The Reflection of the application TD-ABC approach on profits persistence Applied study in the General State of Hydraulic Industries Factory of Plastic*

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Abstract

The interest of many companies has become dealing with the tools and methods that reduce the costs as one of the most important factors of successful companies, and became the subject of the attention of many economic units because of the impact on the profits of company, and since the nineties of the last century the researchers and writers gave great attention to this subject, especially in light of the large competition and rapid developments in cost management techniques, as well as the wide and significant change in production methods that have been directed towards achieving customer satisfaction, all this and more driven by economic units in all sectors whether it is service or productivity to find methods that would reduce the costs and thereby increase the profits. As well as achieving a market share compared to economic units operating in the same sector.

This study seeks to apply the method of reducing the manufacturing factory overhead costs through the use of time-driven activity-based costing. The aim of the research is to use this technique and to determine the effect of this method in measuring the profit persistence of the company. The traditional method used in the company the research sample to determine the indirect costs and the extent of its impact on the measurement of the profit persistence, the definition of the concepts and characteristics of the method of cost-based activity and the cost method based on time-driven activity and justifications applied to companies, so, the research problem was that the traditional method used by the company the research sample in determining manufacturing factory overhead costs is not fair and objective as it builds the actual basis for determining manufacturing factory overhead costs at the level of the factory as a whole. Consequently, it does not represent cost-effective information that reflects the cost-effectiveness of the plant in the sample of the research and in a manner that affects the profitability of the company the research sample and thus in measuring the profit persistence.

Keywords : **Time-Driven Activity-Based Costing Approach, profits persistence traditional Approach of allocating manufacturing factory overhead.**

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Introduction-:

As a result of the rapid changes in modern manufacturing methods, as well as the tremendous technical progress in the methods of production, which led to the development of products to serve the needs of the customer and thus achieve profitability proportion with the objectives of economic unity, Therefore the importance of using the cost management methods increased , one of it was the method of determining the manufacturing factory overhead costs based on the time-driven activity which leads to distribution of an indirect costs with objective and appropriate form on the activities by using the costs drivers based on time that's lead to decreases the disadvantages of traditional method of the distribution of an indirect costs , So , the research importance was came , the research importance represents to highlight the weak points in the application of the traditional method to determining the indirect costs in the research sample company by showing its impact on the results of the profitability measure in the company.

By this way, we explain the effect of the application of the traditional method and its impact on the profit persistence, which justify the necessity for a method of allocation and distribution of indirect costs objectively through the application of TDABC approach.

The First Section

Research methodology

1: Research Problem :

The problem of the study lies in that the company which consider the sample of the current study applied the actual method of representing manufacturing factory overhead costs , in itself forced to Inappropriate allocation that a reason of the most of indirect costs elements vs the time factor which means there is a difficult to know the magnitude of the manufacturing factory overhead costs before the end of the period time Which requires resorting to the method of loading on the produced units by the apply rates as well as the difference in the indirect costs nature that some of it relates with the activity size (Number of produced units) while the other part of these costs related with the element of production energy , sometimes these costs relate with the element of time that's leads the accountants to find a solution to this problem in which the others faced the difficulties to determining a share of the one unit of these costs , besides the difference of manufacturing factory overhead costs behaviour vs the changing of production size which includes the indirect fixed costs and indirect variable costs that leads to the difficulty of allocating it on the produced units .

The sample research company is described by many products that are increases of difficult to determine the share of each product of the factory manufacturing overhead costs that makes the accountant find a method to allocate manufacturing factory overhead costs to the produced units. Which affects the appearing counts in the financial statements then the profitability of the company, which is reflected on their indicators.

2 : Research question:The study attempts to answer the following question :

Is the time-driven activity based on costing approach (TDABC) represent the most objective approach comparing with the traditional method, and leads to achieving profit persistence?

3: Research Objectives: The research aims to achieve the following objectives:

1. Identify the adopted method to allocating manufacturing factory overhead costs of the paper sample company.

2. Identify the approaches (ABC) and (TDABC) through the concepts , the importance , the goals , the properties and features to Identify the continuity of sustainable profitability .

3. Identify important points that are the basic justification for applying the determining cost approach according to time-driven activity (TDABC) in the sample company .

4. Comparing the traditional approaches and the modern approaches (ABC)(TDABC) , and their effects on the continuity of sustainable profitability in the company .

4: The importance of the Research :

The current study focuses the weakness points of applying the traditional approach for determine the manufacturing factory overhead costs in the sample company by indicate its impact in the results of the continuity of profit persistence in the sample company , through which the study explains the impact of applying the traditional approach and its impact on the continuity of profit persistence that justifies the necessity of the approach of allocating and distribution the manufacturing factory overhead costs objectively by applying time driven activity based on costing approach (TDABC).

5:Research Hypotheses: the study is based on the main hypothesis:

The applying of time-driven activity based on costing approach (TDABC) in allocating of the indirect costs leads to measure of sustainable profitability in objectively and appropriate form more than using the traditional approach of allocating of the indirect costs , so this hypothesis has the following branches :

1. The applied traditional approach in the sample company to allocate the manufacturing factory overhead , don't present appropriate information about the cost to measure the profit persistence.

2. The applied time driven activity based on a costing approach (TDABC) in the sample company to allocate the indirect costs presents a piece of appropriate information about the cost to measure the profit persistence.

6 : Research Limits :The study limits represented by the following:

1.The locational limits : the study rang includes the General state of the hydraulic industries – factory of plastic in Baghdad City.

2.Time limits : the data of General state of the hydraulic industries – factory of plastic represent the sample of the current study for (2014 – 2015).

7 : Society of the Research and its sample :

Due to the role of the Iraqi industrial companies in supporting the national economy and its contribution to economic development, therefore the study society in all the industrial companies in Baghdad governorate. The sample of the study is the General state of Hydraulic Industries - Factory of Plastic .

8: Reasons for choosing the sample company :There are many reasons which lead the researchers to choose the sample company :-

1- Because of the multiplicity of products as the production is wide as well as this factory specializes in the production of plastic products.

2- The factory applies the traditional approach of distribution of manufacturing factory overhead costs , which does not lead to correct decision making. The plastic factory needs a modern and scientific approach that reflect on the profitability of the factory, which leads to better decision making than the traditional approach.

3- The products in the factory are according to the customer's request, depending on the length, diameter and thickness. Therefore, the researcher chose 10 pipes with different sizes to apply the TDABC approach to these pipes. Then the effect of this product in the measure of the profit persistence.

9. Research Method :

a. For the purpose of preparing the theoretical side of the current study , the researchers relied on the literature, books , periodicals, doctoral dissertations, master's thesis, and what is available on the Internet and the websites dedicated to accounting, financial management .

b. in the practical side of the study depends upon the information of costs available in the financial statements and reports of the plastic factory within the General state of Hydraulic Industries for the years 2014, 2015. For the purpose of measuring the index of profit persistence, the statistical method SPSS was used depending upon the following equations:

Xt+1 = at + B1.CFO +B2. At +Et. // $X_{t+1} = \alpha + \beta X_t + \varepsilon_t$..

