An Investigation on Adoption and Non-Adoption of Activity Based Costing (ABC) in Plastic Industry in Iran

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Abstract: The current research is conducted to Investigate on Adoption of Activity Based Costing (ABC) In Plastic Industry in Iran. Results indicate that, 15 of plastic makers (30%) have adopted ABC system, 4 of them (26.67%) have adopted this system throughout their company and 11 of them (73.33%) have just principle adopted. and 35 of sampled Plastic Makers (70%) have not adopted ABC system, who can be divided into 3 groups: 1) (20%) Companies who have considered and rejected it 2) (70%) Companies who have never considered it 3), (10%) Companies who are in the early stage of consideration of adoption, the results also indicate that, Risk Assessment, Accreditation, Performance Management, Target Costing and Benchmarking are the tools and techniques which are important in driving plastic makers towards achieving their vision. Traditional Budgeting Using Predetermined Cost Drivers, Standard Costing and Variance Analysis and Actual Cost are current costing system of those companies who have not implemented ABC system. Respondents from those companies who have adopted ABC system expressed that, the Accounting/Finance department is mainly initiated for launching and implementation of ABC system in their company. Also they believed that, More Accurate Cost Information is the major reason for implementation of ABC system. Improved Accuracy is the most important areas identified by adopters of ABC system.ABC system adopters believed that, the major problems encountered during the course of the design and implementation of the ABC system are Lack of Adequate Internal Resources and Difficulties Associated with Gathering the Data Required.

Key word: Activity Based Costing (ABC) · ABC System · Adoption of ABC System · Non-Adoption of ABC System · Plastic Makers · Plastic Industry in Iran

INTRODUCTION

In any system of costing, direct costs are easier to handle as these are directly charged to the end products, but indirect costs are difficult to handle, Because, they need to be allocated to the end products by following a suitable basis of allocation. Traditionally, indirect costs have been allocated to the end products in three steps: first; from ledger accounts to production and service departments, then, taken from service departments to production departments following reapportionment methods of allocation and finally, allocating the indirect costs of production departments to the end products. In traditional costing, there is no general basis of allocation of indirect costs and it is left to the judgment of the cost account to select the most appropriate basis of allocation. The basis of appointment of overheads may be based on machine hours, labors, direct costs, input,

output, etc. These normal methods of apportionment have some bottlenecks which tend to misinterpret proration of common costs of different functions added to the product costs. Therefore in order to overcome the inadequacies of traditional methods of overhead absorption and short-term bias of managerial costing, Activity Based Costing (ABC) has been achieved. (S P Jain et al. 2012[1]) Activity Based Costing (ABC) can provide more precise information about the cost of the product than the traditional cost systems can, in particular, when manufacturing processes are intricate or products are produced in varying volume because the ABC system allocates indirect costs, such as utilities or maintenance, to the products that consume the resources (Krumwiede et al. 1997[2]). In recent years, plastic makers in Iran have been under so much pressure to adapt in a competitive business environment. Various management accounting tools and techniques have been introduced

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in order to enhance this adaptation. This has encouraged a debate as to whether the ABC system provides advantages over traditional systems in plastic industry in Iran.

Literature Review: Activity Based Costing (ABC) assigns the cost of activities to individual products based on their relative consumption of the individual activities. Determining the cost of an activity is critical for this approach to product costing (Don R Hasen et al. 2003[3]). Activity Based Costing (ABC) is a system that, assigns costs to the specific activities performed in a manufacturing or service delivery process. ABC attempts to trace costs more accurately to products or other cost objects than traditional costing methods. The costs of various activities then become the building blocks used to compile costs for products or other cost objects. Activity related cost pools and cost drivers. The information derived from ABC can be used with activity based cost pools and cost drivers. The information derived from ABC can be used with activity based management (ABM) to improve operations and minimize activities that do not add value to the organization. (Leslie G Eldenburg et al. 2005[4]) Activity Based Costing (ABC) is a commonly used approach to improve a traditional costing system. ABC is a costing method that first assigns costs to activities and then to goods and services based on how much each good or service uses the activities. (Ronald W Hilton et al. 2004). One of the best tools for refining a costing system is activity based costing. Activity based costing (ABC) defines a costing system by identifying individual activities as the fundamental cost objectives. ABC systems identify activities in all functions of the value chain. ABC systems first calculate the cost of individual activities and then assign costs to cost objects such as products and services on the basis of the mix of activities needed to produce each product or services. (Charls T Horngren et al. 2009).

