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**CREATIVITY MODELS AND THEIR IMPLEMENTATION IN
CONTEMPORARY MANAGEMENT PRACTICE**

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Abstract

In the paper the contemporary creativity models were analyzed. And the main approach of scientists in interpretation of the contents, sources, mechanisms, profits, organization and ways of creativity stimulation at personal and organization levels have been considered, as well. Creativity is characterized as some special phenomenon, implying inspiration, creative fit, brightening, but at the same time it is strengthened by certain methods of stimulation and techniques. Special attention was paid to three groups of creativity models. Among them: the models that accentuate their attention on the ways of stimulating individual creative potential of a human being; models, analyzing the problems of increasing of the general potential of creativity of organizations; the models finding out the barriers of creativity at personal and organization levels and methods of overcoming or minimizing them. There are spheres of activity where the creative approach gives a lot of positive results, for example: elaboration of strategic vision and strategy of organization, carrying out continuous innovations, structural changes for increase of productivity, finding out some problematic areas in the work, creation of new technologies, forming and improving the image of an organization, development of the corporative culture, reengineering of the processes and modernization of the mechanisms of working, making the marketing activity perfect. The main obstacle to creativity now is that criticizing instead of creating become the default practice in many corporate cultures.

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Keywords: Creativity models, organization, personality, creative approach, barriers of creativity, stimulation of creativity.



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1. Introduction

The “new industrial revolution” puts the accelerated technological and structural changes in the list of priority goals for organizations. In conditions of high technological uncertainty, there is the demand for a search-oriented policy of organizations, carrying out continuous innovations. This policy should include the launching of various pilots, regular assessment of effects and termination of ineffective projects.

Creativity approach is one of the main factors determining the technological progress and innovation activity. That is why contemporary creativity models have great significance.

2. Problem Statement

Creativity should be considered to be some special phenomenon realizing at personal and organization levels and giving perceptible positive results.

3. Research Questions

1. Analysis of the models of creativity at personal level.
2. Analysis of the models of creativity at organization level.
3. Models analyzing the barriers of creativity at the personal and organization levels.

4. Purpose of the Study

The purpose of the study is to analyze the content of contemporary creativity models and to show the ways of their implementation in organizations’ activities.

5. Research Methods

1. Analysis and synthesis method.
2. Induction and deduction method.
3. Abstraction method.
4. Formalization method.
5. Comparison method.
6. Concretisation method.

6. Findings

Creativity as some special phenomenon is simultaneously associated with inspiration, creative fit, brightening, but at the same time it uses certain methods and techniques.

To provide the competitive advantages in technology the organization should be able to transform the creative potential of its staff into inventions and innovations.

The phenomenon of creativity is having been studied by foreign scientists for a long time. The universal methods do not exist, those methods that arise ability for creative work in a human being. And there are no convincing proofs that it is possible to increase the creative potential of an organization due

to some strategy. Besides, the experience of creative organizations often are in contradiction to generally accepted opinions, related to the methods of awakening and stimulating creative abilities. That is why models and conceptions of creativity are variable.

Some of them accentuate their attention on the ways of stimulating individual creative potential of a human being. The theories and models of the American scientists, such as Koestler (1964), de Bono (1971), Stewart (1982), Kirton (1989), Myers (1995), Henry (2002) and others are referred to this group. There exist many models, analyzing the problems of increasing of the general potential of creativity of organizations. The “virus theory”, the “theory of banana throwers and banana catchers”, Handy’s (1985) and Cook’s (1998) models should be mentioned here. At last, valuable investigations, where attention is paid to finding out the barriers of creativity at personal and organization levels and methods of overcoming or minimizing them are grounded. Among them the most interesting are as follows: ‘iceberg’ and a “3-legged stool” models by Cook, model by Singh (2018).

First let us stop at elaborations in the field of individual creative abilities of a person and its stimulation.

Creativity is closely related to certain peculiarities of thinking of people that has been called “bisociation” by Koestler (1964). Bisociation is an ability to accept the situation in two similar and possible, but not compatible co-ordinate system in usual conditions. Many innovations in business have become the result of this approach. For example, the idea of using discount cards in the supermarkets for having constant customers has been only a successful adaptation of the idea of a credit card to a new situation. Bisociation implies the presence of knowledge in a person, at least, in two different spheres of activity. So, a person with a narrow outlook will not be a successful, if he is competent only in one sphere. In accordance with this, it is obvious that those teams having specialists from different spheres of activity that are not related to each other have a higher creative potential.

Creativity also requires such a peculiarity of thinking, like flexibility, intellectual mobility. It is an ability to deal with the situation or problem from different view-points.

The example of the intellectual mobility as a specific creative method is a notion the “lateral thinking”, formulated by Edward de Bono and meaning the search for solving problems and analysis of possibilities in those fields that are not obvious for usual thinking.

