The Company Overall Performance Accounting and Some Statistical Management Tools

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Abstract
Starting with the last two decades of the 20th century, the financial models for the assessment of the company results began to be increasingly criticized, as it was deemed that they did not reflect its overall performance. The company must obtain performance not only at the economic and financial level but also at the social and environmental level. For a sustainable development, the new economy must be rethought from a social and ecologic perspective. Economic sciences must evolve in order to provide answers to environmental issues that are increasingly intense. The paper presents the possibilities of the accounting and statistics to become genuine company overall performance management tools.

Key words: performance, social accounting, environmental accounting, statistics, management

JEL Classification: M40, M41, C40.

The notion of performance has a multitude of usages despite the fact that this concept is sporadically defined in specialty works. We consider that the notion of performance is highly complex and it is currently searching for a way to rediscover itself, in order to cease being mistaken for the indicators used to describe and measure it.

Company performance is assessed differently by the stakeholders of the company, based on their divers and often divergent interests. We can study performance from the perspective of each category of users of accounting information: shareholders, managers, employees, creditors, state, business partners, mass media and the public.

The concept of overall performance of the company is based on stakeholder theory.
We believe that in order to maximize the company's value, managers must take into account the interests of the social partners. Amid limited resources and deepening social problems, social responsibility has become or will be made a growing priority of all businesses, regardless of size and scope of activity.

Gray et al (1988) published the first paper where accountability and the social contract were investigated as part of a theory for corporate social reporting (CSR).

In addition to the traditional measurement of performance through profit (economic performance), companies should also take into account social performance (to act in a socially responsible manner) and environmental performance (to minimize the impact on the environment). These three aspects are perfectly integrated in the “triple bottom line” concept which was first coined in 1994 by John Elkington. Elkington is the founder of a British consultancy called SustainAbility (http://www.sustainability.com). He supported the idea that companies should be preparing three different bottom lines:

- the first is the traditional measure of corporate profit - the “bottom line” of the profit and loss account;
- the second is the bottom line of a company’s “people account” - a measure in some shape or form of how socially responsible an organization has been throughout its operations;
- the third is the bottom line of the company’s “planet” account - a measure of how environmentally responsible it has been.

Thus, the triple bottom line (TBL) consists of three Ps: profit, people and planet and it aims to measure the financial, social and environmental performance of the company over a period of time.

1. Accounting – overall performance management tool

In our opinion performance measurement is a prerequisite for the development of an enterprise, but it is not sufficient and should be one of the performance management tools. In the literature, many authors prefer to talk about a performance management system rather than about a performance measurement system, which is also emphasized by E. Lardenoije et. al (2005)¹.

Traditionally, according to the dualistic concept, the current in-house accounting system has two major components: financial accounting and management accounting. Unlike financial accounting, management accounting is not regulated at national level, because it does not meet external requirements. On the other hand, large enterprises create their strict and detailed procedures on the organization of the management accounting, taking into account the specificity of the activity and the internal information needs. Management accounting information is dedicated to the company management only, it is not published outside the company and is confidential.

In the literature, management accounting is defined as “a system by which

the value of the internal company flows is calculated and analysed. It must be adapted to the activity, to the functional structure of the company and to the requirements of the decision-makers in relation to the evolutions of the economic and technological environment”\(^2\).

The emergence of management accounting was a consequence of the increase in industrial organizations. Management accounting was developed mainly in the U.S.A., its evolution being favoured by factors such as the shift from the payment per unit to fixed wages, from simple operations to multiple operations, from individual business to integrated business. After World War I a number of companies such as Du Pont and General Motors started applying budgeting and used techniques such as standard cost, deviation analysis, ROI (return on investment).

Brabete et all (2011)\(^3\) believe that “although price cost calculation is traditionally considered an objective specific to management accountancy, however, we don't have to make a strict delimitation between the roles of the two components of the national accounting system regarding the determination of this important indicator”.

In the authors’ opinion, currently, accounting experiences a new phase in its evolution, in which it must meet the requirements of achieving an overall performance management. We believe that the transition to the current stage was hastened by the global economic crisis that began in 2008. In this context, both financial accounting and management accounting must undergo changes in order to meet the users’ need for information.

2. Overall performance involves a new type of accounting

A number of stakeholders both from inside as well as from outside the company exercise pressures related to social and environmental matters. These pressures are presented in Table no. 1.

