

The system approach to estimating the efficiency of the management personnel activity

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The aim of this study is to describe the methodological foundations of the systems approach to performing the integrated analysis of the management activity efficiency, the description and justification of the 3-level “pyramidal” model, which will include the indicators of the management personnel efficiency according to 3 levels, in particular, of individual managers, the whole management system and its top management; also in this research the author will form a set of the efficiency indicators of the management personnel activity, will develop the normative dynamic model for estimating the management activity efficiency and will present the recommendations on the application of the obtained model as an etalon arrangement of the indicators.

Keywords: normative dynamic model, top management efficiency, etalon distribution, growth rate, ranking, correlation

THEORETICAL FUNDAMENTALS: THE NORMATIVE MODELS OF STRUCTURAL DYNAMICS AS AN ELEMENT OF THE SYSTEMS APPROACH

In the current fast-changing environment, the functional purpose of information systems can be characterized as a complex support of the strategy through accumulating and transforming the information in the form required for the justification and for making managerial decisions.

Formally, the information system can be described by the information flows scheme at the enterprise. Thus, each enterprise has its own information environment, where the flows circulate, forming the information system.

In the framework of this study, according to the constructive description of the information system a key function is performed by the processor, which converts the system input into the output, what is realized on the basis of the unity of such components as the arrangement, the equipment, the catalyst and the subjective factor.

In this research, the arrangement is determined as the first element of the processor and includes methods and algorithms of the data collecting and processing. The equipment as the second element of the processor is primarily a means of storing, processing and transmitting the information. In terms of the content, the equipment represents models (indicators) providing measuring, generalizing and the analysis of economic values. The catalyst processor introduces the requirements and guidelines applicable to the information support. The subjective factor is a summary of human characteristics who interpret the information processing results.

Currently in the world practice, the application of normative dynamic models becomes practically relevant as the most important component of the systems approach and information systems, which are based on ranking the growth rates of indicators, and which allow to take into account the structural dynamics in modeling.

Such models have a number of advantages and can serve as baseline and reference models within the framework of the systems approach to the integrated economic analysis of the management activity efficiency, what will be presented further in this research.

METHODOLOGICAL BASIS: THE DEVELOPMENT AND INTERPRETATION OF NORMATIVE DYNAMIC MODELS

In the modern information management systems, a normative dynamic model of the business strategy is a set of indicators, arranged by the growth rates, so that the maintenance of this order during a long period of time will ensure the highest level of the enterprise activities efficiency.

In general, a normative dynamic model is formed on the basis of strategic goals to which the outrunning growth of one indicator compared with another corresponds. The following algorithm is worth noting as a guideline on developing such a model:

- To choose the necessary and sufficient set of indicators;
- To formulate the priority goals of the strategy of developing the enterprise;
- To reflect the formulated goals by arranging the selected indicators;
- To rank the selected indicators so that the maintenance of their normative order could contribute to the achievement of all priority goals of the perspective enterprise development.

While developing this model, the dynamics of indicators is defined as the rate of their growth. The dynamic norm characterizes the etalon dynamics of the enterprise, understood as the best possible distribution of the growth rates of key indicators.

According to the described above algorithm of developing a normative dynamic model, the strategic goals can be expressed by arranging the selected

indicators in compliance with the established most preferable interrelations between their growth rates.

Using the pairwise arrangements of the indicators expressing strategic goals, it is possible to get a joint arrangement of all selected indicators, which will do play the role of the normative dynamic model in the enterprise management system or its functional services.

The modern practical experience of the application of dynamic norms shows that it is reasonable to consider the normative arrangements with a number of indicators not more than 25, and it is recommended 10-15 indicators as the most optimal number.

As a possible direction of the application of normative dynamic models in the modern managerial practice, the author, further, will construct the dynamic norm for estimating the efficiency of the management personnel activity.

