

## Application of Management Accounting Techniques in the Nepalese Manufacturing Firms

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Received: November 26, 2021; Revised & Accepted: December 29, 2021

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### Abstract

*MA (Management Accounting) data is intended to help users make managerial choices and support organizational activities. This study examined the use of MATs (Management Accounting Techniques) in NMFs (Nepalese Manufacturing Firms) and their progression. The study was based on 291 survey responses of employees from 18 operative listed NMFs. Nineteen MATs were observed in a 5-point Likert scale ranging from 'significantly less' to 'significantly more'. The study's outcomes revealed that the average usage scores of 3.47 (with SD = 0.998) indicated that the NMFs were significantly applying the MATs in their organizational activities and processes. In addition, the moderate user rate of contemporary MATs (45.7 %) was higher than the moderate use rate of traditional MATs (34.5 %), indicating that the NMFs were gradually incorporating the contemporary MATs alongside the traditional MATs. Failure to align appropriate MATs with business processes could lead to managerial misinterpretations. As a result, the study's findings offer a wealth of information and direction to businesses in NMFs.*

**Keywords:** Contemporary MATs, manufacturing firms, managerial decisions, strategy, traditional MATs

Paper type – Research paper

JEL Classification – M41

### 1. Introduction

MA (Management Accounting) information is designed to assist users in making managerial decisions and facilitates various organizational activities and processes. An organization's strategic activities are significantly reliant on MA information generated through MATs (Management Accounting Techniques) applied in the organization. The MATs are essential for the effective and efficient management of any business. The techniques are frequently

recommended for facilitating strategy implementation and enhancing financial and non-financial performance (Davis & Albright, 2004; De Geuser et al., 2009). In recent decades, scholars have concentrated on assessing the application of MATs in the business field. The topographies of today's corporate environment have an effect on the characteristics of the MATs used in organizations. MATs are being used to evaluate, monitor, plan, and mobilize organizational resources, particularly manufacturing companies.

Increased competition and advanced manufacturing technologies have revolutionized the business environment of NMFs (Nepalese Manufacturing Firms). The NMFs are under pressure to offer more valuable and dynamic data for decision-making and resource management. This can be achieved through implementing successful MATs, which place a high value on quality, speed, competitiveness, affordability, and long-term customer relationships (Abdel-Maksoud et al., 2012). Data from the MA system is extraordinary, allowing managers to make informed economic decisions and encouraging users to transform their organizations (Horngren, 1995).

It is argued that accounting systems inhibit change. Greenwood and Hinings (1996) asserted that accounting systems could slow down change because accounting routines lend stability to an organization. Most notably, decision-makers establish practices based on their previous experiences, and these routines eventually develop into rigid decision rules and systems. This stability is beneficial since it boosts the firm's ability to respond to external conditions while simultaneously decreasing its adaptability and flexibility. Therefore, the everyday use of MATs to generate organizational performance metrics has a powerful effect in building organizational inertia. The implementation of MATs in organizations may provide insights into successes and related benefits. This study is carried out to examine to what extent the MATs were applied in the NMFs (Nepalese Manufacturing Firms). Focusing on the existence of the MATs in the NMFs, the study's goals were outlined as: (i) to determine the extent to which MATs have been adopted in the NMFs; and (ii) to look into how the progression of MATs happened.

Manufacturing firms are continually examining and changing their manufacturing strategies to be competitive in the face of increasing market competition (Mia & Clarke, 1999). Adoption of suitable MATs is one of the most common strategies these firms use to attain the firm's goal. Changes in manufacturing strategies and processes frequently need adjustments of MATs to account for the shifting production cost structure and internal business processes. Scholars and practitioners have been interested in the issue of which MATs are most suitable for manufacturing firms. As a result, it was important to look at how MATs are adopted and used in NMFs.

## **2. Review of Literature and Hypotheses**

Advances in information and communication technology have been revolutionized the methods for collecting, measuring, analyzing, and disseminating data and information within and between organizations (Atkinson et al., 1997). To deal with market volatility and uncertainty, it has been asserted that companies must arm themselves with appropriate responses to risks and opportunities and ensure that they develop, adopt, and implement relevant systems (Burchell et al., 1980). MATs play a crucial role in monitoring a firm's strategic progress through a feedback information system.