<table>
<thead>
<tr>
<th>It. no.</th>
<th>Social and environmental stakeholder</th>
<th>Pressures exercised on the company</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The State and its institutions</td>
<td>The legal provisions on social and environmental matters, environmental taxes.</td>
</tr>
<tr>
<td>2.</td>
<td>The shareholders</td>
<td>The increase in the company performance and the maximisation of its value.</td>
</tr>
</tbody>
</table>

\(^2\) Iacob C., Ionescu I., Goagără D., *Contabilitate de gestiune conformă cu practica internațională*, Universitaria Publishing House, Craiova, 2007, p. 14

The clients

They request products compliant with the environmental standards. They appreciate companies with responsible social and environmental policies.

The employees, the trade unions

They request the elimination of pollution at the workplace, compensations for occupational diseases due to pollution and social protection measures.

The local community, the ecologist organisations

The elimination of the negative effects of the business on the environment.

The mass media

Presents positive and negative aspects of the environmental and social policies, thus outlining the image of the company before consumers.

Source: Information prepared by the authors.

The company can meet the expectations of all the categories above by obtaining overall performance: economic and financial, social and environmental. Managerial accounting evolved in recent decades from a supplier of financial information to a system of tools used by the company management to prepare the strategy, to relate with the external environment and to make economic forecasts. In Romania two oil groups (Petrom and Rompetrol) that dominate the domestic market have policies to obtain overall performance by investments in the social and environmental field. These policies are detailed on the websites of each of the two companies.

2.1. An accounting for the measurement of social performance

The social responsibility of the company meets the internal and the external requirements. An important component of the social responsibility of a company is the provision of health and safety at work. A socially responsible company takes care of its employees’ health and safety in a manner that exceeds the requirements of the legal provisions but also takes into account the external implications. Thus, the provision of health and safety at work may be a criterion in the selection of subcontractors.

The performance obtained by the company at the social level can be assessed based on criteria such as: health and safety at work, the number of newly created jobs, the impact on the development at regional level, providing professional development opportunities, observing the employees’ and customers’ rights, investments in areas such as culture, education, and health, imposing ethical standards on their employees, initiating actions to combat corruption, etc.

All these generate costs that, for an adequate management, must be identified and tracked separately by the accounting system existing in the company.
Thus the necessity of the existence of a social accounting emerges.

2.2. Environmental accounting

From the point of view of the environmental matters, traditional accounting has a number of shortcomings. For example it does not facilitate obtaining information on environmental costs, which are often hidden costs of the company. For example the costs of the wages of the staff involved in environmental actions are included in the same account as the other costs of the living labour.

Traditional management accounting does not recognize the importance of environmental issues, which results in the following:

- Environmental costs are often considered unimportant;
- Certain types of environmental costs are not identified and tracked;
- in the case of investments environmental costs are not always taken into account.

Environmental accounting also referred to as green accounting aims to incorporate environmental costs and benefits in the decision-making process.

The International Federation of Accountants (IFAC) considers environmental management accounting as “the environmental and economic performance management through the development and implementation of ‘theoretical and practical environmental accounting systems’”.

According to the ISO 14.001 standard environmental performance is defined as “the measurable results of an environmental management system related to an organization's control of its environmental aspects, based upon its environmental policy, objective and targets”. In our opinion environmental policies should be monitored by companies together with the level of certain indicators such as profit, turnover, the return on sales, etc.

Environmental management accounting is the identification, collection, analysis and use of two types of information required to make decisions:

- Physical information on the use, flows and purpose of energy, water and materials (including wastes). These are very important especially for large companies, who have considerable spaces (mining or oil companies);
- Monetary information on the environmental costs, earnings and savings.

Environmental management accounting is focused on environmental costs and provides users with information on the movement and consumption of natural resources and energy. Environmental management accounting is a support for decision making, providing useful information in order to obtain financial and environmental performance. It should be noted, however, that the implementation of this accounting at the level of the company does not guarantee obtaining financial and environmental performance.

The interest in obtaining environmental performance and in environmental management accounting derives from a few key factors:

- the legal provisions in some countries require the publication of annual reports on environmental performance;
- the increase in the voluntary acceptance of the importance of the management of the environmental issues;
- the promotion of the environmental management accounting by some national and international organizations;
- environmental taxes levied by the State;
- The customers who require that products should meet the environmental standards.

In order to implement the environmental management accounting in the company it is necessary to adapt the current IT systems or to adopt new, cheap IT solutions that should nevertheless meet the users’ quality requirements. In our opinion, it is necessary to supplement the general chart of accounts by creating new accounts to record environmental information.

