

Appraisal of Cost Management Tools in Manufacturing Organizations of Bangladesh

Rehana Fowzia¹ and Mahmuda Nasrin²

Cost management tools are essential to exert control over cost and to appraise managerial performance in different segments of an organization particularly in manufacturing organizations. This study has been attempted to examine the influence of different types of cost management tools in profit planning decisions and also investigate the significant satisfied cost management tools in overall satisfaction of cost management tools. To achieve these purposes total 70 manufacturing organizations have been surveyed. Findings from multiple regression analysis reveals that only five cost management tools are influential in profit planning decisions and only there are three satisfied cost management tools which are significant in overall satisfaction of cost management tools.

Keywords: Cost management tools, Manufacturing organizations, Profit planning decisions, Satisfaction.

1. Introduction

The more the development of the market economy, the more the significance of management accounting. To keep pace with this increasing market economy, it becomes imperative for the organizations to adopt new management accounting tools and techniques. It is also important for the Bangladeshi organizations.

In recent years, the increasing level of global competition has intensified the challenges for managers and many experts have warned that if management accounting is to maintain its relevance, it needs to adapt to meet the changing needs of managers. In response to these concerns, a range of new management accounting techniques has emerged (Chenhall and Smith, 1998a). Traditional management accounting techniques, such as absorption costing, standard costing, traditional budgets, CVP analysis and profit-based performance measures, focus on concerns internal to the organization. The more recent management accounting tools, such as activity based costing (ABC, BSC), target costing, value chain analysis and benchmarking have affected the whole process of management accounting (planning, controlling, decision making, and performance evaluation) and have shifted its focus from a “simple” or “naive” role of cost determination and financial control, to a “sophisticated” role of creating value through improved deployment of resources (Kaplan and Atkinson, 1998; Otley, 1995; Haldma and Laats, 2002). Briedley et al. (2001) argue that “given that notions such as “current practice” and “current state” are situated in time and space there is a continuous need for empirical studies to keep track of developments . . . and compare the [current] results . . . with prior research . . .”

1. Rehana Fowzia, Assistant Professor, Department of Business Administration, Stamford University Bangladesh. rehana.fowzia@gmail.com

2. Mahmuda Nasrin, Lecturer, Department of Business Administration, Stamford University Bangladesh. mahmudanasrin@gmail.com

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Cost Accounting measures and reports financial and non-financial information related to the organization's acquisition or consumption of resources. It provides information for both financial and management accounting (Hornegren, Bhimani, Datar and Foster, 1997; Hilton, 2000).

The implementation of the Total Cost Management methodology will help top management in their decision-making, to select projects and prioritize them, and give the final decision whether to go or not, and if they decide to go whether to make it or buy it.

Cost Management embraces a range of techniques essential to all phases of an asset life cycle – from providing reliable information for strategic decision-making, to managing construction and maintenance costs.

Over the last decades, management accounting has emerged as a comparatively popular research topic in market economy countries. Different surveys on management accounting have been carried out in several European countries and their results have been reported in various publications (Bhimani, 1996; Drury et al., 1993; Lukka, Granlund, 1996; Amat et al., 1994).

This study has been designed on few segments. First of all, the introduction and an overview of prior studies relating cost management tools and secondly, the objectives and methodology of the study. Then the authors have analyzed the results of the findings and at the end some conclusive remarks.

2. Research Questions

Which cost and management tools are effective on the profit planning decision and the overall satisfaction level of cost management tools in manufacturing organizations in Bangladesh on the basis of perceptions of managers?

3. Literature Review

More than 30 popular cost and management accounting techniques have been introduced, since 1950. According to Smith (1999), the major developments in management accounting since 1950s can be explained as follows:

- Cost and management accounting innovations in 1950s can be identified as: Discount cash flows, Total quality management, Colum charts and Optimum transfer pricing.
- Cost and management accounting innovations in 1960s can be identified as: Computer technology, Opportunity cost budgeting, Zero-base budgeting, Decision tree, Critical path scheduling, and Management by objectives.
- Cost and management accounting innovations in 1970s can be identified as: Information economics and agency theory, Just-in-time scheduling, Strategic business units, Experience curves, portfolio management, Materials resource planning, Diversification, Matrix organization and Product repositioning.
- Cost and management accounting innovations in 1980s can be identified as: Activity based costing, Target costing, Value-added management, Theory of constraints, Vertical integration, Private labels and Benchmarking.

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- Cost and management accounting innovations in 1990s can be identified as: Business process reengineering, Quality functional deployment, Outsourcing, Gainsharing, Core competencies, Time-based competition and Learning organization.