MATERIALS AND METHODS

Research Motivation: Although a number of Iranian companies may have started to use or plan to use ABC system, there is no research findings to support the investigation into ABC system in plastic industry in Iran. Therefore, a survey to illustrate an evident image of rate of adoption and non- adoption, reasons of adoption and non-adoption of ABC system in plastic industry in Iran is urgently needed.

Research Questions: The survey started with following questions:

- What is the rate of ABC adoption in plastic industry in Iran?
- What are the reasons for the implementing ABC system in plastic industry in Iran?
- What are the benefits achieved by those plastic makers who have adopted ABC?
- What are the rates of non-adoption of ABC system in plastic industry in Iran?
- What are the reasons for Non-adoption of ABC system in plastic industry in Iran?

Research Form: The form of research is scientific research

Place of Research: The place of research is Tehran province in Iran

Period of Research: The period of research is from January 2013 to July 2013

Research Methods

Research Sample Selection: Due to the nature of this research and the desire to determine differences between those plastic makers who adopted ABC and those who have not adopted ABC, the sample is selected from plastic companies in Iran which is included in http://www.irindex.ir/plastic.html.The sample size is 50 choices which were calculated by sample size formula:

$$\frac{N\,(z\frac{\alpha}{2})^2\sigma^2}{(e)^2\,(N-1)+(Z\frac{\alpha}{2})^2(\sigma^2)}$$

Questionnaire: The "Questionnaire" method is selected for this research. Use of a questionnaire allows distribution to a wider number of companies, enabling a more indicative view of the adoption and Non-adoption of Activity Based Costing (ABC) in plastic companies in Iran. Also the questionnaire was distributed by Email to 50 major plastic makers in Iran.

Students T. Test for Hypothesis Testing: For examination and research analysis "t" with a sample used i.e. assumptions "H0" unconfirmed claim [Null Hypothesis (H_0)] and "H1" confirmed claim [Alternative Hypothesis (H_1)] after implementing coefficient's of the given answers in the following manner:

"Xi" variable is rejected. If:
$4 \leq \mu 0$: H0

"Xi" variable is accepted. If:
$4 \geq \mu 0$: H1

In conclusion; if calculated statistics "t" less than critical "t", meaning it exists in "H0" zone, then "H0" assumption is accepted and claim i.e. "H1" is rejected. But if calculated statistics "t" greater than critical "t" and in "H1" zone, then "H1" assumption would be accepted and "H0" rejected.

Cronbach's Alpha: To assess the validity of the questionnaires, tools of measurement were authorized to a number of experts and university professors; they were requested to read the questions precisely and state their comments. The results of expressed ideas indicated that, questions were in a high validity. Also to determine the reliability of the questionnaire as well as the coefficient of "Cronbach's Alpha" was used. After collecting questionnaires coefficient of "Cronbach's Alpha" was calculated by "SPSS Statistic 17.0" that the results presented in each section separately.

As the Table 1 indicates, the coefficient of Cronbach's Alpha in questionnaires are more than 0.7.which it can be concluded that, the reliability of both questionnaires is acceptable.

RESULTS AND DISCUSSION

Rate of Adoption and Non-Adoption of ABC System in Plastic Industry in Iran: Analysis of the received responses indicates (Table 1) that 30% of the respondents have implemented or have considered implementing ABC system in their company. A further 70% have not adopted ABC system in their company.

The Status of the Plastic Makers Who Have Not Adopted ABC System: As Table 2 shows, 70% of plastic makers who have not adopted ABC system can be divided int3 groups:

- Companies who have considered and rejected it (14.29%)
- Companies who have never considered it (74.28%)
- Companies who are in the early stages of considering adoption (11.43%)

Table 1: Rate of Adoption and Non-Adoption of ABC System in Plastic Industry in Iran

Has Your Company Implemented or Considered Implementing ABC System?		
	Number	Percentage
Yes	15s	30%
Total	50	100%

Table 2: The Status of the Plastic Makers Who Have Not Adopted ABC System

The Status Of The Plastic Makers Who Have Not Adopted ABC System		
	Number	Percentage
Companies who have considered and rejected it	5	14.29%
Companies who have never considered it	26	74.28%
Companies who are in the early stages of considering adoption	4	11.43%
Total	35	100%

Table 3: The Status of the Plastic Makers Who Have Implemented ABC System

The Status of The Plastic Makers Who Have Implemented Activity Based Costing (ABC)		
	Number	Percentage
Principles Adopted	11	73.33%
Global Adoption	4	26.67%
Total	15	100%

Table 4: Duration of using ABC System in Operation

How long your company is using ABC system in operation?		
	Number	Percentage
6 months to 1 year	1	6.67%%
1 year to 2 years	5	33.33%%
2 years to 3 years	6	40%%
Longer than 3 years	3	20%%
Total	15	100%

The Status of the Plastic Makers Who Have Implemented ABC System: Table 3 indicates that, of 15 plastic makers who have adopted ABC system, just 4 of them (26.67%) have adopted this system throughout the company and 11 of them (73.33%) have just principle adopted.

