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# The investigation of indicators for evaluation the information process of management of industrial enterprise

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**Key words:** investigation; information; management; process; indicators; results of enterprise

## Abstract

**Purpose:** Activation of the process of formation of the information society in Ukraine, causes the introduction of information technologies in the practical activities of enterprises, increases the role and importance of information processes as one of the effective tools for developing and substantiating effective management decisions. However, the use of truly effective information management processes requires their constant monitoring and evaluation. Taking this into account, the purpose of the article is to study the existing indicators for evaluating information processes of an enterprise and justifying the need to supplement them with indicators that objectively evaluate information management processes. **Design/methodology/approach:** In the process of research, in order to substantiate the conclusions and recommendations, a set of special research methods was used, in particular: analysis and synthesis - to generate key indicators for evaluating the information process of an enterprise and summarizing them in a single classification; grouping methods, comparative and structural analysis - for disclosing the differences between the indicators used and the performance indicators of the information process and justifying the need to expand the existing system of indicators for evaluating the management information process for its application in the management system of an industrial enterprise; monographic, historical-evolutionary and dialectical methods - for the study of scientific views on the process of evaluating information. **Findings:** The groups of indicators considered in the article are extremely important for assessing the information process of an enterprise, however, the assessment of the information management process according to the given system of indicators would be incomplete, since there are no results of information evaluation that allow to accurately assess the current state of the enterprise in terms of its most important areas - financial, labor and production. It is known that the analysis of the current activities of the

enterprise is the basis for identifying the need for future changes, and, consequently, the development and justification of new management decisions. The effectiveness of the future management decision largely depends on how effective the information produced in the process of implementing the information management process will be. Thus, the addition of the existing classification of indicators for evaluating the information process with a block of indicators of the effectiveness of the information process is quite legitimate, because it will allow to transfer this process to the management plane. **Research and practical limitations/implications:** Expanding the system of indicators for assessing the information process with a block of indicators of its performance will allow, based on an assessment of the current state of the enterprise in the most important areas of its activity, to thoroughly choose a scenario for future activities. **Originality/value:** The implementation of the proposed recommendations will further develop a unified methodology for evaluating the information process of managing an industrial enterprise, which will enable to quantitatively and qualitatively implement this process, taking into account the information obtained as a result of analyzing the indicators of the most important areas of the enterprise. This, in turn, will increase the degree of justification of management decisions on the choice of the most effective direction of the future activity of the enterprise.

## INTRODUCTION

The realities of the modern economy require industrial enterprises to constantly adapt to the dynamic conditions of the market environment through the improvement and development of management systems and processes. The intensification of the process of formation of the information society in Europe, which led to the introduction of information technologies in the practical activities of enterprises, increase the role and importance of information processes as one of the effective tools for developing and substantiating effective management decisions. However, the use of truly effective information management processes requires their constant monitoring and evaluation. The situation is complicated by the lack of a generally accepted assessment methodology and a unified system of indicators. Taking this into account, the article summarizes the indicators for evaluating information processes of an enterprise, and substantiates the need to supplement it with performance indicators of the information process, which will allow choosing the most effective scenario for its future activity based on an assessment of the current state of an enterprise.

### 1. EVALUATION THE INFORMATION PROCESS

The transformation processes in the Ukrainian economy require the constant development of production in order to adapt industrial enterprises to a dynamic market environment. The development of the information society increases the role and importance of information processes, which become an important component of management. The processes of globalization of the economy and the corresponding expansion of material production require significant volumes and effective exchange of information, primarily depends on the degree of perfection and quality of data processing. This actualizes the issue of the quality of information management processes, increasingly determine the quality and effectiveness

of management decisions, and, therefore, directly affect the performance and efficiency of the industrial enterprise as a whole.

The relevance of this issue is reflected in many scientific works devoted to the problems of formation and implementation of information processes, their assessment and increase of efficiency of use in the management of modern domestic enterprises. Among the scientists, the works of Shannon K., L.V. Yarovoi, L.G. Melnik, D.V. Dyachkov, L.S. Vinarik deserve special attention. and many other domestic and foreign scientists.

Considering the above, the purpose of the article is to study the existing indicators for evaluating information processes of an enterprise and justify the need to supplement them with indicators that would objectively evaluate information management processes.

