1st International Conference 'Economic Scientific Research - Theoretical, Empirical and Practical Approaches', ESPERA 2013

Formal and informal aspects of management tools

Constanța Iacob, Raluca Drăceab, Daniel Cîrciumaru*

*University of Craiova, 13 A.I. Cuza Street, 200585, Romania

Abstract

Ask ourselves if we can copy and apply a management model as it was conceived? The answer to this question is yes and no. Information systems and management accounting common forms are similar in different countries, but their associated management practices differ from country to country visible. This distinction leads us to the idea that the main differences that arise between different countries and between Europe and the United States occur in the informal system, something that we want to argue and present its own model.

© 2014 The Authors. Published by Elsevier B.V. Open access under CC BY-NC-ND license. Selection and peer-review under responsibility of the Organizing Committee of ESPERA 2013

Keywords: performance; tools; strategy; resources; quality; price;

1. Introduction

As economic competition becomes increasingly fierce, economic environment requires efficiency and performance. On the other hand, full development of technologies requires continuous upgrading of skills and new forms of organization and management of work. In this dynamic context, managerial accounting becomes vitally important because it transforms organizations and has an impact on their social, economic and physical aspects. Business decisions on development of new products, pricing policy in its recruitment and salary are dependent on

* Corresponding author. Tel.: +0-40724.994.060. E-mail address: danielcirciumaru@yahoo.com
accounting information; and managers' behaviors are influenced by accounting because it has impact on the action of managers and at the same time producers and recipients of such information.

Likewise, Express and Bouquin (2006) emphasize the limits of traditional management accounting and also note the importance of identifying and evaluating the financial consequences of policy options. Strategic cost management studies show places to authors and analyze organizations in a broader framework that includes: organizations' relations with their partners, particularly with suppliers and customers. This idea was embraced by Roztocki (2001) when referring to the integration concept, EVA in ABC. This concept appears as a novelty, does not contain yet existing computing costs, and does not take into account traditional management accounting (traditional) and modeling of cost-value couples (Iacob, 2005).

Burland and Simon (2001) argue loss of relevance of traditional costing systems by the existence of a gap between the current model and management control of a company; and the model is based on the method of analysis centers; it is also a composition of the differences between actual cost and its playback picture by management accounting.

Therefore, market economy requires a new vision costs, meaning that the starting point must constitute the basis of market price and this can be considered as decision on adjustment costs for products manufacturing situation. Such operation requires a lot of precision and economy of consumption that affects the cost, which, by the information we provide, is crucial for decision making. It has been adopted for programming and control of operations demand incurred in obtaining and use of production. We cannot say the same thing when it comes to natural resources, as is the case of lower coal used in power plants.

This study explores the idea that main differences occur between countries and between Europe and the United States in informal systems.

2. Research method

This study adopts both general approaches and specific research methods. Documentation, case study, participants’ observation and non-participating or benchmarking aspects were implemented. This gained scientific approach and empirical character, in addition to the descriptive study resulted in the development of a new model for analyzing the cost-price correlation workload considering a parameter, quality.

3. Management accounting across borders

Necker (1732 to 1804) said: "the first rule of economics is keeping the accounts and the first step that leads to ruin is their neglect." (Iacob C., Ionescu I., 1996). Goethe's words became motto in all Romanian accounting writings: "accounting is of the most sublime creations of the human mind that every good manager should use in his household." (Goethe, J.W., 1796).

Without going into the depths of history, we emphasize that in flows from practical business requirements, accounting appears at a certain stage of development of human society, as a knowledge that is necessary for living and materialized workload measurement of input and output results and exchange. Depending on the accounting, economic and social conditions of the time, two international accounting cultures are developed, namely:

(i) Anglo-saxon culture based on accounting monism that the accounting system is integrated into a single accounting and whose information is for both the internal and external users;

(ii) Continental European culture based on accounting dualism that the accounting system is separated into two components: one, financial accounting or general accounting basis for all construction and whose object is the record class and regrouped, information relating to the movements of values generated by the business; and two, management accounting, which is based on financial accounting and whose object is to follow "business management" through a representative indicator. That is production cost accounting remaining "secret" (Richard, 1996) is not normalized, but is useful because managers aim to follow the formation of the economic performance of the organizations.

