Monitoring the level of sustainable development of the enterprise

AUTHORS
Iryna Markina
Dmytro Diachkov
Oke Adedeji

ARTICLE INFO

DOI
http://dx.doi.org/10.21511/ppm.15(1-1).2017.08

RELEASED ON
Thursday, 11 May 2017

RECEIVED ON
Monday, 13 March 2017

ACCEPTED ON
Saturday, 29 April 2017

LICENSE
This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License

JOURNAL
"Problems and Perspectives in Management"

ISSN PRINT
1727-7051

ISSN ONLINE
1810-5467

PUBLISHER
LLC “Consulting Publishing Company “Business Perspectives”

FOUNDER
LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES
18

NUMBER OF FIGURES
6

NUMBER OF TABLES
0

© The author(s) 2022. This publication is an open access article.
Iryna Markina (Ukraine), Dmytro Diachkov (Ukraine), Oke Adedeji (Ukraine)

Monitoring the level of sustainable development of the enterprise

Abstract

The paper presents a comprehensive approach to monitoring the level of sustainable development of the enterprise. The basic principles and elements of forming the system of monitoring sustainable development of the enterprise were considered and systematized. The paper provides an analysis of existing approaches to assessing the sustainability of the enterprise during its development. The analysis of the results of monitoring the sustainable development of the enterprise allows to record stable and unstable periods of its development, which helps managers choose the strength of management impact according to the current situation. The theoretical foundations of the concept of sustainable development of economic systems are elucidated on the basis of the analysis of scientific publications. The authors have pointed out the importance of introducing the concept of sustainable development and possible benefits from its use. The enterprises implementing the sustainable development strategy in Ukraine have been highlighted. Based on the results of the study, the information and analytical content of the monitoring system for sustainable development of some processing enterprises of Ukraine was substantiated. The analysis of the application directions of the sustainable concept development has been carried out and a practical example of the information implementation and analytical system for monitoring the sustainable development of a food industry enterprise has been examined using as an example the Obolon Corporation, Kiev. The positive experience of using this method of monitoring the sustainable development of the Obolon Corporation should become an example for most processing enterprises in Ukraine.

Keywords: monitoring, monitoring system, processing enterprises, stability, sustainable development, assessing the level of sustainable development.

JEL Classification: A100, C190, C520, O100.

Accepted on: 29th of April, 2017.

Introduction

Today, the ability of enterprises to quickly adapt to new (not always favorable) conditions against the background of the general instability, intensified competition, harsh environment and the dynamic change of external factors play a crucial role in the context of sustainable development concept. An essential factor contributing to the rapid adaptation of enterprises is an effective set of management tools, which is based on the ideology of sustainability. Its successful use guarantees a possibility of ensuring a balanced sustainable development (SD), formation of long-term competitiveness and, as a result, contributes to minimization of potential risk situations in the course of financial and economic activity.

In conclusion, to be always in the rhythm of dramatically changing external factors and meet the standards, set to products by the consumers, one must pursue the strategy of development sustainability. It is possible to achieve it only by making balanced and reasonable management decisions, the implementation of which is impossible without evaluation of real SD at the enterprise. In this context, the crucial role is played by the monitoring system that keeps track of all the processes of development and forecasts their further course. However, the entire array of data has not been generalized and systematized yet, hence the relevance of the study.

1. Recent research and publications analysis

For years, the leading Ukrainian scientific institutions (Ministry of Education and Science of Ukraine, the Institute for Applied Systems Analysis) have been engaged in the development of a common system, which would make it possible to evaluate the level of SD in global terms. While acknowledging the scientific relevance of the majority of the scientists’ works, we must note that the issues of dynamic and preventive management of providing sustainable development of enterprises in the conditions of fragile environment remain understudied. Taking into account that the problem we mentioned can be solved in certain social, economic or ecological environment, it is very important to define clear boundaries of management impact on the state of sustainable development of the enterprise depending on the extent of uncertain environments impact.