The second section

Theoretical Framework

1. Activity-based costing is a method that quantifies the cost and performance of activities, resources, and cost purposes, specifically, resources are assigned to activities, therefore activities are specified to cost purposes base on their use. ABC presents the motive relationships of cost drivers to activities. (Institute of Management Accountants, 1998), ABC method starts (Hughes &Gjerde, 2003) with the company's products, determined the activities used in the producing and delivery of those products, and compute the costs of various activities. The

costs of the activities used in the producing of a product are then specification to that product in a manner that approximates a causal relationship. As a result, supporters insist that ABC systems provide more useful information for cost management purposes than traditional systems do. These variations are significant for companies with large amounts of overhead, multiple products, and high product variety. In today's competitive environment companies require credible cost system and relevant cost information to survive. By implementing an ABC system managers will get accurate information about the true cost of products, services, processes, activities, distribution channels, customer segments, contracts, and projects. Traditional costing and ABC differ in the following way :(James A., 1997)

a.Traditional cost accounting methods assigned of manufacturing factory overhead costs on products (and to any cost object) based on characteristics of a single allocation factor that is typically not causally related to the type and level of work consumed.

b. Traditional cost allocation factors include the number of direct labour hours required to manufacture a unit, the cost of that direct labour, the purchase cost of merchandise resold, or the number of days occupied. These are broad averages that do not reflect causality for indirect expenses.

c.The problem is that use of these allocation methods results in allocations that vary with changes in the allocation basis.

d. ABC systems recognize that individual products or customers do not consume indirect expenses in those proportions. Instead, they focus on the work activities of people and equipment required to produce each product or provide each service, and their consumption of each of those activities.

2.Time-Driven Activity-Based Costing(TDABC) Is a useful cost management technique developed by Kaplan and Anderson (2014) , TDABC assigns resource costs directly to cost objects using a fast and simple framework that only requires the unit cost of supplying resource capacity, and an estimation of the time duration of an activity (Kaplan & Anderson , 2007) for each activity (Guzman et al. 2014) , was designed to eliminate the problems in ABC approach implementation and operations (Basuki, B & Media nsyaf, M.D, 2014) . defined as a system which id developed in order to remove such problems , and it's when compared to traditional ABC are easiness low costs , installation and improvement , flexibility and system simplicity . (Ayvas and pehlivanli , 2011), TDABC is an emerging alternative approach for costing that addresses all the problems and limitations of the ABC as highlighted above. It is simpler, less costly and faster to implement. And allows cost driver rates to be based on the practical capacity of the resources supplied.(Kaplan and Anderson ,2004).

In the TDABC approach appears the notion of "time equation" which divides the total time required to perform a particular action into a linear combination of various tasks of the operation, multiplied by the amount of time for each task. Typically, time equation building is based on interviews of employees about the time that they spent on performing particular tasks. The costs of the interviews are seen as significant disadvantages of the classical model of ABC calculation. The calculations based on the TD-ABC. [Guzman et al. 2014], (Adioti and Valverde 2014), (Mandigo et al. 2015), also include these costs, but they are much lower. (Pawlyszyn, I, 2017).

3.Advantages of TDABC approach :The TD-ABC characterized by the following features: Kaplan and Anderson (2007)

1. **Easier and quicker to depend on the accurate model.**
2. **It integrates well with the data now available from Customer relationships management (CRM) , (ERP) systems and customer relationships (this makes the system more dynamic and less dense than people.**
3. **Drives costs to transactions and orders using specific Features of certain orders operations, providers, and customers.**
4. **Can be work monthly to hold the economics of the most recent processes.**
5. **Supplies view to process adequacies and capacity employment.**
6. **Predicts resource requests, allow corporations to budget for resource capability on the basis of foreseeing order quantities and involvement.**
7. **Is facile, scalable to corporate extensive models by undertaking – scalable implementation software and database technologies.**
8. **Can rapid and cheap sample maintenance.**
9. **Providers desirable information to help users with identifying the origin reason for the problem.**
10. **Can be applied in any manufacture or corporation with, involvement, in customers, products, channels, parts and operations and great amounts of people and capital expenses.**
11. **The technique allows the manufacturing factory overhead costs only until the one-time equilibrium, which involves all particular parts of select activity in the corporate's database of activities. TDABC assigns in top and fairy track the costs to the suitable activity, customer, part or product.**
12. **TD-ABC approach finds the potential of unused capacity, can operational perfection, regards interaction between time drivers, discover the process without value in the style of the effect of costs and charges in Production, loading, delivering, stock. Etc. TDABC is the perfect device for the design of new competitive strategy of provisions chain not only with other members of the chain, but also between special corporates departments and as the device to distinguish the profitability of company's customers and new market chances. (Dejenga, 2011).**
13. **The main features of TDABC put progress by its designers are that it supplies a reply to the shortages of the ABC method.(Gervais, at el.,(2010).**

4.Steps to apply the TD-ABC approach : implementation of TD-ABC approach has the following procedures :

1. Identity of resources sets. (Guzman, 2014:166)
2. Assessment, of costs on each set of sources. (Brugemann 2005)
3. Assessment, of practical time capacity of each group of sources.(Kaplan and Anderson ,2004)
4. Compute the unit cost of each the set of sources by classified total costs group of the source set by their ready capacity. (Kaplan and Anderson, 2004)
Mine
5. Determine the required time per each event of an activity based on different time drivers. (Kaplan and Anderson, 2004)
6. Strike the unit cost by the time wanted to effect costs to cost objectives. .(Kaplan and Anderson ,2004)
5. The profit persistence: is based on experiential fulfilment of the dynamics of corporate-level profits. This constitutes an exit from the static, line -sectional methodology that is prevalent in much of the literature based on the structure behaviour performance paradigm and the New Industrial Organization (NEIO) literature. (Arellano, M., Bond, S., 1991). In its strongest style, the profit persistence hypothesis developed by Mueller (1977, 1986) concludes of two conditions. First, entry and exit are sufficiently free to remove any firm's abnormal profit speedily. Second, all firms" profit averages tend to converge towards a similar long-run average value. The second case is stronger than the first; and under a less restrictive version of the profits persistence hypothesis, abnormal profit averages dissipate quickly and convergence of profit rates is across long-run average values that may vary between corporates. (Goddard, al et, 2010).

The third section

Practical side

1. The traditional method used by the company will be explained in the following tables (1) and (2).During the period 2014-2015 as follows :-

3.1: calculate the total costs on base the traditional approach in the years 2014 and 2015

Table (1) Cost statement by the traditional approach at the year 2014

No	Product name	Raw materials cost	Direct labour cost	Manufacturing factory overhead	Total manufacturing costs
1	20mm diameter tube with 6 bar pressure	12350000	560000	204125	13114125
2	0.5 inch diameter tube with 6 bar pressure	23530000	1400000	360312.5	25290132.5
3	4.3 inch diameter tube with 6 bar pressure	35295000	1864000	446587.5	37605587.5
4	1 inch tube with 16 bar pressure	52550400	2800000	620625	55971025
5	1.5 inch tube with 10 bar pressure	85394400	3200000	720000	89314400
6	2 inch tube with 10 bar pressure	136068000	3504000	776525	140348525
7	2.5 inch tube with 4 bar pressure	86332800	3736000	844662.5	90913462.5
8	3 inch tube with 4 bar pressure	150144000	5600000	1191250	156935250
9	4 inch tube with 4 bar pressure	273020000	11200000	2257500	286477500
10	5 inch tube with 6 bar pressure	472953600	22400000	4365000	499718600
Total		1327638200	56264000	11786588	1395688788