The beginning and evolution of management accounting has been written extensively, nationally and internationally, mostly. Management accounting concepts, according to the study published by the International Federation of Accountants (IFA), has experienced four evolutionary stages as follows (www.mia.org):
1. Early stage prior to the 1950 management accounting has as main objective to determine and control costs through budgets. Called cost accounting, it was seen as a purely technical activity that had one objective: to determine production costs. This leads Johnson and Kaplan (Johnson T. and Kaplan R., 1987) to assert: "virtually all management accounting tools appeared until 1925";

2. The 1965 to 1985 period represents the second phase characterized by focusing on the production of information necessary for planning, management control and management accounting designation. At this organizational control system, system routines are suitable for use in a stable environment;

3. 1985 to 1995 period is characterized by focusing on the resources used in business waste reduction through process analysis and cost management;

4. The current phase that begins after 1995 focuses on the generation or creation of value through efficient use of resources and techniques to analyze the drivers of customer value and shareholder and organizational innovation. This phase of development is identified with value-based management.

Currently, there is an internationally and progressive trend opening of managerial accounting by observing changes taking place in organizations, customers and suppliers to reveal sources of better economic performance in order to transform classical organizations "enterprises' development. This vision causes Proctor (Proctor, Ray 2002) to distinguish between "management accounting" and “managerial accounting” which states: Management accounting is future oriented. It is mainly concerned with providing information to managers to help them to plan, evaluate and control activities. It is essentially a service function, a means to an end than an end in itself. Managerial accounting also fits this definition, but the term "management" emphasizes the role of service. This may seem obvious, but much of the twentieth century, management accounting was used rather to serve the needs of financial accounting than for assisting managers in their tasks ... Managerial accounting refers to improving future performance of organizations”.

In Romania, research in this area reveals that, in general, we define four phases of evolution of management accounting which overlapped conceptually and temporally over existing international stages, but emphasize that due to economic and political context, some phases are less noticeable; although theoretically, there have been translated and published a number of methods used by western countries, they have been less implemented in business practice.

4. Analysis of correlation price-cost-volume activity on a new vision

Moving the center of gravity of the calculation of production cost centers and activities involves increasing role in the management information capacity calculation of effective enterprise and larger scale promotion of accountability in internal management.

To demonstrate the idea exposed there is the manifest difference between management culture and practice. Studies of correlation analysis of price-cost-volume activity demonstrated that constructed new models of management appear as random quality variable like in mining.

Analytical substantiation as computers is related to the fact that mining labor productivity per worker depends on the volume of work or that of the supplied equipment, but is subject to a practical number of natural factors; and therefore there are a number of expenses that increase the cost structure diminishing results.

More than the price of production, where the reports are planned and standardized data result in phase calculation, the quality of 1750 kcal/kg STAS denotes this ideal situation where quality meets planned production STAS.

In fact, the geo-mining Motru Basin leads to large oscillations of quality coal extracted, attracting price adjustments on revenue implications downward.

The influence mining production has, based on profitability, led to great utility practice that involves cost-price-volume activity correlation analysis workload.

Price-cost-volume activity correlation workload through the equilibrium point highlights the influence of modification costs (that is, variable and fixed costs), the price of production and volume of dissolution of benefit.

As defined in the literature, equilibrium is the point at which the proceeds of production sold fully cover variable costs and fixed costs for the period resulting in no benefit or loss.
In mining, the analysis of the equilibrium point should be made by taking into account the random parameter, "quality" used for this purpose as seen in the linear equations:

\[ y = a\lambda x \]  
\[ y' = bx + C + B \]

where:
- \( y \) = total income;
- \( a \) = corresponding unit cost of production quality STAS;
- \( \lambda \) = quality parameter equal to 1 at STAS;
- \( x \) = physical volume of production;
- \( y' \) = total expenditures;
- \( b \) = variable costs per unit of product;
- \( C \) = fixed costs of period;
- \( B \) = net benefit.

