DOI: 10.24234/wisdom.v2i1.776
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THE DEVELOPMENT OF CREATIVE ORGANIZATION POTENTIAL IN THE CONTEXT OF INTELLIGENT PRODUCTION

Abstract

This study aims to determine, from the standpoint of the philosophy, the creativity of approach to measuring and specifying the components of the creative potential of an organization to assess its level and further development in the conditions of the intellectualization of modern production. The subject of the study is the interaction of the components of creative potential. The study's hypothesis builds on the problem of the multi-aspect nature of the industrial activity, what in the conditions of digitalization and the use of artificial intelligence requires creativity in various subject areas.

Research objectives: to reason the scientific approach of structural and logical 'dissection' of creative potential to identify its key components; to develop the structure of the creative potential; to determine methods for measuring the components of the creative potential of the organization. The authors proposed a structural and logical model to form and develop creative potential. The integrating module of this model is a four-component creative group of interacting subpotentials, selected by subject-functional areas: subject-functional: intellectual-innovative, industrial-technological, organizational-economical and socio-cultural since the results of creativity are concentrated in these areas and can be measured in specially selected indicators.

Keywords: interaction of components of the creative potential, intellectualization of production, multiple intelligence, assessment of the creative potential of the organization, the structure of creativity.

Introduction

The problems of developing creative potential are always in the focus of philosophical thought since creativity is the main component of the culture in any society. The essence of the philosophical interpretation of creativity is in its unity with the working activity of people. As an integral element of society, A person develops their personality and creative potential precisely in the process of working activity that transforms the world around them (Chiaradonna, 2009; Ermakova & Sukhovskaya, 2016).

In the process of working activity, people unite in socio-economical organizations, including industrial ones. The peculiarity of such organizations' activity is that the creative potentials of individuals are integrated into the total potential of the organization. In this case, the development of the total creative potential becomes the prerogative of the organization's management. Most industrial organizations in Russia realize that it is time to replace automatic control systems with intelligent ones since priority technologies are those that provide flexibility in production processes and closer communication with consumers. Forming a flexible production environment based on intelligent technologies is associated with a change in the nature of work and the need to master new competencies. The role of creativity, generation and implementation of new ideas is increasing. Thus, there is a need

to manage the formation and development of the organization's creative potential as a fundamental factor of the qualitative technological jump in modern production. Management efficiency of any phenomenon or a process is really only on the condition that its specific parameters are measurable. The problem of the objective measures lack of creative potential is revealed. Usually, psychological testing, scoring and expert methods of creativity assessment for individuals are used. At the same time, there is no attempt to integrate individual potentials into the total creative potential of the organization. Due to this, the authors propose a subject-functional approach to forming complexes of indicators for assessing creative potential while continuity in belonging to an individual - group – organization is kept, which is the scientific novelty of this research.

Methodology of Accounting for Multifactorial Creativity

Reliable planning of the potential creative development of the organization is possible only if it is measurable. Even though creativity and creative potential arouse close attention and continuing interest, objective measures are still absent (Bonetto, Pichot, Pavani, & Adam-Troïan, 2021). We decided to follow the path of structural and logical 'dissection' of the creative potential of the organization considering the features and interests of the production system (selecting its components, determining the characteristics of each component) in order to propose then a set of indicators for the integral assessment of the creative potential, taking into account the multifactorial creativity. Within the study, various theories of creativity were analyzed by J. Guilford, R. Sternberg, T. Amabile, S. Barsade, J. Mueller, B. Staw, F. Barron, D. Johnson, S. Mednik, E. Tunik, T. Lubart and others.

This allowed us to form our own approach to measuring creative potential, considering its multifactorial nature and the manifestation of creativity in various subject areas, based on constant updating of knowledge and skills to increase the efficiency of the multiple intelligence use.

Analysis of Definitions Presented by the Creative Potential of the Organization

The term 'creativity', which came to us from the English language, is used by domestic researchers in different meanings and is the subject of fierce discussions in terms of its terminological essence, demonstrating opposite ideas, or equalizing them (Taylor, 1988; Runco, 2007; Kaufman & Glăveanu, 2019).