How Long Your Company Is Using Abc System in Operation?: The companies who have adopted ABC system were requested to identify that, how long their company is using ABC system in their operation? Table 4 indicates that,, 6 of them i.e.40% have implemented ABC system for "2 years to 3 years" 5 companies' i.e.33.33% for "1 year to 2 years" 3 companies' i.e.20% for "longer than 3 years" and 1 respondent expressed that, it's "less than 1 year" that, they have implemented ABC system in their operation.

Table 5(1): Techniques and Tools Used By Plastic Makers in Iran to Achieve Their Vision

The Techniques and Tools Which Are Important In Driving Plastic Makers Towards Achieving Their Vision

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	Total
Benchmarking	---	---	6	---	11	13	20	50
Target Costing	---	---	8	---	12	12	18	50
Performance Management	---	---	1	---	4	28	17	50
Accreditation	---	---	---	---	4	12	34	50
Risk Assessment	---	---	---	---	8	22	20	50

Table 5(2):

The Techniques and Tools Which Are Important In Driving Plastic Makers Towards Achieving Their Vision

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	Total
Benchmarking	---	---	12%	---	22%	26%	40%	100%
Target Costing	---	---	16%	---	24%	24%	36%	100%
Performance Management	---	---	2%	---	8%	56%	34%	100%
Accreditation	---	---	---	---	8%	24%	68%	100%
Risk Assessment	---	---	---	---	16%	44%	40%	100%

Table 5(3): One-Sample Statistics

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Benchmarking	50	5.82	1.304	.184
Target Costing	50	5.64	1.396	.197
Performance Management	50	6.20	.756	.107
Accreditation	50	6.60	.639	.090
Risk Assessment	50	6.24	.716	.101

Table 5(4): One-Sample Test

One-Sample Test							
Test Value = 4							
					95% Confidence Interval of the Difference		
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper	Situation
Benchmarking	9.866	49	.000	1.820	1.45	2.19	Accept
Target Costing	8.306	49	.000	1.640	1.24	2.04	Accept
Performance Management	20.579	49	.000	2.200	1.99	2.41	Accept
Accreditation	28.777	49	.000	2.600	2.42	2.78	Accept
Risk Assessment	22.122	49	.000	2.240	2.04	2.44	Accept

Table 5(5): Case Processing Summary

Case Processing Summary			
		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Table 5(6): Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
.404	5

Techniques and Tools Used by Plastic Makers in Iran to Achieve Their Vision: Table 5 provides an insight into the various techniques and tools which the plastic makers surveyed put into perform to achieve their vision. The most important tool applied by the plastic makers in Iran to achieve their vision is Accreditation With 68% "strongly agree", 24% "agree" and 8% "somewhat agree". Respondents believed that, Risk Assessment with 40% "strongly agree", 44% "agree" and 16% "somewhat agree" is the second mainly used tool, to achieve their vision. Plastic makers also considered the Performance Management with 34% "strongly agree", 56% "agree" and

Table 6: Current Costing System of Those Plastic Makers Who Have Not Adopted ABC System

If Your Company Has Not Adopted ABC system, What Is Your Current Costing System?		
	Number	Percentage
Traditional Budgeting Using Predetermined Cost Drivers	13	37.14%
Standard Costing And Variance Analysis	4	11.43%
Actual Cost	11	31.43%
Other Costing Systems	7	20%
Total	35	100%

8% "somewhat agree" as another tool which plays an important role in driving them towards achieving their visions. Benchmarking with 40% "strongly agree", 26% "agree", 22% "somewhat agree "and 12% "somewhat disagree" is realized effective by plastic makers. Finally, the plastic makers indicated that, Target Costing with 36% "strongly agree", 24% "agree", 24% "somewhat agree" and 16% "somewhat disagree" as is useful in driving their company towards achieving their vision.

Current Costing System of Those Plastic Makers Who Have Not Adopted ABC System: Despite focus of our research is to receive responses to effectively answer the research questions, but it is also attempted to find out other various costing system which plastic makers in Iran have applied. One of the most important reasons of failure in ABC adoption is the level of satisfaction that plastic makers have with their existing cost accounting systems. Basically, companies who are satisfied with their existing cost accounting system would not incur the expense and effort associated with implementing an ABC system.