Many 'new or claimed to be new' MATs, such as new product costing techniques, strategic cost analysis, quality management, and others, have arisen as a result of growing concern among accounting professionals and academicians about the adequacy of traditional MATs in meeting the current information needs of business organizations (Libby & Warehouse, 1996). These new approaches allow more precise tracking of costs to products thus should result in improved managerial decisions. The traditional volume-based MA techniques of allocating production overhead costs to products and services are criticized as over-simplistic and do not reflect products' complexity (Kaplan, 1984). However, empirical studies have shown that the traditional MATs are still widely used in firms, possibly due to the lack of knowledge of the other alternatives and the high financial costs of changing the existing costing systems (Chenhall & Langfield-Smith, 1998).

The traditional MATs, established and practiced before the 1980s (Johnson & Kaplan, 1987), are constrained in gathering the data needs of business firms since they are short-term focused, internally, and financially oriented (Chenhall & Langfield-Smith, 1998). The contemporary MATs, developed and exercised after the 1980s (Ajibolade, 2013; Baines & Langfield-Smith, 2003; Dahal, 2021, etc.), offer potential benefits to business firms, including upgraded viability, competitiveness, enhanced quality, and an enriched customers focus (Joshi et al., 2011). They are regarded to have strategic consequences for the business sequence and services (Hyvonen, 2005) and contribute to accomplishing organizational goals (Wahyuni & Triatmanto, 2020).

Changes in a firm's existing environments impose new requirements on MATs, including implementing necessary adjustments to ensure viability. The practicality of adopting MATs as a stage of change can be determined by examining the extent to which the firm promotes the transitory limit necessary to address diverse, progressive practices (Chenhall & Euske, 2007). The external business environment and organizational structure have affected the evolution and advancement of MATs. Concurrent developments in technology, corporate design, and strategies are possible causes of such progressions (Shields, 1997). MATs are more effective and productive in dealing with intense market competition (Baines & Langfield-Smith, 2003). Strategies used as a dynamic apparatus incorporating MATs should be designed to maximize the effectiveness of the business, and incorporating MATs into corporate strategies aids in the management of operational exercises (Wahyuni & Triatmanto, 2020).

The following hypotheses have been formulated based on a review of the relevant literature:

*H1. NMFs have been commonly adopting and popularizing MATs.*

*H2. NMFs have introduced contemporary MATs in addition to traditional MATs.*

*H3. NMFs have progressively used contemporary MATs in addition to traditional MATs.*

### **3. Methodology**

Eighteen operative listed NMFs and their working representatives were identified as the sample for the study. In addition, the working representatives who agreed to partake in the study were counted as respondents. A structured questionnaire was arranged to collect data pertaining to the application of MATs in the NMFs. The questionnaire comprised 23 questions and was divided into three parts. The first part contained four questions intending

to seek general information of the respondents and the firms. The second part examined the application of traditional MATs in the organization over the past three years and had Nine questions. Finally, the last part looked for data on the application of contemporary MATs over the same period and contained ten questions. Nineteen variables concerning MATs, contained in the second and third sections, were designed in a five-point Likert scale ranging from "significantly less" to "significantly more."

The data for this study were collected by a field survey utilizing a survey instrument built for that purpose. From July to September 2021, twenty-five targeted respondents per sample company were reached to collect data. There were a total of 291 correctly filled-out responses. General information about the respondents and the sample firms is presented in Table 1.

Table 1  
*General Information of the Respondents and the Sample Firms*

	No of the respondents	%		No of the respondents	%
<b><u>The respondents from:</u></b>			<b><u>Type of product:</u></b>		
General business (multi-products)	60	20.6	Consumer product	143	49.1
Clothing and accessories	19	6.5	Industrial product	98	33.7
Beverage processing	33	11.3	Both	50	17.2
Industrial service business	47	16.2			
Bricks and tiles	24	8.2	<b><u>Respondents' position:</u></b>		
Food and beverage	36	12.4	Offices and executives	146	50.1
Oil and energy	11	3.8	Assistants	145	49.9
Paper and pulp products	20	6.9			
Sugar and industrial products	13	4.5	<b><u>Respondent's sex:</u></b>		
Alcoholic beverage	11	3.8	Female	132	45.4
Cement and its allied products	17	5.8	Male	159	54.6
<b>Total of each section</b>	<b>291</b>	<b>100.0</b>	<b>Total of each section</b>	<b>291</b>	<b>100.0</b>

As suggested by Nunnally (1993), the study used Cronbach's alpha ( $\alpha$ ) to assess the reliability of the MATs variables. As recommended by Fornell and Larcker (1981), the validity of the constructs was measured using average variance extracted (AVE) and composite reliability (CR). Accordingly, as Podsakoff et al. (2003) opined, the study analyzed the Harman single factor test to identify the incidence and extent of the common method bias (CMB). The summary of the results with recommended cut-off values is presented in Table 2.