In our opinion, the concept of 'creativity' is narrower than the Russian analogue. Creativity, a person's ability to perceive new things and find non-trivial solutions for problems, as their non-standard, divergent and convergent thinking, should be considered a generator of creative processes. Moreover, creativity is pragmatic in essence, since the objective of creating a new product, the scope of its application and benefits are initially known, which is very important precisely for motivating innovative development of production. Due to this, there is an urgent need to develop the organisation's creative potential as the basis for activating the creative component of work.

Structural and Logical Modeling of the Formation and Development of the Creative Potential of the Organization

Any human activity combines at least two components: regulated and innovative, creative. In the era of total digitalization, work according to a given scheme, regulations, technology, instructions, meaning copied and repeated operations, routine, gradually moves into the field of robots and automats, taking humans out of direct production. At the same time, the role of work, directed on creating new values, new production methods and, accordingly, the innovative and creative component of professional activity, increases. In the industrial sphere, these are, first, scientific research: fundamental, applied and verification, as well as marketing, socio-economical

and others; design and technological developments and pilot production; innovation and invention; forecasting and organizational development; strategic management, reengineering, management activity itself, etc. Creative decisions require a creative approach and are also associated with risks and unpredictability, which can cause disorder and disorganization in business. This means that it is necessary to be able to form the creative potential based on a scientific approach and manage it.

Many authors (Brizhak & Romanets, 2021) refer to R. Sternberg's multifactorial theory of creativity, which identifies individual components of the creative potential that are integrated at the group and organizational levels (Sternberg, 2006). As a result, the authors developed a structural and logical model to form and develop the organisation's creative potential. The integrating module of this model is the four-component creative group of interacting subpotentials selected by subject-functional areas. The model is shown in the figure:

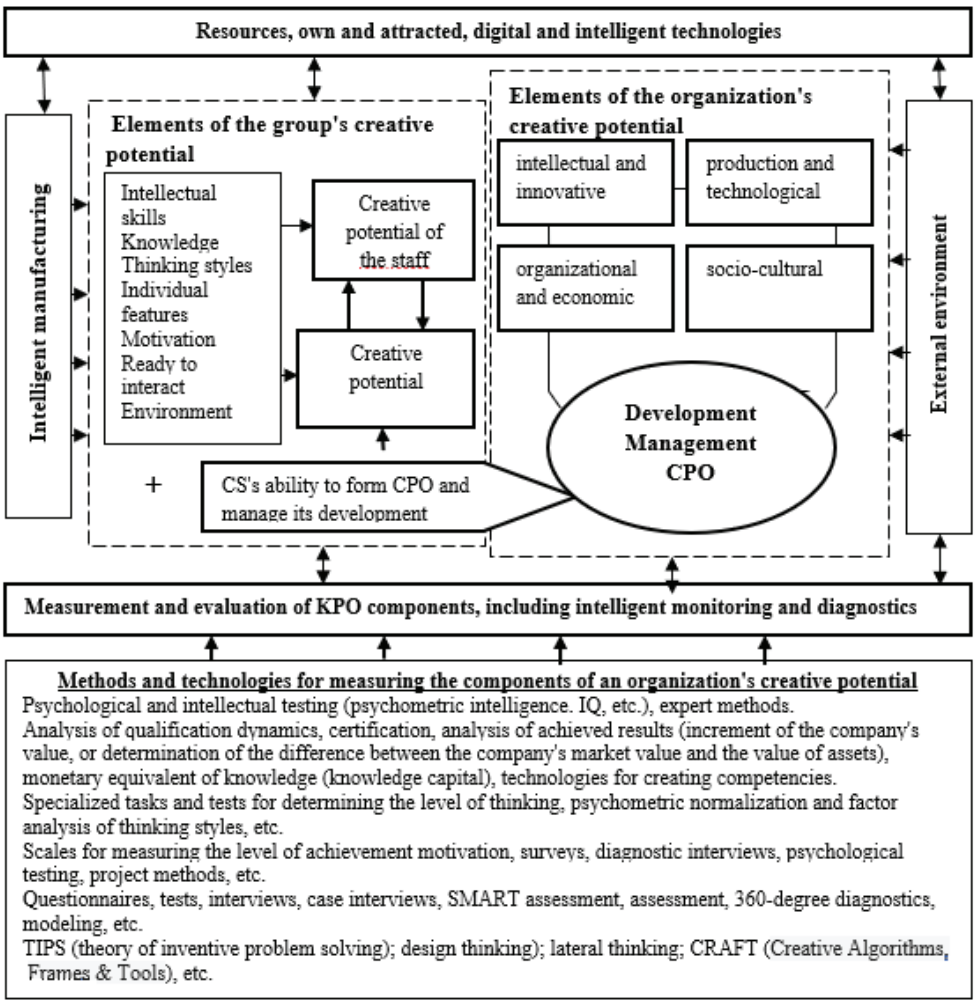

Figure. Structural and Logical Model to Form and Develop the Organization's Creative Potential.

The organisation's creative potential from the point of view of a systematic approach is a set of interacting creative potentials of the individual, group and organizational levels (Mikhailov, Tikhonov, & Margarov, 2022; Brizhak & Romanets, 2021).

At the level of the organization, four subpotentials are identified, which comprehensively reflect the creative possibilities and limitations of the organization's activity to achieve objectives in the conditions of production intellectualization (Zelentsova & Tikhonov, 2018).

The intellectual and innovative element of creative potential is the ability and willingness to accumulate new organizational knowledge, skills, and experience and use these ones to create creative ideas and solutions for the development, implementation and commercialization of innovations (fundamentally new and improved technologies and products, methods of their promotion, interaction with stakeholders, etc.), that provide the growth of innovation activity and the receptivity of the organization, the level of production digitalization, etc. As for the measurers, these can be indicators for assessing innovative and intellectual potential (Boginsky, Zelentsova, & Tikhonov, 2019), such as:

- patent activity coefficient;
- innovation share in the increment of business value;
- innovation competitiveness index;
- indexes of professional and intellectual development;
- level of inventions per employee;
- activity index of interaction with a group of creative colleagues;
- level of perception and processing of external information;
- growth of intellectual assets;
- cognitive coefficient;
- integral assessments of the group's creativity and some other indicators specially developed to assess the creative potential (Gorlacheva, Gudkov, Omelchenko, Drogovoz & Koznov, 2018).

The production and technological element of creative potential is the ability and willingness of the organization to provide the production of the target volume of products of the required range and quality as scheduled, effectively using the resources of intellectual production (flexible production systems, robotic complexes, etc.). The most reliable indicators in this group of subpotentials are:

- relevance of professional competencies with the requirements of a high–tech organization;
- level of personnel involvement in solving creative tasks to improve the technical and technological equipment of production;
- growth of investments in research and development;
- coefficient of advanced technologies use;
- level of automatization and intellectualization of production;
- experience of innovative activity in the technological sphere, etc. (Gorlacheva, Gudkov, Omelchenko, Drogovoz, & Koznov, 2018);

The organizational and economic element of creative potential is the ability and willingness to mobilize, attract, and effectively use material and non-material resources to achieve the target growth of economic indicators (organization value, profitability, investment attractiveness, etc.). In our opinion, these indicators should be used here:

- interaction level in the organization - the growth rate of profit from creative activity;
- growth of investments in human capital;
- the growth rate of orders due to innovative competitiveness;
- change in the value of intellectual capital as the leading resource of the industrial organization;
- average salary growth;
- indicators for considering the knowledge of employees, business processes and customers, etc.

The socio-cultural element of creative potential is the ability and willingness of the organization to create an organizational culture that contributes to the effective implementation of the creative process, disclosure and development of knowledge, skills, and experience of staff members and managers, to productive collaboration for the achievement of high creative results.

Discussion

Despite many creative potential studies, a unified point of view has not been developed on its structure, composition of influencing factors, and interconnection with intellectual, innovative, and other types of potentials. There are opposite views on the relation between the concepts of creativity and intelligence (Basic, 2017)

- creativity is considered an independent factor since its interconnection with intelligence can be neglected due to insignificance (Guilford, 1950);
- a direct dependency between intelligence and creativity is admitted (Sternberg, 2006).