The economy of the post-crisis period and the corresponding formation of the post-industrial era require innovative approaches for the development of promising branches of science and technology. Therefore, the transition of society to high-tech technologies associated with the collection, aggregation and processing of significant amounts of data generated in the process of studying the production and commercial activities of an industrial enterprise and its environment is quite logical. It should be noted that this process is impossible without high-quality and timely technological support using effective information management processes, forcing the management of modern industrial enterprises to actively apply them, while raising the requirements for the level of qualifications of specialists. Obtained in the process of implementation of the information process is relevant, reliable, relevant information, its intensive and correct use makes it possible to make rational management decisions. However, when deciding on the formation of information management processes in an enterprise, the cost of the implementation of this process for the owner and the corresponding effect should be agreed upon (Yarovoi L. 2015, p. 97).

## **2. THE GENERAL PROBLEM AND ITS SOLUTION**

One of the main problems in solving this problem is the lack of universal quantitative methods for evaluating information management processes, and, accordingly, a system of indicators that would make it possible to evaluate the effectiveness and feasibility of using information management processes in the practice of industrial enterprises. The results of a theoretical study show that at the industrial enterprises of Ukraine today there is no system for evaluating information processes and does not have a practical quantitative

criterion. This complicates the assessment of the effectiveness of the use of information resources and the value of information processes in management. (Vinarik L. 2002).

Bill Hewlett founder of the company HewlettPackard's said "... it's impossible to manage what you cannot measure ..." (Pakkard D., 2006). It is the need for specificity and measurability of all key aspects of the activity of a modern industrial enterprise, in which indicators for evaluating information management processes can confidently be attributed, requires the introduction of certain quantitative indicators. With their help, you can monitor and measure processes, as well as assess the performance of the production activity of the enterprise as a whole in order to develop effective strategies for its further functioning. (Lezepiokova V., 2018).

Based on the foregoing, the analysis of existing indicators for evaluating information processes of enterprises requires improvement to form a system of indicators that would best help managers evaluate information management processes, which will improve the management systems of an industrial enterprise as a whole. The basis for the formation of this system of indicators should be qualitative and quantitative approaches. To solve this issue, the author attempts to summarize the indicators that are most often used for the practical assessment of information processes of enterprises, and to supplement the existing classification with precisely those indicators that it is expedient to use to evaluate information management processes (Fig. 1).

According to the results of a theoretical study, it can be argued that the process of managing an industrial enterprise is rightly considered by scientists as a complex system of interrelated and interdependent factors of production and management.

Therefore, the process of its evaluation should include an assessment of a whole complex of indicators (indicators) that fully reflect the state of the enterprise (prospective or current) and characterizes the performance of its activities.

In fig. 1 the author has attempted to summarize the indicators for evaluating information processes, the use of which in this process is reasonably by scientists .

However, before determining the feasibility of their use for the evaluation of information management processes, it is necessary to determine their essence and understand the features of use.

As for the quality of information, in (Kineva T., 2014) it is defined as the degree of its practical suitability for the purposes of the management process. It is determined by the combination of such properties as completeness, density, usefulness, reliability, value, which determine the possibility of using information to meet certain needs. Qualitative indicators for

evaluating information processes largely depend on the methods and means of their implementation, and more specifically, on the information technology used and the characteristics of information systems, where the process of their implementation takes place.

In this group of indicators, scientists distinguish (Polozova T., 2011): relevance, which is a complex indicator, which in the information process determines the degree of influence of information on decision-making in order to provide the desired result; integrity is also a comprehensive indicator of the quality of the information used, subsequently, is produced in the process of implementing the information process; content, as a qualitative indicator of the information process, reflects the semantic capacity equal to the ratio of the amount of semantic information in a message to the volume of information processed. Simultaneously with the indicator of content, displays a semantic aspect. It is also advisable to use the coefficient of informativeness, which, in turn, is characterized by the ratio of the amount of syntactic information to the amount of data [8];

Timeliness of information is one of the most important indicators, especially in a rapidly changing environment. This indicator is appropriate to determine the degree of preservation of the value of information for management at the time of its use, however, it should be remembered that it largely depends on the dynamics of changes in the characteristics of information and the time interval since its inception; completeness of the use of information means the presence in its composition minimal but sufficient to make a rational managerial decision set of indicators. The concept of completeness of information and, accordingly, the information process is associated with its semantic content (semantics) and pragmatics. So, both incomplete or insufficient for making a management decision, and redundant information significantly reduces the effectiveness of management decisions; representativeness, that is, the degree of applicability for variable use, associated primarily with the correctness of the selection of information and its formation to adequately reflect the properties of the object. It should be remembered that the violation of representativeness, in most cases leads to significant errors not only in the information process, but also in the activity of the enterprise as a whole.