METHODOLOGICAL BASES: THE 3-LEVEL SYSTEM OF INDICATORS OF THE MANAGEMENT PERSONNEL EFFICIENCY (“THE PYRAMID OF THE EFFICIENCY”)

The efficiency of doing business largely depends on the efficiency of the management personnel activity, as all information flows undergo directly through the management personnel, at that the work quality criteria is determined by the modification of the received information for managerial purposes. The efficiency of the management personnel activity also influences on the formation of the business reputation of the enterprise, its industry position and competitive advantages, what raises the necessity of performing a complex economic analysis of the management activity.

In the scope of this research the management personnel is considered as the personnel of the enterprise who accordingly to their professional competences should make management decisions (within a certain unit of responsibility) in compliance

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with a corporate goal, which is to maximize the welfare of the owners.

It is worth mentioning that the management personnel cooperate with other categories of the personnel, and in this relevance its functioning is a combination of satisfying the interests of the staff and achieving the goals of the enterprise. Consequently, for estimating the efficiency of the management personnel activity it is necessary to take into account their ability to influence directly on the activity of structural units or the enterprise in whole. At that the activity priorities should refer to the development of a set of quantitative and qualitative indicators, reflecting the results of the management personnel activity for achieving the strategic goals of the enterprise.

In practical cases, the complexity of performing the analysis of the management activity efficiency arises from the difficulty of identifying the labour contribution of the management personnel in the overall result of the enterprise activity, which is a consequence of the activity of all staff, as well as the influence of external conditions and factors. The management labour specific feature is characterized that its results, as a rule, are distant in time and space from the date and place of its costs.

They only finally are inseparable from the results of the enterprise functioning.

Management activity also has its specific technological characteristics:

- the management labour is mediated respectively to the final results of the enterprise activity, and does not create the value directly, but is aimed at the personnel management, and thus affects the financial result;
- the complexity of the management labour is determined by the specifics of the management functions in compliance with performing self-dependence and the structure of the labour process, the management hierarchy level, professional competences, work experience, and the scope of work.

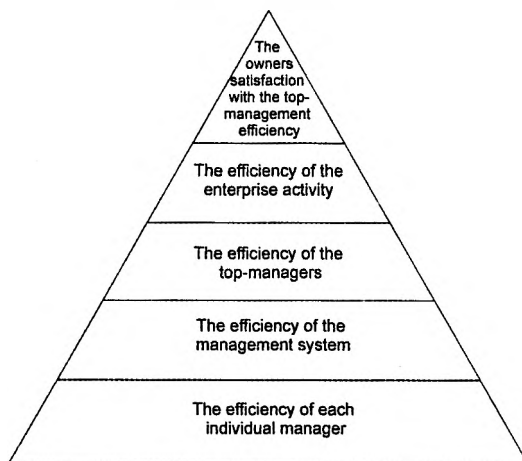
For estimating the efficiency of the management personnel activity, in this research the author further will modify the model “The pyramid of indicators of the management activity efficiency”. The 3-level “pyramidal” model will be used as a basis to form a set of the indicators of the management personnel efficiency proposed by the author according to 3 levels, and to construct the dynamic norm for estimating the efficiency of the management personnel activity.

This modified 3-level “pyramidal” model (fig. 1), presents the systematization of the indicators of the management activity efficiency according to 3 levels, in particular, each individual manager, the management system in whole and the top management.

According to the presented model, it is recommended to start the analysis with the estimation of the individual efficiency of each employee of the management, then the efficiency of the management personnel activity in whole and further the efficiency of the entire enterprise activity, the integrated indicator of which is the satisfaction of the business owners with the top management performance.

The efficiency of the management personnel activity is estimated through

Figure 1: The pyramid of the indicators of the management personnel efficiency



the interrelation between three groups of indicators, which characterize functioning of various management levels:

- corporate, characterizing the efficiency of the top management activity;
- synthetic (general), characterizing the efficiency of the management system;
- individual, characterizing the individual efficiency of each employee of the management.

According to the presented model, the results of the management activity should be estimated in the dynamics according to the growth rates (decrease) of the following indicators, and consequently, in the first group it is possible to include the indicators characterizing the top management efficiency: the market price of the share, net assets, net profit, profit from sales, profit per one share, the share of dividends in net profit and economic value added.

