The Effect of Cost Accounting System Inventory on Increasing the Profitability of Products

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Abstract—The majority of manufacturing decisions is based on information gathered through industrial accounting system. In other words, the main objective of the establishment of industrial or cost accounting systems administrators is to provide information for decision making. An efficient and effective system of industrial accounting alone cannot increase the efficiency and productivity. The information obtained should also be used efficiently in the decision-making process. Parties having sufficient control, provide a model for inventory, payroll systems and technology to increase the efficiency of internal control. Accountants in these units try to provide such a system utilizing the best and most useful information available to managers. The study entitled "The Effect of Cost Accounting System Inventory on Increasing of Products" investigated that the use of appropriate storage systems inventory can increase the efficiency and profitability of the plant.

Index Terms—industrial accounting, performance, decisions and information.

I. INTRODUCTION

One of the principal tasks is to address the decision. They may decide to read them in their tasks. Because of the difficulties encountered when performing their duties, they must identify various solutions to choose the best among them. Assistance of appropriate systems to manage the accounting industry as a first step is outlining and defining the strategic goals. Given the strategic objectives, organization must be based on principles and a systematic evaluation of the possibilities and limitations .Appropriate systems of industrial accounting within financial management accounting techniques can adopt different options which are analyzed by management and provide the information [1].

In general it can be said that most decisions in Industrial business - production units rely on accounting information. This extension applies to all units of the organization. Including production managers, marketing, sales, finance managers and other units that are connected in some way with the decision. Thus, the role of information as a management decision is clear. This study examines the impact of inventory accounting system on industrial products for increasing profitability [2].

II. HISTORY AND LITERATURE STUDY

A. Accounting Information Systems Technology

Accounting is a system for measuring business activities, processing of information into reports and making the findings available to decision-makers. The documents, which communicate these findings about the performance of an organization in monetary terms, are called financial statements [3].

Usually, accounting is understood as the Language of Business. However, a business may have a lot of aspects which may not be of financial nature. As such, a better way to understand accounting could be to call it The Language of Financial Decisions. The better the understanding of the language, the better is the management of financial aspects of living. Many aspects of our lives are based on accounting, personal financial planning, investments, income-tax, loans, etc. We have different roles to perform in life-the role of a student, of a family head, of a manager, of an investor, etc. The knowledge of accounting is an added advantage in performing different roles. However, we shall limit our

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scope of discussion to a business organization and the various financial aspects of such an organization [4].

When we focus our thoughts on a business organization, many questions (is our business profitable, should a new product line be introduced, are the sales sufficient, etc.) strike our mind. To answer questions of such nature, we need to have information generated through the accounting process. The people who take policy decisions and frame business plans use such information.

All business organizations work in an ever-changing dynamic environment. Any new programmed of the organization or of its competitor will affect the business. Accounting serves as an effective tool for measuring the financial pulse rate of the company. It is a continuous cycle of measurement of results and reporting of results to decision- makers.

Just like arithmetic which is a procedural element of mathematics and book keeping which is the procedural element of accounting. Fig. 1 shows how an accounting system operates in business and how the flow of information occurs [5].



Figure 1. The accounting system

B. Development of Accounting Discipline

The history of accounting can be traced back to ancient times. According to some beliefs, the very art of writing originated in order to record accounting information. Though this may seem to be an exaggeration, but there is no denying fact that accounting has a long history. Accounting records can be traced back to the ancient civilizations of China, Babylonia, Greece and Egypt. Accounting was used to keep records regarding the cost of labor and materials used in building great structures like the Pyramids [6].

During 1400s, accounting grew further because the needs for information of merchants in the Venis City of Italy increased. The first known description of double entry book keeping was first published in 1994 by Lucas Pacioli. The onset of the industrial revolution necessitated the development of more sophisticated accounting system, rather than pricing the goods based on guesses about the costs. The increase in competition and mass production of goods led to the rise of accounting as a formal branch of study [7].