The system of the equations is built on the model of revenue and expenses. Given the definition of equilibrium, that benefit planned at this level is zero, for which

\[ bx + b \lambda x = a \lambda x + c \]

where:

\[ x = \frac{c}{a\lambda - b} \]

Equation (4) is the equilibrium expression.
The parameter \( \lambda \neq 0 \) is determined by the quality of production, leading to price corrections unit production, which can be expressed by the relation:

\[ \lambda = \frac{a'}{a} < or > 1 \]

where \( a' \) is the production unit price if the quality is different from 1750 kcal / kg.
It follows therefore that the equilibrium can get the following expression:

\[ Pe = \frac{C}{a\lambda - b} = \frac{C}{a' - b} \]

Using data from the general budget of costs at the enterprise level, we draw some conclusions which are summarized in Table 1.

<table>
<thead>
<tr>
<th>Quality ( \lambda )</th>
<th>Production ( \lambda ) price recalculated</th>
<th>Production quantity</th>
<th>Unit cost per ton of useful</th>
<th>The normal level</th>
<th>Planned level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kcal/tc</td>
<td>Production</td>
<td>Physics</td>
<td>Recalculated (useful)</td>
<td>Pe (thousand tons)</td>
<td>Expenditure at Pe (thousands ron)</td>
</tr>
<tr>
<td>-</td>
<td>175.08</td>
<td>7800</td>
<td>-</td>
<td>164.2</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>1345344</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
It is therefore apparent that quality decreases under reducing production cost per ton of coal (physical); or in other words, it increases the unit cost per ton of useful substances.

Regardless of this issue, the company should correlate various degrees of physical quality or quantity to provide at least expenses and not get lost, expressed through the equilibrium quantity. Given that \( \lambda < 1 \), the equilibrium is above the annual extraction limit. This makes extraction process gets worse as a result of natural factors of environmental action.

Under these conditions the economic unit cannot fit in the normal or planned consumption due to the emergence of additional expenses. Materialized and living labor and additional investments are reflected in depreciation costs specifically and this gives rise to marginal cost which establishes that restriction, the desire to achieve a higher production and concomitant reduction in costs may not exceed importance in mining safety issue.

Extraction of reduced quality coal energy is not specific only to Motru Mining Basin, but is general for all mining fields, even those that extract coal. For example, Mintia built on coal thermal power, its thermal power decreased from 3583.8 kcal / kg in 1999 to 3444.0 kcal / kg in 2008.

While lignite consumed in power plants progressively increased from 3,524 million tons in 1999 to 5,985,000 t.e.p. in 2008; domestic production of energy has remained virtually constant at a value of about 27 to 28,000,000 t.e.p. In this context, an increase in the economy is dependent on imported primary energy from 21.5% in 1999 to 27.2% in 2008, with a peak of 31.9% in 2007, the year preceding the onset of the economic crisis.

There is, therefore, the question: how do we optimize benefit under such circumstances? Answer can be given in mathematical expression based on maximum benefit determined system of equations set.

Knowing that the benefit is the difference between income and expenditure on the system of equations previously given, we can obtain the following relationship:

\[
B = a\lambda x - bx - c = x(a\lambda - b) - c
\]  \hspace{1cm} (7)

and hence:

\[
\max B = \max [x(a - b) - c]
\]  \hspace{1cm} (8)

with the following restrictions:

\[
\begin{align*}
\lambda & > 1 \Leftrightarrow a > 175.08 \\
1,132,809 & \leq b \leq 1,157,890 \\
187,654 & \leq c \leq 148,191 \\
x & > 0
\end{align*}
\]  \hspace{1cm} (9)
Practically, however, $\lambda$ is a random independent variable where uncontrollable restriction cannot be verified, and $x$ cannot take values greater than 7.8 million tons, due to restrictions on annual extraction coefficient and marginal cost.