The positive dynamics of changes of the above indicators testifies a productive and skilled work of the employees of the top management level. The satisfaction of the business owners is a key indicator of the efficiency of the enterprise activity in whole, and testifies about a correct selection of candidates for making up key managerial

vacancies. In particular, the growth of net assets reflects the efficient work of the top-management on increasing the welfare of the owners, what is connected with increasing the financial stability and the property's value, the growth of net profit testifies about the successful efforts of the top management, what is connected with the effect of increasing the value of the business.

The owners' interests are connected with the growth of their welfare: a direct benefit refers mostly to the dividends per one share; an indirect one is the growth of the value of the owner's share (the increase of the market value of the share, the growth of net assets of the enterprise).

RESEARCH: DEVELOPING A NORMATIVE DYNAMIC MODEL OF THE ESTIMATION OF THE MANAGEMENT PERSONNEL EFFICIENCY

In this research the classification of the efficiency indicators of the management personnel activity is represented by 3 levels —corporate, general and individual.

In accordance with the presented classification, a set of the indicators chosen for the formation of a dynamic norm, as well

Table 1: The normative dynamic model of the estimation of the management personnel efficiency

| | |
|----|--|
| 1 | The integral rate of the satisfaction |
| 2 | Net profit |
| 3 | Operating profit |
| 4 | Sales revenue |
| 5 | Assets (property) |
| 6 | The number of submitted suggestions on development |
| 7 | The average tariff coefficient of the production personnel |
| 8 | Bonus payments to the employees |
| 9 | The costs for improving the qualification level |
| 10 | The number of regular meetings, tests, researches, etc. |
| 11 | The administrative and engineering personnel costs |
| 12 | The average number of the administrative and engineering personnel |
| 13 | The average number of the production personnel |
| 14 | The number of recruited employees for vacant positions |
| 15 | The number of dismissed workers |
| 16 | The number of complaints (industrial conflicts) |

as the most preferable growth rates of the selected indicators in their mutual relation will be considered below.

According to the described algorithm of developing a normative dynamic model, the strategic goals can be expressed by arranging the selected indicators in compliance with the established most preferable interrelations between their growth rates.

So, if the strategic goal is formulated as the strengthening of competitive advantages through the growth of the activity scale, in this case, the outrunning growth of operating profit, compared with profit from sales, corresponds to this goal, and this can be expressed by the following arrangements of the pairs of the indicators:

$$T(\text{EBIT}) > T(S),$$

where S is the cost of sold products; EBIT is the operating profit for the reporting period.

If the strategic goal is the intensification of using the property (assets), then the outrunning growth in the sales revenues, compared with the cost of assets, corresponds to this goal, and this can be expressed by the following arrangements of the pairs of the indicators:

$$T(S) > T(A),$$

where S is the cost of sold products; A (Assets) is the average value of assets for the reporting period.

If the strategic goal is determined as the improvement of financial stability, the outrunning growth of net profit, compared with operating profit, corresponds to this goal, and this can be expressed by the following arrangements of the pairs of the indicators:

$$T(\text{EAT}) > T(\text{EBIT}),$$

where EBIT is the operating profit; EAT is the net profit for the reporting period.

From the further pairwise arrangements of the indicators expressing the strategic goals, it is possible to get a joint arrangement of the selected indicators of the first group, characterizing the efficiency of the top management activity and, consequently, the entire enterprise activity, what will serve as a basis for the further formation of the normative dynamic model, presented in Table 1.

In relevance to the second group of the indicators, characterizing the efficiency of the management system, the author will include the indicators characterizing the

efficiency of the management personnel activity in whole.

Currently, the problem of estimating the efficiency of the management personnel activity essentially comes down to measuring the information activity effect, which the management system is performing. The output result of the management system presents the products or services offered to customers, and consequently the efficient information efforts should be recognized only such ones, the implementation of which leads to a growth of the volume of sales and profit. If the demand for the products or services of the enterprise is falling, then the management activity cannot be estimated as efficient.

Estimating the efficiency of the management personnel activity, the availability of considerable reserves for increasing the intensity of the employees' work should also be considered. The results of their activities can vary not only due to the improvement of their working conditions and also due to their desire, motivation and the job satisfaction.