Environmental costs can be classified into the following categories:\footnote{IFAC, Environmental Management Accounting – International Guidance Document, 2005, p. 37}
- Categories reflecting the type of work environment (such as waste control vs. waste prevention);
- More representative categories for the traditional accounting (cost of materials vs. costs of labour);
- categories in the environmental area;
- categories reflecting the visibility of the data in the accounting records (visible costs vs. hidden costs).

Although, conceptually, environmental management accounting is no longer something entirely new in the company practice, it is in an early stage. Companies that implement it can thus benefit from competitive advantage. Companies' efforts to reduce their environmental costs will create benefits for the whole human society.

The implementation of environmental management accounting has a number of advantages. Firstly it provides detailed information to decision makers in which environmental costs are shown separately. A company that strives to reduce the environmental impact of its activities improves its image and can attract more valuable staff with long-term effects on its activities.

The benefits of environmental management accounting also result from the support it provides:\footnote{German Environment Ministry, Guide to Corporate Environmental Cost Management, Berlin, 2003}
- Environmental protection through the compliance with the environmental standards and the environmental policies adopted at the organizational level (planning and implementation of investments for pollution control, searching and buying substitutes for toxic materials, waste and emissions reporting to the competent authorities);
- The simultaneously decrease of the costs and impact on the environment through a more efficient use of energy, water and materials (a more accurate tracking of the energy, water, materials and waste flows);
- Evaluating and implementing programs to ensure the strategic position of the company.
The environmental cost analysis can identify new opportunities, savings can be made by recycling or using resources for other activities.

3. Statistics – overall performance management tool

Inductively, current statistics has become a manner of thinking with the help of data, and more generally, statistics turns from the wide concept of science by which you learn to think with the help of figures, for many entrepreneurs, close to the decision-making process, a simple, but effective overall performance management tool. Economics details three relatively emergent trends: a) the increase in the people’s need to think effectively with the help of data in the economic activity, and also in education and in the everyday life; b) the expansion of technologies available in providing people with support to be able to think with the help of data; c) the increase in the scientific interest for understanding the way people think with the help of data (for the statistics way of thinking).

The result of the interference between the most important element of the economy the entrepreneur and its enterprise, through specifically decisional statistical thinking outlines the business performance. Entrepreneurial thinking with the help of the statistical one (Săvoiu, 2011) must determine: a) the basic values of the situation in terms of probabilities; b) the expected value through maximizing expected gains in a more distant future; c) the function of expected subjective utility; d) the value of the effect and the accuracy of the choice in the hope that since information is well analysed and statistically processed in a systematic manner, there will be no post-decisional regret.

Customs or traditions, cultural and linguistic diversity, differences, the structure or organization of businesses and especially the relatively special priorities concerning the use and availability of resources are normal factors of the limitation of harmonisation and of restraining the statistical comparability in the economy of the present. There is however a system of fundamental statistical indicators focused on the financial and accounting information with maximum utility for the economic entrepreneur in the contemporary European market economy, known for a decade and a half under the designation of short-term statistics system (Săvoiu, 2007). The methodological manual for short-term statistics of EUROSTAT highlighted ever since 1999, three requirements of this short-term incidental statistics system: a) the accurate knowledge of short-term economic events concerning the business cycle in all the activities; b) the increasing share of regional information together with a breakdown of the indication at the level of major regions of a country with a preponderantly monthly frequency; c) meeting the necessities of the data users concerning the business cycle in different markets and for different sizes of a business entity ((size classes) ensuring a reasonable level of detail, optimal number of indicators, increased clarity and comparability.

The contemporary entrepreneur, the skilful businessman resorts, in the absence of resources, (time and money for his own research) to vector indicators with qualities of sensors (representative indicators) in order to determine the
approximate current state and prospects of an activity, economic regions or even a national economy, distinctive indicators in the economic recovery (the number of registrations of new businesses, the number of vacancies and newly created jobs, the change in unemployment and in absolute and relative terms, the dynamics and volume of loans for business development, the dynamics of exports, imports, private consumption and public administration, as well as various other specialized indices), in relation to the economic downturn (the number of bankruptcies, the dynamics of arrears, the dynamics of stocks and the dynamics of incomes and hourly gains, the dynamics of productivity, the evolution of social conflicts of any kind and of strikes, etc.)