Traditional, or vertical, logical thinking implies transition from one level of knowledge to another and is continuous according to its type, but the typical feature of the lateral, or non-standard (non-linear) thinking is its being non-continuous and uneven. Probably, because of this many people do not accept this way of thinking. In practice, creative people use both styles of thinking, and it makes them different as compared to the rest of people.

One more important distinguishing peculiarity of creative people is their ability to overcome some uncertain situation, and even to enjoy it, yearning for dealing with new and unexplored things. This ability distinguishes people with a high creative potential from the rest of people, those people who do have some uncertainty of the situation and who want to solve the complex situation as fast as possible, and the results are often not the best.

An American investigator Stewart (1982) has put forward an interesting model, called the “model of deal”; according to it any work consists of three components:

- requirements, or the final results,
- the restriction, or those things that must not be done,
- the choice, or the degree of freedom while choosing means for achieving the final results.

Some kinds of work admit a higher degree of choose of freedom, others –only restricted. The typical example of the first kind of work is an activity of scientists, and the second kind of work is a traditional industrial production, where there are exact and tough requirements and restrictions there.

People are also different from the point of view of the predisposition to creative freedom or not having freedom. For some of them it is absolutely necessary, for the second group it is not important, and others do not need it at all; they prefer exactly structured activity.

Taking into consideration all mentioned above things, the process of hiring the staff for doing some certain kind of work is a kind of deal; that is why Stewart model has got this name- the “deal model”. People get pleasure while working only in case if their temper corresponds to their personal peculiarities and need. Thus, a person, having necessity in a considerable creative freedom, can realize himself only if there is freedom of choice, but a person that is not inclined to have a creative expression of himself feels much more comfortable in the situation of a strict and regulated regimen of work.

On the contrary, the lower degree of correspondence of individual characteristics of people to the contents of their work develops dissatisfaction with the work and its results. If a creative by nature man is obliged to fulfill some work that greatly restricts his freedom, he constantly has barriers putting an obstacle to realize his creativity. Nevertheless, as there is an economical necessity in life, people often agree to work in this regimen. Or, at least, this kind of person can display his creativity only in “a partisan way”, ignoring official restrictions. But even if there is a favorable development of the events, his results of work, most probably, will be satisfactory and ordinary.

Thus, creativity in organizations is wide-spread only in case, when people with a high creative potential are given some work with a great freedom of choice.

Let us mention that all other combinations of the traditional peculiarities of people and the contents of work are without perspectives from the view-point of creativity. For example, a person who is not searching for work in the conditions of free choice can be taught by means of special teaching and constant support while working in such conditions, but it is difficult to obtain creativity from him (Csikszentmihalyi, 2017; Kelley, 2016).

In Koestler's (1964) model some parameters are characterized, they influence the level of creative thinking of an individuum. Among them there is the level of consciousness, the level of verbalization, the level of abstraction, the level of flexibility, the type and intensity of motivation, realistic and abstract thinking, dominating influence of the external and internal environment, being usual and original.

It has been acknowledged that creative people have simultaneously two types of thinking- convergent and divergent- and can easily proceed from one type into another one. The convergent thinking means a deep intrusion into the problem, the study of its essence in detail, “adult” manner of behaviour and ability to constructive criticism. The divergent thinking is a free playful state of mind, giving a possibility to have a look at any problem from different view-points, i.e. to do reframing.

Adaptive-innovation model by Kirton (1989) shows distribution of all existing kinds of creative styles of human behaviour along the axis-from highly adaptive to highly innovated. The “creative

thinking” model is considered to be a bilateral process, where both adaptive and innovation tendencies can dominate. People, in whom adaptive tendency thinking prevails, usually try to solve problems according to the established rules. People with highly expressed innovational tendency solve problems not being afraid to disturb those norms. For successful creation of innovations both types of thinking are required, but Kirton (1989) mentions that in groups where the difference of individual indicators of adaptivity-innovations is 20 scores more, there exists the danger of conflict development. But at the same time one should take into consideration that the conflict can become a factor that increases a creativity level.

The conception of an indicator of personality types by Myers (1995) that has become the continuation of Young’s ideas about personality types is based on the evaluation of the individual preferences of a person, using four bipolar symptoms that are found out due to the answers to the following questions:

- What does a person prefer to focus his attention at? For evaluation of answers to these questions they use the “extravert-intravert” scale: in an extravert attention is concentrated in the external world, in the world of people and phenomena, but in an introvert-in his internal world, in the world of his feelings and thoughts.
- How does a person take decisions? The answer is given on the basis of the “thinking-feeling” scale. A person’s orientation for the evaluation means that in his interrelation with the external world, structuring, planning, aspiration for regulation and control prevails, orientation for accepting is displayed in being spontaneous, flexible, immediate.

