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NGUYEN HOANG DUNG

**COMPLETING THE ORGANIZATION
OF MANAGEMENT ACCOUNTING INFORMATION
SYSTEM IN ENTERPRISES MANUFACTURING
CEMENT IN THE NORTH CENTRAL REGION**

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SUMMARY OF DOCTORAL THESIS IN ECONOMICS

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INTRODUCTION

1. The urgency of the topic

Context of Vietnam's economic integration today, enterprises face the competitive pressure of business entities in the same industry in the country and abroad. Enterprises should actively promote the most effective available resources and make the full use of the influence from the state support policies to improve the economic competitiveness in the development orientation. Management accounting information plays an important role in business management and administration, and management accounting is an effective tool that is an essential part of corporate governance in achieving management objectives. Well-organized information system management accounting aims to provide practical, timely and comprehensive information for managers as the basis to improve competitiveness, create value for enterprises through controlling and using resources the most effectively.

Cement industry of North Central Region has many favorable conditions for sustainable development, because the central provinces are in the process of urbanization, the demand for civil construction, industry and transportation needs a lot of cement. However, at present, enterprises manufacturing cement in the North Central Region are facing many difficulties. The demand for cement in the Central Region and the country is low, the possibility of export decreases, new building materials are becoming increasingly popular, the tendency of supply surplus continues to increase, competition is fierce among the enterprises in the industry, requiring enterprises manufacturing cement in the North Central Region to have a longterm and sustainable development strategy.

At present, the organization of management information system in general and management accounting information system in enterprises manufacturing cement in the North Central Region is facing many difficulties. The organization of management accounting information system in the conditions of ERP system application needs to be improved and completed in order to enhance the management efficiency and enhance the competitiveness of enterprises.

Based on the above reasons, with the orientation of the supervisors, the author selected the research topic "*Completing the organization of management accounting information system in enterprises manufacturing cement in the North Central Region*".

2. Overview of research situation of the topic

A review of the works on the organization of management accounting information system at home and abroad, the author found some issues that previous studies have not mentioned or have mentioned but they are still general. This is the gap that the author chooses to clarify the research goals:

First, none of the works actually approached the organization of management accounting information system from a theoretical point of view on the system, organized to comprehensively study the process of organizing information system. The management team to provide information to corporate executives for planning, controlling the execution of strategies and decision-making purposes, if any, it is at the general level.

Second, there is no research to organize the management accounting information system in the ERP application environment. The management accounting information system needs to be studied in the operating environment of the ERP solution to integrate the department's information system, control and use management accounting information for decision-making on management in a timely and accurate manner.

Third, studies of management accounting information system from the perspective of information-driven approach have come up with many views on the management accounting information cycle. Organization of management accounting information system needs to be studied in terms of information creation and information usage.

The author has approached research from a theoretical point of view of the system, organizing the management accounting information system according to the information process in the conditions of applying the ERP system with the objective of supporting information for strategic management and decision making.

3. Objectives of the research topic

To develop appropriate solutions to complete the organization of the management accounting information system in enterprises manufacturing cement in the North Central Region to meet the information demand of management levels in achieving the management objectives.

In the future, the thesis will continue to develop the organization of the management accounting information system, providing information for development

strategy planning and implement the strategic objectives of the enterprises. There is a need for extensive research to approach management accounting based on strategic management theory.

4. Subjects and scope of study

The study focused on assessing the situation and proposing solutions to complete the organization of the management accounting information system in enterprises manufacturing cement in the North Central Region in the context of applying the ERP solution.

5. Research Methodology

The thesis uses dialectical materialist philosophical methodology and historical materialism. To collect information for research, the thesis has used qualitative research methodology, specifically:

- + Document search method;
- + Method of primary and secondary data collection;
- + Method of processing and analyzing information.

6. Issues for research

1. The demand and satisfaction level of management accounting information for the implementation of management objectives in enterprises manufacturing cement in the North Central Region now?

2. What factors influence the organization of the management accounting information system in enterprises manufacturing cement in the North Central Region?

3. What is the current situation of organization of accounting management information system in enterprises manufacturing cement in the North Central Region?

4. Solutions to improve the organization of management accounting information system in these enterprises to meet the information demand in order to efficiently exploit all resources, improve the competitiveness of enterprises?

7. The scientific and practical significance of the research topic

First: Based on the theory of system and system organization, the thesis has studied synchronously the contents of the organization of management accounting information system. It confirms the importance of the organization of management accounting system information in providing information for corporate governance to achieve management objectives.

Second: Generalize the current situation of organization of management accounting information system in enterprises manufacturing cement in the North Central Region in the current stage. Make conclusions, assess the achievements, limitations and causes of organizational constraints in management accounting information system in these enterprises.

Third: Propose solutions to organize the management accounting information system that is quite specific for enterprises manufacturing cement in the North Central Region apply to practice.