It is generally recognized that even the most generally accepted information processes, which are implemented with a delay in time, lose their relevance. This is quite natural, because the dynamism of the market environment, which is the sphere of functioning of industrial enterprises, causes a daily decrease in the relevance of information, especially for the management process. That is why the process must be managed and controlled.

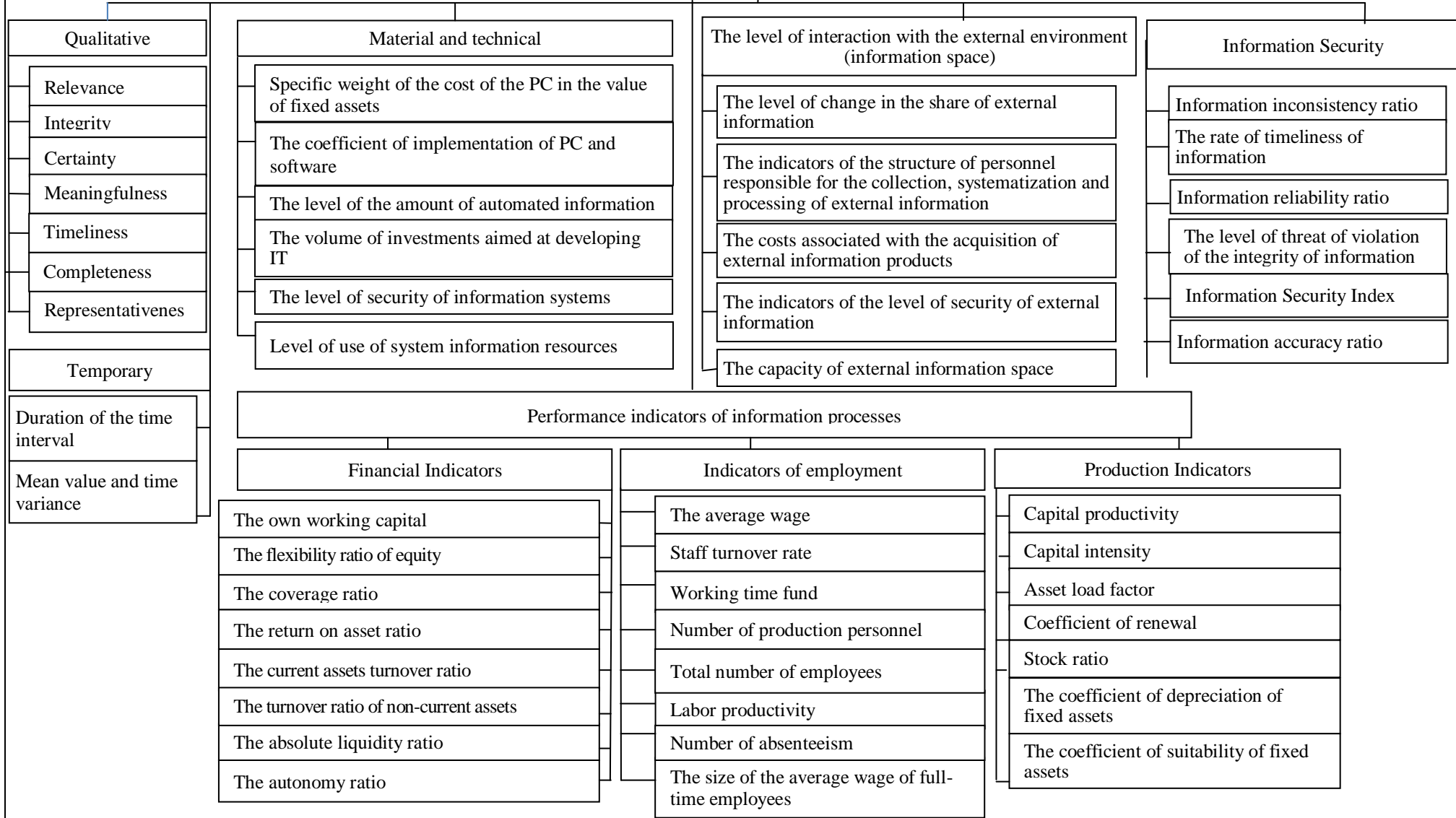
Scientists refer to the temporal indicators of information process evaluation: the average