Reviewing cost and management accounting innovations of the last two decades, Björnenak, T., & Olson, O. (1999) identify the major recently developed cost and management accounting techniques in the literature as follows: “activity based costing (ABC); activity management (AM); and activity based management (ABM); local information system (LS); balanced scorecard (BS); life cycle costing (LCC) and target costing (TC); strategic management accounting (SMA).

Managerial accounting techniques and practices have changed in response to the challenges of global competition, international markets, technological advances, and complexity of business. Adoption of these innovations by Asian manufacturers suggest a changing role for the managerial/cost accountant. The future management accountant will need to be knowledgeable of production, quality control, marketing, and management strategy. The results also indicate a broadening of management accounting and a trend toward the integration of management accounting information with strategic planning, suggesting the emergence of the integrative area of cost management. This evidence of changes in the practice of management accounting in Asia will also have significant implications for American universities and manufactures regarding the common body of knowledge required for domestic and international management accounting and the future direction of management accounting education. (Rezaee, et al, 2004).

To examine the status of use of management accounting techniques in the manufacturing enterprises of Bangladesh, a list of traditional and modern management accounting tools were identified and the extent of their use was evaluated in the study of B.C. Mazumder, (2007). It was discovered that modern techniques like Activity-Based Costing, Target Costing, Just-in-Time (JIT), Total Quality Management (TQM), Process Reengineering and The Theory of Constraints (TOC) were not used in public and private sector manufacturing enterprises but a few Multinational Corporations (MNC) were using some of techniques like JIT and TQM.

A recent study (Yeshmin and Fowzia, 2010), aimed to examine the use of the management accounting techniques in manufacturing and service industries of Bangladesh for discharging managerial functions. To achieve this objective, 151 organizations from manufacturing and service industries had been surveyed. By identifying 14 management techniques, three factors had been identified to determine the variability's of the usage level in managerial functions. The total variability's in application of management accounting techniques in managerial functions of manufacturing and service industries, 73.343% and 54.396% respectively. The findings revealed that management accounting techniques such as financial statement analysis, budgetary control, CVP analysis, variance analysis and fund flow analysis were common 14 both the industries and were used frequently in managerial functions.

Fowzia (2010), conducted another study in which 60 listed manufacturing organizations were surveyed to find out the importance of different types of cost

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accounting techniques on decision making of manufacturing organization in Bangladesh. Findings from factors analysis revealed that 20 cost accounting techniques were about 80% important for decision making. Among those most important and influential technique was target costing and least important techniques was back-flush costing.

Other study (Yeshmin and Das,2009), made to evaluate the management performance by using management accounting techniques of the financial institutions in Bangladesh. A total of 77 responses were collected on a structured questionnaire and it was found managers of the financial institutions were very much satisfied in application of budgetary control analysis, and variance analysis to measure their performance. At the same time managers were very much dissatisfied in application of segment reporting.

4. Methodology of the Study

Sample size

Total 70 listed manufacturing organizations have been surveyed. Among those, 30 textile organizations, 15 pharmaceutical and chemical organizations, 17 food and allied organizations, 3 ceramic organizations and 5 cement organizations have been considered. The sample size are not uniform because there are only listed 5 cement organizations. So, the authors tried to collect survey from more than 60% of total population separately. They were selected on random basis.

Data collection

The study is mainly based on primary data. A structured survey questionnaire has been used. Secondary sources are different local and international published articles, websites, seminar papers etc.

Data analysis

Data have been analyzed by using descriptive statistical tools such as mean and also multiple regression model.

Study period

Time period of the study was May to August, 2010.

5. Research Findings

To determine the adoption levels of different cost management tools, the authors have applied mean analysis. Here, the authors have used 4 –point measurement scale where 1 denotes “no adoption” and 4 denotes “high adoption”. The following table shows that only target costing is in high adoption levels. The rest of the tools have fallen in medium and low adoption levels.

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Table-1: Adoption level of Cost management tools

Cost management tools	N	Mean
Traditional cost accounting	70	3.31
Activity Based Costing	70	3.49
Variable costing	70	3.91
Absorption costing	70	2.74
Target costing	70	4.03
Differential costing	70	3.26
Standard costing	70	3.69
Opportunity costing	70	2.80
Kaizen costing	70	2.14
Throughput costing	70	2.09
Attribute costing	70	2.69
Life cycle costing	70	2.89
Quality costing	70	3.60
Strategic costing	70	3.03
Value chain costing	70	3.43
Zero defects costing	70	3.00
Job costing	70	3.37
Process costing	70	3.71
Backflush costing	70	2.37
Hybrid or mixed costing	70	2.86

To discover the effective tools on the profit planning decision on the basis of perceptions of managers, the authors have used multiple regression analysis.