Such a system of personal preferences gives us possibility to understand why people of opposite types of personality can irritate and annoy each other. But in case of proper management of their common work being opposite can become a source of creativity, as it helps to compensate disadvantages of both parties and activate their advantages (Myers & Myers, 2014).

In the model of creativity, having the name “four P-s”, that has been put forward by Henry (2002), he examines the following characteristics as the source of a creative thinking:

- Positivity-is an ability to consider problems to be new possibilities, do not give possibilities of obstacles to interfere with moving forward ability to recover fast after failures and be able to overcome criticism.
- Playfulness-is a flexibility of thinking and actions, being able not to obey the dominating standards, ability to feel comfortable while staying with the minority of people, desire to risk, merry approach to solving problems, a sense of humour.
- Passion-an enthusiasm, purposefulness, being possessed while achieving the aim.
- Persistence - it is a difference between ”if you do not manage to do it at first attempt, try again and again” and “ if you do not manage to do it at first attempt, try to do something else until you achieve it”.

The “four P-s” model can be used for evaluation of the creativity potential of some people and of an organization in total. But you should take into consideration that not always maximum high values for all four P-s are optimum from the view-point of creativity. Each exact situation that an organization deals

with, can change priorities and put forward either one, or another parameter. It is important that “four P-s” combination should be optimum for some exact situation.

In the “iceberg” model by Cook (1998) causes of blocking of creative abilities of a man are analysed at five interrelated levels: environment behaviour, abilities, convictions, peculiarities of personalities. Two upper levels - environment and behaviour - are referred to the visible part of the “iceberg”, and three lower ones- they remain invisible, hidden under the water. And barriers of creativity at different levels are distinguished according to the degree of their being complex. For example, it is much easier to overcome barriers in environment, than deep obstacles in creativity, related to the peculiarities of a personality.

The scientists distinguish the following barriers in creativity:

- In the environment - poor leadership of an organization, poor system of communication, unfavourable psychological climate, unjustified structural work, unfavourable time for proclaiming innovation ideas, their inadequate “packing”.
- Inclination of a personality to hasty decision, being not able to mature ideas, to relax, to listen to other people, being not critical minded, but being too critical while hearing other viewpoints – all these things are referred to behaviour barriers of creativity.
- Barriers, related to abilities, embrace such qualities of a man, as predisposition, stereotypes, internal need to put all things into their usual place in his mind, being afraid of some uncertain situation, lack of flexibility, desire to solve problems using one and the same way.

One can distinguish several wide-spread myths among barriers in the field of convictions: about degradation of thinking abilities while aging; about the fact that only competent people can think in a creative way (though, on the contrary, for solving some problems those people are more valuable who are not specialists in this sphere, they have fresh outlook); about the idea that creativity and a creative thinking border on being mad; about preferring old, checked by time, ways of solving problems as compared to new ones; about the idea that creativity and abilities of an inventor are typical for men only.

At last, a personality’s abilities can have such barriers of creativity as a necessity to behave oneself rationally in any situation, unbelief in one’s strength of creative abilities, strong attachment to some certain orientations, disability to change oneself, fear to commit a mistake or to fail (Runco, 2014; Lopatin, 2015; Petrov & Petrov, 2015).

Regarding organization creativity, related to management of the creative potential of people in the whole of an organization it is necessary to make a confess that some certain contradictions between the creative activity of some certain person and necessity to make the process of work of an organization systematic does exist. Creativity in this case has appeared due to a correct combination of chaos and management. A creative organization can manage this kind of contradiction, they do not try to solve them, but to encourage them, promoting to developing paradoxes and use them for the benefit of an organization. It is a paradox, but still a fact: very often for increase of creativity of an organization it is necessary to get rid of the internal organization barriers of creativity (Narimanova, 2018).

In correspondence with one of creativity conceptions-the “virus theory”-creative people stimulate the work of imagination of non-creative by nature people. This theory is related to the notion of a cognitive dissonance-the process when a creative person “expands” thinking of another person like an

elastic tape, and as a result of it the latter has to adapt his thinking in order to relax the expansion of the tape. If a creative person does too much expansion, and it prevails the ability of the rest of the participants of the process to adaptation, then they will start to accept both that man and his ideas negatively. Investigators have the same opinion that creative people, engaged in this process, should be too courageous and self-confident (Berkun, 2011).

A creative organization is described when they compare participants as if they were “banana throwers” and “banana catchers”. “Banana throwers” are people who generate ideas, not taking care about their practical value. They often throw “bananas”, not thinking whether it is proper time for doing it or not, and what is the reaction of the audience. That is why “banana throwers” should be united with good “banana catchers”; they “catch” the ideas and find necessary resources in order to develop them, when proper time for this comes.