2. Formulation of research objectives

The internal changes related to the management of sustainable development at the enterprise are definitely multicomponent and phased; therefore, they require a detailed study, both in terms of methodology and implementation. That called forth the objectives of the paper, the accomplishment of which will...
make it possible to learn more about the system of monitoring the level of sustainable development of the enterprise (SDE). To achieve this goal it was necessary to accomplish the following tasks:

- To carry out the analysis of literature on the selected topic.
- To justify the need and consider a practical example of the implementation of information and analytical system of monitoring of the sustainable development of the Ukraine’s food industry enterprise (Obolon Corporation, Kyiv).

3. Announcing principal findings of the study and their substantiation

Today, the effectiveness and validity of managerial decision-making directly depends on the subjective reception by the managers of the coming up problems and usage of innovative approaches in the context of the SDE. Equally important in this process is the use of the system of information and analytical observation and subsequent control at the time of making and implementing any managerial decision.

It is also necessary to recognize that for implementation of sustainability ideas it is necessary to use monitoring – the tool of observation, analysis, control and evaluation, required to create a complete picture of the enterprise movement in the direction of sustainable development (Aptemenko, V., Batkovsky, A., Gorshenina, E. 2011; and Zhurova, L., 2015) (Figure 1).

![Fig. 1. Areas of sustainable development and the role of monitoring in the achievement of sustainable development](image)

The term “monitoring” is interpreted as “a regular observation of the object, phenomenon, process, one is interested in, aimed to identify their compliance/non-compliance with the desired result” (Gorshenina, E. (2011) and Zhurova, L. (2015). However, this definition in modern scientific discourse is not limited to solely tracking and extends the meaning to the announcement of the results of this “tracking” for a certain group of stakeholders to draw specific conclusions and thus promptly correct the identified flaws.

According to Miskhozhev, E. the most complete semantics of the concept is revealed in the complex of interrelated functions: tracking (referring to surveillance) and prevention (Miskhozhev, E., 2011).

We consider it necessary to note the existence of yet another meaning of the term «monitoring». We have observed that just as effectively it can serve as a constant measurement of performance indicators – “an important part of the management system, the purpose of which is to get any results” (Gorshenina, E., 2011).

We are, in turn, adhered to the definition, according to which monitoring is a planned, step-by-step process aimed at search and selection of optimized methods of continuous internal control. Their skillful implementation is a key to the effective existence and development of the enterprise in the context of SD during a long chronological interval. For the correct understanding of the course of these operations, it is necessary to carry out an analytical review and analysis of existing views of experts on the formation of monitoring and assessment methods.

By analogy with the previous periodization, the authors of the joint monograph sort out five stages of evaluating SDE (Karpinsky, B., 2005):

1) authentication of the object of monitoring, which, at the same time, is a business entity;
2) typology of SD indicators and indices, taking into account the specifics of the enterprise;
3) collecting and processing data necessary for the unbiased characteristics of the current situation;
4) study of indicators of economic and financial stability;
5) developing regulations and planning preventive measures.

The researchers Artemenko, V. and Karpova, O. combining some aspects, distinguish between four serial periods of monitoring SDE (Artemenko, V. and Karpova, O., 2011):

1) “Preparation”, which provides for the formation of goals, evaluation criteria and a system of qualitative and quantitative SD indicators. Depending on the functional component, there are production, market, investment and innovation, and financial stability. Their normative regulation is a part of this stage;

2) “Investigation” – the procedure for collecting baseline data, which gives an idea of the external and /or internal environment of the enterprise; definition of the functional level of SD; comparative analysis of their quantitative and qualitative characteristics and established standards; defining the SDE level by the functional components of sustainability;

3) “Assessment” is the direct estimation of the SDE and calculation of the index generalized by the functional components;

4) “Results” – summing up the results of the monitoring, registration of the conclusions about the level of continuous development of an enterprise, and development of a set of preventative, anti-crisis measures.

Sobchenko, N. points to the existence of the following procedural aspects of the SDE level assessment (Sobchenko, N., 2011): 1) Formulation of the purposes of SD evaluation; 2) Collecting and processing the necessary information about the object of economic and financial activities; 3) Creation and standardization of a special indicators set; 4) Calculation of the integral SD index; 5) Interpretation of the results received; 6) Substantiation of the implementation of specific managerial innovations.