The model is specified as follows:

$$PPD = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12} + \beta_{13} X_{13} + \beta_{14} X_{14} + \beta_{15} X_{15} + \beta_{16} X_{16} + \beta_{17} X_{17} + \beta_{18} X_{18} + \beta_{19} X_{19} + \beta_{20} X_{20} + e$$

Where,

PPD = Profit planning decisions

β_0 = Constant

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9, \beta_{10}, \beta_{11}, \beta_{12}, \beta_{13}, \beta_{14}, \beta_{15}, \beta_{16}, \beta_{17}, \beta_{18}, \beta_{19}, \beta_{20}$ = Estimated coefficients for the given factors

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- X₁=Traditional cost accounting
- X₂= Activity Based Costing
- X₃= Variable costing
- X₄=Absorption costing
- X₅= Target costing
- X₆= Differential costing
- X₇= Standard costing
- X₈= Opportunity costing
- X₉= Kaizen costing
- X₁₀= Throughput costing
- X₁₁= Attribute costing
- X₁₂= Life cycle costing
- X₁₃= Quality costing
- X₁₄= Strategic costing
- X₁₅= Value chain costing
- X₁₆= Zero defects costing
- X₁₇= Job costing
- X₁₈= Process costing
- X₁₉= Backflush costing
- X₂₀= Hybrid or mixed costing

Table-2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.917(a)	.841	.614	.901

Table-3: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Significance
1	Regression	60.171	20	3.009	3.704	.008
	Residual	11.372	14	.812		
	Total	71.543	34			

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Table-4: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Significance
		B	Std. Error	Beta		
1	(Constant)	4.195	.674		6.221	.000
	Traditional cost accounting	1.247	.280	.985	4.446	.001
	Activity Based Costing	-.658	.315	-.664	-2.090	.055
	Variable costing	-.268	.199	-.270	-1.346	.200
	Absorption costing	.283	.160	.344	1.767	.099
	Target costing	.295	.293	.260	1.007	.331
	Differential costing	-.248	.167	-.295	-1.481	.161
	Standard costing	.334	.286	.304	1.169	.262
	Opportunity costing	-.047	.161	-.063	-.290	.776
	Kaizen costing	.161	.147	.181	1.095	.292
	Throughput costing	-.020	.126	-.027	-.159	.876
	Attribute costing	.125	.139	.157	.899	.384
	Life cycle costing	.125	.175	.157	.718	.485
	Quality costing	-.565	.262	-.576	-2.155	.049
	Strategic costing	.045	.182	.053	.245	.810
	Value chain costing	-.352	.210	-.439	-1.670	.117
	Zero defects costing	.132	.134	.155	.980	.344
	Job costing	-.108	.111	-.154	-.971	.348
	Process costing	-.198	.190	-.250	-1.043	.315
	Backflush costing	-.356	.192	-.365	-1.857	.084
	Hybrid or mixed costing	-.153	.119	-.233	-1.287	.219

The regression result shows that the multiple regression model is highly significant (.008). The coefficient of determination indicates that 61.40 percent of the variation in profit planning decision explained by variations in the independent variables. Among the twenty cost management tools the effective tools are traditional and quality costing at 5% level of significance and activity based, absorption, backflush costing at 10% level of significance.

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To determine the satisfaction levels of different cost management tools, the authors have applied mean analysis. Here, the authors have used 7 –point likert type measurement scale where 1 denotes “very dissatisfied” and 7 denotes “very satisfied”. The following table shows that only activity based costing and differential costing is in moderately satisfied levels. The rest of the tools have fallen in slightly satisfied and neutral levels.

Table-5: Satisfaction levels of Cost management tools

Cost management tools	N	Mean
Traditional cost accounting	70	4.54
Activity Based Costing	70	6.49
Variable costing	70	5.26
Absorption costing	70	4.63
Target costing	70	5.20
Differential costing	70	6.83
Standard costing	70	5.29
Opportunity costing	70	5.17
Kaizen costing	70	5.80
Throughput costing	70	4.51
Attribute costing	70	4.74
Life cycle costing	70	4.63
Quality costing	70	5.14
Strategic costing	70	5.03
Value chain costing	70	5.20
Zero defects costing	70	5.11
Job costing	70	5.14
Process costing	70	5.69
Backflush costing	70	4.97
Hybrid or mixed costing	70	5.20

To find out the influential satisfied tools on the overall satisfaction on the basis of perceptions of managers, the authors have used multiple regression analysis.