Table 6 shows that, Traditional Budgeting Using Predetermined Cost Drivers is the most widely used costing allocation method with 37.14%. It is required of plastic makers to assess the accuracy of the costing information generated by their current cost accounting information system. As the Table 7 indicates, 54.29% believe that, it is "very accurate", 37.14% find this system an "accurate" way of allocating their overheads while approximately 2.86% feel it is "somewhat accurate" and a further 5.71% find it "somewhat inaccurate".

As the Table 6 shows, 31.43% of plastic makers have applied Actual Cost System in their company However, conclusions on the accuracy of the information produced by actual cost system as Table 8 is divided with 48.57% concluding that, the information is "very accurate", 31.43% find the system's output "accurate", while another 8.57%find that the information is "somewhat accurate" and 11.43% find it "somewhat inaccurate."

As the Table 6 shows, 20% of plastic makers in Iran are using Other Costing System in their operation. Table 9 indicates that, 42.86% of those plastic makers who are already using other costing system believed that, the information generated by this system are "very accurate", 25.71% "accurate", 17.14% "somewhat accurate", 2.86% "neutral" and 11.43% "somewhat inaccurate".

Table 6 indicated that, Standard Costing and Variance Analysis is in operation in 11.43% of the samples. Due to Table 10 the accuracy identified with standard costing shows that, 25.71% of plastic makers believed that, the information is "very accurate", 31.43% found the system's output "accurate" and 28.57% find that the information is "somewhat inaccurate". And another 14.29% find it "somewhat inaccurate".

Departments Which Mainly Initiated for Launching and Implementing ABC System in Those Companies Who Have Adopted ABC System: The companies who have adopted ABC system were requested to identify that, which department mainly initiated for launching and implementing ABC system in their company? Table 11 shows that, Accounting/Finance department with 46.67%is the most leading force for launching and implementation ABC system. Product design with 20% is the second effective factor. Support from management and product planning conjointly with 13.33% are the third important factor and marketing with 6.67% is the last important cause for implementing ABC system in Iranian plastic industry.

Consideration of ABC Software Design in Those Plastic Companies Who Have Adopted Abc System: The companies who have adopted ABC system were requested to identify that, who has designed the ABC software for their company? As Table 12 shows, 53.33% of the plastic makers expressed that, software is designed by internal consultants (a team from IT department and Accounting/Finance department conjointly). 20% plastic makers expressed that external consultants dominated in the design process and 26.67% have bought the software from market.

Table 7(a): The Costing Information Generated by Traditional Budgeting Using Predetermined Cost Drivers

How Do You Assess The Accuracy of The Costing Information Generated by Traditional Budgeting Using Predetermined Cost Drivers?							
Very inaccurate	Inaccurate	Somewhat inaccurate	Neutral	Somewhat accurate	Accurate	Very accurate	Total
---	---	2	---	1	13	19	35

Table 7(b)

How Do You Assess The Accuracy of The Costing Information Generated by Traditional Budgeting Using Predetermined Cost Drivers?							
Very inaccurate	Inaccurate	Somewhat inaccurate	Neutral	Somewhat accurate	Accurate	Very accurate	Total
---	---	5.71%	---	2.86%	37.14%	54.29%	100%

Table 8(a): The Accuracy of The Costing Information Generated By Actual Cost system

How Do You Assess The Accuracy of The Costing Information Generated By Actual Cost system							
Very inaccurate	Inaccurate	Somewhat inaccurate	Neutral	Somewhat accurate	Accurate	Very accurate	Total
---	---	4	---	3	11	17	35

Table 8(b)

How Do You Assess The Accuracy of The Costing Information Generated By Actual Cost system							
Very inaccurate	Inaccurate	Somewhat inaccurate	Neutral	Somewhat accurate	Accurate	Very accurate	Total
---	---	11.43%	---	8.57%	31.43%	48.57%	100%

Table 9(A): Assessment of Accuracy of The Costing Information which is generated by Other Costing Systems

Assessment of Accuracy of The Costing Information which is Generated By Other Costing Systems							
Very inaccurate	Inaccurate	Somewhat inaccurate	Neutral	Somewhat accurate	Accurate	Very accurate	Total
---	---	4	1	6	9	15	35

Table 9(b)

Assessment of Accuracy of The Costing Information which are Generated by Other Costing Systems							
Very inaccurate	Inaccurate	Somewhat inaccurate	Neutral	Somewhat accurate	Accurate	Very accurate	Total
---	---	11.43%	2.86%	17.14%	25.71%	42.86%	100%

Table 10(1): Assessment of the Accuracy of the Costing Information Generated By Standard Costing and Variance Analysis

How Do You Assess The Accuracy of The Costing Information Generated By Standard Costing and Variance Analysis							
Very inaccurate	Inaccurate	Somewhat inaccurate	Neutral	Somewhat accurate	Accurate	Very accurate	Total
---	---	5	---	10	11	9	35