In this study as the general indicators of the efficiency of the management system in whole the following ones are selected:

1) Labour (Performance) Productivity, that is, revenue from sales of products (works, services) per one employee:

$$LP = S / R, \text{ (Labour Productivity),}$$

where

S is the revenue from the sale (the volume of sales) of products for the reporting period;
R is the average number of the production personnel for the same period.

2) Labour Costs Intensity of products (works, services):

$$LCI = LC / S, \text{ (Labour Costs Intensity),}$$

where

LCI is the labour costs intensity;
LC are the labour costs of all employees for the reporting period.

3) Administrative Personnel Labour Costs per sales revenue:

$$APLC = APLC / S, \text{ (Administrative Personnel Labour Costs),}$$

where

APLC are the administrative and engineering personnel labour costs.

4) Operating profit per sales revenue:

$$ROS = EBIT / S = (S - TC) / S,$$

where

TC is the total operating costs for the reporting period.

5) Sales Coefficient:

$$SC = S / P, \text{ sales coefficient,}$$

P is the amount of the production for the period.

6) Personnel Flowability:

$$PF = N / R * 100\%,$$

N is the number of employees, dismissed for the reporting period.

For the estimation of the individual management employee efficiency in this article, a set of the individual indicators is proposed:

- the personnel movement (the intensity coefficients of recruitment, retirement, replacement of the personnel, the coefficients of staffing and actual closing of vacancies);
- the labor discipline (the number of cases of being late for work, cases of absinthism, the omissions of working days without a respected reason);
- the job satisfaction (the coefficients of satisfaction obtained in the result of sociological testing and questioning, the number of complaints and industrial conflicts);
- the organizational structure (the number and the composition of the personnel, the age groups, the expert estimations of line managers, the number of links and the norms of manageability);

- the personnel qualification (the share of the engineering and administrative personnel in the overall composition of the employees, the average tariff coefficient of labour payment);
- the employees' creative potential (the number of submitted professional suggestions, the received awards for innovations);
- the cooperation level (the number of regular joint events, meetings);
- the costs for training and improving professional skills;
- the number of instructions, regulations and practices with initiative suggestions on the personnel management issues, worked out by the personnel management system.

Depending on the scale and industry sector, the system of the indicators considered in the article should be clarified. The combinations of these indicators give the opportunity to estimate comprehensively the management activity, to make the necessary conclusions about its efficiency.

All the above mentioned indicators give the possibility to determine the most preferable areas of their changes that may influence the management personnel efficiency. The most preferable direction of the change of the labour productivity indicator is the growth, reflecting an increase in output per one worker engaged in the production activity. The positive dynamics of sales revenue is interpreted as the growth of the enterprise activities scope. The low percentage of personnel flowability reflects the satisfaction of employees with their situation and working conditions. The growth of the job satisfaction coefficient shows the development of stimulation systems at the enterprise, the growth of the coefficient of making up the personnel characterizes the level of the demand of the enterprise vacancies. According to other indicators selected in this article for developing a normative dynamic model, it is possible to make the similar analytical

conclusions, as well as to determine the most preferable areas of their changes: labour costs intensity is a decrease, the administrative personnel costs is a decrease, the coefficient of job satisfaction is an increase.

Further, according to the algorithm of developing a normative dynamic model, it is possible to proceed with expressing the strategic goals by arranging the selected indicators in compliance with the established most preferable interrelations between their growth rates.

So, if the strategic goal is determined as the increase of the labour productivity, then the outrunning growth of the sales revenue compared with the average number of the employees corresponds to this goal, what can be expressed by the following arrangements of the pairs of the indicators:

$$T(S) > T(R),$$

where S is the cost of sold products; R is the average number of the employees engaged in the production activity.

If the strategic goal is to reduce the production costs, then the outrunning growth of the sales revenue compared with the average tariff coefficient of the production personnel (the average tariff coefficient for the remuneration of the production personnel) corresponds, in particular, to this goal, what can be expressed by the following arrangements of the pairs of the indicators:

$$T(S) > T(ALCC),$$

where S is the cost of the sold products, ALCC is the average tariff coefficient for the remuneration of the production personnel (the average coefficient of labour costs).