Table 2  
*Reliability, Validity and Common Method Bias Statistics*

	Latent Measures		Total MATs
	Traditional MATs	Contemporary MATs	
<b>Observed variables</b>	CFA_Cash Flow Analysis	ABC_Activity Based Costing	
	RA_Ratio Analysis	JIT_Just-In-Time Inventory System	
	VA_Variance Analysis	TQM_Total Quality Management	
	IR_Income Reporting	SCM_Supply Chain Management	
	BA_Break-even Analysis	ERP_Enterprise Resource Planning	
	BC_Budgetary Control	LCC_Llife Cycle Costing	
	CB_Capital Budgeting	BM_Benchmarking	
	CBA_Cost Benefit Analysis	EC_Environmental Costing	
	PC_Product Costing	CP_Customer Profitability	
		BSC_Balance Scorecard	
No observed MATs	9	10	19

	Traditional MATs	Contemporary MATs	Cut-off value	Recommended by:
Reliability insights:				
Alpha ( $\alpha$ )	0.865	0.851	$\geq 0.70$	Nunnally, 1993
Validity insights:				
CR	0.910	0.908	$\geq 0.70$	Fornell & Larcker, 1981
AVE	0.531	0.502	$\geq 0.50$	Fornell & Larcker, 1981
CMB insight:				
Harman single-factor variance		0.2540	$\leq 0.50$	Cho & Lee, 2012

The reliability, validity, and CMB insights cut-off values were all satisfied. Consequently, the variables and constructs studied were reliable, valid, and free of CMB, enabling further examination.

#### 4. Study Outcomes

The outcomes of the study were based on the observations of working representatives in the application of MAPs in NMFs. The descriptive insights for each MAT, including mean, standard deviation, and the correlation matrix, were displayed in Table 3.

Tables 3  
Descriptive Statistics (N = 291)

<i>Traditional MATs:</i>				Correlations matrix									
	Mean	S.D		CFA	RA	VA	IR	BA	BC	CB	CBA	PC	
1	CFA	4.26	0.696	1.000									
2	RA	4.04	0.753	0.530**	1.000								
3	VA	4.20	0.730	0.507**	0.536**	1.000							
4	IR	3.21	0.726	0.447**	0.323**	0.304**	1.000						
5	BA	3.99	0.853	0.603**	0.667**	0.591**	0.249**	1.000					
6	BC	3.74	0.715	0.382**	0.438**	0.457**	0.181**	0.442**	1.000				
7	CB	3.43	1.029	0.362**	0.518**	0.456**	0.146*	0.504**	0.382**	1.000			
8	CBA	3.55	0.788	0.281**	0.319**	0.325**	0.120*	0.255**	0.354**	0.348**	1.000		
9	PC	3.67	0.839	0.604**	0.645**	0.676**	0.336**	0.665**	0.517**	0.403**	0.338**	1.000	
<i>Contemporary MATs:</i>				Correlations matrix									
	Mean	S.D		ABC	JIT	TQM	SCM	ERP	LCC	BM	EC	CP	BSC
1	ABC	3.22	1.229	1.000									
2	JIT	3.30	1.090	0.399**	1.000								
3	TQM	3.36	1.234	0.400**	0.448**	1.000							
4	SCM	2.98	1.230	0.455**	0.409**	0.438**	1.000						
5	ERP	3.09	1.189	0.416**	0.530**	0.380**	0.464**	1.000					
6	LCC	3.01	1.248	0.176**	0.321**	0.324**	0.438**	0.297**	1.000				
7	BM	3.25	1.163	0.184**	0.192**	0.225**	0.330**	0.261**	0.230**	1.000			
8	EC	3.11	1.236	0.399**	0.377**	0.457**	0.537**	0.453**	0.301**	0.395**	1.000		
9	CP	2.96	1.249	0.420**	0.336**	0.355**	0.812**	0.393**	0.436**	0.314**	0.466**	1.000	
10	BSC	3.12	1.159	0.116*	0.140*	0.169**	0.244**	0.235**	0.199**	0.850**	0.327**	0.244**	1.000

\*\* Correlation is significant at the 0.01 level (2-tailed).  
\* Correlation is significant at the 0.05 level (2-tailed).

