# Management Accounting Techniques on Rationalize Decisions in the Nepalese Listed Manufacturing Companies

<sup>1</sup>Rewan Kumar Dahal, <sup>2</sup>Ganesh Bhattarai, <sup>3</sup>Dipendra Karki

<sup>1,2,3</sup>Lecturer, Tribhuvan University, Faculty of Management, Nepal Commerce Campus, Kathmandu, Nepal

> <sup>1</sup>Principal author, Email: *dahalrewan@gmail.com* <sup>2</sup>Corrresponding author, Email: *ganesh@ncc.edu.np* <sup>3</sup>Co-author, Email: dipendra.karki@ncc.tu.edu.np

#### Abstract

The objective of this study was to examine how much the Nepalese listed manufacturing companies are utilizing management accounting techniques to rationalize decisions. It followed a descriptive research design and employed a survey questionnaire instrument to collect data. The population of this study comprised all the listed manufacturing companies on the Nepal Stock Exchange and their employees. Targeted respondents were those representatives of the sample companies who worked in the accounting department or/and at the managerial level. By using a random sampling technique, a sum of 408 respondents had partaken in the survey and 385 responses were properly filled up for further analysis. The survey questionnaire had three questions relating to general and demographic information, 28 questions relating to management accounting techniques, and five questions relating to the effect of the study variables on rationalizing decisions. Collected data were analyzed with the help of a statistical package for the social sciences software. Each of the 28 management accounting techniques was classified into nine groups and identified that most of the techniques except financial performance measurement techniques (having with cash flow analysis, ratio analysis, absorption/variable costing, transfer pricing) had no significant relation with rationalizing decisions in the Nepalese manufacturing companies. So, this study would assist to pay attention to the concerned personnel towards the use of management accounting techniques on rationalize decisions.

Keywords: Accounting, decision-making, managers, organizations, performance

JEL Classification: M41

#### Introduction

Management accounting is a discipline that involves partnering in management decision making, devising planning and performance management systems, and providing expertise in financial reporting and control to assist management in the formulation and implementation of an organization's strategy (Chartered Institute of Management Accountants, 2008). Traditionally, management accounting has focused on annual controls in secure and confirmed competitive operating environments due to the managers' need for historical data to apprehend overall performance and to manipulate accountability in their organization (Taipaleenmaki & Ikaheimo, 2013). The ongoing fashion of management accounting has shifted from history-based planning and control to future-oriented decisions, strategic planning, and control. The accounting is concerned about the utilization of data in facilitating managers to make informed business decisions effectively.

The most recent thirty years have been a time of twisting change for many businesses and their decision-making techniques. Managers have learned that cherished ways of doing business do not work anymore and that significant changes must be made in how organizations are managed and in how work gets done. As companies become more centered than ever on the quality of its products, the rating of its operations to multiple activities and more precise cost products information, and as a result of the different changes in the information and consumer tastes (Al-Sayyed, 2015). Technology and innovation have changed the conventional role of the managers of providing information to more role effectiveness, placing within the integrated management team that tries to plan and take appropriate decisions to accomplish better performance for the company. Management accounting is not only a set of techniques but also a set of values and norms that provide information in the decision-making process, especially for developing manufacturing companies (Tuan Mat et al., 2016).

In the current business environment, the Nepalese companies are also confronting intensified competition locally and globally due to fast changes in customers' demands/tests and technological advancement. So, the Nepalese listed manufacturing companies must be outfitted with proper management accounting techniques for them to take managerial decisions more efficiently and effectively. As management accounting techniques seek to plan and take appropriate decisions to achieve better organizational performance, the study tries to find the answer to which management accounting techniques are the most influential while taking managerial decisions by the Nepalese listed manufacturing companies? This study centers around the implication of management accounting techniques in the decision making of the listed manufacturing organizations in Nepal. In this regard, the objective of the study to assess

the significance of the management accounting techniques on renationalize decisions of the Nepalese listed manufacturing companies.

Management accounting techniques sharpen the analytical tools to make effective managerial decisions. The application of management accounting techniques in the decision-making process enables companies to verify the efficient use of available resources to achieve the desired goals and helps in the search for the best of those uses. The identification and analysis of how well a management accounting technique has been actualized and hence used in an organization give a useful point of view on how the business sees the significance of management accounting. The study was not limited to the technical analysis itself in terms of the possibility of applying management accounting techniques, in addition to that, it has exceeded to identify the impact of the use of the techniques in rationalize decisions in the Nepalese listed manufacturing companies.