Various creativity theories that determine necessary creative components are proposed. In the theory of minimal creative abilities, creativity is defined as the product of intelligence and experience (Loseva & Abdikeev, 2020). Other theories consider a more comprehensive composition of creativity. For example, T. Amabile includes knowledge, competencies, values, human involvement, and internal and external motivation in the components of creativity, and R. Sternberg and T. Lubart consider six different components of creativity: motivation, intelligence, knowledge, personality, thinking styles and the environment. The concept of Rhodes 4P is the most well-known. According to this one, the creative potential includes four components: creative personality, creative product, creative process and creative environment.

By now, various methods of assessing creative potential have been developed. Most of these are not universal and evaluate creativity at the individual level. The methods of A. Binet and T. Simon, M. Wallach and N. Kogan, E. Torrens, F. Barron, D. Johnson, S. Mednik, E. Tunik, and others evaluate the cognitive component of creativity, the methods of R. McCrae and P. Costa, D. Renzulli, R. Hartman and K. Kalahen, G. Gow, Myers-Briggs, K. Schaefer, E. E. Tunik and others investigate the conative component, evaluating personality traits associated with creativity, questionnaires and tests of D. Meyers, P. Soloway, D. Gouldman are intended to measure the emotional component. The methods of T. Amabile (Amabile, Barsade, Mueller, & Staw, 2005) and others are dedicated to assessing the influence of professional activity conditions on creativity, and the methods of R. Richards, R. Sternberg (2006) are dedicated to the assessment of creative achievements. Various studies are dedicated to establishing dependencies between creativity and factors influencing it. Thus, it was found that there is a positive connection between creativity and social risk, while there is a negative dependency between creativity and the level of fear of negative assessments. The positive impact of social independency on a person's creative potential is noted by O. V. Loseva and N. M. Abdikeev (2020).

Considering the organisation's creative potential, it is usually used structural and functional approaches. According to the first approach, individual, team, and organizational, creative potential are selected, corresponding to the organisation's levels of management. Following the second approach, the components of creative potential that have various functions, for example, financial, personnel, logistical, market and information, are selected (Cheng, 2018).

The complexity of the organisation's creative potential as the object of assessment determines to use a set of methods. For example, creativity is studied as a component of intelligence and sensory, emotional, logical, socio-cultural and economic intelligence for the individual and group level, and the organizational level is not considered. Questionnaires compiled by the authors are used to assess individual intellectual potential, expert assessments are used to determine the significance of various components of intelligence, and the cluster approach is used to assess group intellectual potential, combining employees into groups based on the principle of complementarity or enhancing the significance of individual components of potential.

Any potential, including creativity, should be

assessed relative to target (normative) indicators. In this regard, the methodology for assessing the creative potential proposed is interesting. This methodology provides for the forming profiles of professional creativity of positions. According to these profiles, tasks are compiled to assess the professional creativity of personnel. Profiles' comparison of professional creativity of positions and personnel based on the assessment results allows for identifying inconsistencies at the individual and organizational level and determining their value for decision-making in the personnel policy to develop creative potential. This methodology focuses on solving personnel issues and does not cover all the components of creative potential.

As the analysis shows, further research is required to develop approaches and methods that provide systematic and comprehensive assessment of the organisation's creative potential in the conditions of intellectual production.

Conclusion

Unfortunately, at this moment, measuring the components of the creative potential of the industrial organization has a very weak scientific and methodological base, focused mainly on philosophical and psychological research. At the same time, the successful and accelerated transition of the domestic industry to a new technological order entirely depends on the ability to manage the factors of activating the creative component of production activity. Recognition of the organisation's creative potential as one of such factors required the development of a new scientific approach for its measuring and assessing. The most significant scientific result of our research is the expansion of philosophical knowledge in the field of creativity management in the process of production intellectualization and the development of the structural and logical model for forming and developing the creative potential of the organization as the platform for a successful transition to a new technological order.

The practical significance of this study is that a systematic interconnection of creativity components that can be integrated into the group potential was formed. Also, the components can be differentiated in the four-component creative group of interacting subpotentials of the organisation's creative potential. This will make it possible to develop scientific and methodological support for measuring the components and assessing the creative potential of the organization in order to develop it using intelligent technologies actively.

Acknowledgements

To the Federal State Budgetary Educational Institution "State University of Management" for the opportunity to realize proactive scientific and analytical research.

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