Prepared by the researchers depending upon the company data 2014

Table (2) Cost statement by the traditional approach at the year 2015

No	Product name	Raw materials cost	Direct labour cost	Manufacturing factory overhead	Total manufacturing costs
1	20 mm diameter tube with 6 bar pressure	9987500	344000	88962.5	10420462.5
2	0.5 inch diameter tube with 6 bar pressure	30080000	1400000	285312.5	31765312.5
3	4.3 inch diameter tube with 6 bar pressure	45825000	1864000	371587.5	48060587.5
4	1 inch tube with 16 bar pressure	75000000	928000	197550	76125550
5	1.5 inch tube with 10 bar pressure	171490000	1864000	438575	173792575
6	2 inch tube with 10 bar pressure	270250000	2800000	646250	273696250
7	2.5 inch tube with 4 bar pressure	173750000	1864000	438575	176052575
8	3 inch tube with 4 bar pressure	250000000	3728000	852150	25458015
9	4 inch tube with 4 bar pressure	375000000	5600000	1267500	381867500
10	5 inch tube with 6 bar pressure	750000000	750000000	4995000	777395000
total		2151382500	42792000	9581462.5	2203755963

Prepared by the researchers depending upon the company data 2015

1. calculate net profit each product under the traditional approach at years 2014 and 2015 . as follows in tables (3) and (4).

Table (3) profits statement factory of plastic – Tubes production line 2014

No	Product name	Number of units sold	Price sale per unit	Sales revenues	Total manufacturing costs	Gross profits	Administrative and marketing costs	Net profit
1	20mm diameter tube with 6 bar pressure	50000	301.62	15081000	13114125	1966875	655706.25	131116875
2	0.5 inch diameter tube with 6 bar pressure	100000	290.84	29084000	25290312.5	37936875	1264515.63	252917187
3	4.3 inch diameter tube with 6 bar pressure	100000	432.46	43246000	37605587.5	5640412.5	1880279.38	3760133.12
4	1 inch tube with 16 bar pressure	100000	643.67	64367000	55971025	8395975	2798551.25	5597423.75
5	1.5 inch tube with 10 bar pressure	100000	1027.12	102712000	89314400	13397600	4465720	8931880
6	2 inch tube with 10 bar pressure	100000	1614.01	161401000	140348525	21052475	7017426.25	14035048.75
7	2.5 inch tube with 4 bar pressure	100000	1045.50	104550000	90913462.5	136365375	4545673.13	9090864.37
8	3 inch tube with 4 bar pressure	100000	1804.76	180476000	156935250	23540750	7846762.5	15693987.5
9	4 inch tube with 4 bar pressure	100000	3294.49	329449000	286477500	42971500	14323875	28647625
10	5 inch tube with 6 bar pressure	100000	5746.76	574676000	499718600	74957400	24985930	49971470

Prepared by the researchers depending upon the company data 2014

Table (4) profits statement factory of plastic – Tubes production line 2015

no	Product name	Number of units sold	Price sale per unit	Sales revenues	Total manufacturing costs	Gross profits	Administrative and marketing costs	Net profit
1	20mm diameter tube with 6 bar pressure	50000	239.67	11983500	10420462.5	1563037.5	521023.13	1042014.37
2	0.5 inch diameter tube with 6 bar pressure	100000	365.30s	36530000	31765312.5	47646875	1588265.63	3176421.87
3	4.3 inch diameter tube with 6 bar pressure	100000	552.70	55270000	48060587.5	7209412.5	2403029.38	4806383.12
4	1 inch tube with 16 bar pressure	100000	875.16	87516000	76100580	11415420	3805029	7610391
5	1.5 inch tube with 10 bar pressure	100000	1998.61	199861000	173792575	26068425	8689628.75	17378796.25
6	2 inch tube with 10 bar pressure	100000	3147.51	314751000	273696250	41054750	13684812.5	27369937.5
7	2.5 inch tube with 4 bar pressure	100000	2024.60	202460000	176052575	26407425	8802628.75	17604796.25
8	3 inch tube with 4 bar pressure	100000	2927.67	292767000	254580150	38186850	12729007.5	25457842.5
9	4 inch tube with 4 bar pressure	100000	4391.48	439148000	381867500	57280500	19093375	38187125
10	5 inch tube with 6 bar pressure	100000	8940.04	894004000	777395000	116609000	38869750	77739250

Prepared by the researchers depending upon the company data 2015

1.The next step is to apply a TD- ABC Approach to company data for the years 2014 and 2015:- to determine the resources connected with the factory of plastic. The records showed centres of cost (2014):
Salaries (56264000) ID, Raw materials (1327638200) ID, Maintenance expenses (873337.5) ID, Exhaustion (10461587.5) ID, water and electricity (1325000) ID, Administrative and marketing expenses (56893439.39) ID .
3.4: To determine the actual practical capacity, the cost of the resources energy based on time for each activity .
The practical capacity = (6 w4orking hours* 60 minutes) – (30 minutes over)=330 minutes each day.
365days - (96 official weekend holidays + 20 days representing religious occasions and holidays) = 249 days * 330 minutes = 82170 minutes at year.
The practical energy of workers = (82170 * 6 workers) = 493020 minutes
The practical energy of the machines = (82170 * 1 pipe production line) = 82170 minutes
3.5: After the researchers identified the practical energy of the workers and the determination of the practical energy of the machines, then the cost of resources energy will be determined by time for each activity.
Table (5) the rate of the resources costs for every activity

Resource type	Costs	Drive of resources costs	Practical capacity Individuals / machines (minutes)	Rate of resources costs
Salaries	56264000	Practical capacity Individuals	493020	114
Raw materials	1327638200	Practical capacity Machines	82170	16.157
Maintenance expenses	873337.5	Practical capacity Machines	82170	10.628
Exhaustion	10461587.5	Practical capacity Machines	82170	127
water and power	1325000	Practical capacity Machines	82170	16.125
Administrative and marketing expenses	56893439.39	Practical capacity Individuals	493020	115

Prepared by the researchers depending upon the company data 2015

After the researchers conducted the actual observation process and the process of inquiry with the staff to determine the stages or steps necessary to complete the process of production of pipes and determine the times for each stage of the production process The researchers chose (10) different pipes in terms of size, diameter and pressure, and determined the actual times (10) tubes. During the stages of the production process, the following table shows the steps and determining the necessary times.