As you can see, the authors have different approaches to the interpretation of the monitoring process and evaluation of the SDE, so the classifications described above are primarily distinguished by their level of particularization. The common point is the availability of identical steps in assessment: collecting and processing of resulting data (Aptemenko, V., 2011; Saradzheva, O., 2010; and Trifonov, Y., 2014), determining the level of SD (Osokolsky, B. and Prokhorov, V., 2010), making integrated management decisions (Batkovsky, A., 2011, and Zhurova, L., 2015).

In the studies of Aptemenko, V. (2011), Batkovsky, A. (2011), Prokhorov, V. (2010), and Trifonov, Y. (2014) the final stage of the method of estimation is identifying trends in the enterprise development, and in the study by Gorshenina, E. (2011) – registration of findings. In addition, the cited periodizations provide for the stage of setting the goals of the SD assessment/management.

It is worth noting that the areas of life, where monitoring tools are involved the most, or they are of great scientific interest (human ecology, agriculture, environmental protection, improving people’s quality of life, as well as the economy of the countries in general) are stipulated in the Decree of the President of Ukraine “On Strategy of Sustainable Development “Ukraine-2020” (№ 5/2015 of January, 12 2015). In the document they are identified as the main problematic aspects of the regional socioeconomic development and governance.

Approved by the Decree of the President of Ukraine, the strategy defines the purpose, motion vectors, roadmap, top priorities, strategic indicators and means of strategy implementation. The aim of the strategy is to introduce European living standards in Ukraine and provide Ukraine’s leading position in the world. However, the implementation of the general national strategy for sustainable development should be based on a thorough understanding of the essence of the concept both by the citizens of the country and its economic entities.

According to the study by McKinsey, conducted in 2016, more than 50% of CEOs were aware that sustainable development is an important part of resolving environmental, social and management issues in a wide range of aspects from new product development to gaining a reputation and overall corporate strategy. McKinsey’s research found that companies define sustainability as one of the three main priorities that can be an effective element of business activity, as sustainability helps strengthen the company’s social responsibility, save its money and ensure sustainable future for generations to come. At the same time, only 30% of CEOs were actively looking for investment opportunities to apply this concept. The concept of sustainable development has recently become an integral part of the strategy of a large number of companies worldwide. It is worth paying attention to the fact that the problem areas and realization of sustainable development of various companies have significant differences.
Projecting the concept on the object of our research, we note that in the context of sustainable development of the enterprise monitoring serves as an informative basis for the formulation of effective social, ecological and economic policies and making adequate management decisions in specific situations of crisis, or as a result of rapidly changing conditions. It is a purposeful set of measures which ensure monitoring of the occurring processes and representation of the received information on the current socio-economic and economic state of the enterprise, taking into account national sustainable development trends.

In our opinion, one can only talk about a full transition of an enterprise to the principles of sustainable development, if the SD foundations have been tested at all levels of the socio-economic system. In this connection, there is a need for the establishment of an efficient, specified by the area, governing body of management for both individual enterprises and the whole complexes, and industries. Naturally, in the context of the SDE it is only possible if all the players involved in the process maintain the balance of economic, social and environmental needs. Achieving this goal calls for detailed monitoring of the implementation of which will require organizational, technical and methodological basis. Only under such conditions we can speak about successful transition to the principles of sustainability of development at the national level.

To sum up, we should note that the most important tools to judge the success/failure of any enterprise is the assessment of the SDE and monitoring system. Owing to them, the decisions made by the management are motivated and rational. If we consider the range of functionality in a broad sense, at the institutional level of the post-industrial society, then, according to Artemenko, V. and Karpova, O. “the SD monitoring system is an integral part of the social responsibility of management at any level and the means of democratic control over the managerial processes” (Artemenko, V. and Karpova, O., 2011).

To effectively manage the development of an enterprise it is necessary, first of all, to create a control environment, designed to provide the analysis and evaluation of the progress of SD objectives. Since this control environment represents one of the most important factors of the effectiveness of the internal control system, its importance for management of the enterprise as a whole and the interaction of components of the SDE system, in particular, is invaluable. Moreover, reliable determination of the set parameters of a particular process is possible only with the use of the control environment.

