

## МЕТОДИЧНІ ПОЛОЖЕННЯ З АНАЛІЗУВАННЯ ТА ОЦІНЮВАННЯ КОМПЕТЕНЦІЙ УПРАВЛІНЦІВ МАШИНОБУДІВНИХ ПІДПРИЄМСТВ

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Розглянуто підходи вітчизняних та зарубіжних науковців щодо аналізування та оцінювання компетенцій управлінців машинобудівних підприємств. Досліджено основні складові компетенцій управлінців вітчизняних машинобудівних підприємств, а саме: знання, вміння, навички та особистісні характеристики. Розкрито сутність ефективної системи аналізування та оцінювання компетенцій управлінських працівників. Зазначено, що динамічність розвитку машинобудівних підприємств вимагають наявності чіткого інструментарію оцінювання компетенцій управлінців. Встановлено, що основною метою оцінювання компетенцій управлінців підприємств є отримання не лише об'єктивного аналізу ефективності застосування наявних знань, вмінь, навичок та особистісних характеристик під час виконання своїх посадових обов'язків, але і відповідність професійно-кваліфікаційного рівня займаний посаді. Досліджено, що розвиток компетенцій управлінців машинобудівних підприємств, як правило, призводить до зміни економічних показників діяльності підприємства та прийняття відповідних управлінських рішень. Відповідно, запропоновано методичні положення з аналізування та оцінювання компетенцій управлінців, що дадуть змогу керівникам та іншим зацікавленим особам встановити наявний рівень компетенцій управлінців машинобудівних підприємств. Отже, встановлено, що для аналізування та оцінювання компетенцій управлінців та їх впливу на фінансово-економічну діяльність на підприємствах доцільно дотримуватись запропонованих методичних положень, що сприятимуть підвищенню їх рівня.

**Ключові слова:** компетенції, знання, вміння, навички, особистісні компетенції, методичні положення з аналізування та оцінювання.

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## METHODOLOGICAL CONDITIONS OF THE ANALYSIS AND EVALUATION OF ENGINEERING MANAGERS' COMPETENCE

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The article considers the approaches of national and foreign scientists on analyzing and evaluating of engineering managers' competence. Investigated the basic components of management competencies domestic machine-building enterprises, namely knowledge, abilities, skills and personal characteristics. The essence of an effective system of analyzing and evaluating managerial competencies of employees. Indicated that the dynamic development of machine-building enterprises require a clear assessment of competence management tools. Established that the primary purpose of assessing competencies of managers of enterprises are receiving not only an objective analysis of the efficacy of existing knowledge, abilities, skills and personal characteristics while performing their duties, but also compliance with professional qualification level position. Investigated that the development of competence management engineering companies usually leads to changes in the economic performance of the enterprise and decision making. Accordingly, proposed the methodical provision of

**analyzing and evaluating management competencies that will enable managers and other stakeholders to establish the existing level of competency management engineering companies. Thus, it was found that for analyzing and evaluating competencies of managers and their impact on the financial and economic activities in the enterprise appropriate to comply with the provisions of the proposed methodology that will improve their level.**

**Key words:** competence, knowledge; capability; skills; personal characteristics, methodological conditions of analysis and evaluation.

**The formulation of the problem and its link with important scientific and practical tasks.** The analysis of scientific, methodological, applied materials concerning the issue of managers' competence evaluation allows claiming that our national engineering enterprises lack the formation and application of specific investigation conditions of managers' competence evaluation. The research under consideration has not been conducted yet. There exists certain foreign experience in this sphere, but according to the research recently conducted, foreign specialists fully concentrate on the learning of interconnections between the efficiency of the systems of evaluation and the results of strategic management at enterprises.

**The analysis of recent publications and research which were the first to touch upon the issue under consideration.** The peculiarities of the actualization of different types of competence of engineering managers' competence have been developed in the works by N. Burda, M. Holovan, O. Hura, O. Krushelnytska, V. Kryvcova, N. Kolysnychenko, O. Myhno, S. Nechipor, O. Obryvkyna, H. Osovska, Yu. Rashkevych, N. Talisin, T. Chervona, V. Shchadrykov, and others. In these works the definition of the notions "competence" and "competency" is provided. There is also a difference between the given notions explained, separate types of competencies are defined without their proper systematization, the components of the workers' competencies are described and the proper spheres of their application are defined, etc. Along with that, one should dwell upon the fact that a great number of problems important for economics have not been developed in the works by national and foreign scientists. One of the urgent problems is to define methodological conditions of the analysis and evaluation of engineering enterprises managers' competencies.