8. Structure of the thesis

In addition to the introduction, conclusion, the thesis consists of 03 chapters:

Chapter 1: Theory of organization of management accounting information system in manufacturing enterprises.

Chapter 2: Current situation of organization of management accounting information system in enterprises manufacturing cement in the North Central Region.

Chapter 3: Complete solutions to organize the management accounting information system in enterprises manufacturing cement in the North Central Region.

CHAPTER 1

THEORY ABOUT ORGANIZATION OF MANAGEMENT ACCOUNTING INFORMATION SYSTEM IN MANUFACTURING ENTERPRISES

1.1. GENERAL ISSUES ABOUT ORGANIZATION OF MANAGEMENT ACCOUNTING INFORMATION SYSTEM IN ENTERPRISES MANUFACTURING

1.1.1. Management accounting information system

1.1.1.1. Management information system (MIS)

MIS is a system consisting of human, tools, data and organizing process to collect process and provide necessary, complete, timely and accurate information for managers to make decision. MIS plays an important role in supporting enterprise managers in simplifying the work, increasing labour productivity and management efficiency.

1.1.1.2. Management accounting (MA) information (MAI)

The perspectives on MA in each development period, each management method are different. In terms of modern perspectives, MA is a part of management process with the important role to support information in order to manage strategic resources and create values for enterprises (IFAC, 2002).

Researching MA in the relation with enterprise management system, the author states that: *Management accounting is a part of MIS to managers to ensure maximum use of resources, create values for enterprises and increase management effectiveness.*

Beginning from the position of MAI in relation with management operations of managers, it can be seen that MAI plays a very important role in supporting information to perform management operations. MA plays a role in: (1) Supporting strategy establishment and execution of the enterprises; (2) Participating in improving competitive advantage of enterprises; (3) Providing resource management information and (4) Providing supporting information to make management decisions (Kim Langfield–Smith et al, 2006).

1.1.1.3. Management accounting information system (MAIS)

Concept: MAIS is a set including human, information and supporting tools which become a united whole to receive, process, store and provide MAI for enterprise managers to effectively use resources and increase enterprises' values.

Factors: Human; supporting tools; MA data.

1.1.2. Management accounting information system organization (MAISO)

- *Concept*: MAISO is the process of arranging, establishing relationships between parts in MAISO to receive, process and provide information for management requirements. It is MAISO operating process to establish and use MAI for strategy planning, strategy execution control and effective decision making.

- *Objectives of MAISO*: (1) Provide information for development strategy planning; (2) Providing information for execution and control of strategy execution; (3) Provide information for strategy and operation decision making; (4) Increase the effectiveness of management operations and competitive advantages of enterprises.

- *Influencing factors*

+ Internal factors: development strategy of enterprises; Information demand of managers; Organization structure and decentralized administration levels; Features of manufacture organization and technological process; Information technology infrastructure.

+ External factors: business environment and international integration; Legal policies and regulations of the industry; Role of Accounting and Auditing associations and universities.

1.2. CONTENT OF MAIS ORGANIZATION IN ERP SOLUTION APPLIED ENVIRONMENT

1.2.1. ERP system organization

ERP system is a business management mode, a technological solution for enterprises to totally integrate the application of business manufacture management into a unique system, automating management process. All the enterprise's operations such as human resource management, manufacture, material supply, finance, sales management, customer and partner exchange are done on the ERP system.

In the ERP system, MAIS is not a starting point but the result of information treatment process. Each professional manipulation in the enterprises' manufacturing process is acknowledged by a entry on the ERP system and professional process is divided into different stages, and accounting specialty is also divided into many different pairs of entry. MAIS becomes the part to control enterprises' manufacturing and business operations through statistics shown by the system.

1.2.2. Organization of human and management accounting machine

1.2.2.1. Human organization

Staff operating MAIS: Officers, staff in each department and management accounting professionals have to possess knowledge, health, spirit and know to catch up with modern technology and apply it in professional task.

The information coordination among departments in enterprises: The information coordination among departments in the enterprises has a great significance in building information sources in horizontal and vertical way and ensuring received information sources.

1.2.2.2. Management accounting machine organization (MAMO)

MAMO needs to clarify the role and position of MA, information demand of managers, administration decentralization in enterprises in order to identify the information relation among departments in the MIS of enterprises.

In the ERP solution, financial accounting management system is usually designed in 2 ways: (1) coordinate MA and FA in the same system to account and manage, or (2) separate FA system (FI subsystem) and FA (CO subsystem) to support for planing, control and decision making. Despite different subsystem designs, MA machine organization turns towards contents: Data acquisition system; Information treatment system; Analysis and decision-making supporting system.