Accordingly, the SDE monitoring is a system of periodic system observations of sustainable development parameters. The obtained information is significant from the point of view of the management decision making, as well as forecasts, plans of further company activities under the influence of possible subjective and/or objective circumstances.

The value and location of this type of monitoring in the enterprise management system is shown and described by the authors in Figure 2.

The principles, the whole concept of SDE based on, are a kind of sub-goals, to be achieved in the process of its implementation. However, there are certain limitations necessary for the preservation and further development of the system elements (Figure 3).

Analysis of research has allowed us to find out that, the SDE monitoring is a unified, multi-level and multifunctional system. It brings together various existing monitoring trends, which differ in structure, content and the organizational and methodological approaches. The special feature of monitoring, used to implement the rules of the SDE, is that it combines harmoniously three important components, representing the sphere of economy, ecology and life of society.

For the rational use of natural resources, the economic approach involves application of innovative energy and material efficient, as well as environmentally friendly technologies. According to N. Sobchenko, it is necessary for the formation of “total income flow that would ensure, at least, conservation not decrease/reduction of capital (physical, natural or human), which the total income is generated with” (Sobchenko, N., 2011).
We consider it necessary to note that, in connection with the development of information society, there have been changes in priorities in the structure of total income. Today, a strong preference is given to human resources, consequently intangible flows of intellectual property, information and finance are getting more active. “These flows already exceed the volume of material goods movement, at least sevenfold”, – states Prokhorova, V. (2010).

From the standpoint of the environmental component of the SDE, it is imperative to preserve and increase the potential of the physical and biological natural systems. The stability of the biosphere largely depends on their viability. Special role is played by the property of these systems to recover and, if necessary, to adapt to new environmental conditions, and not constantly “be in a certain static state or degradation that leads to the loss of biological diversity” (Sobchenko, N., 2011).

As for the social component of sustainability, it is focused primarily on the development of a global society, conservation of social and cultural values and is aimed at limiting the number of conflicts in the society. As people take an active part in the processes of their livelihoods by making and implementing decisions in this context, it is important to properly allocate available resources. This requires “a fair distribution of wealth among the people (decrease of GINI-index), pluralism of opinions and tolerance in relations, preservation of cultural capital and its diversity, especially non-dominant cultural heritage”, states Kullbacka, N. (2002).
Problems arising at the stage of formation and functioning of the sustainable development monitoring (whatever their location), must be addressed at the same time, regardless of whether they are connected with practical testing or theoretical understanding. Thus, under these circumstances, great attention is paid to the management enterprises. An effective system of monitoring SDE integrates three independent research directions together. The newly formed complex is characterized by common properties, which indicates its status of a full-fledged scientific and practical phenomenon.

If we talk about the targeting of SDE monitoring system, it is necessary to highlight its practical and theoretical vectors. In practice, this system is needed for using the information obtained in the process of management decision-making, for planning and forecasting of economic, social and environmental state of the enterprise, which periodically experiences the impact of external and internal factors. A logical sequence of steps for monitoring and further ways to use the information obtained are clearly demonstrated in Figure 4.

Thus, the method of monitoring permits to identify the characteristic tendencies of the SDE, available in the external and internal environment, which helps implement the principles of sustainable development into reality.

Monitoring entities are not only the management system, but also its components. They are often competent experts and experienced leaders. They have first-hand knowledge of the specifics of the internal production processes. Therefore, they can identify development priorities.

Belonging of the monitoring objects to a particular group is established on the basis of the analysis of the enterprise operation, taking into account the main areas in which the company operates. That certainly happens in the context of the SDE and in accordance with the common method of developing indicators.

As a result of observations, the current state of the object is recorded and described. Subsequent measurement and evaluation procedures permit to accurately identify and summarize its characteristics, to draw conclusions about the level of its difference from the object, the level of which corresponds to the stated requirements of SDE. Such conclusions are accompanied by comparing the basic parameters and defining acceptable deviations from the norm.

