

## ASSESSMENT OF EMPLOYEES' CREATIVE ACTIVITY IN MODERN CONDITIONS OF INTELLECTUALIZATION OF THE ECONOMY

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**Abstract.** Current trends in the world economy determined the innovative vector of its development on fundamentally new bases: information and intellectual technologies, knowledge, and creativity. In modern conditions, enterprises and countries can increase their level of competitiveness through implementation policies supporting the creative activity of employees. The *purposes* of the article are to investigate the essence of creativity, the theoretical foundation of employee's creative activity, its relation to art and methodological bases of employee's creative activity evaluation taking into consideration the level of world economic development. *Methodology.* The theoretical and methodological frameworks of the study are research results of scientists in the field of employees' creative activity investigation and own research proposals. In order to achieve the goal of the article, the following methods are used: generalization – in the critical analysis of scientific approaches to establishing the definition of employee's creative activity; comparison – in the process of comparing creative activity and art; index method – to propose the methodology of employee's creative activity assessment; systematization – to identify elements of the relative index of creative potential; cause and effect method – for obtaining final conclusions. *Results.* The creative activity of employees is an external manifestation of intellectual and cognitive abilities of a person, aimed at the changes in tangible, intangible or managerial objects, which are expressed in the generation of new ideas and their implementation in a practical result. It also manifests in the creation and application of innovations for the purpose of obtaining an economic or social effect. It is closely related to high intelligence, art, self-evaluation and motivation of the employee. The study also determines two main indexes of evaluation of the creative activity of employee – index of creative activity and relative index of creative activity. The relative index of creative activity includes such elements as choice rationality of the sphere of creative energy manifestation, biosocial indicator of creative energy, index of employee's health, index of socio-psychological state of an employee, professional experience of employee, level of employee's intelligence, and index of compliance the workplace with the standards. *Practical implication.* The proposed methodology of employee's creative activity assessment can be applied at enterprises in order to evaluate its current level and to improve the efficiency of the remuneration system. It is also clarified that increasing the creative activity of employees will raise the efficiency of the system of enterprise's creative management as a whole. *Value/originality.* The investigation underlines the peculiarities of employee's creative activity from the psychological and economic points of view and describes the methodology of employee's creative activity assessment, as well as evaluation efficiency of the system of an enterprise's creative management. Further researches should be aimed at the improvement of motivation mechanism for employee's creative activity encouraging as a tool for increasing competitiveness of enterprises.

**Key words:** creative activity, employee, art, economy, enterprise, creative component, index of creative activity, intelligence.

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## 1. Introduction

World economic trends prove that the current model of economic development is formed on fundamentally new bases: information and intellectual technologies, knowledge, and creativity. They are radically modernizing traditional models and determine the future of economic development of a country.

Creative industries, innovations, and knowledge are gradually replacing the traditional spheres of the economy. The dynamic growth of creative activities and their profitability change approaches to the formation of strategic directions of economic development. In regard to this, issues of setting conditions for the generation of creative ideas and the formation of a special creative environment become highly relevant. In such a case, the creative environment emphasizes the disclosure and further development of the creative potential of employees. It also should be noted that employees' creative activity is one of the most important elements of the resource potential of an enterprise and it results in more effective use of all other types of enterprise's resources.

Great attention is paid to the matter of employees' creative activity in scientific papers of such foreign scholars as G. Hawkins, R. Florida, E. Hagen, J. O'Connor, A. Maslow, T. Fleming, and others. Issues related to the development of the creative economy and to the assessment of the creative potential of labour resources have been presented in some papers of Ukrainian scientists: I. Vakhovich, O. Chul, S. Kyrzyuk, V. Lepsky, M. Kovbatiuk, Kh. Loshkovskaya, T. Bozhydarnik, L. Melnik, A. Mikhno, O. Yamstremskaya, O. Bardadym, and others.

The majority of investigations are focused on the key features of the transition to a creative economy. These are the ability to combine creative thinking, innovative ideas, culture and the advanced technologies, as well as to establish a new type of market relations in order to improve the quality of life and to ensure dynamic socio-economic development. Therefore, the foundation of society's development should set up favourable conditions for the development of the creative potential of an individual (Vakhovich, 2014).

According to the draft of "Human Development Concept of Ukraine" (up to 2020), intellect, education, professional experience, social mobility, and the ability to creative and innovative thinking in professional and social life are recognized as the main components of national wealth and the main resources of further development.

Despite the significant contribution of foreign and national scholars into the investigation of theoretical background and practical issues of creative economy, further research in the field of creative activity of employees is required. Analysis of scientific researches shows lack of uniform approach to the substantiation

methodology for evaluation of employees' creative activity in terms of modern intellectualization of economy.