With the passage of time, the corporate world grew. In the nineteenth century, companies came up in many areas of infrastructure like the railways, steel, communication, etc. It led to a rapid growth in accounting. As the complexities of business grew, ownership and management of business was divorced. As such, managers had to come up with well-defined, structured systems of accounting to report the performance of the business to its owners.

Government also has had a lot to do with more accounting developments. The Income Tax brought about the concept of 'income'.

Government takes a host of other decisions, relating to education, health, economic planning, for which it needs accurate and reliable information. As such, the government demands stringent accountability in the corporate sector, which forces the accounting process to be as objective and formal as possible [8].

C. Inventory System

Inventory is a system for determining the optimal ordering and store .material which minimized the related costs about the inventory material.

D. Productivity and Profitability

In the workshop, the efficiency may be the ratio between the numbers of working hours spent to produce commodity or consumed amount of material to produce. In terms of investment efficiency is "concept worksheet capital". Thus, profit can be considered as an output. Greater efficiency ensures high profits for the company while productivity is low, leading to reduced income, when the value of all outputs and inputs are expressed by the following equation [9].

Value=Quantity × price

In that case the value changes over time, the rate of output price and value, volume and input prices can be calculated as follows.

Valuable inputs = value × unit cost level inputs

Comparison between related changes in the value of the outputs and the inputs by considering changes in profitability, in simpler terms:

$$Profitability == \frac{input rate}{selling rate} \times \frac{unit purchase cost}{selling price per unit}$$

Profit = Cover the physical productivity \times price

Profitability
$$=\frac{\text{cost}}{\text{total revenue}}$$

Given this relationship, over time, profitability is determined as change in the product value by comparing to the input value and also productivity is determined as change in the ratio between the product numbers and used input value [10].

Profitability considered as financial efficiency by consisting physical productivity and cover price. Changes in profitability is depending on efficiency changes and coverage prices, and changes in the components of the cover price (sales and cost price) can be separated from the issue of productivity and will cause changes in profitability.

Historians demonstrated over thousands of years that accounting reports are prepared and bookkeeping records dated back to the time of early civilizations mankind and its carvings have been found on a stone tablet. More than 500 years passed of the introduction of two-way accounting by (Paciali) [11].

During this period, the information on the accounting system used by the owners, investors and other users of the center.

Although, the initial formation of cost accounting and its advanced one "management accounting " historically unclear, But even as evidence since 1577, there were costing system about the mining and smelting of copper and silver. In advancing this technology so far scientists have contributed a great deal.

What is today called job order and costing system, in the 16th century by one of the publishers of the book and by the 17th century by some factories such as shoemaker factory has been used respectively. Persons prior to 1920 in the development of industrial accounting and presentation of new technologies that have been under a lot of hard work, referred to the following that:

(1) Henry Metcalfe (1885) to collect the true cost of overhead cost allocation [11].

(2) Grackle and Fells (1887) for maintenance factory accounts and presentation of goods in the factory making and manufactured goods.

(3) George Norton (1889) for the cost system and especially the costing stage.

(4) Alexander Hamilton (1900) for allocating overhead costs, and the use of information for management decisions.

(5) H.L. Arnold fields (1900) to calculate the total cost and register of fees and control costs in the future.

(6) Lee. Nicholson (1909) in relation to the comparison stage work order systems and their applications.

(7) F. Taylor (1903) on the emergence of scientific management, the use of standard costing systems.

(8) Charter Harrison (1920) on charges of using standard costs and deviation analysis.

But the years between 1920 and 1929 to be known as the decade progressed for management accounting, in addition to the cost of acquisition costs, new methods were developed for management decision making.

E. Profit Measurement and Performance Evaluation

Rate of return on capital employed is considered as the index to measure the profit obtained from the multiplication of two factors (1):

1) The ratio of profit to sales revenue

2) The circulation of capital employed

 $\frac{\text{Profit}}{\text{sales revenue}} = \text{ratio of profit to sales revenue}$

Sales revenue

capital employed has been

= taken to equity turnover frequency

(1) Rate of return on capital employed

= ratio of profit to sales revenue × taken to equity turnover frequency

The ratio between profits to sales reflects the relationship between total cost and price. This means that defining success or failure in establishing and enforcing controls on total cost items is acceptable. The ratio of utilization of capital in the operation shows the acquired assets.