value and variance of the information process execution time, that is, the average response time of an information system to a consumer's request, and the duration of the time interval during which the process ends with a given probability, which is extremely important in a rapidly changing environment external environment (tishenko V., 2012).

The expediency of using material and technical indicators in the process of evaluating the information process of an enterprise does not require additional substantiation, since the management of the material and technical support of the enterprise as a whole is the basis of its further effective activity. This process implements a number of functions, the main of which are: determining the needs of structural units and the enterprise as a whole in material resources; identification of existing and potential sources of material resources; the organization of the delivery of material resources to the place of consumption; rational and economical use of material resources; optimization of the volume of supplies of material and technical resources, etc. The qualitative implementation of certain functions contributes to the effective operation of the enterprise (Dyachkov D., 2014).

Indicators of this group are used at different levels of the enterprise and, one can say, most fully reflect the state of the information potential of the enterprise. Their analysis allows you to compare the costs of the formation, storage and use of information resources, that is, the functioning of the information process.

Indicators of evaluation of the information process (IP)



The study of relevant literature devoted to the problems of assessing the external and internal information environment of an enterprise, and summarizing the scientific findings made it possible to identify the main points that reflect the essence of the problem. The problem of complicating the structure of the external information environment of an enterprise, the reason for which is the growth of parameter uncertainty over time and acceleration of the rate of change of its parameters is very relevant. The impact of these factors determine the corresponding complexity of the enterprise management process, which, in turn, requires the creation of automated databases and data banks, the processing of vast information arrays, the formation and implementation of effective information processes, the involvement of highly skilled workers.

Information at the enterprise to a greater degree characterizes the processes occurring both at the enterprise, and in its external environment, and outside it. So, the system of indicators of the level of interaction with the external environment (information space) allows to evaluate the factors of the external information environment of the enterprise and the potential of its interaction with the external information environment. This is the basis for developing a strategy for increasing the efficiency of using external information products, which, in turn, determines both the level and quality of internal information processes, as well as the efficiency of production as a whole..

Summarizing the above, we can conclude that the indicators of this group most fully reflect the interaction and interdependence of the information process of an enterprise with the external environment and make it possible to evaluate its influence at different levels of enterprise management.

It is well known that security is one of the most important qualitative characteristics (indicators) of information. But, noting its importance both for the enterprise as a whole and for evaluating the information process in terms of its reliability for the enterprise, the author considers it expedient to single out a separate block of assessment indicators characterizing safety. This can be explained by the fact that ensuring effective operation requires that company management maintain an appropriate level of information security (Polozova T., 2011).

Most of the indicators of this group can be calculated by the formulas well known in the scientific literature.

It should be noted that the correct calculation of these indicators indicates a high level of security of the enterprise information process and is possible only if there is information obtained by monitoring the activities of its information service.



### 3. CONCLUSIONS

Of course, these groups of indicators are extremely important for assessing the information process of an enterprise, however, the assessment of the information management process according to the cited system of indicators would be incomplete. Since there are no results of evaluating information, they allow one to accurately estimate the current state of an enterprise from the point of view of its most important fields of activity - financial, labor and production. Analysis of the current activities of the enterprise is the basis for identifying the need for future changes, and, therefore, the development and justification of new management decisions. The effectiveness of the information produced in the process of implementing the information management process will largely depend on the effectiveness of future management decisions. So, in our opinion, the addition of the existing classification of information assessment indicators process block performance indicators of the information process is quite legitimate, because it allows you to transfer this process to the management plane.

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