

Balance of efficiency and effectiveness in the dynamic standard

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In article the problem of integrating in one model of two aspects of efficiency-productivity and profitability is considered. Approach to formation of the dynamic standard, based on ranging of indicators on growth rates is offered. The “ideal” order of growth rates of indicators locates. Such order represents “a golden rule of economy of the enterprise” which essence consists in ensuring development of the enterprise according to the typical dynamic standard. Possibility of formation of the dynamic standard on the basis of purposes of two types aiming at profitability and on the end result is shown. Such standard allows to reach balance of efficiency and effectiveness. Examples of dynamic standards are given. The method of an integrated assessment of efficiency by means of the dynamic standard is offered.





Nội dung bài biết xoay quanh vấn đề kết hợp hai yếu tố hiệu suất và lợi nhuận vào một mô hình. Việc hình thành một mô hình chuẩn dựa vào các chỉ số thể hiện sự tăng trưởng. Thứ tự sắp xếp hợp lý tốc độ tăng trưởng của các chỉ số cũng được đặt ra. Thứ tự này thể hiện «quy tắc vàng của kinh tế doanh nghiệp» mà vấn đề cốt lõi là đảm bảo sự phát triển của doanh nghiệp theo các chuẩn mực điển hình. Bài viết cũng nêu ra khả năng hình thành một bộ quy tắc, dựa vào mục đích của hai yếu tố, tập trung vào lợi nhuận và kết quả cuối cùng. Bộ quy tắc này sẽ giúp cân bằng hiệu suất và tính hiệu quả. Ví dụ của bộ quy tắc này sẽ được nêu rõ cùng với phương pháp sử dụng chúng trong việc đánh giá hiệu suất.

Keywords: golden rule of economy, standard dynamic standard, standard streamlining of indicators.

Russian philosopher L.A.Petrushenko wrote: «There are concepts which covered by ironclad evidence that hid their real life». The concept of «efficiency» is covered exactly by this armor. Much has been written about this concept. But on closer examination one can realize that there are different approaches in taking up the essence of the effectiveness and, therefore, there exist several points of view to meaningful definition of this term, and to its quantitative representation.

Basic categories that are considered in determining the effectiveness of activities are- inputs, costs, resources, products, services and results. In this case appear a lot of questions: whether it is important to consider not only the costs of producer but also the costs of consumer; which inputs relate to costs; how to take into account the used resources and, in general, is it always necessary to take into account the cost while determining the effectiveness? Thus, the effectiveness of medicine unlikely relates to the costs of its producing. Another set of issues: the result for whom- for direct manufacturer, for the owner of the manufacture or for the consumer? What is the result- produced product, sold product, the needs, the receiving profits or capital gains?

Without answers on these questions one cannot define the quantitative measure of efficiency, and, in turn, one can only manage successfully those that are measurable. Therefore, both the theoretical and practice scientists in management offer a variety of indicators and models for quantitative evaluation of efficiency. In this regard, one should pay attention that in the late XX appeared two types of efficiency: Internal and external.

Internal efficiency associates with achievements of any results at the lowest possible expenses or with obtaining the best possible result from the limited amount of resources. Internal efficiency can be defined as effectiveness which ensures the best use of available resources.

External efficiency associates with satisfaction of customers needs. In the theory of economic systems appears new notion of economic system function as destination or sense of system existence- mission. In such interpretation, the external efficiency is power function of economic system. External efficiency can be defined as the impact that helps to achieve intended goals.

It is internal efficiency that in the era of mass production was the most important factor of success of any enterprise. In the future, the priorities have changed. Increased supply leads to focus on the consumer. There is a leap from the «right doing things» to «producing the right things». However, «the right thing» without «proper production» also does not lead to success.

Polysemy of the word «efficiency», its interaction with concepts of efficacy and effectiveness, puts a question about seeking measuring instrument that can provide an integrated evaluation of the complex characteristics of industrial activity. In general the efficiency of this type of activity can be defined like an expression of its utility. And utility can be viewed from the position of producers, consumers, owners, and economic system in whole. There is a need of balance between internal and external efficiency, between productivity and profitability. Such a balance can be found with help of quantitative



modeling efficiency.