1.2.3. Organization of MAIS processing process

1.2.3.1. Organization of input data acquisition system

Under the ERP solution application, MA data is received mainly from subsystems on the ERP system, including all the information from internal sources of enterprises, providers, customers and competitors.

- Identify input data demand to be collected
- Build and organize information sources
- Information gathering methods
- Organize standardization and update data into the ERP system.

1.2.3.2. Organization of information treatment system

In the ERP system, information treatment is usually done by softwares based on the programs, algorithm of the softwares to convert input data into MAI which support managers to reach the management objectives.

- *Organization of MA model application.*
- *Organization of MAS establishment, including:*
 - + Establish MAIS to plan development strategy;
 - + Establish MAIS to control strategy objective execution process, including: (1) budget estimate system, (2) execution information system, (3) IS to control systems such as controlling results, assessing management responsibility evaluation.
 - + Establish information system to support decision making for strategy and operation.

1.2.3.3. Operation of information providing system

In the ERP system, MAIS is treated by the accountants and provided for many user subjects with different objectives. It is necessary to establish scientific information channel to ensure the increase in information communication speed and meet the information demand for each management level.

- *Information user subjects:* are managers in every department in enterprises, including managers in the strategy, tactics and operation department.

- *Information provision form:* can be carried out through ERP system or traditional reporting system.

1.2.3.4. Organization of MAI use for management target execution

- *Use MAI for strategy planning objectives:* (1) Evaluate opportunity and risk in the future; (2) Identify strengths, weaknesses and competitive advantages of enterprises.

- *Use MAI to control strategy objective execution:* (1) Evaluate results of the plan execution; (2) Identify the causes for the imbalance; (3) Responsibility of managers and (4) Carry out appropriate management operations to create management effectiveness.

- *Use MAI for decision making subjectives:* (1) operational decision and (2) strategy decision

1.2.3.5. Organiztiom of information storage system

Assign the responsibility for information storage department.

Identify storage mode and location.

1.2.3.6. Organization of information control system

Decentralize data and information exploitation.

Control treatment process.

Secure MAI.

1.3. EXPERIENCE OF MAI SYSTEM ORGANIZATION IN THE WORLD

According to MAIS organization research of the countries all over the world, the application of scientific theory about management, enterprise management and MA in the MAIS establishment and organization into the reality in each country is diverse. The MAIS organization depends on the MA method that each country, technological environment, operation field, organization and management characteristics and qualification of human resources. With economic conditions and the qualifications of Vietnam human resource today, the organization based on MAIS flexible application of theory MA suit the enterprises' characteristics of the enterprises.

Gradually receiving the modern management tools from countries with development platform and application of MA fit to the practice in Vietnam. From the study of the MAIS in countries like USA, France, Japan and China, the author has drawn lessons for Vietnam to in-herit consistently with the reality of the enterprise environment and technology, mechanical infrastructure and management skills to organize MAIS towards streamlined and efficient, meet the needs of all levels of information governance in the implementation of management objectives.

CHAPTER 2
THE SITUATION OF THE ORGANIZATION OF ACCOUNTING
INFORMATION SYSTEM IN THE ENTERPRISES MANUFACTURING
CEMENT IN THE NORTH CENTRAL REGION

2.1. OVERVIEW OF ENTERPRISE'S MANUFACTURING CEMENT IN THE NORTH CENTRAL REGION

2.1.1. Characteristics of the Cement industry of North Central Region

Up to now, the North Central region has 11 manufacturing Cement with 17 production lines with a capacity of 23.26 million tons/ year, accounting for 32.8% of the country's production capacity. 100% of enterprise manufacturing cement in the North Central Region are on a large scale, including enterprises are members of VICEM, joint ventures with foreign companies in the economic group and the companies belonging to the local enterprise sector.

Although the North Central region is considered to possess more favorable conditions for the sustainable development of the cement industry, but now the enterprises manufacturing cement in the province are experiencing difficulties. Exportability is down due to high export costs, fierce competition with cheap foreign cement, low domestic demand. In the oversupply on the rise today, under the pressure of fierce competition in terms of economic integration, enterprises manufacturing cement in the North Central Region need solutions that optimize production processes to reduce costs, improve distribution system and increase profits. Managers must develop MIS, use information to enhance forecasting and analysis to maximize the effectiveness of resources, improve operational efficiency, accelerate management decision.

2.1.2. Development strategies and management information needs

2.1.2.1. Strategic development of the Cement industry of North Central Region

Development strategy of Vietnam's cement industry: Develop Vietnam's cement industry towards industrialization, modernization and sustainable development; Use advanced technology; Saving raw materials, materials and low energy consumption; Development must be linked to environmental protection.