Table 10 (2)

How Do You Assess The Accuracy of The Costing Information Generated By Standard Costing and Variance Analysis

Very inaccurate	Inaccurate	Somewhat inaccurate	Neutral	Somewhat accurate	Accurate	Very accurate	Total
---	---	14.29%	---	28.57%	31.43%	25.71%	35

Table 6 (3): One-Sample Statistics

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Q1	35	6.34	.998	.169
Q2	35	6.06	1.282	.217
Q3	35	5.86	1.332	.225
Q4	35	5.54	1.291	.218

Table 6 (4): One-Sample Test

					95% Confidence Interval of the Difference	
					--------------------	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Q1	13.884	34	.000	2.343	2.00	2.69
Q2	9.493	34	.000	2.057	1.62	2.50
Q3	8.251	34	.000	1.857	1.40	2.31
Q4	7.069	34	.000	1.543	1.10	1.99

Test Value = 4

Table 6 (5): Case Processing Summary

Case Processing Summary

		N	%
Cases	Valid	35	100.0
	Excluded[a]	0	.0
	Total	35	100.0

a. Listwise deletion based on all variables in the procedure.

Table 6 (6)

Reliability Statistics

Cronbach's Alpha[a]	N of Items
-.021	4

a. The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item codings.

Table 11: Departments Which Mainly Initiated For Launching and Implementing ABC System

Which department mainly initiated for launching implementation of ABC system in your company?

	Number	Percentage
Product planning	2	13.33%
Product development	0	0%
Product design	3	20%
Purchasing	0	0%
Manufacturing	0	0%
Marketing	1	6.67%
Management	2	13.33%
Sales	0	0%
Accounting/ Finance	7	46.67%
Logistics	0	%
Total	15	100%

Table 12: ABC Software Designer for Company

Who designed the ABC software in your company?

	Number	Percentage
Internal consultants	8	53.33%
External consultants	3	20%
Provide From Market	4	26.67%
Total	15	100%

Main Reasons for Implementation of Abc System in Those Plastic Companies Who Have Adopted Abc System: As the Table 13 shows, one of the most important reasons for implementation of ABC system is the possibility of achieving More Accurate Costing Information. 73.33% of the plastic makers strongly agreed that this is a primary reason for implementing ABC system. Improved Profitability and Increase Income were conjointly the second most important reasons with 66.67% strongly agreeing. Better Use of Resources is also a central factor for implementing ABC systems with 53.33%. Also 46.67% of respondents strongly agreeing that, Change in the Funding Mechanism is another important reason for implementation of ABC system in Iranian plastic industry. The received result indicates that, the plastic makers in Iran who have adopted ABC system, with 46.67% are strongly disagree that Involvement Of Other Departments In Management be as a reason for implementing ABC system in their company.

Benefits of Implementation of ABC System in Plastic Companies Who Have Adopted Abc System: There are so many researches on the benefits of implementation of ABC systems in companies. The most important areas identified by adopters of ABC system includes; Understanding Cost Behavior and Causation (Bruggeman et al, 1996[5]; Clarke et al, 1999[6]). Improved Accuracy (Bruggeman et al, 1996; Clarke et al, 1999), Cost Reduction (Bruggeman et al, 1996; Lebas, 1996), Better Process Design (Lebas, 1996[7]), Cost Management And Control (Clarke et al, 1999; Innes et al, 2000), Performance Measures (Clarke et al, 1999; Innes et al, 2000[8]), Product/Service Pricing (Clarke et al, 1999; Innes et al, 2000).

The plastic makers who have adopted ABC system are requested to identify the perceived benefits of using ABC system in their company. As the Table 14 indicates, respondents believed that, Improved Accuracy is the first important perceived benefit of implementation of ABC system with 60% "strongly agree", 33.33% "agree" and 6.67% "somewhat agree". Respondents also found the Understanding Cost Behavior and Causation as second important perceived benefit with 46.67% "strongly agree", 33.33% "agree ", 13.33% "somewhat agree" and also 6.67% "somewhat disagree". Respondent's point of view third important perceived benefit was Product/Service Pricing with 33.33% "strongly agree", 33.33% "agree" and 20% "somewhat agree", 6.67% and 6.67% "disagree". Plastic makers also, with 26.67