Only after receiving the results of the expert monitoring the specialist can provide specific advice on the management decisions.
As we can see, the transition to the principles of sustainable development requires more than the willingness of the enterprise management. For coordination of the interests of all parties, and participants of this complex and quite a long process, there is a need for the political will of the authorities and representatives of the top management of the enterprise. Their interaction is shown in Figure 5 with a dotted line. The process of implementing the principles of sustainability should also involve active members of the public, non-governmental organizations, population and other economic players.

Figure 5 clearly shows that the information support of the monitoring system should be based mainly on the methods, and techniques of collecting and processing information, which, for a long time, have already been in use in the financial statements and statistical studies. For completeness and accuracy of future monitoring results the use of information about other external sources (other divisions of the enterprise) is justified.

For a competent analysis, precise definition of the indicators and sustainable development indices, establishment of maximum/minimum thresholds, deviation rate, the particular importance is attached to involvement of narrow-profile experts.

Another important sub-system of SD monitoring, providing legal support of the process consists of the following components:

1. normative legal acts regulating the monitoring process;
2. certain powers, rights and obligations enshrined for the parties involved in the study;
3. list of organizations/departments, which are obliged to provide, at the request, the primary data required for analysis;
4. mechanism for an authorized access, in case of an emergency request for analytical materials.

The system of designing and constructing the SDE monitoring, developed by the authors of the study, is shown in Figure 6.
Thus, the main area of practical application of the SDE monitoring system is the information support and assistance in the qualified enterprise management in all areas of its activities on the way to the sustainability of the development.

For example, in Ukraine, as in many other countries of the world, the implementation of the concept of sustainable development has not currently become widespread due to a number of objective reasons, including difficult economic situation, lack of the resources for investments, as well as focus of enterprises on the tactical problems of preservation of the current financial results. However, the leading enterprises of Ukraine actively participated in the implementation of sustainable development strategy.

Positive examples in this sense are such leaders of the Ukrainian economy as System Capital Management JSC, Vega Telecommunications Group, Galnaftogaz Concern (OKKO brand), Volia, Dnipropetstsal, Interpipe, DS pharmacy network, Foxtrot, Kyivstar. Representatives of the leading world companies in Ukraine like Shell, Vetropack, Coca-Cola, Pepsi, Nestle, Carlsberg, Samsung, Metro and others also have sustainable development programs.

In addition to the listed food producing transnational corporations, we should mention Kernel, MHP, Astarta-Kyiv, Danone Dnipro LLC, and Obolon Corporation.

Under the conditions of adverse changes in the environment the basic strategy of most food manufacturers is survival (sustaining production). For this reason, implementation of sustainable development strategies by food producing companies is carried out on the initiative of large companies, market leaders in certain foods.

Thus, we believe that the analysis of the experience of implementation of the offered by the authors information and analytical monitoring system of industrial enterprises sustainable development is an important scientific problem.

An example for our study was corporation Obolon, one of the market leaders in beer and soft drinks market, as it was the first enterprise in Ukraine’s food industry, which in 2008 certified four management systems at once. And in 2009 the company confirmed compliance of its management systems with international standards ISO: ISO 9001 (Quality Management Systems); ISO 22000 (Food Safety Management Systems); ISO 14001 (Environmental Management Systems); OHSAS 18001 (Safety and Labor Hygiene Management Systems).

Corporation Obolon strictly adheres to the principles of harmonious coexistence, cooperation and continuous dialogue with society, recognizes its responsibility for the environment. Since 2007 corporation Obolon has been implementing sustainable development strategy and publishing annual reports. Developed by the authors assessment methodology for monitoring the sustainable development of the company has been successfully used in the preparation of the sixth report on the sustainable development of the corporation Obolon, Kiev, in 2014, and its use is expected until 2020 (http://report.obolon.ua/en/gri_report/).

Unlike many other companies, the Obolon corporation’s plans for sustainable development are focused not only on social and environmental aspects, but also measures of economic and industrial nature. Growth based on the principles of sustainable development is the basis of the corporation Obolon strategy. The social mission of the corporation Obolon is to create useful and safe drinks caring about people and being responsible for the environment. The social purpose of the corporation is the balance of economic, social and environmental benefits through the integration of sustainable development in the interests of the corporation. The philosophy of sustainable development has also been formulated as “Good deeds for years to come”.