The aims of the article are to investigate the essence of creativity, the theoretical foundation of employee's creative activity, its relation to art and methodological bases of employee's creative activity evaluation taking into consideration the current level of world economic development. For this purpose, the investigation underlines the peculiarities of employee's creative activity from the psychological and economic points of view and describes the methodology of employee's creative activity assessment, as well as evaluation efficiency of the system of enterprise's creative management.

## 2. The concept of creative activity of employee and its main elements

The growing need of the economy in employees who are capable of a creative approach to any tasks, of the nonconventional and qualitative solution to existing problems is caused by the acceleration of society's development and the necessity to live and work in rapidly changing conditions (Yastremskaya, 2013).

Creativity (from Latin *creo* – to create) – the ability to create, which predetermines a new unusual vision of a problem or a situation.

Creativity and its importance for the country's economic development are the subjects of many discussions and investigations.

A. Maslow (1954) divides creativity into three types: the first level is the result of the action of primary motives; complex mental processes of analysis, systematization, and comprehension are the second level; "integrated" creativity integrates two previous types.

F. Barron, D. Harrington (1981) define creativity as a new approach and a result of emotional distortions that misrepresent the "normal" vision of the world or as the ability to bring something new to experience.

Alan Iny (2014), Senior Specialist in Creativity and Scenario Planning at Boston Consulting Group and co-author of the book "Thinking in New Boxes" (2013), emphasizes that creativity means changing the way of seeing the world and can give you the opportunity to see new products, rethink business processes or transform the entire industry.

Jordan Ayan (2012), Executive Director of the international consulting company "Create-It!", an expert on creativity and the author of the book "10 Ways to Free Your Creative Spirit and Find Your Great Ideas" (1996), underlines that creativity has become one of the most important personal and business strategies for prosperity and success. Creativity is considered to be as a form of art, not a business tool. He thinks that creativity is as a source of starting companies' profit growth. Therefore, according to his opinion, creativity can be regarded as a powerful business tool which

enables successful management of employees and the company as a whole.

The natural creative component is laid down at the genetic level of each person and its nature differs in size and vector. Thus, some employees have creative abilities in the non-productive sphere, the others – in the material transformation of the environment (the creation of material and economic products), some of them have an advanced vector, aimed at the spiritual transformation of the world (the creation of spiritual or economic-intellectual products).

Having a certain level of creative component, any person firstly reflects in his mind the investigated segment before performing the task. This segment can be changed or remains unchanged in the future. At this stage, there is a creative component that can potentially transform the surrounding world into a subject. This component depends on the level of creativity of any person and can be measured, for example, by the level and volume of knowledge of the surrounding world.

The researches have shown that creativity is often identified as art. So, the process of art is a search for new or unknown things in the world. Psychologists define art as an activity, which generates new material and spiritual values. It is noted that the distinguishing features of art activity are originality and socio-historical uniqueness. A deep personal vision expresses in the art work and, without it, the subject of creativity doesn't practically exist. It reveals the need for personal self-expression, self-actualization, and expansion of creative abilities (Tututshkina, 2009). The components of art activity are artistic expression, art position, and work.

Self-expression in art is manifested in what way a person responds to the environment, trying to express own attitude, motives, and feelings in the daily activities. Art position means an open, flexible and independent way of responding to the environment. Work of art is created as a new form.

A person in art receives and conveys information, has an impartial position, possesses a positive interest and the ability to listen and especially important quality of such a person is the desire to improve own goals, views, and motivations.

We agree with the conclusions of the psychologists but the above-mentioned qualities of the person in art do not adequately correspond to the essence of the intellectual and creative activity of the employees of an enterprise, which is the primary source for intellectualization of economy and is associated with advanced technologies and production of high-tech products.

There is a significant correlation between creativity and intelligence. Hence, an employee with an inadequate level of IQ as the main intelligence tool may not be able to generate and implement creative ideas. At the same time, the maximum IQ value does not guarantee the maximum creative potential of the employee. That is why it is not a sufficient condition for it.

To sum the views on creativity up, we can distinguish three main approaches to determining the creativity of employees of an enterprise:

- all employees can be creative (Maslow, 1954; Taylor, 1988; Mikhno, 2017);
- only persons with art skills are creative (Bogoyavlenskaya, 2016; Efroimson, 2002; Tututshkina, 2009; Melnyk, 2017);
- creativity is inherent only to employees with high intelligence (Spearman, 1927; Terman, 1958; Wechsler, 1958; Bozidarnik, 2015).

The growth of new knowledge is the primary source of future environmental transformation, which can be realized or not realized in practical activity in the future as a result of using the creative component in order to achieve set goals. This task is solved by the creative activity of an employee, which is aimed at the management of this process through the search for rational ways.

The creativity of an employee as the ability to art is not a sufficient condition for his effective activity since the criterion is not only the generation of creative ideas but also the possibility of their implementation in order to obtain the appropriate effect.