Table 13 (1): The Main Reasons for Implementation of ABC System

	The Main Reasons For Implementation of ABC System							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	Total
More Accurate Cost Information	---	---	---	---	---	4	11	15
Improved Cost Control	---	---	---	1	3	6	5	15
Improved Insight Into Cost Causation	---	---	---	3	4	4	4	15
Better Use of Resources	---	---	---	---	1	6	8	15
Improved Performance Measure	---	---	1	3	3	4	4	15
Involvement of other Departments in Management	---	---	---	4	3	3	5	15
Change In The Funding Mechanism	---	---	---	---	2	6	7	15
Provision More Useful Information To Process Improvement	---	---	1	1	4	5	4	15
Increase in Income	---	---	---	---	2	3	10	15
Improved Profitability	---	---	---	---	1	4	10	15

Table13 (2)

	The Main Reasons For Implementation of ABC System							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	Total
More Accurate Cost Information	---	---	---	---	---	26.67%	73.33%	100%
Improved Cost Control	---	---	---	6.67%	20%	40%	33.33%	100%
Improved Insight Into Cost Causation	---	---	----	20%	26.67%	26.67%	26.66%	100%
Better Use Of Resources	---	---	---	---	6.67%	40%	53.33%	100%
Improved Performance Measure	---	---	6.66%	20%	20%	26.67%	26.67%	100%
Involvement of Other Departments in Management	---	---	---	26.66%	20%	20%	33.33%	100%
Change in The Funding Mechanism	---	---	---	---	13.33%	40%	46.67%	100%
Provision More Useful Information To Process Improvement	---	---	6.67%	6.67%	26.67%	33.33%	26.67%	100%
Increase in Income	---	---	---	---	13.33%	20%	66.67%	100%
Improved Profitability	---	---	---	---	6.67%	26.67%	66.67%	100%

Table 13 (3): One-Sample Statistics

	One-Sample Statistics			
	N	Mean	Std. Deviation	Std. Error Mean
More Accurate Cost Information	15	6.67	.488	.126
Improved Cost Control	15	6.00	.926	.239
Improved Insight Into Cost Causation	15	5.60	1.121	.289
Better Use of Resources	15	6.47	.640	.165
Improved Performance Measure	15	5.47	1.302	.336
Involvement of other Departments in Management	15	5.60	1.242	.321
Change In The Funding Mechanism	15	6.33	.724	.187
Provision More Useful Information To Process Improvement	15	5.67	1.175	.303
Increase in Income	15	6.53	.743	.192
Improved Profitability	15	6.60	.632	.163

Table 13 (4): One-Sample Test

						One-Sample Test		
				Test Value = 4				
						95% Confidence Interval of the Difference		
	t	df	Sig. (2-tailed)	Mean Difference		Lower	Upper	Situation
More Accurate Cost Information	21.166	14	.000	2.667		2.40	2.94	Accepted
Improved Cost Control	8.367	14	.000	2.000		1.49	2.51	Accepted
Improved Insight Into Cost Causation	5.527	14	.000	1.600		.98	2.22	Accepted
Better Use of Resources	14.929	14	.000	2.467		2.11	2.82	Accepted
Improved Performance Measure	4.363	14	.001	1.467		.75	2.19	Accepted
Involvement of other Departments in Management	4.989	14	.000	1.600		.91	2.29	Accepted
Change In The Funding Mechanism	12.486	14	.000	2.333		1.93	2.73	Accepted
Provision More Useful Information To Process Improvement	5.493	14	.000	1.667		1.02	2.32	Accepted
Increase in Income	13.201	14	.000	2.533		2.12	2.94	Accepted
Improved Profitability	15.922	14	.000	2.600		2.25	2.95	Accepted

Table 13 (5): Case Processing Summary

		Case Processing Summary	
		N	%
Cases	Valid	15	100.0
	Excluded[a]	0	.0
	Total	15	100.0

a. Listwise deletion based on all variables in the procedure.

Table 13 (6): Reliability Statistics

Reliability Statistics	
Cronbach's Alpha[a]	N of Items
-.404	10

a. The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item codings.

Table 14 (1): Perceived Benefits of Using ABC System

Perceived Benefits of Using ABC System							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	Total
Understanding Cost Behavior And Causation	---	---	1	---	2	5	7	15
Improved Accuracy	---	---	---	---	1	5	9	15
Cost Reduction	---	---	3	---	3	5	4	15
Better Process Design	---	---	---	3	6	4	2	15
Cost Management And Control	---	---	2	2	3	5	3	15
Performance Measures	---	---	5	2	4	3	1	15
Product/Service Pricing	---	1	1	---	3	5	5	15

Table 14 (2)