• **Production is for pipes (1000) and for pipe (20mm) represents the total production (500) where the time is multiplied * Total production = total time required to produce each tube.**

Table (6) Determine the time of activities for (10) tubes Related to the production process(time in minutes)

Activity	Tube 20	Tube 0.5	Tube 4.3	Tube 1	Tube 1.5	Tube 2	Tube 2.5	Tube 3	Tube 4	Tube 5
Preparing Raw materials for the machines to produce the tubes	1	1.2	1.3	2	2	2.5	2.7	4	8	9
Heating the plastic grains to reach melting degree	2	2	3	2	1	1.6	1.7	1	2.1	4
Extrude the fluid material within the die to get required product	4	5	6	10	11	12	13	20	20	21
Cooling the product within the cooling system to get the required properties	3	3	5	7	8	9	10	15	30	31
Package stage for produced tube by twisting machine to get the required length	1.8	2	1.2	1.4	1.4	1.5	1.5	1.8	1.6	3.3
Testing the tubes by lab.& measuring instruments For the purpose of confirming before delivery	1.5	1	1	2	1.2	2	3	1	1	2

Prepared by the researchers depending upon the company data

Table (7) The total time required to produce each tube (the time * total production)

Activity	Tube 20	Tube 0.5	Tube 4.3	Tube 1	Tube 1.5	Tube 2	Tube 2.5	Tube 3	Tube 4	Tube 5
Preparing Raw materials for the machines to produce the tubes	50	120	130	200	200	250	270	400	800	900
Heating the plastic grains to reach melting degree	100	200	300	200	100	160	170	100	210	400
Extrude the fluid material within the die to get required product	200	500	600	1000	1100	1200	1300	2000	2000	2100
Cooling the product within the cooling system to get the required properties	150	300	500	700	800	900	1000	1500	3000	3100

Package stage for produced tube by twisting machine to get the required length	90	200	120	140	140	150	150	180	160	330
Testing the tubes by lab.& measuring instruments For the purpose of confirming before delivery	75	100	100	200	120	200	300	100	100	200

Prepared by the researchers depending upon the company data

The following table shows the calculation of the time required for each production activity of the pipe product after the time has been determined. The allocation of resources is calculated for the purposes of cost through the apply rates.

The following table represents the allocation of salaries on the cost object based on the working power of individuals, as (Total time * Load rate) for salaries at load rate (114)..

Table (8) the allocation of salaries on the purpose of final cost

Activity	Tube 20	Tube 0.5	Tube 4.3	Tube 1	Tube 1.5	Tube 2	Tube 2.5	Tube 3	Tube 4	Tube 5
Preparing Raw materials for the machines to produce the tubes	57000	136800	148200	228000	228000	285000	307800	456000	912000	1026000
Heating the plastic grains to reach melting degree	114000	228000	342000	228000	114000	182400	193800	114000	239400	456000
Extrude the fluid material within the die to get required product	228000	570000	684000	1140000	1254000	1368000	1482000	2280000	2280000	2394000
Cooling the product within the cooling system to get the required properties	171000	342000	570000	798000	912000	1026000	1140000	1710000	3420000	3534000
Package stage for produced tube by twisting machine to get the required length	102600	228000	136800	159600	159600	171000	171000	205200	182400	376200

Testing the tubes by lab.& measuring instruments For the purpose of confirming before delivery	85500	114000	114000	228000	136800	228000	342000	114000	114000	228000
Total	758100	161880	1995000	2781600	2804400	3260400	3636600	4879200	7147800	8014200

Prepared by the researchers depending upon the company data

The following table shows the allocation of raw materials at a load rate (16,157) based on the working power of the machines. The allocation of raw materials includes the total cost (total time * loading rate for raw materials).

Table (9) the allocation of raw materials on the purpose of final cost

Activity	Tube 20	Tube 0.5	Tube 4.3	Tube 1	Tube 1.5	Tube 2	Tube 2.5	Tube 3	Tube 4	Tube 5
Extrude the fluid material within the die to get required product	32314	80785	96942	161570	177727	193884	210041	323140	323140	339297
Cooling the product within the cooling system to get the required properties	24236	48471	80785	113099	129256	145413	161570	24236	484710	500867
Package stage for produced tube by twisting machine to get the required length	145413	32314	19389	22620	22620	24236	24236	29083	258512	53318
Testing the tubes by lab.& measuring instruments For the purpose of confirming before delivery	121178	16157	16157	32314	193884	32314	48471	16157	16157	32314
Total	323141	177727	213273	329603	523487	395847	444318	392616	1082519	925796

Prepared by the researchers depending upon the company data

The following table shows the allocation of the expenses maintenance cost at a loading rate (10,628) according to the working power of the machines, of which includes allocation of the expenses maintenance for the purpose of cost (total time * loading rate for maintenance expenses).

Table (10) the allocation of the expenses maintenance cost on the purpose of final cost

Activity	Tube 20	Tube 0.5	Tube 4.3	Tube 1	Tube 1.5	Tube 2	Tube 2.5	Tube 3	Tube 4	Tube 5
Extrude the fluid material within the die to get required product	21256	53140	63768	106280	116908	127536	138164	212560	212560	223188
Cooling the product within the cooling system to get the required properties	15942	31884	53140	74396	85024	95652	106280	159420	318840	329468
Package stage for produced tube by twisting machine to get the required length	95652	21256	12754	14879	14879	159420	15942	19130	17005	35072
Testing the tubes by lab.& measuring instruments For the purpose of confirming before delivery	7971	10628	10628	21256	12754	21256	31884	10628	10628	21256
Total	140821	116908	140290	216811	229565	403864	292270	401738	559033	608984

Prepared by the researchers depending upon the company data

The following table shows the allocation of extinction costs 127 according to the working power machines, where the allocation of the cost of extinction on the cost object represents (total time *Load rate for extinction costs)

Table (11) the allocation of extinction costs on the purpose of final cost

Activity	Tube 20	Tube 0.5	Tube 4.3	Tube 1	Tube 1.5	Tube 2	Tube 2.5	Tube 3	Tube 4	Tube 5
Extrude the fluid material within the die to get required product	254000	635000	762000	1270000	1397000	1524000	1651000	2540000	2540000	2667000
Cooling the product within the cooling system to get the required properties	190500	381000	635000	889000	1016000	1143000	1270000	1905000	3810000	3937000
Package stage for produced tube by twisting machine to get the required length	114300	254000	152400	177800	177800	190500	190500	228600	203200	419100
Testing the tubes by lab.& measuring instruments For the purpose of confirming before delivery	95250	127000	127000	254000	152400	254000	381000	127000	127000	254000
Total	654050	1397000	1676400	2590800	2743200	3111500	3492500	4800600	6680200	7277100

Prepared by the researchers depending upon the company data

The following table shows the allocation of water and electricity costs (16,125) on the basis of the working power of the machines, where the allocation of water and electricity costs on the cost object represents (total time * load rate for water and electricity costs).

Table (12) the allocation of water and electricity costs on the purpose of final cost

Activity	Tube 20	Tube 0.5	Tube 4.3	Tube 1	Tube 1.5	Tube 2	Tube 2.5	Tube 3	Tube 4	Tube 5
Extrude the fluid material within the die to get required product	32250	80625	96750	161250	177375	193500	209625	322500	322500	338625
Cooling the product within the cooling system to get the required properties	24188	48375	80625	112875	129000	145125	161250	241875	483750	499875
Package stage for produced tube by twisting machine to get the required length	14513	32250	19350	22575	22575	24188	24188	29025	25800	53213
Testing the tubes by lab.& measuring instruments For the purpose of confirming before delivery	120938	16125	16125	32250	19350	32250	48375	16125	16125	32250
Total	191889	177375	212850	328950	348300	395063	443438	609525	848175	923963

Prepared by the researchers depending upon the company data

The following table shows the allocation of administrative and marketing costs 115 according to the practical power of individuals , which includes allocation of administrative and marketing costs to the cost object (total time * load rate for administrative and marketing costs).