The minimal and functional design of this system essentially contains a set of incidental indicators or short-term indicators presenting following ten elements in an optimal manner. We can also notice other three important general aspects of it: the time horizon requiring the comparison with the nearest period, or the last period of the indicator respectively, the form of the indicator which is frequently that if a statistic index outlining the trend cycle in the attempt to eliminate fluctuations and the type of final totalling value, usually the monthly or moving average less sensitive or “volatile” to external factors or distortions. Usually, the standard statistical indicator of this system highlights changes compared to the corresponding periods of time of the previous year or even to previous periods or simply change rates, using a general formula: \( R(\%) = \frac{I}{100} - 100 \), where “I” is the index expressed by a coefficient and especially designed for such situations.

I. The quantitative evaluation of the activity defined by production is made using its volume index and becomes the most important short-term indicator. The production is signified either as activity “per se” of processing, changing goods, or as result of the processing, changing goods. Thus production becomes value added to the cost of factors, and the production index becomes the evolution of the value added. The assessment of the production dynamics is basically done by its volume index, calculated with the monthly Laspeyres index formula (in its Geary index version):

\[
\frac{\sum_{i=1}^{n} p_{0}q_{i} - \sum_{j=1}^{m} p_{\ast j}q_{\ast j}} {\sum_{i=1}^{n} p_{0}q_{i}} \times 100
\]

(1) \( I_{t/o} = \frac{\sum_{i=1}^{n} p_{0}q_{i} - \sum_{j=1}^{m} p_{\ast j}q_{\ast j}} {\sum_{i=1}^{n} p_{0}q_{i}} \times 100 \)

where: \( p = \) price, \( q = \) quantity, \( i = \) products used as inputs, \( p_{\ast} = \) material price, \( q_{\ast} = \) material quantity, \( j = \) materials used as inputs.

The dynamics of the physical production or of the gross production is also calculated with indices in the Laspeyres formula without taking into account the material inputs:

\[
\frac{\sum_{i=1}^{n} p_{0}q_{i}} {\sum_{i=1}^{n} p_{0}q_{0}} \times 100
\]

(2) \( I_{t/o}^{q} = \frac{\sum_{i=1}^{n} p_{0}q_{i}} {\sum_{i=1}^{n} p_{0}q_{0}} \times 100 \)
The evolution of the value production is affected by the practical difficulty concerning the determination of the required price data. The most frequently adopted solution is the deflation of the sales with a Laspeyres price index.

II. The anticipation of the activity summarised by orders and contracts is statistically quantified by the order and contract indices that include the evolution of the new orders (contracts) and of the stock of orders. The return on the statistical research of the orders is limited to the production activities and mainly to the order, the activities with a long production cycle, or the big order activities, and indices can be calculated using simple monthly value indices:

\[
I_{o/t}^{CN} = \frac{\sum V_{CNt} \times 100}{\sum V_{oCN}}
\]

where \(V_{CNt}\) = the value of the new orders in the “0” or “t” periods

\[
I_{o/t}^{SC} = \frac{\sum V_{SCt} \times 100}{\sum V_{oSC}}
\]

where \(V_{SCt}\) = the value of the stock of orders in the “0” or “t” periods

The volume index of the newly received orders is obtained by deflation with a Paasche price index.

III. The essential incidental fluctuation factor, or investments respectively, whose short-term statistical evaluation is made by the tangible asset flow method. The concept gross investments in tangible assets underlying this method includes all the corporate capital assets having a life of more than one year, whether existing or newly acquired from third parties or produced for own use in order to:

a) increase the production capacity; b) increase productivity by reducing unit costs;

c) replace obsolete capital assets (machinery, equipment, facilities). The surveys are monthly or quarterly and lead to the assessment of the national production \((PINV)\) to which, capital asset imports \((M)\) are added and from which exports of the same assets \((X)\) are deducted:

\[
INVESTIŢII = PINV + MINV - XINV
\]

IV. The anticipation of the fluctuation tendencies (approached by investments) is approximated using the gross operating surplus;

V. The approximation of the profitability is made in practice by highlighting two indicators: the turnover and the compensation for employees. The turnover index provides the determination of the sales dynamics, the difference between turnover and production is one of substance. The turnover is used to assess current sales trends, and respectively to identify market fluctuations (the demand-supply balance point), while production reflects the volume tendencies of the value added to the cost of factors. The difference becomes more obvious between the deflationary turnover index and the production index. Thus the unsold production influencing the increase in stocks is included in the index, but not in the turnover index, while sales of stock are included in the turnover, but does not affect production. Secondary production is often included in the turnover index, while the production index, based on a list of products does not include it, and the deflation...
of the turnover can only be made with the price index for the domestic production and not with the export prices, which is not the case with production. The turnover becomes relatively synonymous for sales, dispatches, deliveries. The calculation of the turnover index consists in comparing the turnover of all units sampled and actually monitored of the current month “t” to the turnover of the baseline period “0”:

\[ I^{1/0} = \frac{\sum CA_t}{\sum CA_0} \times 100, \]

where CA is the turnover.