#### **Literature Review**

Since the early 1980s, many organizations have experienced several waves of improvement programs especially for managerial decisions, starting with just-in-time and passing on to total quality management, process reengineering, and various other management programs. When the improvement programs are properly executed, these can upgrade quality, reduce cost, increase output, eliminate delays in responding to customers, and ultimately enhance organizational performance (Garrison et al., 2008). Management accounting systems and the resulting information used to assist management in its decision-making process is argued to provide a comparative advantage in a dynamic and competitive business environment (Chenhall & Langfield-Smith, 1998).

Management accounting practices have been transforming from limited to more executive capacities. Innovation in management accounting has made that change management accounting practices noticeably (Abdel-Kader & Luther, 2006; Ittner & Larcker, 2001). According to Preda and Watts (2004), innovation in management accounting has broadened the descriptive objects, the causal variability factors, and the periods of analysis that simultaneously impacting organizational applications. The examples of contemporary accounting techniques include value-based management, non-financial performance measurement systems, total quality management, balanced scorecard, activity-based costing, activity-based costing, the balanced scorecard, just in time, value chain analysis, total quality management are practices that have gained widespread attention in accounting, particularly since the latter decades of the 20th century (Kaplan & Norton, 1992; Scapens et al., 1996).

Björnenak and Olson (1999) have identified that the management accounting techniques like standard costing, activity-based costing, activity management and activity-based management, balanced scorecard, life cycle costing, target costing received practitioners' attention for facilitating and speeding up the managerial decision-making processes. In the study of Chenhall and Euske (2007), activity-cost-management, target costing, life cycle costing, economic value-added, shareholder value analysis, value-based management, and balanced scorecard were the most significant management accounting techniques on the managerial decision-making process. Some researchers argue that some management accounting techniques have drawn from other disciplines such as engineering and economics (Miller, 1998; Miller et al., 2008). According to Miller et al. (2008), practices such as standard costing, discounted cash flow, the difference between fixed and variable costs, break-even analysis, etc. are drawn from disciplines other than accounting and later adapted and formed as the core of accounting.

In the study of Mazumder (2007), the management accounting techniques such as financial statement analysis, standard costing, cash flow analysis were widely used followed by cost-volume-profit analysis, marginal costing, fund flow analysis. Such findings imparted credence to the findings of Wijewardena and De Zoysa (1999) where the study revealed that Australian manufacturing companies placed more emphasis on cost control tools such as budgeting, standard costing, and variance analysis at the manufacturing stage while their Japanese counterparts devoted more attention to cost planning and cost reduction tools based on target costing at product planning and design stage.

#### **Conceptual Framework and Hypothesis**

The benefits of contemporary management accounting techniques are evident, successful implementation remains an important and unresolved issue that constrains the benefits derived from management accounting on managerial decisions. In this regard, this study acclimatizes with various management accounting techniques as they form a basis of rationalize managerial decisions.

#### Management Accounting Techniques:

*Cash flow analysis* reports the cash receipts, cash payments, and net changes in cash resulting from operating, investing, and financing activities of an organization during a period (Weygandt et. al., 2008) that supports to take various managerial decisions.

*Ratio analysis* assists to diagnose the liquidity, solvency, activities, profitability, financial soundness of the business organization.

*Budgetary control* plays a vital role in creating goal congruence in an organization and thus always links in some way to the evaluation function of budgeting (Malmi & Brown 2008; Palermo 2018).

*Break-even analysis* helps managers understand the relationships among cost, volume, and profit of an organization that supports managerial decisions.

*Standard costing/variance analysis* is the act of computing and interpreting variances. The study of Fleischman and Tyson (1998) showed that resulting information on standard costing/variance analysis was quite useful for various managerial decision-making purposes in many organizations.

*Variable costing/absorption costing* are the established methodologies of identifying the costs of material, labor and overheads in product costing system and their uses in product costing system have endured over time as a means of giving information for decision making and control (Jones et al., 2012; Lucas, 2000). They analyze the cost information for the guidance of management and try to find out an effect on profit due to changes in the volume of output (Noreen et al., 2011).

*Target costing* is one of the cost management tools that reduce the total production cost during the life cycle of the product with the help of those in charge of production and designing engineering (Sakurai, 2008).

*The inter-firm comparison* looks at at least two or more comparable specialty units intending to find a competitive position to improve the benefit and productivity of those specialty units.

Activity-based costing provides more accurate ways of assigning the costs of indirect and support resources to activities, business processes, products, services, and customers (Atkinson et al., 2014). Overheads are grouped into cost pools and appropriate drivers are found which show more effectively how costs are consumed (Bhimani & Bromwich, 2010). The study of Wegman (2013) showed that the logic of an activity-based costing system remains the best to improve the management accounting systems to lead the strategic decisions.

*Differential costing* compares two or more alternatives' costs for making decisions. This technique shows that managers should take into consideration the cost of available alternatives before making the decision.