Global economic science accumulated wide experience in the use of models in the management of enterprise, providing the measurement of effectiveness. However most of these methods are used in scientific research and are not claimed in real production (because of great spending time and money on creating adequate models, and its complexity from the point of construction and understanding. The most important aspects of modeling efficiency- the criteria of efficiency, their definition, the quantitative representation, thresholds. One of the main things is the type of quantitative data presentation, both actual and normative (threshold) values. Traditionally the following forms of data in economics and management are: *the first*- this is the absolute values of the indicators that give a static evaluation of the facility. *The second* form of data presentation- is the calculation of the rate of growth or increase- representation of an object in dynamics. *The third* form of representation- the structure of indicators characterizing the ratio of parts of the object. All three forms of data and three types of models are well known and used in management. There were proposed and nowadays are used such measures of success of the enterprise as: profitability (the ratio of gross profit to the cost of goods sold); return on equity (ratio of net income to the amount of equity capital); more sophisticated «synthetic» indicators: average amount of labor productivity, capital productivity, material return; product growth rate of labor productivity and capital productivity. One can offer comprehensive indicators of effectiveness, which include a large number of individual effectiveness indicators.

Unfortunately, most of the proposed indicators and models that are used in computing operations cannot be justified and interpreted; they do not reflect the existing problems and contribute little to the identification of emerging; thus there is no opportunity to change the indicators that are used, depending on their importance for the enterprise.

Problems which are connected with deficiencies of traditional methods can be solved on the basis of a systematic approach that does not focus on the establishment of model performance measures, but on establishing standard methodologies for developing individual meters on the basis of common principles and provisions of economics and management specific to a particular enterprise (organization, industry, type of activity).

This article proposes a model development methodology of gauges the effectiveness, which acts as a dynamic standard- a model of structural dynamics that is forming efficiency of the economic system. This model on its basis has a ranking of growth indicators. Ranks- the fourth form of indicators. Ranking of indicators in terms of growth allows us to express the dynamics of indicators in their mutual respect for each indicator which retains its own role.

Wittingly designing and controlling the dynamics of indicators, one can not only determine the direction of the characteristics of the company (including efficiency), but also manage the movement to achieve its goals. The best way from the point of efficiency, the order of growth parameters can be called normative. Normative order of indicators is the «ideal» structural- dynamic model of efficiency, which can serve as a reference point- the threshold value (norm or standard)- the assessment of its actual dynamic state. In the economic literature and practice there are a lot of examples of regulatory that review relations of growth indicators. The most famous of them is the demand of exceeding the rate of productivity growth over the rate of growth of average wages.

Dynamic standards of internal and external efficiency can be built with the help of ranking indicators.

Let's briefly review the standard model of internal efficiency of the industrial enterprises, which can serve and guide the activities and means of analyzing its effectiveness. For this one should create a procedure for growth indicators, which is able to express the requirements for



effective development of the enterprise.

The first item- the choice of indicators. To build an integrated model of efficiency it is necessary to highlight aspects which cover all aspects of the mission of financial and economic activities of the economic system and a list that is invariant under the specific content of the enterprise. Such a classification of indicators provides an allocation of system characteristics of the enterprise under a constructive definition of any system [see, 1, 2]. System features- is the input (IN), output (Out) and processor, which in turn includes equipment (Eq), order (Ord), the catalyst (Cat), the subjective factor (SF).

Ordering the system characteristics is based on the following reasoning. Indicators of internal efficiency are usually constructed as the ratio of benefits to cost or resources. These indexes are: capital productivity (Out/Eq), resource productivity (Out/In), wages productivity (Out /Cat), labour productivity (Out /SF). The growth of these indicators means an increase of production efficiency, therefore, (for the most effective activity) yields of businesses must stay ahead of all the other indicators ideally.

Factors contributing to the increase in the efficiency of production are capital-labor ratio (Eq/SF), material equipment (In/SF), material equipment (In/Eq). It follows that the regulatory ratios are: $T(Eq) > T(SF)$, $T(In) > T(SF)$, $T(In) > T(Eq)$.

From the standpoint of internal efficiency in any given period of time or even less constant amount of labor should drive the growing mass of more sophisticated means of production, creating more and more product. An indicator of the mass labor in the enterprise can serve as money spent to pay for it, as well as the number of employees, who are parameters of the catalyst and the subjective factor, respectively. Consequently, the regulatory ratios are:

$T(Eq) > T(Cat)$; $T(Eq) > T(SF)$; $T(Out) > T(Cat)$.