Table (12) the allocation of administrative and marketing costs on the purpose of final cost

activity	Tube 20	Tube 0.5	Tube 4.3	Tube 1	Tube 1.5	Tube 2	Tube 2.5	Tube 3	Tube 4	Tube 5
Preparing Raw materials for the machines to produce the tubes	57500	138000	149500	230000	230000	287500	310500	460000	920000	1035000
Heating the plastic grains to reach melting degree	115000	230000	345000	230000	115000	184000	195500	115000	241500	460000
Extrude the fluid material within the die to get required product	230000	575000	690000	1150000	1265000	1380000	1495000	2300000	2300000	2415000
Cooling the product within the cooling system to get the required properties	172500	345000	575000	805000	920000	1035000	1150000	1725000	3450000	3565000
Package stage for produced tube by twisting machine to get the required length	103500	230000	138000	161000	161000	172500	172500	207000	184000	379500
Testing the tubes by lab.& measuring instruments For the purpose of confirming before delivery	86250	115000	115000	230000	138000	230000	345000	115000	115000	230000
Total	764750	1633000	2012500	2806000	2829000	3289000	3668500	4922000	7210500	8084500

Prepared by the researchers depending upon the company data

Table (14) Cost per unit by the (TDABC) approach at year 2014

No	Product name	Total costs	Number of produced units	Cost per unit
1	20mm diameter tube with 6 bar pressure	2832751	50000	5665.502
2	0.5 inch diameter tube with 6 bar pressure	5120810	100000	51.2081
3	4.3 inch diameter tube with 6 bar pressure	6250313	100000	62.50313
4	1 inch tube with 16 bar pressure	9023764	100000	90.23764
5	1.5 inch tube with 10 bar pressure	9477952	100000	94.77952
6	2 inch tube with 10 bar pressure	10855674	100000	108.55674
7	2.5 inch tube with 4 bar pressure	11977626	100000	119.77626
8	3 inch tube with 4 bar pressure	16005679	100000	160.05679
9	4 inch tube with 4 bar pressure	23528227	100000	235.28227
10	5 inch tube with 6 bar pressure	25834543	100000	258.34543

Prepared by the researchers depending upon the company data 2014

Table (15) profits statement factory of plastic – Tubes production line 2014 (TDABC) Approach

Product name	Quantity of sales	Price per unit	Sales revenue	Total Manufacturing costs	Gross profits	Administrative and marketing costs	Net profit
20mm diameter tube with 6 bar pressure	50000	301,62	15081000	2832751	12248249	655706.25	11592542.75
0.5 inch diameter tube with 6 bar pressure	100000	290,84	29084000	5120810	23963190	1264515,63	22698674.37
4.3 inch diameter tube with 6 bar pressure	100000	432,46	43246000	6250313	36995687	1880279.38	35115407.62
1 inch tube with 16 bar pressure	100000	643.67	64367000	9023764	55343236	2798551.25	52544684.75
1.5 inch tube with 10 bar pressure	100000	1027.12	102712000	9477952	93234048	4465720	88768328
2 inch tube with 10 bar pressure	100000	1614.01	161401000	10855674	150545326	7017426,25	143527899.8
2.5 inch tube with 4 bar pressure	100000	1045.50	104550000	11977626	92572374	4545673.13	88026700.87
3 inch tube with 4 bar pressure	100000	1804.76	180476000	16005679	164470321	7846762.50	156623558.5
4 inch tube with 4 bar pressure	100000	3294.49	329449000	23528227	305920773	14323875	291596898
5 inch tube with 6 bar pressure	100000	5746.76	574676000	25834543	548841457	24985930	523855527
Total	950000	16201.23	1605042000	12090733 9	1484134661	69784439.39	1414350222

Prepared by the researchers depending upon the company data 2014

3.2 : Process to determine the resources which related with the factory of plastic , The following data showed centers of cost (2015)

Salaries (4279200) ID , Raw materials (2151382500) ID, Maintenance expenses (6798712.5) ID, Exhaustion (9331462,5) ID, water and electricity (250000) ID, Administrative and marketing expenses (110186549,6) ID .

to determine the actual practical energy , the cost of the resources energy based on time for each activity .

The practical energy = (6 working hours) – (30 minutes over) * 60 minutes

365days - (96 official weekend holidays + 20 days representing religious occasions and holidays) = (5,30 working hours * 60 minutes * 249 days) = 82170 minutes

The practical energy of workers = (82170 * 6 workers) = 493020 minutes

The practical energy of the machines = (82170 * 1 pipe production line) = 82170 minutes

After the researcher identified the practical energy of the workers and determination of the practical capacity of the machines, then the cost of resources energy will be determined by time for each activity..

Table (16) the rate of the resources costs for every activity

Resource type	Costs	Drive of resources costs	Practical energy Individuals / machines (minutes)	Rate of resources costs
Salaries	42792000	Practical energy Individuals	493020	86.795
Raw materials	2151382500	Practical energy machines	82170	26.182
Maintenance expenses	6798712.5	Practical energy machines	82170	82.739
Exhaustion	9331462,5	Practical energy machines	82170	114
water and power	250000	Practical energy machines	82170	3.042
Administrative and marketing expenses	110186549.6	Practical energy Individuals	493020	224

Prepared by the researchers depending upon the company data 2014

Table (17) Determine the time of activities for (10) tubes Related to the production process (time in minutes)

Activity	Tube 20	Tube 0.5	Tube 4.3	Tube 1	Tube 1.5	Tube 2	Tube 2.5	Tube 3	Tube 4	Tube 5
Preparing Raw materials for the machines to produce the tubes	1	1	2	2,1	1,3	2	1,3	2,7	4	5
Heating the plastic grains to reach melting degree	1,2	1,3	1,4	1,7	2	5	2	4	4	4,2
Extrude the fluid material within the die to get required product	2,4	5	6	6	6,7	7	8	8	9	9,1
Cooling the product within the cooling system to get the required properties	1,8	3	5	2,5	5	7,6	7,6	8	8,1	9
Package stage for produced tube by twisting machine to get the required length	2	2,1	2	1	2	2	3	3	3	3,3
Testing the tubes by lab.& measuring instruments For the purpose of confirming before delivery	2	2	2	2	2	2	3	3	3,1	4

Prepared by the researchers depending upon the company data

Table (18) The total time required to produce each tube (the time * total production)

Activity	Tube 20	Tube 0.5	Tube 4.3	Tube 1	Tube 1.5	Tube 2	Tube 2.5	Tube 3	Tube 4	Tube 5
Preparing Raw materials for the machines to produce the tubes	50	100	200	210	130	200	130	270	400	500
Heating the plastic grains to reach melting degree	60	130	140	170	200	500	200	400	400	420
Extrude the fluid material within the die to get required product	120	500	600	600	670	700	800	800	900	910
Cooling the product within the cooling system to get the required properties	90	300	500	250	500	760	760	800	810	900
Package stage for produced tube by twisting machine to get the required length	100	210	200	100	200	200	300	300	300	330
Testing the tubes by lab.& measuring instruments For the purpose of confirming before delivery	100	200	200	200	200	200	300	300	310	400

Prepared by the researchers depending upon the company data

The following table shows the calculation of the time required for each production activity. of the produced pipe after the time has been determined. The allocation of resources is calculated for the purposes of cost through the loading rates..

The following table represents the allocation of salaries on the cost object based on the working power of individuals, Total time * Load rate) for salaries at load rate (86.795).