Just in time production system/inventory system goes beyond the control on the stock to include the whole production system as it removes all sources of wastage and any activity that

does not add value to production through producing the right product in the right place and the right time (Schroeder, 2016).

*Responsibility accounting* is a framework that includes identifying responsibility centers and their targets, developing performance measurement schemes, and getting ready, and examining performance reports of the responsibility centers.

*Segment reporting* is a part or activity of an organization about which managers would like to get information on cost, revenue, or profit. Segment-wise reporting supports taking various managerial decisions (Garrison et al., 2015).

*Enterprise resources planning* organizes and integrates operation processes and information flows to make optimum use of available resources (Sheikh, 2003).

*Life-cycle costing* is a method of tracking and accumulating costs attributable to a product from its inception to the point that it is withdrawn (Bhimani et al., 2012).

Lean manufacturing aims to reduce waste while providing increased customer value.

*Transfer pricing* provides information on pricing between two and/or more associated enterprises' transactions.

*Customer profitability* is an analysis of the revenue streams and service costs associated with particular customers or customer groups and as enabling the allocation of revenue and costs to an individual customer or customer group (Sridhar & Corbey, 2015).

*The Break-even time matrix* motivates and measures the benefits of cross-functional integration during the product development cycle (House & Price, 1991).

*Environmental costing* supports to manage the human activities for the prevention of the negative effects on nature and natural resources, making sure that the modifications caused to the environment do not produce harmful effects on it.

*Total quality management* focuses on serving customers and solving problems systematically using teams (Garrison et al., 2015).

*The theory of constraints* maintains the effective managing of the constraint resources as a key to success (Garrison et al., 2015).

*Management by exception* is a management strategy wherein managers will only step in when there are significant deviations from planned outcomes.

*Process reengineering* is the rethinking and redesign of business processes to achieve improvements in critical performance measures such as cost, quality, service, speed, and customer satisfaction (Horngren, et al., 2005).

*Kaizen costing* focuses on small continuous improvements to the product cost during the manufacture of the product with managers setting cost reduction targets (Modarress et al., 2005).

*Benchmarking* is a continuous and systematic process of comparing products, services, processes, and outcomes with other organizations, to improve outcomes by identifying, adapting, and implementing best practice approaches (Kelessidis, 2000).

Supply chain management coordinates and integrates all operational activities into a unified process (Sotiris, 2000).

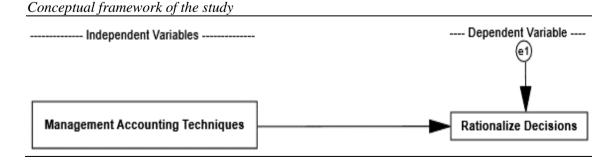
A balanced scorecard contributes to the accomplishment of the work, placing a strategy of the work, the connection of the strategy with the work, and the coordination between the individual and organizational performance (Kaplan & Norton, 2004).

#### Rationalize Decisions:

Decision-making is a process of selecting an alternative from among several alternatives after extensive study and analysis of the aspects of the problem that needs resolution. So, it is important to use management accounting techniques that enable organizations to verify the efficiency of using the available resources in realizing the desired objectives. This can be done through the information methods that help to search for the best of those uses with the least production cost as sound information leads to sound decisions (Fakhr & Al-Dulaimi, 2012).

In this regard, the study intends to examine the relationship between management accounting techniques as the dependent variable and rationalize decisions as the independent variable presented in Figure 1.

#### Figure 1



Within the framework of prior literature and conceptual sketching, the study has the following hypothesis:

# Study hypothesis:

H<sub>1</sub>: Management accounting techniques positively and significantly affect rationalize decisions of the Nepalese listed manufacturing companies.

### Methodology

The quantitative research design was used to extract information for the study. Required information acquired through a structured questionnaire survey and employed a statistical package for social sciences (SPSS) for dissecting and deciphering the information. The population of the study comprised all the listed manufacturing companies on the Nepal Stock Exchange and their employees. Targeted respondents were the employees of populace companies who worked in the accounting department or/and at the managerial level. The study followed a random sampling technique to collect the data. A sampling plan was used as proposed by Krejcie and Margan's (1970) generalized scientific guideline and collected 385 respondents' responses.

The designed questionnaire for the survey comprised 36 questions and structured into three sections. In the first section, three questions were requested relating to general and demographic information in various dimensions. In the second section, there were 28 study variables questions relating to management accounting techniques on rationalize decisions. In the final section, there were five questions relating to the effect of the study variables on the rational decision-making process of the company. The questions of the last two sections were composed of a series of close-ended questions estimated in a 5-point Likert-type scale with 1 =never, 2 = rarely, 3 = sometimes, 4 = frequently and 5 = always. All the responses were collected through a field survey. A total of 700 questionnaires were distributed among the targeted respondents. Out of them, 408 responses were collected during the 90-days of September to November 2019. Out of the collected responses, 23 were rejected due to incomplete information. Therefore, the total valid questionnaires were 385 which was used in this study for analysis.