**The Aims of the Article.** The aims of the given article are to define methodological conditions of analysis and evaluation of engineering enterprises managers' competencies, which will be crucial for further research conducted in the given direction.

**Main Points Rendering.** A very important element of managers' competencies influence on the economic aspect of an enterprise activity is the research of their actual state and the perspectives of further development. The development of engineering enterprise managers' competencies leads to the change of economic indexes of activity of an enterprise and the managerial decision making process.

The formation of an effective system of evaluation of engineering enterprise managers' competencies and the increase of their professional level demands the managers of an enterprise or special institutions to constantly observe professional activity of their employees. Therefore, to define an actual state of competencies and their further development testing will help, which will allow an enterprise to:

- 1) Influence the level of knowledge, capability, skills of managers within their professional activity;
- 2) Influence the efficiency of the tasks fulfillment and the aims achievement;
- 3) Influence the skills of decision making in non-standard situations;
- 4) To impose the responsibility to make managerial decisions on the employees;
- 5) Influence the level of enterprise managers' competencies development with the help of motivational mechanisms, etc.

The look through and generalization of literary sources [1, 4, 7, 9, 11, 12] provides the possibility to more thoroughly analyze and reveal the entity of the evaluation and formation of engineering managers' competencies. Otenko I. [7, p. 106] claims that to form and develop the competencies we need an operation of the totality of strategic means, which should be individual for each enterprise and account for the

specificity of business-segment and actual situation of the staff. The author dwells upon that “it is not only important to correctly realize the whole choice of necessary actions, but also sequence different means”.

The processes of training, and preparation are held at every enterprise, but they are not always connected to the aims of an enterprise. The usually take place for the reason of being demanded by the official documents. In conclusion, such processes of training are ineffective and do not influence economic indexes of enterprise activity.

Therefore, to evaluate effectively managers’ competencies and their influence on financial-economic activity of an enterprise we should keep the following methodological conditions:

- the evaluation of engineering managers’ competencies on the grounds of knowledge, skills and personal characteristics, etc;
- the evaluation of engineering managers’ competencies on the grounds of functional and creative aspects of responsibilities fulfillment;
- the evaluation of engineering managers’ competencies on the grounds of responsibilities distribution among the managers;
- the evaluation of engineering managers’ competencies on the grounds of the analysis of influence of knowledge, capability, skills and personal characteristics to the level of enterprise tasks fulfillment which gives the possibility to evaluate the result capacity of its activity;
- the evaluation of engineering managers’ competencies on the grounds of analyzing of the influence of knowledge, capability, skills and personal characteristics to the level of aims achievement which provides the possibility to evaluate the efficiency of its activity;
- the evaluation of engineering managers’ competencies on the grounds of strategies analysis of a live cycle of enterprise production;
- the analysis of the evaluation of engineering managers’ competencies on the grounds of evaluation periodicity, etc.

The evaluation of engineering managers’ competencies on the grounds of the analysis of knowledge, capability, skills and personal characteristics means first of all the definitions of time deadlines which are core components of managers’ competencies:

- knowledge;
- capability;
- skills;
- personal characteristics.

The look through and generalization of national and foreign literary sources [1, 4, 11], and also the encyclopedic sources and dictionaries provides the possibility to more thoroughly analyze and reveal the content of the notions “knowledge”, “skills”, “capability” and “personal characteristics”.

L. Shevchuk [ 12, p. 144] claims that knowledge is a specific form of mental learning of the cognition results, of the process of reality reflection, which is characterized by the realization of their truth. Apart from this, the author attaches importance to “knowledge quality” – the correlation of the knowledge types (laws, theories, etc) with the elements of education meaning and with the levels of learning as well.

Main characteristics of the knowledge quality are:

- 1) completeness – this is the quality of programmed knowledge of the object of learning;
- 2) depth – the totality of reflected connections and relations between connections;
- 3) systematic means the learning of knowledge, skills in a certain logical connection, when essential peculiarities of the object of learning have a leading part and when taken in totality means a totality, a system;
- 4) efficiency – the ability to correctly and quickly fulfill these or those practical tasks;
- 5) flexibility – the ability to efficiently and quickly apply the knowledge in different circumstances;
- 6) precision;
- 7) generalization.

A Large Ukrainian Dictionary of Definitions [6, p. 1295] says that skills mean the ability and capability to do something. L. Shevchuk claims [12, p. 130-153], that capability are the way of action fulfillment learnt by a person, which is provided by the totality of knowledge and capacity acquired before.

The author mentions that the capacity are formed by way of exercises and creates the possibility of action fulfillment not only in usual but also in altered conditions.