Perceived Benefits of Using ABC System							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	Total
Understanding Cost Behavior And Causation	---	---	6.67%	---	13.33%	33.33%	46.67%	100%
Improved Accuracy	---	---	---	---	6.67%	33.33%	60%	100%
Cost Reduction	---	---	20%	---	20%	33.33%	26.67	100%
Better Process Design	---	---	---	20%	40%	26.67%	13.33%	100%
Cost Management And Control	---	---	13.33%	13.33%	20%	33.33%	20%	100%
Performance Measures	---	---	33.33%	13.33%	26.67%	20%	6.67%	100%
Product/Service Pricing	---	6.67%	6.67%	---	20%	33.33%	33.33%	100%

Table 14 (3): One-Sample Statistics

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Understanding Cost Behavior And Causation	15	6.13	1.125	.291
Improved Accuracy	15	6.53	.640	.165
Cost Reduction	15	5.47	1.457	.376
Better Process Design	15	5.33	.976	.252
Cost Management And Control	15	5.33	1.345	.347
Performance Measures	15	4.53	1.356	.350
Product/Service Pricing	15	5.80	1.207	.312

Table 14 (4): One-Sample Test

One-Sample Test							
	Test Value = 4						
					95% Confidence Interval of the Difference		
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper	Situation
Understanding Cost Behavior And Causation	7.341	14	.000	2.133	1.51	2.76	Accepted
Improved Accuracy	15.332	14	.000	2.533	2.18	2.89	Accepted
Cost Reduction	3.898	14	.002	1.467	.66	2.27	Rejected
Better Process Design	5.292	14	.000	1.333	.79	1.87	Accepted
Cost Management And Control	3.839	14	.002	1.333	.59	2.08	Rejected
Performance Measures	1.524	14	.150	.533	-.22	1.28	Rejected
Product/Service Pricing	5.775	14	.000	1.800	1.13	2.47	Accepted

Table 14 (5): Case Processing Summary

Case Processing Summary			
		N	%
Cases	Valid	15	100.0
	Excluded[a]	0	.0
	Total	15	100.0

a. Listwise deletion based on all variables in the procedure.

Table 14 (6): Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
.171	7

"strongly agree", 33.33% "agree" and 20% "somewhat agree" and 20% "somewhat disagree" found the Cost Reduction as forth important benefit of ABC system. Also they surveyed with 20% "strongly agree", 13.33% "agree", 20% "somewhat agree", 6.67%, "neutral", 20% "somewhat disagree", 13.33% "disagree" and 6.67% "strongly disagree" scored the Cost Management And Control as fifth benefit of implementation of ABC system. Better Process Design scored sixth perceived benefit with 13.33% "strongly agree", 20%, "neutral", 20% "somewhat disagree", 26.67% "disagree" and 20% "strongly disagree" and finally Performance Measures with 6.67% "strongly agree", 20% "agree", 26.67% "somewhat agree", 13.33%, "Neutral", 33.33% "somewhat disagree", is the last perceived benefit adopted plastic makers' point of view.

Problems Encountered During the Implementation ABC System in Those Companies Who Have Adopted ABC System: (Cobb et al. 1993[9]) believes that, the biggest problem experienced with ABC is the Lack of Adequate Internal Resources, particularly employee's time and computer resources. As the Table 15 indicate, respondents believe that, the lack of adequate resources caused problems during implementation of ABC system with 40% "strongly agree", 33.33% "agree" and 26.67% "somewhat agree". According to (Shields, 1995[10]) Support from Top Management provides the vehicle through which resources are controlled, goals are set and monitored and political forces are generated to support the innovation. The theory of organizational change recognizes the role of senior management support in helping to create a suitable environment for change (Manley, 1975[11]). The literature suggests that, without this support, problems will certainly be encountered during the implementation ABC system. Respondents surveyed with 20% "strongly agree", 33.33% "agree" and 46.67%, "somewhat agree". The published result from (Clarke et al.1999)'s survey indicates that, from those companies that Clarke was surveyed, who had actually implemented ABC, 50% had met with difficulty in assigning costs to activities while 42% experienced problems in identifying and selecting cost driver. Respondents in this research, find Difficulty In Selecting

Table 15 (1): The Major Problems Encountered During the Course of the Design and Implementation of the ABC System

The Major Problems Encountered During The Course of the Design and Implementation of the ABC System							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	Total
Lack of Adequate Internal Resources	---	---	---	---	4	5	6	15
Support From Top Management	---	---	---	---	7	5	3	15
Difficulties in Allocating Costs to Activities in A Manner That Reflects True Causation	---	---	---	1	6	4	4	15
Difficulties Associated With Gathering the Data Required	---	---	---	1	3	5	6	15
Difficulties Associated With Information Systems and, Adequate Computer System and Inefficiency in IT Department	---	---	1	3	4	3	4	15

Table 15 (2)