Reliability assessment of the survey questionnaire tested using Cronbach's alpha. The value of Cronbach's alpha ( $\alpha = 0.889$ ) of 28 study variables was higher than the threshold value of 0.70 and proved the good internal consistency of the variables. On the other hand, the study had an adequate sample size since the Kaiser-Meyer-Olkin (KMO) value of 0.718 from 28 study variables and was greater than the threshold value of 0.5 as recommended by Kaiser (1974).

The significant value of Bartlett's test of sphericity (13534.573, df = 378, p = 0.000) indicated that the sample had enough for further analysis.

#### **Results and Analysis**

This study was the employees' assessment of the Nepalese listed manufacturing companies regarding whether the management accounting techniques were being applied in the organizational rationalized decisions. The demographic and general characteristics of the respondents were outlined at three variables presented in Table 1.

# Table 1

|                             | No of the |       |                       | No of the   |       |  |
|-----------------------------|-----------|-------|-----------------------|-------------|-------|--|
| respondents                 |           | %     |                       | respondents | %     |  |
| The industry classification |           |       | Respondents           |             |       |  |
| of the respondents:         |           |       | position:             |             |       |  |
| Food processing             | 149       | 38.7  | Board member          | 19          | 4.9   |  |
| Petrochemical and polymer   | 57        | 14.8  | Managerial level      | 58          | 15.1  |  |
| Textiles and apparel        | 150       | 39.0  | Officer               | 112         | 29.1  |  |
| Others                      | 29        | 7.5   | Assistant             | 157         | 40.8  |  |
| Respondent's sex:           |           |       | Others                | 39          | 10.1  |  |
| Female                      | 172       | 44.7  | Total of each section | 385         | 100.0 |  |
| Male                        | 213       | 55.3  |                       |             |       |  |
| Total of each section       | 385       | 100.0 |                       |             |       |  |

Demographic and General Information the Respondents'

As per the sampling frame and size, nearly 80.0 % of respondents were from food processing, and petrochemical and polymer industries. 50.0 % and more respondents of this study hold at least officer or/and above positions in their organization. The representation of the male respondents was slightly higher than the female respondents in this study.

Exploratory factor analysis was used to make groups of the management accounting techniques. Nine components were identified from 28 test variables having with the Eigenvalue more than one and they had a total effect of 73.7 % of the variance. Individual scale items more than 0.4 were connected into relevant components. The components/factors were labelled as: 1 = Financial Performance Measurement Techniques (FPMT), 2 = Overall Performance Measurement Techniques (OPMT), 3 = Process Performance Measurement Techniques (PPMT), 4 = Resources Management Techniques (RMT), 5 = Process Accounting Techniques (PAT), 6 = Cost Reduction Techniques (CRT), 7 = Customer Analysis Techniques (CAT1), 8 = Cost Accounting Techniques (CAT2), and 9 = Planning Techniques (PT). The final results from the exploratory factor analysis presented in Table 2 based on varimax criterion with Kaiser normalization method.