Skills are the actions, the components of which become automatic in the process of formation. Possessing skills, human activity is held more quickly and productively.

According to A Large Modern Ukrainian Dictionary of Definitions [6, p. 552] a skill is an inclination or a need to act and behave in a certain way; the capacity acquired by exercising, experiencing. L. Shevchuk [12, p. 152-153] mentions that skills are the actions the components of which become automatic in the process of formation. According to the author, possessing the skills human activity is held more quickly and productively.

Thereby, capability may be defined as being ready to act precisely and consciously, and skills form an automatic link of this activity.

Personal characteristics are psychic human qualities needed for a successful professional activity, for responsible and correct managerial decision making, for instance responsibility, communicativeness, confidence, energy, initiative, stress resistance, emotional intellect, etc.

Nowadays, every manager on duty and fulfilling enterprise aims and tasks can acquire different competencies. This phenomenon is grounded by the alterations in scientific-technological progress and constant information renewal which is applied in professional manager's activity. That is why the efficiency and result capacity of positional duties mean the learning of new capability, skills, knowledge and personal characteristics.

Nevertheless, the issue of management and effective application of acquired competencies remains the most urgent. E. Azaryan distinguishes four types of competencies: obvious, hidden, applied and non-applied. So, to make acquired competencies directed to a result we need first of all to distribute the acquired knowledge, capacity, skills and personal characteristics into the primary and secondary.

The evaluation of engineering managers' competencies on the grounds of the analysis of knowledge, capability, skills and personal characteristics will provide the possibility to:

- define the obvious level of knowledge, capacity, skills and responsibility of each employee involved in the process of management;
- define the competencies a manager needs for professional activity and not to make efforts to acquire less important competencies;
- supply the fulfillment of positional duties aimed at a result;
- influence the level of the development of knowledge, capability, skills and personal characteristics by way of learning, preparation, re-preparation and training, etc.

Thereby, the evaluation of the managers' competencies according to their components (knowledge, capability, skills) provides the possibility to evaluate the realization of obvious managers' competencies with the help of personal characteristics (initiative, being determined, inclination to leadership). Apart from that, the analysis of bibliography shows that the manager should combine all the above mentioned competencies components to work effectively.

The evaluation of engineering managers' competencies on the grounds of functional and creative aspects of responsibility fulfillment. Functional aspect of duties fulfillment means the enterprise managers' tasks fulfillment according to a positional instruction:

- rational distribution of functional duties among managers;
- even workload of managers;
- increase of timeliness and reliability of tasks fulfillment due to quality indexes application;
- managers' responsibility increase for timely and qualitative tasks fulfillment, etc.

Managers' competency evaluation on the basis of functional aspect means the formation of functional card, which defines managers' functional duties and their quantitative indexes. Functional card is presented in a table form where certain notes are made.

Creative aspect of responsibilities fulfillment means the application of non-standard, creative thinking of an employee, the ability to produce new and extraordinary ideas, the capability of an employee to apply one's knowledge, capability and skills in the process of non standard situations.

Managers' competency evaluation on the basis of creative aspect means the formation of creative card, where the tasks fulfilled by an employee are noted and non standard methods and creative thinking are mentioned as well.

Such an approach towards the competency evaluation analysis will allow finding out to which extent managers apply their competencies while doing their positional duties and during decision making process as well.

The evaluation of engineering managers' competencies on the basis of duties distribution among the managers means the quality and completeness of the tasks to fulfill to the person who is entitled to do it.

O. Kuzmin and O. Melnyk [3, p. 98] claim that the responsibility is – “the duty imposed on a certain person to fulfill certain tasks and ensure their positive outcome”. The authors are convinced that the responsibility has a double peculiarity. That means that a manager who is entitled to some task also receives the responsibility to fulfill a certain positional task. On the other hand, the person entitled remains responsible as well which guarantees in its turn a qualitative fulfillment of the task.

The evaluation of engineering managers' competencies on the basis of the analysis of the influence of knowledge, capacity, skills and personal characteristics on the level of enterprise tasks fulfillment necessary to define the results capacity of its activity. The evaluation of knowledge, capacity, skills and personal characteristics should be made to inform the authorities about a relative level of their work, show their pros and cons, promote their improvement and development.

The research of competency influence on the tasks fulfillment level directed to the definition of the level of tasks fulfillment efficiency, in other words to the evaluation of the influence of knowledge, capacity, skills and personal characteristics lies in the correlation of the results of work to a planned indices and norms of engineering.