Sustainable Development Plan of the corporation Obolon for 2014-2020 contains the following areas:

1. Economy: reputation, business standards, corporate management, stakeholders.
2. People: comfortable working environment, life and health, ethics and equal rights, staff development.
3. Society: regional development, development of sports, sponsorship and charity.

The Obolon corporation reports for the 2014-2016, namely sections “Economy”, “People” and “Society”, are based on the developed by the authors scheme of the logical sequence of monitoring, as well as methodology of the effective use of information on sustainable development of the enterprise (see Figure 4).

Report on sustainability of the corporation Obolon for the 2014-2016 was carried out in compliance with the structural and logic pattern of planning and developing the system for monitoring of sustainable development of the enterprise, based on the fundamental principles outlined by the author: “environmental safety”, “social welfare”, “economic efficiency” (see Figure 3 and 6).

Obolon Corporation’s sixth report is presented in two formats: a pdf version and a totally interactive website. This year, as a socially responsible producer, Obolon refused from a printed version of the social report, thus making another contribution to the environment protection.
Each area of the plan includes specific tasks and deadlines for their accomplishment.

Sustainable development strategy of the corporation Obolon is comprehensive, and systematic, as well as it has an applied character. Despite the negative dynamics of the financial and economic indicators (in 2016, the company suffered a loss, and its net income decreased compared to the year 2012 by 16.2%), Obolon is purposefully implementing its plan of sustainable development.

The material in this article formed the basis of our research, whose goal is to create information-analytical models and methodical maintenance of the monitoring and evaluation of the results of the sustainable development of industrial enterprise.

**Conclusions**

In conclusion, it should be noted that carrying out assessment of the SDE level must be conditioned by the general dynamics of the enterprise growth in the context of the priority areas of its activity. SD monitoring is defined by us as a system procedure, aimed at meeting the information needs of managerial apparatus. This interpretation, in our opinion, will help clearly define the construct, subject, subject area, task requirements and organizational structure of the monitoring system of the SDE. As a result of this integrated vision, the categories of the totality, content, and workflow will be consistently set. SD monitoring assigns some mandatory subject-object categories. We have substantiated the fact that the objects of monitoring are the elements of a multi-level, multifunctional eco-socio-economic system.

They are characterized by integration, consistency and dynamic development. Monitoring entities are representatives providing management at the enterprise. In order that they (the subjects) make competent management decisions, it is necessary to organize prompt and competent object tracking, which, in fact, is the monitoring procedure.

In procedural terms monitoring is a series of planned actions aimed at providing SD with analytical information that will be used simultaneously in the socio-economic and environmental area of the enterprise activities.

Organizational monitoring system consists of several subsystems: the main ones (information and methodological), as well as complementary ones, providing regulatory and legal, organizational and technical support. The procedure is carried out step by step, and it is based on the fundamental principles of SDE.

Research related to managing the sustainability of the enterprise development is multi-component and phased, therefore it requires a detailed study from the point of view of both methodology, and its implementation. It is at this level of management that one should fully understand what opportunities are available to each entity to achieve and maintain its sustainable and efficient development. In this context, the competent monitoring system plays a decisive role, as it tracks all development processes and predicts their further development.

Suggested by the authors’ information-analytical system of monitoring sustainable development of the enterprise was tested at the Ukrainian corporation Obolon. The main provisions of the authors’ system of monitoring for sustainable development of the enterprise were used in preparing the annual analytical report of the corporation. The report will contribute to increasing the effectiveness of the activities of the corporation Obolon, strengthening the control over compliance with the requirements of legislation and improving the reputation. This approach to the assessment of the enterprise’s development is desirable and appropriate, as it helps re-evaluate the enterprise potential and provide management using modern technologies, methods and models. The positive experience of using the techniques of monitoring of the level of Obolon corporation’s sustainable development should be an example to follow for the majority of processing plants.

**References**