An indicator of the growth of worker skills is the growth of the average wage. A critical condition for increasing the efficiency of production is

more rapid productivity growth compared with the growth of the average wage. This implies the following standard relations:

$T(Out) > T(Cat) > T(SF)$.

Parameters of order in practice can be presented by indicators of violations, the growth of which cannot be considered as positive trend. Consequently, the parameters of order should decrease (increase more slowly than the other parameters). Generalization of all the above pair ordering system characteristics provides a general streamlining, which acts as a normative model of the dynamic economic development of the enterprise:

$T(Out) > T(In) > T(Eq) > T(Cat) > T(SF) > T(Ord)$.

Formed dynamic standard of effectiveness can be rightly called «the golden rule of effective functioning of the economic system.»

This standard is the basis for creating models of the effective functioning on specific enterprises. As an example, form the simplest model- take one typical manufacturing indicator for each system features. Indicators are arranged as depicted system characteristics. Table 1 shows one of the possible variants of the dynamic standard effective functioning and development of the industrial enterprise. Of course, the usage of larger number of indicators that reflect the characteristics of a system is able to make a dynamic regulatory model more meaningful and accurate.

If this procedure of pace of growth indicators

Table 1. Dynamic specification of effective functioning and development of the industrial enterprises

Normative rank	System description	Index
1	output	volume production
2	input	material costs
3	equipment	cost of fixed assets
4	catalyst	fund of compensation (wages) of employees
5	subjective factor	number of employees
6	order	reclamations



is maintained constantly, the production will be the most economical.

The second item- effectiveness, the level of aim achievement, the level of implementation of the function (the mission). In order to model effectiveness there is a need to determine the targets and relationship between them. Impossibly to score and control activities without expressing the target. The set of goals and means of achieving them is usually defined as a strategy. That is why the discussion will be about strategic settings (global, long-term, the most important).

Strategic settings are formulated as requirements of increase or decrease of certain parameters. The general orientation of the enterprise on the result can be described by the wording of the requirements expressed by the normative ordering of two or more indicators of the company. Strategic setting will consist

of maintenance this order on a long interval of time. It is necessary to formulate not only general settings, but also settings, which show the specific of the activity and environment of the company.

Of pairwise orderings indicators, expressing the strategic installation, one can get a co- ordering of all the selected indicators, which will play the part of the dynamic performance standard or standard dynamic strategy (CSN). Maintaining this order in the actual activity during the long period of time provides the implementation of intended goals.

Thus, structurally dynamic standard strategy is a set of indicators, ordered in terms of growth so that the maintenance of order in the long time interval in the real activities of the enterprise will provide the highest level of realization of its mission (highest effectiveness).

At the same time this model, which determines

Table 2. The target settings of theater and suitable order indicators

Target settings	Indicators	Ratio of growth rates	Indicators
The occupancy of the hall	Number of spectators	>	Number of played performances
Updating repertoire	Number of new performances	>	Number of played performances
The possibility of expanding the repertoire and attracting new actors	Assignments	>	Number of payroll
	Trust funds	>	Number of payroll
Staging with decrease of the number of actors	Number of new performances	>	Remuneration fund payroll
	Number of new performances	>	Remuneration fund
Focusing on the mass audience (charity performances, for example)	Number of played performances	>	Fees from tickets
the relative reduction of the participation of actors in performances (in case of multiple performance)	Number of played performances	>	Remuneration fund payroll
	Number of played performances		Remuneration fund
Increasing of average wages of actors	Remuneration fund payroll	>	Number of payroll
Attracting new spectators	Number of new performances	>	Fees from tickets
Reducing average cost of tickets	Number of spectators	>	Fees from tickets
Prolonging time of every performance	Number of played performances	>	Number of payroll
Decrease in the share of charges on tickets in finance activities of the theatre	Trust funds	>	Fees from tickets



the strategic line of development of the enterprise, can include variety of strategic settings. However, despite of variety of strategic settings, all of them should respond to one general way of development of enterprise and assign some balance of goals, which is riding by interrelationship and proportionality of component parts of enterprise.

An important component of the strategy is- the choice of key factors of organization success. Key success factors are those actions that enable organizations to achieve their vision and goals through the implementation of its in-house strategy. This may be the strong sides that one has to develop or weak sides that need to be tightened.