Table 3 showed that the average usage of each MAT was approximately three or above in a 5-point Likert scale and the maximum to minimum standard deviation ratio was 1.79:1, which was less than Julious's (2005) recommended cut-off value of 2:1. Each MAT had a positive and significant relationship at a 0.05 level of significance (two-tailed). Traditional MATs had mean values ranging from 3.21 to 4.26 (with an average of 3.79), whereas contemporary MATs had mean values ranging from 2.96 to 3.36 (yielding an average of 3.14). Such outcomes indicated that the sample firms had been commonly employing MATs

since the average applications rate was higher than three in a 5-point Likert scale and supported the study's H1.

Table 4  
*Applications of MATs*

	Significantly less (1)	Moderate (2-3)	Significantly more (4-5)	Mean	SD
<b>Traditional MATs:</b>					
1 Cash Flow Analysis	0 (0.0 %)	42 (14.4 %)	249 (85.6 %)		
2 Ratio Analysis	0 (0.0 %)	74 (25.4 %)	217 (74.6 %)		
3 Variance Analysis	0 (0.0 %)	54 (18.6 %)	237 (81.4 %)		
4 Income Reporting	12 (4.1 %)	170 (58.4 %)	109 (37.5 %)		
5 Break-even Analysis	8 (2.7 %)	83 (28.6 %)	200 (68.7 %)		
6 Budgetary Control	0 (0.0 %)	106 (36.4 %)	185 (63.6 %)		
7 Capital Budgeting	9 (3.1 %)	132 (45.4 %)	150 (51.5 %)		
8 Cost Benefit Analysis	14 (4.8 %)	117 (40.2 %)	160 (55.0 %)		
9 Product Costing	0 (0.0 %)	124 (42.6 %)	167 (57.4 %)		
<b>Average</b>	<b>1.6 %</b>	<b>34.5 %</b>	<b>63.9 %</b>	<b>3.79</b>	<b>0.792</b>
<b>Contemporary MATs:</b>					
1 Activity Based Costing	43 (14.8 %)	107 (36.7 %)	141 (48.6 %)		
2 Just-In-Time Inventory System	26 (8.9 %)	133 (45.7 %)	132 (45.4 %)		
3 Total Quality Management	32 (11.0 %)	108 (37.1 %)	151 (51.9 %)		
4 Supply Chain Management	45 (15.5 %)	137 (47.1 %)	109 (37.4 %)		
5 Enterprise Resource Planning	41 (14.1 %)	126 (43.3 %)	124 (42.6 %)		
6 Life Cycle Costing	47 (16.1 %)	139 (47.8 %)	105 (36.1 %)		
7 Benchmarking	26 (8.9 %)	146 (50.2 %)	119 (40.9 %)		
8 Environmental Costing	46 (15.8 %)	117 (40.2 %)	128 (44.0 %)		
9 Customer Profitability	76 (26.1 %)	150 (51.6 %)	65 (22.3 %)		
10 Balance Scorecard	63 (21.6 %)	167 (57.4 %)	61 (21.0 %)		
<b>Average</b>	<b>15.3 %</b>	<b>45.7 %</b>	<b>39.0 %</b>	<b>3.14</b>	<b>1.203</b>
<b>Overall MATs (average)</b>	<b>8.45 %</b>	<b>40.10 %</b>	<b>51.45 %</b>	<b>3.47</b>	<b>0.998</b>

The extent of use of MATs was classified into three categories, 'significantly less' (response point 1), 'moderate' (response points 2 and 3), and 'significantly more' (response points 4 and 5) in a 5-point Likert type scale. The outcomes, presented in Table 4, exhibited that the significant average users of traditional MATs in the NMFs were 63.9 %, the moderate users were 34.5 %, and the non-users were 1.6 %. In addition to traditional MATs, the firms were also introducing contemporary MATs. The statistics showed that the significant average users of contemporary MATs were 39.0 %, the moderate users were 45.7 %, and non-users were 15.3 %. The average moderate use rate of contemporary MATs (45.7 %) was more substantial than the average moderate use rate of traditional MATs (34.5 %), indicating that the NMFs were progressively applying the contemporary MATs alongside the traditional MATs. These findings backed up the study's H2 and H3 hypotheses.