The model is specified as follows:

$$OS = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12} + \beta_{13} X_{13} + \beta_{14} X_{14} + \beta_{15} X_{15} + \beta_{16} X_{16} + \beta_{17} X_{17} + \beta_{18} X_{18} + \beta_{19} X_{19} + \beta_{20} X_{20} + e$$

Where,

OS=Overall satisfaction

β_0 = Constant

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9, \beta_{10}, \beta_{11}, \beta_{12}, \beta_{13}, \beta_{14}, \beta_{15}, \beta_{16}, \beta_{17}, \beta_{18}, \beta_{19}, \beta_{20}$ = Estimated coefficients for the given factors

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- X₁=Traditional cost accounting
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- X₃= Variable costing
- X₄=Absorption costing
- X₅= Target costing
- X₆= Differential costing
- X₇= Standard costing
- X₈= Opportunity costing
- X₉= Kaizen costing
- X₁₀= Throughput costing
- X₁₁= Attribute costing
- X₁₂= Life cycle costing
- X₁₃= Quality costing
- X₁₄= Strategic costing
- X₁₅= Value chain costing
- X₁₆= Zero defects costing
- X₁₇= Job costing
- X₁₈= Process costing
- X₁₉= Backflush costing
- X₂₀= Hybrid or mixed costing

Table-6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.899(a)	.807	.532	.607

Table-7: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.591	20	1.080	2.934	.022
	Residual	5.151	49	.368		
	Total	26.743	69			

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Table-8: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.225	.454		2.698	.017
	Traditional accounting cost	-.053	.189	-.068	-.280	.783
	Activity Based Costing	.684	.212	1.128	3.225	.006
	Variable costing	.053	.134	.088	.399	.696
	Absorption costing	-.047	.108	-.093	-.435	.670
	Target costing	-.231	.197	-.334	-1.173	.260
	Differential costing	.212	.113	.411	1.878	.081
	Standard costing	-.153	.192	-.227	-.793	.441
	Opportunity costing	.057	.108	.127	.532	.603
	Kaizen costing	-.198	.099	-.363	-2.002	.065
	Throughput costing	-.022	.085	-.049	-.256	.801
	Attribute costing	-.075	.094	-.154	-.798	.438
	Life cycle costing	-.038	.118	-.079	-.327	.749
	Quality costing	.267	.176	.445	1.514	.152
	Strategic costing	-.061	.123	-.119	-.500	.625
	Value chain costing	.201	.142	.411	1.419	.178
	Zero defects costing	-.080	.091	-.155	-.888	.390
	Job costing	-.032	.075	-.075	-.428	.675
	Process costing	.016	.128	.032	.123	.904
	Backflush costing	.085	.129	.142	.655	.523
Hybrid or mixed costing	.121	.080	.300	1.508	.154	

The regression result shows that the multiple regression model is significant (.022) The coefficient of determination indicates that 53.20 percent of the variation in overall satisfaction level of cost accounting techniques explained by variations in the independent variables. Among the twenty cost management tools the influential tools are activity based costing at 5% level of significance and differential and kaizen costing at 10% level of significance.

6. Limitations of the Study and Future for Further Study

This study is based on few structured questionnaire in survey and some secondary data. Some cost management tools have been considered. But there is huge number of cost management tools. Only usage and satisfaction level have been considered but what are the reasons behind it have not been concentrated. If the study considered the qualifications of them, the finding might be different. This study lacks consideration of a good number of cost management tools and also the level of the qualifications of them towards justification of their responses. Also merely manufacturing organization has been considered. The study could consider the usage and satisfaction levels of service organizations also. That prospect is kept open for further research.

7. Conclusion

Cost management refers to the activities of managers in short-run and long-run planning and control of costs. Therefore, beside the traditional techniques new methods appear. Global market, international business processes, customers' growing needs for high quality with low price focus managers' attention to cost management. At the inception of cost accounting concept, manufacturing organizations used traditional cost accounting techniques. Now, competition and complexity of the structure of production process of goods have become increased. So, manufacturing organizations have to think about production at lowest possible cost. On these circumstances, traditional cost accounting techniques are not giving the fruitful result to response to the keen competition. At present, manufacturing organizations have to adopt advanced cost accounting techniques. The adoption of different types of cost accounting techniques, both traditional and advanced techniques, affects the decision-making.

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