Development strategies of enterprises manufacturing cement in the North Central Region: Goals and strategy in 2025 focus on the three areas: financial objectives; Target customers; Capacity development objective. To implement the

strategic objectives, enterprises need to implement solutions to optimize the exploitation of resources, to strengthen the coordination between the systems. MAIS organizations must ensure the provision of practical information, useful implementation of management actions, linked objectives of the departments to implement the general objective of the enterprises

2.1.2.2. The need for management accounting information of the manager

Currently the demand for MAI in control and effective use of resources is actually not high. Managers only need MAI to summarize information, evaluate the results of the enterprise operations, less use of MAI for strategic decision making, strategic planning and strategy implementation. The role of MAIS organizations in the enterprises manufacturing cement in the North Central has not been appropriately exploited.

2.1.3. Technological process and manufacturing organizational characteristics

Currently 100% of enterprises are operating production lines using dry rotary kiln method. At enterprises manufacturing cement in the North Central Region, production processes are managed according to a production value chain including 5 stages and 7 segments with the aim to improve production efficiency, reduce costs, maintain stable product quality and meet delivery time.

2.1.4. Organizational characteristics of the management machine

100% of the enterprises organize management machine according to the online function model. Management operations in the enterprises manufacturing cement in the North Central Region is classified into three levels of management including the Board of Management and the board of directors, departments and workshop. This decentralization is the basis for establishing centers of responsibility; building a common data system and regulating exploiting rights; construction of each department's objectives consistently with the overall goals of the enterprise; organize data acquisition system, provide information at each level of management; set up an management accounting accounting system to effectively use existing resources.

2.2. THE SITUATION OF THE ORGANIZATION OF ACCOUNTING INFORMATION SYSTEM IN THE ENTERPRISES MANUFACTURING CEMENT IN THE NORTH CENTRAL REGION

2.2.1. Actual situation of ERP system application

100% of enterprises were equipped with computers and modern softwares to organize MA. Through the survey, 82% of enterprises applying ERP method, 18%

of enterprises use accounting software. 100% of enterprise apply distributed database, running on the Web browser and the Internet. This is the premise for the construction of common data system throughout the enterprise.

2.2.2. The status of management accounting and human organization

2.2.2.1. Organization of Human Resource Management Accountant

Enterprises manufacturing cement in the North Central Region is currently focusing on building qualified human resources to meet requirements for development strategies performance, create cohesion, motivation and commitment of a staff team, develop team work model. Survey results show that in the recent years, 100% of accountants have been regularly trained and fostered in various forms, for example company organizes training courses, staff participates in professional seminars and are sent to study with training costs paid by the company. At enterprises manufacturing cement in the North Central Region, accountants have assumed the budget estimating function, handled the implementation information system and analyzed information, consult to make decision for the charge accounting, so specialization in the work of the MA is not high

2.2.2.2. The current status of the organization of management accounting machine

Survey results showed that 100% of enterprises manufacturing cement in the North Central organize MA machine according to matching pattern. This model has the advantage of incorporating management accounting information with financial accounting information, detailed information on each part, and quick time of information collection. Each accountant's workload is large, and accounting management information efficiency is not high.

2.2.2.3. Organization of the information coordination between departments

- *For enterprises that have operated ERP system:* Currently, basically these enterprises have integrated data and information in the enterprise into a certain data system to implement management solutions. Therefore, the enterprise's data is the generally exploited by department to process, aggregate and control to provide practical information timely for management decision making.

- *For enterprises that are using accounting software:* The enterprises have not integrated databases on a single system, managed data, information system on independent systems such as data management accounting on accounting software, data managing and manufacturing parts on production management software, etc. Therefore, the ability to share data and information is experiencing difficulties.

2.2.3.2. The status of the organization of information processing system

- *Organization of the application of MA model:* A survey has shown that at present, 73% of the enterprises are applying MA model in association with management system according to specialized units. 27% are using MA model in association with management system according to the operation.

- *The status of the establishment of management accounting information system*

+ Establish IS for development strategy planning: The role of MA in strategic management has not been given prominence to. A survey result has shown that only 17% of the accounting departments have established reporting system to support information for development strategy planning. At present, MA in most enterprises only establishes financial information about enterprise resources which support divisions in assessing resource utilization in strategy planning, but not provide financial information of competitors for competitive advantage and business efficiency analysis.

+ The status of the establishment of IS to control the implementation of strategic targets

First, the status of the establishment of budget estimate system

(i) *The status of the establishment of norm system:* The responsibility to build consumption norms belongs to technical divisions. 73% of the enterprises establish budget estimate based on general consumption norm of the sector, with the adjustment according to their actual conditions. 27% establish technical norms based on their specific conditions. 100% combine both methods of experience statistics and technical analysis in norm establishment.

(ii) *The status of the establishment of estimate system:* 100% of the enterprises build budget estimate, in which 54% build estimate from general to specific, 46% build estimate from specific to general, plans of divisions are built based on enterprise targets or by combining targets and growth.