## 5. Discussion

The study's objectives were to determine the extent of the use of MATs and their progression in the NMFs. To address the study's first objective, it revealed that the average usage scores of 3.47 (with SD = 0.998) at a 5-point Likert scale indicated that the NMFs were significantly applying the MATs in their organizational activities and processes. In addition, the average application rate of traditional MATs (mean = 3.79) was more significant than the contemporary MATs (mean = 3.14), indicating that the NMFs were introducing the contemporary MATs alongside the traditional MATs. The finding was consistent with prior studies (like Dick-Forde et al., 2007; Duh et al., 2009; Joshi, 2001; Sulaiman et al., 2004) that the manufacturing companies preferred traditional MATs over contemporary MATs. The

studies indicated the preference and exposed contemporary MATs in parallel with traditional MATs.

To address the study's second objective, it noticed the progression of MATs in NMFs. The progression could be attributed to changes in the business environment's competitiveness and manufacturing technologies. Due to new technologies and changes in manufacturing costs structure, contemporary MATs must be customized to meet current market demands and expectations. The contemporary MATs such as ABC, JIT, TQM, SCM, ERP, LCC, BM, EC, CP, BSC, etc., have significant consequences because traditional MATs were unable to successfully assist managers in managing organizational resources and recognizing the relevant costs (Askarany & Smith, 2008). Considerable use of contemporary MATs demonstrated the progression of MATs in the NMFs.

The study's outcomes-focused on integrating strategic measurements with contemporary MATs would become increasingly important in the future. Due to the greater awareness of the inadequacies of traditional MATs, a review of multi-dimensional MATs has been initiated. The scope of MA has expanded to include the measurement of various dimensions of organizational concerns and the perception of board concerns relating to customers, markets, competitors, options, processes and activities, and so forth. Contemporary MATs address strategic aspects of the dynamic interaction, enabling an organization to utilize resources better internally and externally. Relevant MATs reconfigure the organization to reflect market forces' competitiveness and use various approaches to combine strategic, operational, and financial data to make management decisions.

## **6. Conclusion, Limitations, and Scope of Future Research**

The study observed that NMFs had been commonly adopting and popularizing the MATs (mean = 3.47, SD = 0.998, in a 5-point Likert scale measurement). More specifically, traditional MATs (mean = 3.79 and SD = 0.792) and contemporary MATs (mean = 3.14 and SD = 1.203) seemed to be similarly crucial since the NMFs relied on both practices to cope with significant changes in the contemporary business environment. The findings also showed that NMFs have gradually introduced contemporary MATs since moderate users of contemporary MATs (45.7 %) were higher than the moderate users of traditional MATs (34.5 %). The present business environment has been evolving and regularly changing. So, it is critical to select appropriate MATs, ensuring an effective MA system that can coordinate business activities provide valuable data for executives to make various managerial decisions. Therefore, the study's findings offer helpful comprehensions and practical guidelines to the stakeholders dealing with changes in MATs in their organizations.

This study had subjected to some limitations. First and foremost, the sample may not entirely represent the manufacturing industry populace in Nepal. Because of the study's small sample size, the study conclusions couldn't be generalized without significant caution. A few structured questionnaires and MATs narratives were included in the study. Furthermore, the data was collected at a single point of time rather than across time. Future research could replicate the findings by using multiple research methods and examining the adoption of MATs from various organizational, contextual, and institutional perspectives. The study of MATs is particularly rare in Nepal, which entices academicians' attention in contributing to this field of study. In addition, it will widen the scope of future research by allowing

practitioners to propose practical solutions to the issues presented in the study. Finally, the study encompassed a limited number of MATs based on previous research; however, future studies may incorporate more techniques. Therefore, there is a pressing need for additional research into MATs, which can also provide insight into an organization's quality management.

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**Nepal Journal of Multidisciplinary Research (NJMR)**

**Vol. 4, No. 4, December 2021. Pages: 53-62**

**ISSN: 2645-8470 (Print), ISSN: 2705-4691 (Online)**

**DOI: <https://doi.org/10.3126/njmr.v4i4.43209>**

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