Table (19) the allocation of salaries on the purpose of final cost

Activity	Tube 20	Tube 0.5	Tube 4.3	Tube 1	Tube 1.5	Tube 2	Tube 2.5	Tube 3	Tube 4	Tube 5
Preparing Raw materials for the machines to produce the tubes	43398	86795	173590	182269	112834	173590	112834	234347	347180	433975
Heating the plastic grains to reach melting degree	52077	112834	121513	147552	173590	433975	173590	347180	347180	364539
Extrude the fluid material within the die to get required product	104154	433975	520770	520770	581527	60757	694360	694360	781155	789835
Cooling the product within the cooling system to get the required properties	78116	260385	433975	216988	433975	659642	659642	694360	703040	781155
Package stage for produced tube by twisting machine to get the required length	86795	182269	173590	86795	173590	173590	260385	260385	260385	286424
Testing the tubes by lab.& measuring instruments For the purpose of confirming before delivery	86795	173590	173590	173590	173590	173590	260385	260385	269065	347180
Total	451335	1249848	1597028	1327964	1649106	1675144	2161196	2491017	2708005	3003108

Prepared by the researchers depending upon the company data

The following table shows the allocation of raw materials at a load rate (26.182) based on the working power of the machines. The allocation of raw materials includes the total cost (total time * loading rate for raw materials).

Table (20) the allocation of raw materials on the purpose of final cost

Activity	Tube 20	Tube 0.5	Tube 4.3	Tube 1	Tube 1.5	Tube 2	Tube 2.5	Tube 3	Tube 4	Tube 5
Extrude the fluid material within the die to get required product	31418	130910	157092	157092	175419	183274	209456	209456	235638	238256
Cooling the product within the cooling system to get the required properties	23564	78546	130910	65455	130910	198983	198983	209456	212074	235638
Package stage for produced tube by twisting machine to get the required length	26182	54982	52364	26182	52364	52364	78546	78546	78546	864006
Testing the tubes by lab.& measuring instruments For the purpose of confirming before delivery	26182	52364	52364	52364	52364	52364	78546	78546	81164	104728
Total	107346	316802	392730	301093	393057	486985	565531	576004	607422	1442628

Prepared by the researchers depending upon the company data

The following table shows the allocation of the expenses maintenance cost at a loading rate (82.739) according to the working power of the machines, of which includes allocation of the expenses maintenance for the purpose of cost (total time * loading rate for maintenance expenses)..

Table (21) the allocation of the expenses maintenance cost on the purpose of final cost

activity	Tube 20	Tube 0.5	Tube 4.3	Tube 1	Tube 1.5	Tube 2	Tube 2.5	Tube 3	Tube 4	Tube 5
Extrude the fluid material within the die to get required product	99287	413695	496434	496434	554351	579173	661912	661912	744651	752925
Cooling the product within the cooling system to get the required properties	74465	248217	413695	206848	413695	628816	628816	661912	670186	744651
Package stage for produced tube by twisting machine to get the required length	82739	173752	165478	82739	165478	165478	248217	248217	248217	273039
Testing the tubes by lab.& measuring instruments For the purpose of confirming before delivery	82739	165478	165478	165478	165478	165478	248217	248217	256491	330956
Total	339230	1001142	1241085	951499	1299002	1538945	1787162	1820258	1919545	2101571

Prepared by the researchers depending upon the company data

The following table shows the allocation of extinction costs 114 according to the working power machines, where the allocation of the cost of extinction on the cost object represents (total time *Load rate for extinction costs)

Table (22) the allocation of extinction costs on the purpose of final cost

Activity	Tube 20	Tube 0.5	Tube 4.3	Tube 1	Tube 1.5	Tube 2	Tube 2.5	Tube 3	Tube 4	Tube 5
Extrude the fluid material within the die to get required product	136800	570000	684000	684000	763800	798000	912000	912000	1026000	1037400
Cooling the product within the cooling system to get the required properties	102600	342000	570000	285000	570000	866400	866400	912000	923400	1026000
Package stage for produced tube by twisting machine to get the required length	114000	239400	228000	114000	228000	228000	342000	342000	342000	376200
Testing the tubes by lab.& measuring instruments For the purpose of confirming before delivery	114000	228000	228000	228000	228000	228000	342000	342000	353400	456000
Total	467400	1379400	1710000	1311000	1789800	2120400	2462400	2508000	2644800	2895600

Prepared by the researchers depending upon the company data

The following table shows the allocation of water and electricity costs (3.042) on the basis of the working power of the machines, where the allocation of water and electricity costs on the cost object represents (total time * load rate for water and electricity costs)

Table (23) the allocation of water and electricity costs on the purpose of final cost

Activity	Tube 20	Tube 0.5	Tube 4.3	Tube 1	Tube 1.5	Tube 2	Tube 2.5	Tube 3	Tube 4	Tube 5
Extrude the fluid material within the die to get required product	3650	15210	18252	18252	20381	21294	24336	24336	27378	27682
Cooling the product within the cooling system to get the required properties	2738	9126	15210	7605	15210	23119	23119	24336	24640	27378
Package stage for produced tube by twisting machine to get the required length	3042	6388	6084	3042	6084	6084	9126	9126	9126	10039
Testing the tubes by lab.& measuring instruments For the purpose of confirming before delivery	3042	6084	6084	6084	6084	6084	9126	9126	9430	12168
Total	12472	36808	45630	34983	47759	56581	65707	66924	70574	77267

Prepared by the researchers depending upon the company data

The following table shows the allocation of administrative and marketing costs 224 according to the practical power of individuals , which includes allocation of administrative and marketing costs to the cost object (total time * load rate for administrative and marketing costs)

Table (24) the allocation of administrative and marketing costs on the purpose of final cost

activity	Tube 20	Tube 0.5	Tube 4.3	Tube 1	Tube 1.5	Tube 2	Tube 2.5	Tube 3	Tube 4	Tube 5
Preparing Raw materials for the machines to produce the tubes	112000	224000	448000	470400	291200	448000	291200	604800	896000	1120000
Heating the plastic grains to reach melting degree	134400	291200	313600	380800	448000	1120000	448000	896000	896000	940800
Extrude the fluid material within the die to get required product	268800	1120000	1344000	1344000	1500800	1568000	1792000	1792000	2016000	2038400
Cooling the product within the cooling system to get the required properties	201600	672000	1120000	560000	1120000	1702400	1702400	1792000	1814400	2016000
Package stage for produced tube by twisting machine to get the required length	224000	470400	448000	224000	448000	448000	672000	672000	672000	739200
Testing the tubes by lab.& measuring instruments For the purpose of confirming before delivery	224000	448000	448000	448000	448000	448000	672000	672000	694400	896000
Total	1164800	3225600	4121600	3427200	4256000	5734400	5577600	6428800	6988800	7750400

Prepared by the researchers depending upon the company data

Table (25) Cost per unit by the (TDABC) approach 2015

No	Product name	Total costs	Number of produced units	Cost per unit
1	20mm diameter tube with 6 bar pressure	2542583	500	5085.166
2	0.5 inch diameter tube with 6 bar pressure	7209600	1000	7209.6
3	4.3 inch diameter tube with 6 bar pressure	9108073	1000	9108.073
4	1 inch tube with 16 bar pressure	7353739	1000	7353.739
5	1.5 inch tube with 10 bar pressure	5604324	1000	5604.324
6	2 inch tube with 10 bar pressure	11612455	1000	11612.455
7	2.5 inch tube with 4 bar pressure	12619596	1000	12619.596
8	3 inch tube with 4 bar pressure	13891003	1000	13891.003
9	4 inch tube with 4 bar pressure	14939146	1000	14939.146
10	5 inch tube with 6 bar pressure	17270574	1000	17270.574

Prepared by the researchers depending upon the company data 2015

We note that by calculating the cost per unit under the traditional -based approach and based on time-driven activity cost during the years 2014-2015, the cost per unit was high in the traditional approach during the two years while the cost per unit was low based on time-driven activity cost approach during 2014-2015..