As it is known, the engineering managers' competency evaluation on the basis of the analysis of the influence of knowledge, capability, skills and personal characteristics on the level of tasks fulfillment for different categories of managers can be different, since it is connected to the difficulty of tasks imposed and impossibility of their comparison.

To research the influence of managers' competency one can following certain factors of result capability which manifest themselves during the fulfillment of the tasks imposed: efficiency, tenseness, work intensiveness, work difficulty, work quality, etc.

O. Matrosov [4, p. 224] dwells upon that “unlike direct indices of work results indirect ones characterize employee's activity according to the criteria relative to “ideal” allusions about that how we should fulfill positional duties, which are the basis of a certain position, and about which qualities must be manifested in connection to that”. The author attaches importance that the method of points is the most frequently used the entity of which lies in giving points (marks) in dependence on the tasks difficulty and the quality of their fulfillment.

So, engineering managers' competency evaluation on the basis of the analysis of knowledge, capacity, skills and personal characteristics influence on the level of tasks fulfillment provide the possibility to define the engineering manager's responsibility; define the results of one's work, learn the results of one's work, the level of knowledge, capability, skills and personal characteristics of every employee during the process of his responsibilities fulfillment; ensure a precise understanding of every manager of the tasks imposed on him and the criteria of the evaluation of success of their fulfillment.

The evaluation of engineering managers' competency evaluation on the basis of the analysis of knowledge, capability, skills and personal characteristics influence on the level of aims achievement of an enterprise lies in the definition of the efficiency of its activity. The analysis of the influence of knowledge, capability, skills and personal characteristics on the level of aims achievement of an enterprise means the setting of specific goals for managerial staff and the discussion of their subsequent achievement. The action and situation modeling with the aim of achievement of certain aims will provide the possibility to define the capability of obvious managers' competencies.

K. Didur in his research distinguishes the main principles of the system of aim achievement:

1) the system of management is oriented on the achievement of interrelated and interdependent quantitative and qualitative aims;

2) the aims have horizontal position. In the heart of the aims of separate subgroups and personal aims of employees' there should be the aims of an enterprise;

3) special attention is attached to the interrelation of aims of business and development of employees' key competencies.

The author claims that the basis of motivation system is the level of aims achievement, in other words this is an award to engineering managers and it in general depends on the results acquired and the ways of obvious knowledge, capability, skills and personal characteristics application.

Thereby, engineering managers' competency evaluation on the basis of the analysis of knowledge, capacity, skills and personal characteristics influence on the level aims achievement of an enterprise means the process of the definition of employee's activity efficiency as a result of which the level of the aims imposed is set, and also the correlation of obvious knowledge, capability, skills and personal characteristics, that means of these abilities of an employee with the help of which a received result is evaluated.

Keeping to the given principle will provide the possibility to define a real place, part and every engineering manager's responsibility horizontally and vertically, define the result of work, the level of knowledge, capability, skills and personal characteristics of every employee; ensure precise understanding of the tasks, criteria of the success of their fulfillment, dependence of the paying system of the work results; the establishment of a rewards with employees in terms of organization and other issues; manager's needs satisfaction in the evaluation of a personal contribution to an enterprise success; the formation of motivational atmosphere and corporative culture; the work out of the program of purposeful development, learning, preparation, training of engineering managers.

In the conditions of economic development of engineering enterprises it is very important to concentrate on the efforts of the production of the stuff which is on different stages of life cycle. Obviously, engineering managers should possess certain groups of competencies which would be relevant to this or that stage.

As it is known from bibliography [2, 5, 8, 10] there exist such stages of a life cycle of enterprise production as birth, childhood, youth, adulthood, age and revival. Let us analyze each stage of a life cycle of enterprise production and define the necessity of possessing certain types of managerial competencies.

The first stage is birth. Thereby, on the given stage the amount of sales is not essential, nevertheless this stage demands great contribution. For the production to take a niche at the market it is necessary to create effective commercial campaign which demands large expenses and is time consuming. Relevantly, to promote such production a manager should possess such competencies as strategic vision, strategic thinking, the ability to predict short and long term perspectives, initiative, rational activity, determinacy, responsibility, creative thinking, etc. The competencies mentioned above will make up the basis for further production promotion, since consumers' acceptance of the production will depend on primary efforts, knowledge, capacity, skills and personal characteristics.