If the strategic goal is formulated as the development and modernization of the production, then the outrunning growth of the average tariff coefficient of the production personnel compared with their average number may correspond to this

goal, what can be expressed by the following arrangements of the pairs of the indicators:

$$T(ALCC) > T(R),$$

where ALCC is the average tariff coefficient for the remuneration of the production personnel (the average coefficient of labour costs); R is the average number of the employees engaged in the production activity;

$$\text{as well as } T(APLC) > T(R),$$

where APLC are the administrative and engineering personnel labour costs (the administrative personnel labour costs).

For the strategic goal determined as the development of the motivation systems, the outrunning growth of the job satisfaction level compared with the bonus payments may correspond to this goal, what can be expressed by the following arrangements of the pairs of the indicators:

$$T(SL) > T(B)$$

where the SL is the level of the personnel satisfaction; B are the bonus payments; and also $T(SL) > T(ALCC)$, SL is the level of satisfaction of the personnel; ALCC is the average tariff coefficient for the remuneration of the production personnel (the average coefficient of labour costs).

It is possible get a joint arrangement of all selected indicators from the further pairwise arrangements of the indicators, what will allow to develop the normative dynamic model presented in Table 1. According to the model developed by the author, the priority goals of the management strategy can be expressed by the normative

arrangement of the indicators, presented in Table 1, the maintenance of which will be able to contribute to achieving the highest efficiency of the management personnel activity at the enterprise.

It should be noted that the constructed normative dynamic model defines, according to the author, the most preferable (ranking) distribution of the growth rates of the key indicators for estimating the efficiency of the management personnel activity. All selected indicators are arranged in accordance with the established most preferable correlations between their growth rates, which is as follows:

$$T(1) > T(2) > T(3) > T(4) > T(5) > T(6) > T(7) > T(8) > T(9) > T(10) > T(11) > T(12) > T(13) > T(14) > T(15) > T(16),$$

where $T(i)$ is the respective growth rate, i – is the ranking up to 16.

The presented ranks distribution is determined by the assumptions that the maintenance of the given distribution during a long period of time in the enterprise's real activity will increase the management activity efficiency.

Having calculated the real growth rate of the selected indicators and having substituted the obtained values by the ranks, it will be possible to get the real dynamics and compare it with the etalon one. The deviation of the actual dynamics from the etalon one expressed, for example, through the coefficient of correlation between these two ranks will do represent the integral estimation of this dynamics, determined by the formula:

$$r = \frac{(\sum(Re Ra) - (\sum Re \sum Ra) / n)}{\sqrt{(\sum Re^2 - (\sum Re)^2 / n) * (\sum Ra^2 - (\sum Ra)^2 / n)}}$$

where

Re - are the etalon ranks,

Ra - are the actual ranks of the indicators.

The higher the obtained value of the correlation coefficient and the closer to 1, the closer the actual dynamics of the indicators to the etalon one.

„The normative dynamic model obtained in this research characterizes the etalon dynamics of the enterprise; in compliance with the obtained model the management strategy should be implemented.”

CONCLUSIONS

The normative dynamic model obtained in this research characterizes the etalon dynamics of the enterprise; in compliance with the obtained model the management strategy should be implemented. At the same time the model, which determines the strategic directions of the development of the enterprise, may be developed not by the only way due to the multidimensionality and the dynamics of the strategy as an economic value. Different enterprises may set the priorities of achieving their strategic goals differently.

Accordingly to this research, the author justified the distinctive features and systematized the recommendations on the realization of the system approach on performing the integrated analysis of the management activity efficiency; established the system of the indicators of the management personnel efficiency; also the author developed the normative dynamic model of estimating the efficiency of the management personnel activity and presented the recommendations on the application of the obtained model as the etalon arrangement of the indicators.

Thus, the obtained normative dynamic model can serve as a guideline for the integrated estimation of the management activity efficiency at the enterprise.

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