# Table 2

Rotated Component Matrix

| Rotate                                 | d Com     | ponen   | t Mat | rix <sup>a</sup> |      |      |      |      |      |
|--|-----------|---------|-------|------------------|------|------|------|------|------|
|  | Component |         |       |                  |      |      |      |      |      |
|  | 1         | 2       | 3     | 4                | 5    | 6    | 7    | 8    | 9    |
| Cash Flow Analysis                     | .455      |         |       |                  |      |      |      |      |      |
| Ratio Analysis                         | .876      |         |       |                  |      |      |      |      |      |
| Absorption/Variable Costing            | .932      |         |       |                  |      |      |      |      |      |
| Transfer Pricing                       | .926      |         |       |                  |      |      |      |      |      |
| Theory of Constraints                  |           | .975    |       |                  |      |      |      |      |      |
| Benchmarking                           |           | .977    |       |                  |      |      |      |      |      |
| Balance Scorecard                      |           | .978    |       |                  |      |      |      |      |      |
| Just in time/Inventory system          |           |         | .446  |                  |      |      |      |      |      |
| Segment Reporting                      |           |         | .409  |                  |      |      |      |      |      |
| Life Cycle Costing                     |           |         | .462  |                  |      |      |      |      |      |
| Break-even Time Matrix                 |           |         | .898  |                  |      |      |      |      |      |
| Management by Exception                |           |         | .898  |                  |      |      |      |      |      |
| Target Costing                         |           |         |       | .913             |      |      |      |      |      |
| Inter-Firm Comparison                  |           |         |       | .913             |      |      |      |      |      |
| Responsibility Accounting              |           |         |       | .495             |      |      |      |      |      |
| Enterprise Resource Planning           |           |         |       | .405             |      |      |      |      |      |
| Environmental Costing                  |           |         |       |                  | .941 |      |      |      |      |
| Process Reengineering                  |           |         |       |                  | .945 |      |      |      |      |
| Kaizen Costing                         |           |         |       |                  |      | .944 |      |      |      |
| Total Quality Management               |           |         |       |                  |      | .943 |      |      |      |
| Customer Profitability                 |           |         |       |                  |      |      | .904 |      |      |
| Supply Chain Management                |           |         |       |                  |      |      | .926 |      |      |
| Variance Analysis/Standard Costing     |           |         |       |                  |      |      |      | .513 |      |
| Activity Based Costing                 |           |         |       |                  |      |      |      | .727 |      |
| Differential Costing                   |           |         |       |                  |      |      |      | .518 |      |
| Lean Manufacturing                     |           |         |       |                  |      |      |      | .519 |      |
| Budgetary Control                      |           |         |       |                  |      |      |      |      | .600 |
| Break-even Analysis                    |           |         |       |                  |      |      |      |      | .639 |
| Cumulative % of variance explained     | 26.1      | 36.1    | 43.3  | 50.0             | 55.6 | 61.0 | 65.9 | 69.9 | 73.7 |
| Note. Extraction Method: Principal Cor | nponen    | t Anal  | ysis. |                  |      |      |      |      |      |
| Rotation Method: Varimax with Kaiser   | Norma     | lizatio | on.   |                  |      |      |      |      |      |

a. Rotation converged in 9 iterations.

**Researcher** (Vol. 4, No. 1, January 2020) \_\_\_\_\_

This study examined the effect of various management accounting techniques on rationalize decisions of the Nepalese listed manufacturing companies as considered by the sample. A standard multiple regression between the use of management accounting techniques on rationalize decisions as to the dependent variable with different management accounting techniques into nine groups as suggested by rotation component matrix as independent variables were performed. Table 3 displayed the model outline and Table 4 demonstrated analysis of the variance of the model. The adjusted R Square (i.e. value of multiple correlations) was not significantly different from zero (F = 1.344, p = 0.212) that explained 0.8 % of the variation in the dependent variable in the set of independent variables indicating negligible effects on renationalize decisions. Table 5 reported the complete model of the examination.

# Table 3

Model Summary of the Use of MA Techniques on Rationalize Decisions

| Model | R     | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------|----------|-------------------|----------------------------|
| 1     | 0.177 | 0.031    | 0.008             | 0.711                      |

Predictors: (Constant), FPMT, OPMT, PPMT, RMT, PAT, CRT, CAT1, CAT2, PT

Dependent variable: Rationalize decisions

### Table 4

ANOVA<sup>a</sup> Results of the Use of MA Techniques Rationalize Decisions

| Model   | Sum of Squares | Df  | Mean Square | F     | Sig.               |  |  |
|---|----------------|-----|-------------|-------|--------------------|--|--|
| Regression  | 6.122          | 9   | 0.680       | 1.344 | 0.212 <sup>b</sup> |  |  |
| Residual  | 189.785        | 375 | 0.506       |       |                    |  |  |
| Total   | 195.906        | 384 |             |       |                    |  |  |
| a. Dependent variable: Rationalize decisions                |                |     |             |       |                    |  |  |
| b. Predictors: (Constant), FPMT, OPMT, PPMT, RMT, PAT, CRT, |                |     |             |       |                    |  |  |
| CAT1, CAT2, PT  |                |     |             |       |                    |  |  |

#### Table 5

| Model                                      | Unstand<br>Coeffic |       | Standardized coefficients | t-value | Sig.  | Effect on Rationalize |
|--|--------------------|-------|---------------------------|---------|-------|-----------------------|
|  | В                  | S.E   | Beta                      |         | •     | Decisions             |
| (Constant)                                 | 4.184              | 0.036 | -                         | 115.412 | 0.000 | -                     |
| Fin. Performance Measurement<br>Techniques | 0.075              | 0.036 | 0.105                     | 2.057   | 0.040 | Yes                   |
| Overall Perform. Measurement<br>Techniques | 0.012              | 0.036 | 0.016                     | 0.318   | 0.751 | No                    |
| Process Perform. Measurement<br>Techniques | 0.048              | 0.036 | 0.067                     | 1.324   | 0.186 | No                    |
| Resources Management Techniques            | -0.034             | 0.036 | -0.047                    | -0.926  | 0.355 | No                    |
| Process Accounting Techniques              | 0.009              | 0.036 | 0.013                     | 0.259   | 0.795 | No                    |
| Cost Reduction Techniques                  | -0.018             | 0.036 | -0.025                    | -0.488  | 0.626 | No                    |
| Customer Analysis Techniques               | -0.017             | 0.036 | -0.024                    | -0.469  | 0.639 | No                    |
| Cost Accounting Techniques                 | 0.043              | 0.036 | 0.061                     | 1.196   | 0.232 | No                    |
| Planning Techniques                        | 0.065              | 0.036 | 0.091                     | 1.788   | 0.075 | No                    |