The second stage of production life cycle is a childhood. At the given stage there is a rise of the production amount. The majority of engineering enterprises being at the stage of "childhood" fail due to lack of competency and professionalism of managers, which reflects on their financial-economic activity, which in its turn leads to negative results. Given stage is characterized by a forceful competitiveness of production. Managers' part at the stage of a life cycle "childhood" lies in the supply of stable production development. That is why in such a competitive environment a manager needs to apply one's creative knowledge and skills and also entrepreneur talent. Apart from this, a manager should accomplish a constant monitoring on the production state and also observe the position of competitors.

If the production of an enterprise is competitive and gained a certain part of a market at the stage of "childhood" in this case it shifts to another stage of a life cycle. Youth is the next stage of a life cycle. The main purpose of this stage is the insurance of production rise and covering as much of a market as possible. To reach the goal at the given stage we should coordinate all the knowledge, capacity, skills and personal characteristics onto the learning of the branch. Thereby, it is necessary to ensure not only consumers' acquaintance with the production but also their favor to it. According to the above mentioned, the main demands to managers at the given stage are the knowledge of normative law, the learning of regularities of

the market, the knowledge of main procedures and methods of promotion, a work out and promotion of production models, a work out and application of diagnostic means of production, the creation of sales channels, conducting negotiations with the partners. A manager should also possess such personal qualities as initiative, determinacy, communicativeness, honesty, decency, hard-working, etc.

The fourth stage of a production life cycle is adulthood which is connected to the penetration of production into new spheres of activity. Managers of enterprise at the given stage feel themselves safe since consumers are well-acquainted with the production and enterprise image. Nevertheless, in the given situation the knowledge and skills of the building of the system of production development are key notions apart from the above mentioned ones since the stage of adulthood is characterized not only by stability but also by the rise of a market part due to the absorbance of smaller enterprises. That is why, as a result of this managers should keep to the principles of team work (readiness to cooperation, the ability to work in a team, the skills to solve the conflicts, the skills to conduct negotiations, etc), applying socio-communicative competencies and emotional intellect.

The age is the fifth stage of a life cycle of enterprise production. The peculiarity of a given stage is a lack of new ideas concerning the development of production, that is why managers' main task at this stage is the search of ways and methods of struggle for survival and the production stability. Thereby, knowledge, capacity, skills and personal characteristics connected to the processes of initiating and new changes implementation will be important for managers.

The stage of revival is characterized by new views concerning the development and improvement of an enterprise production with the application of knowledge, capability, skills and personal characteristics of managers by way of training and retraining. The main purpose of this stage is a reactivation of production sales tempi in the presence of new managers' competencies.

Thereby, engineering managers' competencies evaluation on the basis of a life cycle analysis means the application of managers' competencies in a certain stage of production life cycle (birth, childhood, youth, adulthood, age, revival) with the aim of their promotion and sales. Such analysis provides the possibility to observe the efficiency and result capacity of managers' positional duties fulfillment with the application of their knowledge, capabilities, skills and personal characteristics, as a result of what we can fulfill the evaluation of obvious competencies during enterprise production promotion at a particular stage of a life cycle and apply certain ways of improvement.

Judging by the aims, tasks, the elements of employees' competencies analysis we can claim that the building of model of managers' competencies evaluation at every enterprise is of the urgent importance and responsibility. First of all, the importance of analysis is accompanied by the definition of such evaluation periods, the frequency of evaluation is meant here with the aim of engineering managers' competencies state.

As it is known from the literary sources [4, 9] with the view on regularity the evaluation process is conducted with the following periodicity:

- regular evaluations which are constantly held;
- intermittent, held once a term (a year, per two years);
- Episodic, which are caused by a certain situation (the end of a probe term, promotion, disciplinary responsibility means, etc) [4, p. 113].

The periodicity of managers' competencies evaluation is defined by the authorities of an engineering enterprise. As a rule, managers' competencies evaluation with the purpose of their state at engineering enterprise is conducted once a year. Nevertheless, in case of emergency (production quality decrease, sales amount) managers' competencies evaluation can be conducted more often ordered by authorities with the help of such deterioration reasons search.

Engineering enterprise managers' competencies analysis on the basis of evaluation periodicity will provide the possibility to compare the level of managers' competencies for a certain period of time and also in case of need to take relevant measures concerning their improvement and development if there are any deviations. Apart from this, engineering enterprise managers' competencies evaluation on the basis of

periodicity of evaluation will facilitate the solution of such problems as: employees' promotion, working process rationalization, work improvement, organization improvement, employees' motivation efficiency, training, retraining of managers, etc.

**Conclusions and further research perspectives of the problem.** Keeping to the above mentioned methodological conditions will allow following an obvious level of engineering enterprise managers' competencies and in case of need taking some measures and corrections in case of deviations since it will influence the financial activity of an enterprise.

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