So the question remains for other parameters:
- (i) $a =$ output price;
- (ii) $b =$ variable costs per unit;
- (iii) $c =$ total fixed costs.

As known from literature, price is a component of the economic mechanism, one of the main economic and financial factors, the level and mode of settlement which depends on other factors: benefit, credit, financial system, budget, investments, etc.

Given the price-effect chain coal as primary energy source, the price of electricity and how it is formed, coal price cannot grow anytime and anyway, because in most cases it does not cover the cost of its production. The state must subsidize coal extraction and also for lignite mining, even if it is low.

Most times, negotiating prices have no solid foundation; they depend on the ability of negotiators, hence we support the application of the theory of marginal utility.

In essence, it is the type of marginal pricing for this branch of the national economy or the price of optimum type - a variant of the marginal price.

In our country, there has been some experience in this field since 1963. This makes researchers to emphasize on the relocation of the principle of marginal prices given the full range of fuels - upper and lower; in other words, liquid and solid.

This orientation was justified at that time when it came to protecting liquid fuels for chemical development.

In the present circumstances when it comes to widespread use of coal energy, it is necessary to protect this resource and which is considered as heavy; yet it has a limited character and sooner or later it will run out.

It is therefore necessary for optimal combination of the immediate interests of future members of the society.

Most advantageous solution would be pricing based on the average cost of types of fuel calorie, so the formula can be customized based on the following relationship:

\[
\frac{C_{call}}{\lambda} = \frac{C_1Q_1 + C_2Q_2 + \ldots + C_nQ_n}{Q_1\lambda_1 + Q_2\lambda_2 + \ldots + Q_n\lambda_n} = \frac{\sum_{i=1}^{n} C_i Q_i}{\sum_{i=1}^{n} Q_i \lambda_i}
\]  

(10)

where:
- $C_{call} =$ average cost of a lignite calorie;
- $C =$ physical unit cost of coal produced by mines in society / national company;
- $Q =$ physical quantity extracted for each lignite mining;
- $\lambda =$ quality expressed in amount of calories obtained from each mining;
- $i =$ mining taking into account the need for the cost and transportation costs.

In these circumstances, the physical unit of price starving is determined by the relation:

\[
P_{call} = \frac{1}{\lambda}
\]  

(11)

Price determination methodology eliminates this drawback by conditions created taking into account all fuels leading to substantial costs not recovered in the coal industry.

Certainly no such price is able to cover all the costs of the last companies working under the least efficiency. Usually, however, these units are those that achieve a high quality production and less numerous than those which produce an inferior quality but less costly than the first. In these circumstances the cost will be adjusted but not the first company eventually; thereby stimulating coal extraction and use of inferior products.
Will the coal industry win through higher prices? Of course, they will lose customers which will increase production costs and simultaneously decrease benefits. In this context, some compensatory changes in the profit are required which may lead to a more balanced distribution of net income.

There should be judicious placing of coal prices by category (anthracite, coal, lignite, etc). A reassessment is required with scientific production costs and stringent measures that lead to effective cost reduction in the industry.

In this context, tracing operative variable and fixed costs we believe is important in terms of price and that should be the focus of each individual company doing extraction.

**Conclusion**

Considering the research problems it was observed that there is a certain perception about businesses to act and react, make decisions and apply different systems to those of Western countries, which are often difficult to describe. This suggests that specific management tools are similar but not applied practically.

Building on the knowledge and use of price-cost correlation workload by companies’ specific instrument calculation method of direct-costing, and adapting it according to the parameter, "quality" shows that accounting information systems and formal management are similar in different countries, but their associated management practices can lead to visible differences from country to country.

In conclusion, globalization of accounting and management control will be possible only when cultural differences between European and non-European countries disappear. This requires moving from accumulation studies to developing intercultural studies synthesis. We are hitting the road and the road is still very long.

**References**