Regression Coefficients<sup>a</sup> of the use of MA techniques on rationalize decisions

a. Dependent Variable: Rationalize Decisions

Regression equation:

 $Y = \alpha + \beta 1 FPMT + \beta 2 OPMT + \beta 3 PPMT + \beta 4 RMT + \beta 5 PAT + \beta 6 CRT + \beta 7 CAT1 + \beta 8 CAT2 + \beta 9 PT + \epsilon$ 

 $\begin{array}{ll} Y = & 4.184 + 0.105 \; FPMT + 0.016 \; OPMT + 0.067 \; PPMT - 0.047 \; RMT + 0.013 \; PAT - 0.025 \\ & CRT - 0.024 \; CAT1 + 0.061 \; CAT2 + 0.091 \; PT + \epsilon \end{array}$ 

Eight factors (independent variables) out of nine as per the classification of the rotated component matrix were not found to be unique and significantly contribute to the rationalize decisions of the Nepalese listed manufacturing companies at a 5 % level of significance.

#### **Discussion and Conclusion**

The literature review and the conceptual framework of the study identified 28 management accounting techniques that are applied to manufacturing companies for making rationalized decisions. An exploratory factor analysis based on the varimax criterion with Kaiser normalization method grouped them into nine components/factors and labeled them accordingly. Factor 1 (financial performance measurement techniques;  $\beta = 0.105$ , p = 0.040) was assessed from four observed variables of cash flow analysis, ratio analysis, absorption/variable costing, and transfer pricing. As consistent with the past studies (like Bidhan, 2007; Jones et al., 2012; Joshi, 2001; Lucas, 2000; etc.), the study confirmed that the financial performance measurement techniques positively and significantly affect the

rationalized decisions of the Nepalese listed manufacturing companies at a 5 % level of significance.

Factor 2 (overall performance measurement techniques;  $\beta = 0.016$ , p = 0.751) assessed from three observed variables of the theory of constraints, benchmarking, and balanced scorecard. Factor 3 (process performance measurement techniques;  $\beta = 0.067$ , p = 0.186) evaluated from five observed variables of just-in-time/inventory system, segment reporting, life cycle costing, break-even time matrix, and management by exception. Factor 4 (resources management techniques;  $\beta = -0.047$ , p = 0.355) estimated from four observed variables of target costing, inter-firm comparison, responsibility accounting, and enterprise resource planning. Factor 5 (process accounting techniques;  $\beta = 0.013$ , p = 0.795) valued from two observed variables of environmental costing and process reengineering. Factor 6 (cost reduction techniques;  $\beta = -0.025$ , p = 0.626) considered from two observed variables of kaizen costing, and total quality management. Factor 7 (customer analysis techniques;  $\beta = -0.024$ , p = 0.639) weighed from two observed variables of customer profitability and supply chain management. Factor 8 (cost accounting techniques;  $\beta = 0.061$ , p = 0.232) determined from four observed variables of variance analysis/standard costing, activity-based costing, differential costing, and lean manufacturing. Factor 9 (planning techniques;  $\beta = 0.091$ , p = 0.075) calculated from two observed variables of budgetary control and break-even analysis. In contrast with the previous studies (like Chenhall & Euske, 2007; Fleischman & Tyson, 1998; House & Price, 1991; Kelessidis, 2000; Malmi & Brown 2008; Modarress et al., 2005; Palermo 2018; Sakurai, 2008; Schroeder, 2016; Sotiris, 2000; Sridhar & Corbey, 2015; Wegman, 2013; etc.), all the management accounting techniques associated with factor 2 to factor 9 were not significantly associated with the rationalize decisions of the Nepalese listed manufacturing companies a 5 % level of significance.

Sharkar et al. (2006) has given an overview of the management accounting practices in the listed manufacturing companies in Bangladesh. The analysis of this study has also revealed that all sectors fail to practice some newly developed management accounting techniques. This study was furthermore consistent with Bidhan (2007) who has examined the status of the use of management accounting techniques in the manufacturing enterprises of Bangladesh. It has been discovered that management accounting techniques like activity-based costing, target costing, just-in-time, total quality management, process reengineering, and theory of constraints were not used in public and private sector manufacturing enterprises but a few multinational corporations are using some techniques like just-in-time and total quality management. In addition, traditional techniques like ratio analysis, standard costing, cash flow analysis were found widely used.