Second, The status of the establishment of implementation information system

In enterprises manufacturing cement in the North Central Region, after data is collected, updates are made into softwares for processing. Implementation reporting system of enterprises today is diverse and complete; reports are made in detail based on multiple management criteria and methods, meeting information demand of enterprise administration in operation, control and decision-making.

Third, the status of the establishment of IS to control target implementation.

(i) The status of the establishment of IS to control results of target implementation: (1) 100% use both methods of influencing factor comparison, analysis and specific analysis, 69% use the method of symmetrical analysis. The organization of information analysis in enterprises today follows two trends: analyzing information based on software programs; analyzing information based on data extracted from software. (2) 100% of the enterprises focus on unevenness analysis reporting system, influencing factor analysis. Reporting system is established periodically (monthly, quarterly) on the basis of both specific analysis of each subject of MA to support operation, and general analysis throughout the enterprise to support administrators in assessing results of target implementation.

(ii) The status of the establishment of IS to assess management responsibilities: Most enterprises assess achievements in each specialized division, only 29% divide responsibility center based on operation including cost center, revenue center, profit center and investment center.

+ The status of the establishment of IS to support decision-making

At present, the establishment of MAIS to support decision-making has not received enough attention. A survey in accounting department has shown that only 39% are establishing CVP relation analysis reporting system, 43% establish compatible information analysis reporting system to support administrators in operation and strategic decision-making.

2.2.3.3. The status of the organization of information provision system

Subjects receiving information: First, Management Board and Board of Directors; Second, administrators at all levels such as factory directors, heads of departments.

Forms of information provision: Accounting currently provides information for administrators depending on management levels and the capability of IT application in management.

2.2.3.4. The status of management accounting information use to implement management target

The status of MA information use in development strategy planning: At present, these administrators do not tend to use MA information in development

strategy planning. Only 16% of the enterprise leaders use MA information in strategic planning, including business environment analysis reporting system and enterprise resource potential analysis report.

The status of MA information use to control strategic target implementation

(1) Use MA information to control results of annual target implementation receives much attention from enterprises. 100% of the administrators at all levels use unevenness analysis reports, influencing factor analysis reports to summarize, assess results of enterprises on consumption, manufacture, finance, investment operations, from which proposes solutions to strive and targets for divisions in the coming time.

(2) Use management accounting information to assess management achievements. At present, 28% of the administrators control the responsibilities of managers at all levels, use reports to assess management achievements, the remaining 72% do not assess achievements of administration levels.

The status of MA information use for decision-making: Administration levels do not tend to use MA information system for strategic and operation decision-making. Only 28% of the enterprise leaders use CVP relation analysis reports, 40% use compatible information analysis reports, the rates of using these reports from heads of departments are 32% and 41%, respectively.

2.2.3.5. The status of the organization of information storage system

At present, 100% of the enterprises impose regulations on storing files and internal information, which regulates the responsibilities of accounting departments in storing information and accounting documents.

Storage methods and locations: All enterprises store information on cloud system and file cabinet. Besides, 43% of the accounting departments store data via enterprise computer system to avoid Internet incidents.

2.2.3.6. The status of the organization of information control system

Data exploitation right allocation: All department employees are granted accounts to use on software system. A survey in accounting departments has shown that 14% view that chief accountants are responsible for the allocation of access rights for accounting employees, 86% view that information technology departments are responsible for allocating access rights for each employee on the content of each of their duty.

Information security control: 100% of the enterprises regulate responsibilities of each accounting employee in the information security.

2.3. ASSESSING THE STATUS OF THE ORGANIZATION OF MANAGEMENT ACCOUNTING INFORMATION SYSTEM IN ENTERPRISES MANUFACTURING CEMENT IN NORTH CENTRAL REGION TODAY

2.3.1. Achievements

First, most cement enterprises today have operated ERP solutions, only a few are in the process of designing and implementing the ERP system application. With the operation of ERP solution, information is integrated from personnel to manufacture, business and finance, which facilitates information reception, processing and provision on the enterprise scale.

Second, MA employees are equipped with both qualification and related specialists. Workload assignment among enterprise divisions is relatively clear in terms of the specifically-regulated responsibilities and rights on receiving, processing and providing information among accounting department, other departments, and other related divisions. Management accounting system is organized by means of combination, which makes it compact, economical, ensuring practical information provision, useful for management, avoiding overlap in workload assignment.

Third, the processing of management accounting information system (MAIS) is organized logically, based on modern technological application, ensuring information reception, processing, provision, storage and control. MA information is established logically, facilitating the use of information in conducting effective management targets.

2.3.2. Limitations

First, the organization of ERP system is only at the beginning level, hence the low capacity to effectively make use of ERP system. (1) Data system has been integrated, concentratedly managed, however, the level of information sharing is not high and the allocation of rights to make use of it is not logical; (2) ERP system processes information according to a procedure while accounting employees have the habit of doing so according to technical professionalism; (3) It is not possible to instantly integrate ERP into other management systems to conduct management targets, enhancing the effectiveness of administrators' management work.