The considerations mentioned above require a generalization of the concept of creative activity. Thus, the creative activity of employees is an external manifestation of intellectual and cognitive abilities of a person, aimed at the changes in tangible, intangible or managerial objects which are expressed in the generation of new ideas and their implementation in a practical result. It also manifests in the creation and application of innovations for the purpose of obtaining an economic or social effect. It is closely related to high intelligence, art, self-evaluation, and motivation of the employee.

### 3. Methodological tools of employee's creative activity assessment and enterprise's creative management system evaluation

"...There are a lot of people who create new things or defended the old ones..." (Barron, 1981), therefore, changes as a result of creative activity are the subject of further economic operations. They can be expressed through the indicator *KN*. This indicator satisfies the needs of market subjects (Bogoyavlenskaya, 2016).

$$KN = Nn - No,$$

where: *KN* – an indicator of changes increment, which manifests in the new state of the object of creative activity (*Nn*) in comparison with the existing state (*No*).

We also propose the work of human intelligence, which is manifested through the generation of creative ideas, to be evaluated through the index of creative activity *Ka*.

$$Ka = \frac{KN}{t} \cdot K_n,$$

where:  $t$  – time spent by an employee on implementing changes;

$K_n$  – relative index of the creative potential of an employee.

The economic indicator of the creative activity of an employee ( $Ka$ ) is expedient to express in the changes of products as a result of creative ideas to the duration of time spent on their implementation.

Then the economic indicator of the creative activity of an employee should tend to its maximum value ( $Ka_{max}$ ):

$$Ka_{max} = \frac{KN_{max}}{t_{min}} \cdot K_{nmax}$$

The degree of creative activity of an employee depends on a significant number of variable internal and external factors, which can minimize or maximize the creative potential of an employee. That is why we propose to take into account the influence of the relevant factors in calculating the relative index of creative potential as follows:

$$K_n = \frac{K_1 + K_2 + K_3 + K_4 + K_5 + K_6 + K_7 + \dots + K_m}{m}$$

where  $K_1$  – choice rationality of the sphere of creative energy manifestation;

$K_2$  – a biosocial indicator of creative energy;

$K_3$  – index of employee's health;

$K_4$  – index of the socio-psychological state of an employee;

$K_5$  – professional experience of the employee;

$K_6$  – the level of employee's intelligence;

$K_7$  – index of compliance the workplace with the standards;

$K_m$  – index represents the possibility to extend the number of factors;

$m$  – a number of factors.

It should be noted that the level of changes in the indexes, which are included in the calculation of the relative index of employee's creative potential, ranges from 0 to 1.

Thus, the relative index of employee's creative potential ( $K_n$ ) depends on the choice rationality of the sphere of creative energy manifestation and is the correct place of creative activity. If a particular employee does not show creative abilities at a particular workplace, this indicator is 0. This situation may be due to the fact that he does not match his job as each type of intelligence has the proper types of tasks, which can be managed in accordance with his psychotype. Otherwise, if an employee shows creative ideas, this indicates the correct choice of workplace and the index will be equal to 1.

A biosocial indicator of creative energy is characterized by a number of abilities of an employee in spiritual ( $K_s$ ), material ( $K_t$ ), and managerial ( $K_o$ ) spheres and can be defined in relative units:

$$K_2 = K_s + K_t + K_o$$

It should be noted that there are more than 2000 tests. They can be applied to assess the biosocial index: physiological tests, projective tests, personal questionnaires, and others.

The biosocial factor of the creative activity of employees includes the genetic and social components, which explain the causes of the industrial revolution and it took place only over 200 years ago. The previous millennium was characterized by a certain technical "stagnation" because the biological or genetic component of the creative activity of certain prominent people was exploited for centuries. For a great number of years, the social component of creative activity (its level depends on the degree of social development of society) was formed not at a revolutionary pace, therefore, only some of the most gifted people advanced science, technology, art, etc. Such individuals, due to their high natural creative potential, were able to create such objects and means of labour and changed social relations established over the centuries. This led to the organization of serial production and then of mass production of goods. Objective preconditions for social activation of corporate creative activity arose and initiated the industrial, scientific and technical, socio-technical, and economic revolutions. It significantly improved the quality of life of the population.

Index of employee's health can be defined as the ratio of an actual number of working days to the maximum possible working days per year.

Index of socio-psychological state of an employee is determined on the basis of appropriate tests, taking into account the level of emotional intelligence. If the positive direction is defined – the indicator is equal to 1, if the direction is neutral – 0.5, and if the direction is negative – 0.

The professional experience of an employee is determined on the basis of his compliance with the competencies, which define professional skills in consideration of basic education and work experience in the relevant field. To our opinion, the critical period from "absorption" of professional knowledge to its "useful effect" is the term over five years, which determines the value of the indicator from the minimum 0 to the maximum 1.