Management accounting techniques are intended to provide useful information for making a better managerial decision. The listed manufacturing companies of Nepal seem to be far behind the expected situation due to the lack of information on utilizing the managerial accounting techniques to benefit from these in rationalize decisions. Participation in the decision making processes and on the job training to employees may expand the utilization of the management accounting techniques for legitimizing managerial decisions in the companies.

#### **Limitations and Implications**

The major limitation of the study was that only the use of a quantitative survey with a structured questionnaire to collect the necessary information. The study captured only a few management accounting techniques though there are huge numbers of techniques are being practiced all over the world. The structured questionnaire denies the opportunity to travel numerous pertinent issues of the responses, yet all the checks have been embraced to decide the validity and reliability of the data gathered. The reliability of the findings might be contingent on the number of participants that could have been enhanced further by a larger sample. Larger sample size would have increased the legitimacy and consensus of the findings.

Studies showed that many management accounting techniques have been using in all around the world. The importance of management accounting practices in measuring multidimensional aspects of performance through effective managerial decisions is rapidly increasing. Management accounting practices in organizations recognize the problem that management is facing in future courses of action. So, this study would be of particular relevance in Nepal because it would help to assess the significant influence of management accounting techniques in the decision-making process of the Nepalese listed manufacturing companies. Researchers hoped that this study would help to pay attention to the concerned personnel towards the use of management accounting techniques on rationalize decisions. The application of management accounting techniques makes effective management decisions. They enable organizations to improve the innovative capability and flexibility that can continually change and improve organizational performance.

#### References

Abdel-Kader, M., & Luther, R. (2006). Management accounting practices in the British food and drinks industry. *British Food Journal*, *108*(5), 336-357.

Al-Sayyed, S.M. (2015). The impact of the use of management accounting techniques to streamline decision-making in the Jordanian industrial companies. *European Journal of Business and Management*, 7(10), 260-270.

- Atkinson, A.A., Kaplan, R.S., Matsumura, E.M., Young, S.M., & Kumar, G.A. (2014).
  *Management accounting information for decision making and strategy execution* (6th ed.).
  New Delhi: Pearson Education, Inc.
- Bhimani, A., & Bromwich, M. (2010). *Management accounting: Retrospect and prospect.* Oxford: CIMA Publishing.
- Bhimani, A., Horngren, C., Datar, S., & Rajan, M. (2012). *Management and cost accounting* (5<sup>th</sup> ed.). Harlow: Pearson.
- Bidhan, C.M. (2007). Application of management accounting techniques in decision making in the manufacturing business firms in Bangladesh. *The Cost and Management*, 35 (1), 5-18.
- Björnenak, T., & Olson, O. (1999). Unbundling management accounting innovations. Management Accounting Research, 10(4), 325-338.
- *Chartered institute of management accountants.* (2008). Retrieved from http://www.cimaglobal.com.
- Chenhall, R. H., & Euske, K. J. (2007). The role of management control systems in planned organizational change: An analysis of two organizations. *Accounting, Organizations* and Society, 32(7-8), 601-637.
- Chenhall, R., & Langfield-Smith, K. (1998). Adoption and benefits of management accounting practices: An Australian study. *Management Accounting Research*, 9(1), 1-19. http://dx.doi.org/10.1006/mare.1997.0060
- Fakhr, N., & Al-Dulaimi, K. (2012). *Industrial cost accounting*, Ammon, Jordan: International scientific house for publication and distribution.
- Fleischman, R. K., & Tyson, T. N. (1998). The evolution of standard costing in the UK and US from decision making to control. *Abacus*, *31*(1), 92-119.
- Garrison, R. H., Noreen, E. W., & Brewer, P.C. (2015). Managerial accounting (15<sup>th</sup> ed.). New York: McGraw-Hill Education.
- Horngren, C. T., Sundem, G. L., Burgstahler, D., & Schatzberg, J. (2005). Introduction to Management Accounting (6<sup>th</sup> ed.). Edinburgh: Pearson Education Limited.
- House, C.H., & Price, R.L. (1991). The return map: Tracking product teams. *Harvard Business Review*, 69(1), 92–100.
- Ittner, C.D., & Larcker, D.F. (2001). Assessing empirical research in managerial Accounting: A value-based management perspective. *Journal of Accounting & Economics*, 32(3), 349-410.
- Jones, T., Atkinson, H., Lorenz, A., & Harris, P. (2012). *Strategic managerial accounting: Hospitality, tourism and events applications*. Oxford: Goodfellow Publishers.