The Major Problems Encountered During The Course of the Design and Implementation of the ABC System							
	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	Total
Lack of Adequate Internal Resources	---	---	---	---	26.67%	33.33%	40%	100%
Support From Top Management	---	---	---	---	46.67%	33.33%	20%	100%
Difficulties in Allocating Costs to Activities in A Manner That Reflects True Causation	---	---	---	6.67%	40%	26.67%	26.67%	100%
Difficulties Associated With Gathering the Data Required	---	---	---	6.67%	20%	33.33%	40%	100%
Difficulties Associated With Information Systems and, Adequate Computer System and Inefficiency in IT Department	---	---	6.67%	20%	26.67%	20%	26.67%	100%

Table 15 (3): One-Sample Statistics

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Lack of Adequate Internal Resources	15	6.13	.834	.215
Support From Top Management	15	5.73	.799	.206
Difficulties in Allocating Costs to Activities in A Manner That Reflects True Causation	15	5.73	.961	.248
Difficulties Associated With Gathering the Data Required	15	6.07	.961	.248
Difficulties Associated With Information Systems and, Adequate Computer System and Inefficiency in IT Department	15	5.40	1.298	.335

Table 15 (4): One-Sample Test

One-Sample Test							
	Test Value = 4						
					95% Confidence Interval of the Difference		
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper	Situation
Lack of Adequate Internal Resources	9.909	14	.000	2.133	1.67	2.60	Accepted
Support From Top Management	8.404	14	.000	1.733	1.29	2.18	Accepted
Difficulties in Allocating Costs to Activities in A Manner That Reflects True Causation	6.985	14	.000	1.733	1.20	2.27	Accepted
Difficulties Associated With Gathering the Data Required	8.328	14	.000	2.067	1.53	2.60	Accepted
Difficulties Associated With Information Systems and, Adequate Computer System and Inefficiency in IT Department	4.176	14	.001	1.400	.68	2.12	Accepted

Table 15 (5): Case Processing Summary

Case Processing Summary		N	%
Cases	Valid	15	100.0
	Excluded[a]	0	.0
	Total	15	100.0

a. Listwise deletion based on all variables in the procedure.

Table 15 (6): Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
.534	5

Cost Drivers And Allocating Costs To Activities In A Manner That Reflected Accurate Cost Causation with 26.67% "strongly agree", 26.67% "agree" and 40% "somewhat agree" and 6.67% "neither agree nor disagree". For the implementation of ABC system in any company the Updated Data is required. Unfortunately in plastic industry in Iran there is not enough date available from the traditional costing systems. Also collecting the data, analysis and reporting to start the ABC system as a more complex and detailed than a traditional costing system is more time consuming and expensive. Plastic makers who have adopted ABC system in their industry, found this as a key problem with 40% "strongly agree", 33.33% "agree" and 20% "somewhat agree" and 6.67% "neutral". Also they believed that, the Information Systems, Inadequate Computer System support to implement the system and Inefficiency in IT Department have created variety for problems for implementing ABC system with 26.67% "strongly agree", 20% "agree" and 26.67% "somewhat agree" and 20% "neutral" and also 6.67% "somewhat disagree". The result of the survey in plastic industry in Iran is almost conclusive with the literature [12-15].

CONCLUSION

Results indicated that, 15 of plastic makers (30%) have adopted ABC system, which 4 of them (26.67%) have adopted this system throughout their company and 11 of them (73.33%) have just principle adopted. also 35 of Plastic Makers (70%) have not adopted ABC system who can be divided into 3 groups: 1) 5 Companies (14.29%) who have considered and rejected it 2) 26 Companies (74.28%) who have never considered it 3) 4 Companies (11.43%) who are in early stage of consideration. Companies identified performance management, accreditation and risk assessment as necessary tools and techniques in driving their company

for achieving its vision. The complexity of plastic industry's setting and consequently higher cost of implementation is obstacle for implementation. Management accounting practices and costing techniques are not so important in the low rate of adoption of ABC in a plastic industry. Degree of satisfaction of conventional (existing) cost accounting systems is another important rationale to justify the low rate of implementation. The most important reason for implementing ABC system in plastic industry in Iran is the possibility of achieving more accurate costing information. Better use of resources, use of ABC system as a performance measure, income generation and improved profitability, change in funding mechanism are also central factor in introducing ABC system in plastic industry. Respondents are agreed that, the implementation of ABC system in plastic industry enables, in descending order, an improved insight into cost causation, more accurate cost of products, more accurate pricing and continuous improvement opportunities. IT department who have no input into the process of implementation, length of implementation, problems with Information systems and lack of computer system support in varying during implementation are the main reasons for Non-adoption ABC system in plastic industry.

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