Rate of return on capital used in production and jobs in different industries have different business units, it can be concluded that a certain rate of return on capital standards which can be used by businesses for all of units does not exist.

III. RESEARCH METHODOLOGY

A. Questions

This study is a survey of the method of measurement. Field studies are research in that scholars search information outside the library and look for solutions to their problems. Researcher will use these types of research tools such as questionnaires, interviews, observation.

Studies to assess the characteristics of a population survey can be used to answer the following research questions.

Q1. What is the nature of the situation?

Q2. What is the relationship between the events?

Q3. How is the current situation?

B. Hypothesis

Proper use and maintenance of inventory systems can increase the profitability of products.

Above hypothesis in the null hypothesis (H0) and the hypothesis (H1) is expressed as follows:

H0: There is no significant relationship between the use of appropriate inventory systems and increase profitability.

H1: There is significant relationship between the adequate systems of maintenance of inventory and increase profitability

Credit instruments indicate the reliability or reproducibility of the questionnaire results. If the possibility of achieving similar results in different iterations is higher than it can be argued that the validity and reliability of the research instruments is higher and vice versa. Crohn Boch's alpha techniques for measuring the degree of credit research tool is used

Bach Crohn's alpha obtained for this study was equivalent to 7 %. This value indicates a relatively high degree of validity of the designed questionnaire.

TABLE I. THE METHOD OF EVALUATING QUESTIONNAIRE CHOICES.

very high	high	low	very low	options
4	3	2	1	Values

- C. Analysis of Research Questions
 - In the questionnaire, entitled "How much can stop in the manufacturing process because of shortages of raw materials be effective to reduce the level of profitability?"

It will be considered the cost of lost opportunity due to shortages of raw materials.

Collected responses to this question are summarized in the table below.

TABLE II. THE SUMMATION AND TOTALING OF FIRST ANSWER WITH H0 Hypothesis by Calculating the Average and Standard Deviation.

Question 1	E.	P .
1	2	1
1	2	4
2	19	38
3	22	44
4	1	14
Sum	50	100
Mean	2.68	
SD	0.768	

The researcher considered the assumption $\mu \geq 2/5$ as a criterion for admission and re-structure hypothesis, we wrote the following.

$$H_0: \mu \ge 2/5$$

 $H_1: \mu \le 2/5$

According to data collected from the test, statistic is calculated as follows.

$$Z_0 = \frac{\sqrt{n(X-\mu)}}{S_x} = \frac{\sqrt{50(2/68 - 2/5)}}{0/768} = +1/65$$

The critical value of the variable Z has a confidence level equal to -1/64.

According to the Zo test statistic is greater than the critical value Zx, therefore, we can assume 95% Ho is accepted. And argue that stopping the production process due to lack of availability of raw materials can greatly effective in reducing profitability and increasing total cost.

 Another question questionnaire entitled "How much can reward appropriate system for total cost reduction be effective to increase the efficiency and profitability of industrial units?"

It will be considered to evaluate the effectiveness of the reward system for improving the efficiency.

The collected data related to this question after processing are summarized as follows:

TABLE III. THE SUMMATION AND TOTALING OF SECOND ANSWER WITH H1 HYPOTHESIS BY CALCULATING THE AVERAGE AND STANDARD DEVIATION.

Question 2	Fi	Pi
1	1	2
2	21	42
3	15	30
4	13	26
Sum	50	100
Mean	2.8	
SD	0.857	

The researcher considered the assumption $\mu \ge 2/5$ as a criterion for admission and re-structure hypothesis, we wrote the following.

$$H_0: \mu \ge 2/5$$

 $H_1: \mu \le 2/5$

According to data collected from the test, statistic is calculated as follows.

$$Z_0 = \frac{\sqrt{n(X-\mu)}}{S_x} = \frac{\sqrt{50(2/8 - 2/5)}}{0/857} = +2/47$$

The critical value of the variable Z has a confidence level equal to -1/64.