- Joshi, P.L. (2001). The international diffusion of new management accounting practices: The case of India. *Journal of International Accounting, Auditing and Taxation, 10*(1),85-109.
- Kaiser, H. F. (1974). An index of factorial simplicity. Psychometrika, 39, 31-36.
- Kaplan, R., & Norton, D. (1992). The balanced scorecard: Measures that drive performance. *Harvard Business Review*, *70*(1), 71-79.
- Kaplan, R., & Norton, D. (2004). Measuring the strategic readiness of intangible assets. *Harvard Business Review*, 82(2), 52-63.
- Kaplan, R.S., & Norton, D.P. (2004). Strategy maps Converting intangible assets into tangible outcomes. Boston, Massachusetts: Harvard Business School Publishing Corporation.
- Kelessidis, V. (2000). Benchmarking in InnoRegio consortium, 21 Innovation management technologies. Recite programme: Directorate general regional policy - European Commission.
- Krejcie, R., & Morgan, D. (1970). Determining sample size for research activities. *Educational & Psychological Measurement*, 30, 607-610.
- Lucas, M. (2000). The reality of product costing. Management Accounting, 78(2), 28-31.
- Malmi, T., & Brown, D. A. (2008). Management control systems as a package Opportunities, challenges and research directions. *Management Accounting Research*, 19(4), 287–300.
- Mazumder, B.C. (2007). Application of management techniques in decision making in the manufacturing business firms in Bangladesh. *The Cost and Management*, *35*(1), 5-18.
- Miller, P. (1998). The margins of accounting. European Accounting Review, 7(4), 605-621.
- Miller, P., Kurunmäkii, L., & O'Leary, T. (2008). Accounting, hybrids and the management of risk. Accounting, Organizations and Society, 33(7-8), 942-967.
- Modarress, B., Ansari, A., & Lockwood, D. (2005). Kaizen costing for lean manufacturing: A case study. *International Journal of Production Research*, *43*(9), 1751-1760.
- Modarress, B., Ansari, A., & Lockwood, D.L. (2005). Kaizen costing for lean manufacturing: A case study. *International Journal of Production Research*, 43(9). 1751-1760. Doi:10.1080/00207540500034174.
- Noreen, E. W., Brewer, P. C., & Garrison, R. H. (2011). *Managerial accounting for managers* (2<sup>nd</sup> ed.). McGraw-Hill/Irwin.
- Palermo, T. (2018). Accounts of the future: A multiple-case study of scenarios in planning and management control processes. *Qualitative Research in Accounting & Management*, 15(1), 2–23.
- Preda, P., & Watts, T. (2004). Contemporary accounting innovations in Australia: Manufacturing versus service organizations. *Journal of Applied Management Accounting Research*, 2(2), 17-28.

- Sakurai, M. (2008). Target costing and how to use it. Journal of Cost Management, 3(2), 39-51.
- Scapens, R., Turley, S., & Burns, J., (1996). *External reporting and management decisions*. London: CIMA Publishing.
- Schroeder, R. G. (2016). Operation management. New York: McGraw Hill.
- Sharkar, H. M. Z., Sobhan, Md. A., & Sultana, S. (2006). Management accounting development and practices in Bangladesh. *BRAC University Journal*, *III*(2), 113-124.
- Sheikh, K. (2003). *Manufacturing resource planning (MRP II) With introduction to ERP, SCM, and CRM*. New York: McGraw-Hill Publishing Limited.
- Sotiris, Z. (2000). *The supply chain management*. INNOREGIO: Dissemination of innovation and knowledge management techniques.
  - http://www.adi.pt/docs/innoregio\_sup\_management.pdf.
- Sridhar, A., & Corbey, M. (2015). Customer profitability analysis and customer lifetime value. Maandblad Voor Accountancy en Bedrijfseconomie, 89(7/8): 265-273. doi: 10.5117/mab.89.31335
- Taipaleenmaki, J., & Ikaheimo, S. (2013). On the convergence of management accounting and financial accounting - The role of information technology in accounting change. *International Journal of Accounting Systems*, 14(4), 321-348.
- Tuan Mat, T. Z., Smith, M., & Djajadikerta, H. (2016). Determinants of management accounting control system in Malaysian manufacturing companies. *Asian Journal of Accounting and Governance*, 1(1), 79–104.
- Wegmann, G. (2013). Compared activity-based costing case studies in the information system departments of two groups in France: A strategic management accounting approach. *International Conference on Business and Information*, 7(1), 72-93.
- Weygandt, J.J., Kimmel, P.D., & Kieso, D. E. (2008). Managerial accounting: Tools for business decision making. Hoboken, NJ: Wiley
- Wijewardena, H. & DeZoysa, A. (1999). Comparative analysis of management accounting practices in Australia and Japan: An empirical investigation. *International Journal of Accounting*, 34(1), 49-70.