The model that defines the strategic line of enterprise development may be formed not only by authority of the multidimensional and dynamic strategies such as economic value. Different companies may have different priorities in strategic of goal achievement.

Using a dynamic model as a standard model of efficiency allows us to find the balance between internal and external efficiency. To do this, firstly one should select parameters to display both aspects of effectiveness and, secondly, set aim setting, targeting on efficiency and the effectivity.

It is stressed that this approach is universal and can be applied both for manufacturing firms and other enterprises. Thus in Table 2 we can see separate settings of two types, used to generate the dynamic model of efficiency of one the

theater in Saint-Petersburg.

Total ordering forms on the basis of paired ordering of individual indicators (Table 3) overflowed as a standard dynamic of theater effectiveness.

Evaluating the effectiveness of estimation of the distance is calculated as the actual and set a normative model of orderings of indicators:

$$\Theta = 1 - \frac{\sum_{i=1}^n m_i}{n(n-1)} = 1 - \frac{M(\Phi, H)}{n(n-1)}$$

where E- evaluation of effectiveness ($0 \leq \Theta \leq 1$); n- the number of indicators in dynamic standard; m_i - the number of inversions in the actual order for the measure, which has the i-th rank (occupying the i- th) in the dynamic standards:

$$m_i = \sum_{j=1}^n a_{ij}$$

Where a_{ij} - variable which is reflecting the presence or absence of the actual ordering relation «faster», setting in dynamic norm between i- and j- indexes, ($i=1, \dots, n; j=1, \dots, n$):

$$a_{ij} = \begin{cases} 1, & \text{если } r_i > r_j \text{ при } i < j \\ 1, & \text{если } r_i < r_j \text{ при } i > j \\ 0 & \text{в остальных случаях} \end{cases}$$

r_i and r_j - rank of i- and j- indexes (in current ordering);

$M(\Phi, H)$ - the amount of inversions in the actual order (Φ) relative to a standard (H).

The closer the score Θ to the unit one, the greater the proportion of targets which are actually realized. The coincidence of actual and given in a dynamic standard of the order of indicators suggest the most efficient operation of the enterprise, when all established indicators of ratios of growth in the dynamic standard are actually running, with $\Theta = 1$. If any predetermined norm in dynamic standard is not performed, evaluation of effectiveness is

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Table 3. Dynamic standard of theater effectiveness

Normative rank	Indicators
1.	Number of spectators
2.	Number of new performances
3.	Number of played performances
4.	Trust funds
5.	Assignments
6.	Fees from tickets
7.	Remuneration fund
8.	Remuneration fund payroll
9.	Number of payroll



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sách do các cơ quan khác nhau thực thi, đặc biệt là CSTK và CSTT.

Ba là, sử dụng CTTC để kiểm tra tính chính xác của số liệu giữa các bộ ngành để từ đó hiệu chỉnh cho thống nhất. Ưu điểm của CTTC là xây dựng một khuôn khổ thống nhất các tài khoản vĩ mô dựa trên các mối quan hệ về bản chất kinh tế và sự dịch chuyển của dòng vốn. Vì vậy, khi phát sinh một quan hệ không nhất quán trong CTTC chứng tỏ số liệu đã không được thống kê chính xác hoặc có sự không nhất quán về định nghĩa và phạm vi thống kê số liệu của các bộ, ngành.

Bốn là, sử dụng lập trình tài chính như một công cụ để phân tích sự vận động và phát triển của nền kinh tế, nhận diện sự dịch chuyển của dòng vốn cũng như phân bổ nguồn lực kinh tế giữa các khu vực của nền kinh tế, phát hiện những rủi ro mang tính hệ thống và khả năng lan truyền của các rủi ro này để có chính sách điều tiết phù hợp, đảm bảo thực hiện thành công những mục tiêu vĩ mô về tăng trưởng kinh tế, lạm phát, thu- chi ngân sách hay cung ứng tiền cho nền kinh tế. ■

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minimal (equal to 0).

Using the proposed method, heads of enterprises and organizations can determine which parameters or their ratios have the greatest impact on effectiveness. It allows them to focus on priority issues and their solving. It is important to establish- due to which, and to what extent can influence the current situation in order to change it.

Dynamic standard makes it possible to justify and evaluate options for the individual strategic decisions in terms of how they affect the level of the mission of the enterprise as a whole by calculating the expected (planned or projected) of integrated performance assessments. ■

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