Note through the profit lists during the years 2014-2015 under the traditional approach and TDABC approach , the net profit has increased in (TDABC) unlike in the traditional , then the net profit was low during the years 2014, and 2015. As shows at the following tables.

Table (26) Comparative statement of cost per unit under the traditional approach and TDABC approach

No	Product Name	Cost per unit at year 2014		Cost per unit at year 2015	
		Traditional approach	TDABC A Approach	Traditional Approach	TDABC A Approach
1	20mm diameter tube with 6 bar pressure	26228.25	5665.502	2084.925	5085.166
2	0.5 inch diameter tube with 6 bar pressure	25290.1325	5120.81	31765.3125	7209.6
3	4.3 inch diameter tube with 6 bar pressure	37605.5875	6250.313	48060.5875	9108.073
4	1 inch tube with 16 bar pressure	55971.025	9023.764	76125.55	7353.739
5	1.5 inch tube with 10 bar pressure	89314.4	9477952	173792.575	5604.324

6	2 inch tube with 10 bar pressure	140348.525	10855.674	273696.25	11612.455
7	2.5 inch tube with 4 bar pressure	90913.462	11977.626	176052.575	12619.596
8	3 inch tube with 4 bar pressure	156935.25	16005.679	254580.15	13891.003
9	4 inch tube with 4 bar pressure	286477.5	23528.227	381867.5	14939.146
10	5 inch tube with 6 bar pressure	499718.6	25834.543	777395	17270.574

table (27) profits statement factory of plastic – Tubes production line 2015 (TDABC) Approach

No	Product name	Number units sold	Price per unit	Sales revenues	Total Manufacturing costs	Gross profit	Administrative and marketing costs	Net profit
1	20mm diameter tube with 6 bar pressure	50000	239.67	11983500	2542583	9440917	521023.13	8919893.87
2	0.5 inch diameter tube with 6 bar pressure	100000	365.30	36530000	7209600	29320400	1588265.63	27732134.37
3	4.3 inch diameter tube with 6 bar pressure	100000	552.70	55270000	9108073	46161927	2403029.38	43758897.62
4	1 inch tube with 16 bar pressure	100000	875.16	87516000	7353739	80162261	3805029	76357232
5	1.5 inch tube with 10 bar pressure	100000	1998.61	199861000	5604324	194256676	8689628.75	185567047.3
6	2 inch tube with 10 bar pressure	100000	3147.51	314751000	11612455	303138545	13684812.5	289453732.5
7	2.5 inch tube with 4 bar pressure	100000	2024.60	202460000	12619596	189840404	8802628.75	181037775.3
8	3 inch tube with 4 bar pressure	100000	2927.67	292767000	13891003	278875997	12729007.5	266146989.5
9	4 inch tube with 4 bar pressure	100000	4391.48	439148000	14939146	424208854	19093375	405115479
10	5 inch tube with 6 bar pressure	100000	8940.04	894004000	17270574	876733426	38869750	837863676
Total		950000	25462.74	2534290500	102151093	2432139407	1101865410	2321952857

Prepared by the researchers depending upon the company data 2015

Table (28) Comparative statement of net profit under the traditional approach and TDABC approach

No	Product Name	Net profit at year 2014		Net profit at year 2015	
		Traditional approach	TDABC Approach	Traditional Approach	TDABC Approach
1	20mm diameter tube with 6 bar pressure	1311168.75	11592542.75	1042014.37	8919893.87
2	0.5 inch diameter tube with 6 bar pressure	2529171.87	22698674.37	3176421.87	27732134.37
3	4.3 inch diameter tube with 6 bar pressure	3760133.12	35115407.62	4806383.12	43758897.62
4	1 inch tube with 16 bar pressure	5597423.75	52544684.75	7610391	76357232
5	1.5 inch tube with 10 bar pressure	8931880	88768328	17378796.25	185567047.3
6	2 inch tube with 10 bar pressure	14035048.75	143527899.8	27369937.5	289453732.5
7	2.5 inch tube with 4 bar pressure	9090864.37	88026700.87	17604796.25	181037775.3
8	3 inch tube with 4 bar pressure	15693987.5	156623558.5	25457842.5	266146989.5
9	4 inch tube with 4 bar pressure	28647625	291596898	38187125	405115479
10	5 inch tube with 6 bar pressure	49971470	523855527	77739250	837863676

6.**Measuring of the profit spersistence**

a. Measuring the profits persistence under traditional approach and (TDABC) approach

After the researchers applied the cost- method of time-based activity at the plastic factory, the sustainability of profits or **profits persistence** equation will be applied in the traditional and time-driven activity cost .

profits persistence under traditional approach :

Xt+1 = at + B1.CFOt +B2. At +Et..... (1)

When :

Xt + 1 : represents the profits of the next year (unknown)

B1.CFOt : Cash flows from operating activities for the current year

B2. At : Dues for the current year

The equation (1) can be applied on the traditional approach in 2014-2015 as follows :

2015	2014
B1.CFOt= 1577333668	**B1.CFOt =** 2580251840
B2. At= (1356960710)	**B2. At =** (2060489345)

$X_{t+1} = + \beta X_t + \varepsilon_t$ ..... (2)

Xt+1 : represents the profits of the next yea

α : constant limit

β : continuity factor

Xt : represents the profits of the current year

ε : error factor

by applying equation (2) we obtain :

2015	2014
Xt = 220372958	Xt = 519762495

So , depending on the beta coefficient (β) i.e. the closer to (1) then (Xt) more continuous

3.3.2: Measuring the profits persistence under (TDABC) approach

Xt+1 = at + B1.CFOt +B2. At +Et

When :

Xt + 1 : represents the profits of the next year (unknown)

B1.CFOt : Cash flows from operating activities for the current year

B2. At : Dues for the current year

The equation (1) can be applied on the traditional approach in 2014-2015 as follows :

2015	2014
B1.CFOt =1577333668	**B1.CFOt**2580251840 =
B2. At44619189=	**B2. At** = (1165901618)

$X_{t+1} = + \beta X_t + \varepsilon_t$ ..... (2)

Xt+1 : represents the profits of the next year

α : constant limit

β : continuity factor

Xt : represents the profits of the current year

ε : error factor

by applying equation (2) we obtain :

2015	2014
Xt2321952857 =	Xt1414350222 =

So , depending on the beta coefficient (β) i.e. the closer to (1) then (Xt) more continuous

Results of the Traditional Approach :

By applying this approach on the received data , the value of α was – 29938953 , then the results record as in the table below :

X_{t+1}	X_t
220372958	519762495
79016581	220372958

By using SPSS software programme ver.23 to find out the values of α and β through applying the data of profits , getting the following results

α	B
-250032221.9	0.472

Results of (TDABC) approach :

By applying this approach on the received data , the value of α was 907602635, then the results record as in the table below :

X_{t+1}	X_t
2321952857	1414350222
3229555492	2321952857

By using SPSS software programme ver.23 to find out the values of α and β through applying the data of profits , getting the following results