The level of intelligence of an employee is assessed on the basis of determining the level of IQ. Taking into account the thoughts regarding the correlation of creativity and intelligence, the level of this indicator above 110 points can be considered as the sufficient factor for the development of creativity. At this level of IQ, the value of this index will be the maximum, that is, equal to 1.

It should be pointed out that the level of IQ is determined in view of the following disadvantages in the testing of employees:

- a person who constantly works with psychological tests has a more advantageous position than a novice;

- time limits;
- the employee's attitude to the procedure;
- the test results are determined by the author of the tests only, who is not always objective;
- only mentioned test decisions are taken into account.

In addition, as Ch. E. Spearman points out, marks for knowledge tests are often unable to predict performance because they cannot measure how knowledge and skills will be used at work. Firstly, many tests of knowledge measure mechanical memorization, while the ability to find information is really important. Remembering specific facts is less important than knowing where to find them when it is necessary. Secondly, knowledge tests measure the ability of a person to choose the right answer from several options, rather than the ability to act on the basis of his knowledge. Finally, knowledge best predict what a person can do and not what he will do (Spearman, p. 10).

Index of compliance the workplace with the standards is calculated as the ratio of actual instruments, sources, and methods for obtaining and transmitting information used for creativity to the required ones.

Management of working process is the prerogative of the administration of an enterprise that must ensure the formation of rational behaviour of employees to achieve their business goals. The purpose of this administration is to create the maximum interest of the staff in the working process. In this case, the goal will be achieved only with the maximum coincidence of mentioned above vectors and the deviation of these vectors should be minimal.

In accordance with the specifics of an enterprise's activity and the influence of the relevant factors, the list and the number of indexes included in the calculation of the relative index of creativity of an employee may vary.

Depending on the values of economic indicators of creativity, it is expedient to rank them from the maximum value to the minimum. The material incentives should be made for employees of an enterprise according to the rank. If an enterprise uses a grading system of remuneration, the inclusion of this indicator is mandatory.

The growth of the social component of creative activity is expressed due to the increase of educational vectors of personality's development. That is why the main aspect of state policy, firms, and corporations,

including the development of high-tech industries, will be the task of developing programs in order to raise the level of education of employees. Experience, skills, professional development, social stability, a healthy lifestyle can increase the level of "creative impact" of employees.

Increasing the creative activity of employees will raise the efficiency of the system of an enterprise's creative management as a whole (Table 1).

The system of using creative activity, as well as socio-economic systems, develops according to the law of the "spiral." At each turn of the spiral development of society, the growth of the creative index is carried out. At the same time, the environment directly affects the creative activity of an employee.

#### 4. Conclusions

The proclamation of entrepreneurship as the main driving force of economic development does not take into account the fact that it cannot be limited only to the initiative and level of creativity of entrepreneurs themselves. Only the corporate creative component of all the subjects of market relations (both managers and executors of business projects) is able to solve the task of economic recovery. As long as the social state of society does not pass to an equilibrium state, the creative activity of those subjects, which must spend it on solving economic problems, will be spent on solving social issues. Another important problem of the current state of development of the creative activity of employees is the decline in the level of common cultural and moral values. This is especially important for the mentality of our society. These categories were among the most important in the development of the country's economic potential. For the recovery of the national economy, it is necessary not only to declare the importance of business development but also to develop and maintain the social significance of every citizen. A potential employee will improve the state of the economy of the country by all means. In this way, certain conditions will be created for the growth of the potential of creative activity not only in the field of advanced technologies but also in the field of production of consumer goods. It will result in balancing the competitiveness of domestic products with European counterparts.

Table 1

#### Criteria of an efficient system of enterprise's creative management

Criterion	Method of calculation
Index of realization of creative ideas	The ratio of the number of realized creative ideas to the total number of promoted creative ideas
Index of the intensity of the process of making creative decisions	The ratio of the number of creative decisions to the duration of the period during which creative decisions were developed
Index of the rationality of creative decisions	The ratio of the number of creative decisions from which the expected effect was obtained to the total number of creative decisions
Index of economic efficiency of creative decisions	The ratio of the effect of implementing creative decisions to the total costs of their implementation

Thus, in current conditions of the informative “boom” the need for a national economy in creative employees increases. Such employees can apply accumulated previous knowledge, as well as create new products, services, technologies, which differ from similar by novelty approach and creative solutions. Increasing the creativity of employees, as a process of finding and applying

innovative solutions, becomes one of the main sources of creating added value and competitive advantages of a modern enterprise. The key to increasing the creative activity of employees is its effective motivation, which is based on the assessment of creativity in the overall results of an enterprise. Types of such motivation and its general mechanism are the subject of further research.

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