Second, the organization of management accounting people and machine. The low competence MA employees in enterprises today also significantly affects the organization of MAIS; the organization of MA machine by means of combination leads to many limitations: (1) MA is not closely directed to collecting, processing to provide useful information in planning, controlling and decision-making; (2) The workload of each accounting employee is heavy, workload assignment overlaps; (3)

Low specialization competence leads to the fact that management accounting report system is simple, not uniform, unable to meet information demand in enterprise management activity.

Third, the organization of the processing of management accounting information system:

(1) *Organizing input data reception system*: Enterprises today pay less attention to the outside source of information, making less effort in collecting forecast information. This leads to the shortage of input data for information processing procedure, which makes it impossible to guarantee the quality of output information. Information separation, collective source distribution, information control, data system exploitation right allocation are not logical and overlapping, which significantly affects data collection capacity of MA

(2) *Organizing information processing system*: Most enterprises apply MA model in conjunction with management system following specialization unit. Organizing the establishment of information system which supports development strategy planning, controls strategy implementation and decision-making procedure in enterprises today focus less on assessing the responsibilities of administration levels, analyzing the relationship between costs and results, analyzing compatible information to support the decision-making of administration levels, and planning development strategy.

(3) *Organizing information provision system*: The information provision rate is slow, unable to fulfill the timeliness of administrators' decision-making; the methods of information provision also significantly affects its use.

(4) *Organizing the use of MA information for management targets*: The use of MA information in management today has not really been useful and in conjunction with strategy planning targets, controls target conduct and decision-making of administration levels.

(5) *Organizing information storage system*: File storage solution in enterprises manufacturing cement in the North Central Region today is conducted on cloud and file cabinet partition. However, storing on the Internet will not guarantee safety, data can be illegally intruded, security capacity is not high, and losses can occur due to internet incidents, virus, hacker..., which affects information exploitation, control and security.

(6) *Organizing information control system*: The allocation of data control and exploitation is overlapping, and unreasonable among divisions, leading to difficulties in data reception organization, low security-capacity system, which affects the efficiency and business opportunities of enterprises.

2.3.3. Causes of limitations

Objective causes:

First, legal system for the organization of MAIS today has not been complete, requiring specific guidelines.

Second, macro policies and difficulties of cement industry from consumption to manufacture also significantly affect the organization of MAIS

Subjective causes:

First, the awareness of MAIS roles and the demand for MA information in the management and operation of administrators have not been high.

Second, in most enterprises manufacturing cement in the North Central Region, manufacture and business procedure as well as management procedure have not applied in an uniform and standardized manner.

CHAPTER 3
SOLUTIONS TO COMPLETE THE ORGANIZATION
OF MANAGEMENT ACCOUNTING INFORMATION SYSTEM
IN ENTERPRISES MANUFACTURING CEMENT
IN NORTH CENTRAL REGION

3.1. ORIENTATION, PRINCIPLES AND REQUIREMENTS TO COMPLETE ORGANIZING MANAGEMENT ACCOUNTING INFORMATION SYSTEM IN ENTERPRISES MANUFACTURING CEMENT IN THE NORTH CENTRAL REGION

Completion orientation: Building database that is uniform throughout the enterprise; Completing the content and procedure for establishing MAIS

Completion principles: Uniform; Compatible ; Effective

Completion requirements: (1) Compatible with information technology infrastructure; (2) Compatible with technological procedure, business features; (3) Able to meet various information demands of administrators.

3.2. SOLUTIONS TO COMPLETE THE ORGANIZATION OF MANAGEMENT ACCOUNTING INFORMATION SYSTEM IN ENTERPRISES MANUFACTURING CEMENT IN THE NORTH CENTRAL REGION

3.2.1. To complete the organization of ERP system

ERP system is an effective solution in developing management information system of enterprises, the basis for competitiveness enhancement. It is necessary to build strategy to develop MAIS based on comprehensive operation of ERP software system in order to make full use of enterprise resources, enhance competitiveness. The subsystems included in ERP system are accounting and financial management, purchase management, sales management, manufacture management, storehouse management. In addition, ERP solution allows the integration of subsystems with human resource management system, customer relationship management system and business intelligence system. The application of ERP solution requires large cost, long implementation time, high risk, therefore, enterprises need to form ERP project management board to administer and develop projects.

3.2.2. To complete the organization of management accounting people and machine

First: Enhance the competence of officers and employees to meet the requirements for organizing effective management accounting information system

Enterprises need to develop programs and policies on training, developing enterprise human resource and human resource management system. Regarding MA workers, it is necessary to focus on the following contents: (1) enhance qualification; (2) develop information technology competence; (3) improve foreign language competence against the backdrop of extensive economic integration; (4) enhance understanding of other related fields; (5) comprehensively conduct policies on training, reward, performance management and assessment.