α	B
1047970492	0.901

Using the coefficient of beta in the application of equations to calculate the profits persistence the researcher used the equation (1) in order to extract the next profits and then the researcher applied the equation continuity profits in the traditional approach and (TDABC) approach shows through the equations that the approach of time-driven activity cost is better than the traditional approach as well as depending on the beta coefficient then if beta was closer to the right one then the value of xt is persistence and sustainable , with the beta rate under the traditional approach (0.472) while the proportion of beta in (TDABC) equal to (0.901) Note through beta that the TDABC approach is close to one while the traditional approach is far from one , so it can be said that (TDABC) is better than the traditional , of providing cost-effective information as well as leads to lasting profits better than the traditional approach, and the cost per unit during the years 2014-2015 under the traditional approach was greater than the TDABC method., the cost per unit is low as opposed to the traditional approach, which is high. This is Matches with the hypothesis of study

which states that (TDABC) leads to measuring the profits persistence more appropriate and objective than the use of traditional approach of allocating indirect costs in the sample company of the current study , the traditional approach used in the sample company to allocate indirect costs does not provide appropriate information about the cost in measuring the profits persistence for the company , The application of the method (TDABC) in the allocation of indirect costs in the sample company provides appropriate information about the cost to measure the sustainability of profits in the Sample company .

3.4: testing of hypotheses: Through the results presented in the applied side of the research, we see proof of the main hypothesis and the sub-hypotheses of the research

5 . Conclusions and recommendations :

5 . 1 Conclusions :

1. TDBAC approach considers as less in the application as well as fast and easy to implement compared with a traditional approach that needs a long time to apply. The TDABC approach uses time equations to allocate resource costs. The TDABC It is easy to update it by way of adding any variables to the time equation.

2. The company's traditional approach did not enable the management to make good decisions and does not provide useful information in the decision-making process. The company cannot sustain profits in the traditional approach. Therefore, the need to use TDABC in the company.

3. The TDABC approach leads to the profits persistence of the company as it showed the ratio of (0,901) i.e. approximates to one that leads to sustain or continuation of profits in contrast to the traditional approach where the ratio (0,472) that is far from one, TDABC) is better than the traditional approach of the company.

4. According to the TDBAC approach in 2014 (1414350222) and the year 2015 (2321952857), we see the total profits in 2014-2015. In the traditional approach, the total revenue in 2014-2015 was (519762495) 740135453) while the total profit in TDABC during the years 2014-2015 was (3736303079) we note that the profits have increased in (TDABC) better than the traditional approach, which was low profits during the two years. The increasing ratio in 2014-2015 between traditional and TDABC approaches was 4%.

5. The TDABC approach in the manufacturing companies was the alternative to the traditional approach, as it treated the problem of identifying and allocating indirect costs. It has been developed and updated as taking into account the factor of time which treated most of the problems and difficulties in the ABC approach.

5 . 2 Recommendations :

1. The company has to adopt modern approach, which are based on time-based activity (TDABC) for its benefits and information that facilitates management in decision-making. The application of the TDABC approach in the company leads to the profits persistence in the company.

2. Industrial companies should be sensitized to applying the TDABC approach as well as to overcoming the disadvantages of ABC approach and the traditional approach of determining the time required for each activity.

3. The need for continuous and periodic updating of the time equations and required activity when performing operations and adding or modifying activities.

4. The use of modern methods as in TDABC by the company to better solve the problem of allocation of indirect costs and are distributed better and more fairly to the supporting departments.

5. The use of the TDABC method helps to identify idle capacity and also depends on actual energy at a better allocation process therefore increases the profits persistence of the company.

6. (TDABC) applied in the plastics factory because this method is easy to applying and Implementation. The TDABC method leads to the profits persistence of the plastic factory and the profits have increased during 2014 and 2015 by (TDABC) we see through the equation of profits persistence that the profits are more durable and better than the method used in the plastic factory.

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انعكاس تطبيق مدخل محاسبة الكلفة على اساس النشاط الموجه بالوقت على ديمومة الارباح (دراسة تطبيقية في شركة الصناعات الهيدروليكية – مصنع البلاستك)

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الباحث / رسل استبرق هادي / الكلية التقنية للإدارة / بغداد / الجامعة التقنية المتوسطة

المستخلص :

أصبح اهتمام العديد من الوحدات الاقتصادية بالأدوات والأساليب التي من شأنها تخفيض الكلف باعتبارها أحد أهم عوامل النجاح الشركات, وأصبح هذا الموضوع محل اهتمام العديد من الوحدات الاقتصادية لما يمتلكه من تأثير على أرباح الوحدات الاقتصادية, ومنذ التسعينات من القرن الماضي أعطى الباحثون والكتاب اهتمام عالي وواسع لهذا الموضوع, ولا سيما في ظل المنافسة الكبيرة والتطورات المتسارعة في تقنيات إدارة الكلفة, فضلاً عن التغير الواسع والكبير في أساليب الإنتاج التي اتجهت نحو تحقيق رضا الزبائن, كل هذا وأكثر دفع بالوحدات الاقتصادية في كافة القطاعات سواء الخدمية أو الإنتاجية إلى إيجاد أساليب من شأنها تخفيض الكلف وبالتالي زيادة الأرباح. فضلاً عن تحقيق حصة سوقية مقارنة بالوحدات الاقتصادية العاملة في نفس القطاع.

جاءت هذه الدراسة للسعي إلى تطبيق اسلوب لتخفيض التكاليف الصناعية غير المباشرة من خلال استعمال اسلوب الكلفة على أساس النشاط الموجه بالوقت, إذ يهدف البحث إلى استعمال هذا الاسلوب ومعرفة مدى تأثير هذا الاسلوب في قياس ديمومة الأرباح في الشركة العامة الصناعات الهيدروليكية مصنع البلاستك, من خلال التعرف على الاسلوب التقليدي المتبع في الشركة عينة البحث لتحديد التكاليف غير المباشرة ومدى تأثيره في قياس ديمومة الأرباح, تحديد مفاهيم وخصائص كل من اسلوب الكلفة على أساس النشاط واسلوب الكلفة على أساس النشاط الموجه بالوقت والمبررات التي حدت بالشركات تطبيقها, التعرف على مقياس ديمومة الأرباح والتأثير المتبادل في كل من ديمومة الأرباح واسلوب الكلفة على أساس النشاط الموجه بالوقت, لذا فإن مشكلة البحث تمثلت بأن الاسلوب التقليدي المتبع في الشركة عينة البحث في تحديد التكاليف غير المباشرة لا يتسم بالعدالة والموضوعية كونه يبني الأساس الفعلي تحديد التكاليف غير المباشرة على مستوى المصنع ككل. وبالتالي لا تمثل معلومات كلفوية تعكس الأداء الكلفوي للمصنع عينة البحث وبالشكل الذي يؤثر في ربحية الشركة عينة البحث وبالتالي في قياس ديمومة الأرباح.

المصطلحات الرئيسة للبحث/ مدخل محاسبة الكلفة على اساس النشاط الموجه بالوقت، ديمومة الارباح ، المدخل التقليدي لتخصيص التكاليف الصناعية غير المباشرة

- البحث مستل من رسالة الماجستير (اثر تطبيق أسلوب TD-ABC في ديمومة الأرباح)