In this case, because the test statistic is greater than the critical value, therefore we can assume 95% Ho is accepted and it means that there is an appropriate effect between reward system in reducing cost and increasing efficiency levels.

• The last questionnaire entitled "How much can proportionate the payment with conditions and work difficulties can be effective in increasing the efficiency and profitability of the plant?"

The Purpose is to coincide with the payment of the work environment and its impact on improving the economic efficiency of the unit.

The collected replies after processing with SPSS software is summarized in the following table:

TABLE IV. THE SUMMATION AND TOTALING REPLIES BY PROCESSING SPSS SOFTWARE.

Question 3	Fi	Pi
1	0	0
2	18	36
3	25	50
4	7	14
Sum	50	100
Mean	2.78	
SD	0.679	

The researcher considered the assumption $\mu \ge 2/5$, as a criterion for admission and re-structure hypothesis, we wrote the following.

$$H_0: \mu \ge 2/5$$

 $H_1: \mu \le 2/5$

According to data collected from the test, statistic is calculated as follows.

$$Z_0 = \frac{\sqrt{n(X-\mu)}}{S_x} = \frac{\sqrt{50(2/78 - 2/5)}}{0/679} = +2/9$$

The critical value of the variable Z has a confidence level equal to -1/64.

By comparing the test statistic and the critical value is observed, the test statistic is greater than the critical value, which can be considered acceptable reason to accept Ho and reject H1 hypothesis .Accordingly, we argue that by paying attention to working conditions and labor curve, the unit will increase performance.

IV. RESULTS

After each question, it is necessary to test the hypothesis. The mean and standard deviation of the questions 1 to 6, respectively is 663/2 and 656/0. Adopting a tolerance $\mu \ge 2/5$, we can re-write theory of hypothesis as follows:

$$H_0: \mu \ge 2/5$$

$$H_1: \mu \le 2/5$$

The test statistic for testing the hypothesis is calculated as follows.

$$Zo = (\sqrt{n(X-\mu)})/Six = (\sqrt{50} (2/663-2/5))/(0/656) = +1/76$$

The critical value of the variable Z to -1/64 is in error. Since Zo test statistic is greater than the critical value Zx with assuming 95%, therefore, we accepted assumed Ho and rejected assumed H1.

By testing the above hypothesis; we can conclude that the use of appropriate storage systems inventory can increase the efficiency and profitability of the plant.

REFERENCES

- Azar Adel and Momeni, "Statistics and its application in management," *The Second Volume of The Publication*, pp. 3-7, 2008.
- [2] S. Reza, *Management Accounting*, vol. 5, pp. 110-128, 2001.
- [3] Accounting Research Center audit, *Industrial Audit*, vol. I, Corporate Audit Publications, 2001.
- [4] A. S. Mehdi, *The Production Management*, vol. 6, pp. 21, 2004.
- [5] T. Shahnam, *Efficiency and Analysis on Organization*, vol. 3, pp. 183-199, 2005.
- [6] S. Reza and A. Aziz, *Cost Accounting*, vol. 5, pp. 75-80, 2004.
- [7] Khaki Grasim, *Research Methods in Management*, Facility Azad University Press, 1999.
- [8] M. Nofersty, *The Economics and its Application to Business*, Publication Beheshti University Press, 1991, vol. 2.
- [9] A. K. Bhattacharyya, *Financial Accounting for Business Managers*, New Dehli: Prentice hall of India PVT.LTD, 2004.
- [10] E. W. Anderson, C. Fornell, and R. T. Rust, "Customer Satisfaction, profitability: Differences between goods and services," *Marketing Science*, pp. 129-145, 1997.
- [11] H. T. Johnson and R. S. Kaplan, *Relevance Lost: The Rise and fall of Management Accounting*, Boston: Harvard Business School Press, 1987.



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