Second: Complete the organization of management accounting machine

It is necessary that enterprises organize MA machine following mixed model, separating subsystems whose duty is providing information mostly to resource management for separate organization. MA operation personnel are organized into information specialized groups based on subsystems attached to manufacture, consumption and investment systems in the procedure of information reception, processing and provision. In the environment where ERP is operated, financial and accounting management system needs to organize separately based on the specialization of subsystems which control manufacture costs, analyze profits, control sales, manage purchase, inventory. Enterprises need to consider the solution of connecting data from subsystems, guaranteeing exploitation and use process.

Third: Complete the capacity to incorporate information among divisions in enterprises, towards effective exploitation of common data system

Data of divisions needs to be integrated into a common system and shared throughout the enterprise; after intergrating and sharing data system, it is necessary to identify and separate information report lines, information collection and control sources, allocate rights to exploit the use of data for enterprise divisions to ensure timely, reliable information provision for its use according to administration targets.

3.2.3. To complete the organization of processing procedure of management accounting information system

3.2.3.1. To complete the organization of data input reception system

First, Standardize input data reception procedure

Second, Organize information sources and diversifying input data types

Identify types of input data: It is necessary to collect all three input data types including implementation information; planning information and future information.

- Information sources: Expand sources of information collection not only inside but also outside enterprises. Outside data is obtained from competitors, from customers, providers, from State management agencies, from Vietnam cement

association, from other related organizations, individuals to help administrators in target planning, resource management, analytical ability enhancement and economic indicators forecast.

3.2.3.2. To complete the organization of information processing system

First, organize the application of management accounting model in conjunction with management system based on working process

Cement industry in the North Central Region has closed technical procedure made up of five stages, which makes it possible to perform accounting on each product, each business activity to accumulate costs and determine results. Enterprises today have applied the method of management based on cement value chain with the philosophy of continually improving to enhance competitiveness. Therefore, enterprises need to apply MA model in conjunction with management system based on working process.

Second, Complete the establishment of management accounting information system

- Complete the establishment of strategy planning information system: (1) Regarding general strategy planning, it is necessary to focus on establishing information system to support the forecast of cement market growth, the sector competition and trend; analyze financial capacity, ability to optimize enterprise resources and compare with competitors. (2) Regarding specific strategy planning, it is necessary to establish by way of provision to measure the effectiveness of each strategy, assess the ability to use resources, analyze financial capacity and risk for each plan to implement development strategy.

- Complete the establishment of information system to control the implementation of strategic target:

(1) Complete the establishment of budget estimate system: (i) norm system needs to be built for even materials with small consumables; (ii) monthly plan of divisions needs to base on yearly budget estimate, the status of current resource mobilization. (iii) Enhance the establishment of flexible estimate system on the basis of MA model application according to management based on activities.

(2) Complete the organization and establishment of implementation information: (i) Open accounts for guaranteeing analysis to timely reflect working status; (ii) Determine costs based on activities to guarantee logical establishment of implementation information system

(3) Complete the establishment of information system to control target

conduct: (i) Complete the information system to control the results of target conduct such as specific analysis report system based on each information support activity to help administration levels in conducting management targets; (ii) Complete the information system to assess management responsibility based on contents about determining responsibility center; build system of indicators to assess management achievements.

- Complete the establishment of information system to support decision-making:

(1) Information system which supports operation decisions: (i) information system which analyzes CVP relation; (ii) information suitable for operation decisions such as decision to process cement in grinding stations, decision to sell Clinker.

(2) Information system which supports strategic decision-making: (i) distribution and marketing strategy, (ii) human resource strategy, (iii) manufacture strategy...

3.2.3.3. To complete the organization of information provision system

First: Complete methods of information provision

On the basis of MAIS which is shared, with exploitation rights being allocated, conduct the organization of modern information provision methods, with information technology application.

Second: Integrating ERP into business intelligence system (BI)

Cement manufacturers in the North Central Region have complete conditions for implementing this integration solution, hence, enterprises can implement BI solution via ERP software provider to ensure the consistency of data, processing procedure. The integration of ERP into BI system will help MAIS organization procedure run effectively via timely and practical information provision according to management targets with multi-dimensional analysis, from general to specific, using many methods.

3.2.3.4. To complete the organization of management accounting information use to conduct management targets

First: Promote MA information use in strategy planning.

In order to plan strategic targets, meet sustainable development requirements as well as conduct strategic targets, administrators need to use MA information. To implement this solution, administrators need to clearly determine MA information demand, dividing responsibilities of accounting department and strategic management department in providing information to support strategic management.

Second: Promote MA information use in controlling the conduct of management targets.

