive

Table 1 shows values of mean and Standard Deviation (S.D.) of survey dimensions (affecting factors).

Table 1.Descriptive statistics values.

No.	Dimension (Factor)	Mean	Std. Deviation
1	Profitability management	4.658	0.568
2	Performance management	3.408	0.492
3	Human capital management	2.699	0.777
4	Financial planning	4.209	0.680
5	The strategies planning	3.612	0.804

Source: SPSS output.

The descriptive statistics analysis of dimensions effect (affecting factors) showed that the mean values for profitability management (4.658) > financial planning (4.209) > the strategies planning (3.612) > performance management (3.408) > human capital management > (2.699).

Also, the Standard deviation (S.D.) values for the effect of factors mentioned above were 0.568, 0.680, 0.804, 0.492 and 0.777 respectively.

Inferential statistics

Table 2 shows output of Friedman Test values.

Table 2.Output of Kendall's W Test (Ranks and test statistics)

a. Ranks

Rank	Mean Rank
Financial planning	3.875
Human capital management	1.340
Performance management	2.400
Profitability management	4.549
The strategies planning	2.834

b. Test statistics

Test Statistics

N	392
Kendall's W[a]	.764
Chi-Square	1197.968
df	4
Asymp. Sig.	.000

a. Kendall's Coefficient of Concordance

Source: SPSS output.

From Table 2, it may be observed that there are significant differences between the factors affecting evolution of Activity Based Costing (ABC) system in Egyptian firms.

CONCLUSIONS

Activity-Based Costing (ABC) has many applications even it became a tool to manage the integrated performance and support to Egyptian manufacturing firms.

But in Egypt, there were significant differences among some important factors affecting evolution of ABC system.

These factors may be arranged , in descending order, according to effect severity on evolution of ABC system in Egyptian firms as follows:

a)Profitability management,
b)Financial planning,
c)The strategies planning,
d)Performance management and
e) Human capital management.

REFERENCES

[1]Aiyathurai, G., Cooper, W. W., Sinha, K.K., 1991, Note of activity accounting. Accounting Horizons, 5(4):60- 88

[2]Everaert, P., Bruggeman, W., 2007, Time - Driven Activity Based Costing : Exploring the underlying model. Cost Management.Boston, 21(2):16-20

[3]Kaplan, R., Anderson, S.R., 2004, Time-Driven Activity -Based Costing. Harvard Business Review. Boston, 82 (11):131-138

[4]Liu L.Y.J., Pan, F., 2007, The implementation of Activity-Based Costing in China:An innovation action research approach. British Accounting Review, 39: 249–264.

[5]Namazi, M., 2009, Performance -focused ABC: A third generation of Activity Based Costing system. Cost Management. Boston, 23 (5) :34-46.

[6]Tsai, W., 1996, Activity-Based Costing model for joint products. Computers and Industrial Engineering, 31(3/4): 725 – 729.

[7]Turney, P. B., 2010, Activity Based Costing : An emerging foundation for performance management. Cost Management. Boston, 24(4):33-42.

[8]Turney, P. B., Stratton, A.J., 1992, Using Activity Based Costing to support continuous improvement. Management Accounting,74(3):46-50.