The compensation for employees or the wages in terms of the national account system is shown by an aggregate index at the level of the activity. Certain EUROSTAT member states publish its variable as absolute figure.

VI. The adjustment on various markets with the purpose of providing statistical value comparability is possible through the price index (industrial product price index, consumer price index, unit value index, etc.). Price indices, through the consumer price index and through the industrial product price index (domestic and export ones) aim to provide quick information on the business cycle fluctuations, the latter being significantly less frequently used as deflating indices. Calculated as Laspeyres indices, price indices are largely harmonized, the harmonized consumer price index (HPCI), being established in the EU project ever since 1997.

VII. The necessary statistical detailing related to the use and purpose is substantiated in the indicators on inventories and fixed assets.

VIII. The quantity assessment of labour resources is statistically substantiated by the number of labour and the unemployment rate. The used labour, as number of employed individuals, the unemployment rate and the volume of the of work time actually worked, expressed as number of hours worked, are key adjustment indicators in the labour area.

IX. The intensive use labour is statistically measured through productivity as simple ratio between effect and effort indices.

X. The quantity expression of the connection with “the rest of the world” or “the foreign countries as an object of the SCN or SEC is given by the external demand through exports and by the foreign competition by imports. The export and import volumes, the coverage of imports by exports and the trade balance are the main indicators used to measure the relationship with the rest of the world.

Short-term statistical indicator results should be consistent with other areas of the statistical system, since only an integrated and non-contradictory system of indicators is relevant and deserves the users’ trust.

The concepts of social accounting and environmental accounting have found their place within the accounting system in recent decades. Statistics can also be an important tool available to managers in their approach meant to obtain overall performance.

In the last decades we have witnessed the explosive development of computers that can be used from the collection and processing of data to
performance management. Today there is a variety of data processing applications and there is even a risk of a suffocation with information.

L. Şerbănescu and C. Necşulescu (2012)⁶ consider that “most organizations don’t need data. On the contrary, they have dozens of applications, files, data bases in which the smallest details are memorized regarding the daily activity. Yet, all these data should be united, compared, analysed and filtered to emphasize what is really important for the business”. The cited authors propose the use of Business Intelligence solutions.

The integration of accounting and statistical tools into the company overall performance management is shown in Figure 1.

**Figure no. 1: Opportunities to implement accounting and statistical tools into the overall performance management**

![Diagram](https://via.placeholder.com/150)

**Source:** Adapted from Țaicu, M. - Contabilitatea managerială a mediului și dezvoltarea durabilă a firmei. Provocări contabile. Articole, studii și cercetări, 2010, pp. 168-173

### 4. Conclusions

The implementation of the social and environmental accounting must serve the need for improvement at the organizational level and to achieve social and environmental performance, and their implementation should not take place "at any cost". In our opinion, social and environmental accounting should not remain just a theoretical concept, it should be effectively implemented in companies.

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Social and environmental policies are found in an increasing number of companies, either required by the law, or willingly adopted. Such policies generate environmental costs that have resulted in the emergence of environmental managerial accounting. The implementation of the social and environmental accounting in the company does not automatically imply that environmental performance will be obtained, but managers are thus provided with a useful tool for managing and measuring it. Until now the implementation of social and environmental accounting has taken place especially in large companies, because small and medium companies do not attach sufficient importance to environmental matters. In big companies, which have considerable financial resources, an environmental manager position can be created, in order to deal exclusively with such matters.

C. Tilt and G. Lubansky (1999) concluded “that although social and environmental accounting can be justified on grounds of moral obligations, fairness or justice, the distribution of power in society allows individual groups (such as corporations) to ignore their obligations without penalty”. We believe that even now, after more than a decade, the statement of the quoted authors is applicable, as little progress can be seen in this area. A solution is the involvement of the state in this area. Legislation can and should be adapted in order to require social and environmental performance reporting.

For successful strategic environmental objectives environmental education is essential and should take place from pre-school to the academic one. The academic education system and the scientific research are part of our contemporary life that can enhance development trends towards the development of tools available to managers, such as environmental management accounting, but also towards human ecology.

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