(1) Promote MA information use to assess the extent of reaching proposed targets, working results in each period and compare them with those of competitors, through which analyze the efficiency of enterprise resource use.

(2) Promote MA information use to control the causes of the unevenness in the implementation of plans.

(3) Promote MA information use to assess the achievement in management work of administrator level, causing management effectiveness.

Third: Promote MA information use in decision-making.

(1) Use MA information in operation decision-making: (i) CVP relation analysis report system; (ii) compatible information report system

(2) Use MA information in strategic decision-making: Use MA information to make strategic decisions such as investing on the construction of new cement grinding stations, repurchasing operation factories of other enterprises, investing on new production line...

3.2.3.5. To complete the organization of information storage system

(1) Regulate information source division which is responsible to data storage;

(2) Regulate the responsibility of data system storage on enterprise computers, propose solutions to exploit, develop management information system;

(3) Store data online on cloud partition.

3.2.3.6. To complete the organization of information control system

First: Allocate rights to make use of the system of data on softwares.

Second: Organize the control of information reception, processing and provision system.

Third: Control management accounting data on softwares.

3.3. REQUIREMENTS FOR IMPLEMENTING SOLUTIONS TO COMPLETE THE ORGANIZATION OF MANAGEMENT ACCOUNTING IN ENTERPRISES MANUFACTURING CEMENT IN NORTH CENTRAL REGION

3.3.1. For the State and authorities

First: Carry out policies which support cement enterprises in general and enterprises manufacturing cement in the North Central Region in particular.

Second: Complete legal environment on MAIS

Third: Renew MAIS training program to make it more modern.

3.3.2. For the enterprises manufacturing cement in the North Central Region

First: Raise the awareness of the roles of MAIS organization.

Second: Standardize the procedure of manufacture, management organization.

Third: Enhance the human resource quality in MAIS organization.

Fourth: Promote the application of information technology in MAIS

CONCLUSION

The organization of MAIS plays an important role in providing practical, useful information in enterprise management and administration. According to proposed targets, the thesis has fulfilled these contents:

- Systemize and analyze the rationale on management information system; MAIS, the organization of MAIS in cement enterprises. The author, having approached following systematic theory, research on important contents of MAIS organization in the operating environment of ERP system. On the basis of researching the experience in organizing MAIS in a number of countries around the world, helping Vietnam enterprises learn some lessons.

- The thesis has researched on the status of MAIS organization in cement enterprises in the North Central Region, then assessing, analyzing achievements and limitations in the organization of MAIS of the enterprises, the thesis has clearly pointed out causes of the limitations, basis for building complete solutions.

- On the basis of scientific and practical arguments, the thesis has included the orientation, requirements and suggestions on solutions to complete MAIS organization in enterprises manufacturing cement in the North Central Region including solutions to: organize ERP source planning system; organize MA people and machine; organize the process of MAIS. At the same time, the thesis has also proposed conditions to implement solutions for the State and authorities, enterprises manufacturing cement in the North Central Region.

- Research on the overview of domestic and international constructions which are related the subject, acting as a basic for the inheritance and development the research on organizing management accounting information system.

The author hopes that the results of the thesis will theoretically and practically contribute to completing the organization of management accounting information system in manufacturers in general and enterprises manufacturing cement in the North Central Region in particular, then, promote the useful roles of integration of management accounting information in management, administration effectively regarding strategic resource, enhancing competitiveness against in global integration.

LIST OF ARTICLES RELATED TO THE THESIS

1. Nguyen Hoang Dung (2016), *Talking about the process of forming management accounting system in Vietnamese enterprises today*, Journal of Financial Accounting Research, Vol. 155 June/2016, pages 21 - 23.
2. Nguyen Hoang Dung (2016), *Management accounting information: An effective tool for implementing management objectives*, Financial Journal, Vol. 643 October/2016, pages 34 - 36.
3. Nguyen Hoang Dung (2016), *Organization of management accounting information system in enterprises manufacturing cement in the North Central Region: Current situation and solutions*, Journal of Financial Accounting Research, Vol. 12 (161) December/2016, pages 32 - 34.
4. Nguyen Hoang Dung (2017), *The important role of management accounting in enterprises*, Journal of Financial Inspection, Vol. 178 April/2017, pages 35 - 36.
5. Nguyen Hoang Dung, Tran Thi Luu Tam (2017), *Controlling the factors that affect the organization of the management accounting information system in manufacturing enterprises*, Journal of Accounting and Auditing, Vol. 165 June/2017, pages 51 - 54.

**The work was completed at the
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Supervisors: **1. Prof. Dr. Doan Xuan Tien**
 2. Dr. Nguyen Thi Huong

Reviewer 1:

Reviewer 2:

Reviewer 3:

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**Theses dissertations can be found at the National Library
and the Library of the Academy of Finance**