According to the opinion of many investigators, the basic competence in a creative organization is an ability of people to creativity. Thus, in Handy’s (1985) model the value added, created in an organization, is considered to be a function of three variables, or “3 I-s”:

$$I^3 = VA,$$

where I- intellect, information, ideas;

VA-value added.

As Handy (1985) thinks, in contemporary organizations traditional habits are replaced by more flexible competencies, mostly by creative abilities, resulting in creation of innovation products.

The following ways are possible to stimulate creativity in organizations:

- getting and keeping creative specialists in an organization;
- creation of working conditions, stimulating creativity;
- use of different techniques, aimed at making the process of problem solving more creative.

Cook (1998) has invented the following formula on the basis of investigations of creative organizations and taking into consideration the famous Pareto’s formula 80/20:

organization creativity = 80 %

environment +20 % technical methods

According to the formula, 80% of an organization creativity is provided by its internal environment and 20 % - by techniques.

As Cook (1998) thinks, creative organizations provide a specific environment for the best results of creativity that include three groups of components:

- Culture, the leadership style and valuable things: social climate in an organization, its ideology, traditions, legends, behaviour and communication styles, including the staff and bosses, unwritten rules and the role of a leader, and declared and real values, that an organization uses for existence. All numerated above things should correspond to creativity.
- Structures and systems: formal organization structures, formal and informal communication, structures and processes that are in the ‘shade’, the systems of encouraging, acknowledgment and career lift. These elements of the internal environment of an organization also should work to increase creativity.

- Habits and resources: the process of attraction, teaching and keeping of creative people, including giving them information and financial resources, and acquiring and creation of unique resources and competencies as the most important conditions of the advantages of competition.

Methods of creativity stimulation are processes and instruments, aimed at making free the whole of individual and group creative thinking process in an organization from every day routine. Training and seminars, related to creativity, can be referred here, and other methods, as well, promoting a creative activity of people. But one should not forget that contribution of this factor into creativity is only 20 %, and the main role in a creativity stimulation belongs to the total state of the internal environment of an organization. If this environment does not encourage creativity and innovations, the staff can attend creativity seminars endless times, but an organization's money for holding seminars will be spent in vain.

It is important to underline that while making an organization creative, it is necessary to have a systemic and strategic outlook at the problem. It is required that all the components and systems, and habits, and resources should be in concordance to each other. They should comply with the company's strategy – only in this case it is possible to achieve the desirable effect (Gilhooly, Ball, & Macchi, 2015; Arena, Cross, Sims, & Uhl-Bien, 2017; Ramirez, Churchhouse, Palermo, & Hoffmann, 2017; Seijts & Gandz, 2018; Dobni & Sand, 2018). They should also correspond to the company's strategy characteristics at various stages of its life cycle (Narimanova, 2017).

The mentioned above three groups of the components of an organization, providing its creativity, can be compared to a 3-legged stool. All of three legs of the stool should have the same length for its proper standing. Any change of one group of components (here-legs!) requires the corresponding correction of two others.

Functioning of corporative immune system should obey the following general regularity: each new idea in science, politics, arts, business or any other field causes three stages of reaction: "it is possible", "in total, it is possible, but there is no need to do it", "definitely, it is an excellent idea". According to this regularity, a successful introduction of innovation ideas requires overcoming the border between the second and the third stages of their perception. And it means, it is necessary to take into consideration both internal and external barriers while overcoming obstacles on the way to creativity. The internal obstacles of creativity in an organization are factors putting obstacles to the development of new products or services, but the external ones are factors reducing the possibility of their appearance at the market (Harris, 2002; Andergassen, Nardini, & Ricottilli, 2017).

A "3-legged stool" model can be efficiently used for identification of the internal barriers, putting obstacles to creativity in an organization. If to compare it with the barriers, interfering into realization of the individual, creative abilities of a personality, the culture, the leadership style, and valuable things of an organization correspond to the level of convictions, behaviour and personal peculiarities of a person. In this segment of the internal environment of an organization the following barriers of creativity are possible:

- The authoritarian style of leadership is when a leader accepts and evaluates only his own ideas and ignores all of the other ideas.

- Unwritten norms and rules of behaviour, according to them it is not accepted to listen to, to ask questions. In this situation it is hardly possible to hear even the most creative suggestions, not speaking about their elaboration and introduction.
- Deeds, encouraging conformism, for example, orientation only to healthy thoughts, logics and being practical, neglecting of intuition, fantasy, imagination, being emotional.
- Too serious approach to all the problems when humor is considered to be out of place in an organization. Creativity will suffer in this case. We should notice that according to Koestler's (1964) opinion there exist three areas of creativity there: an actor's originality (reaction "Ah!"), scientific discoveries (reaction "Aha!"), and commercial inspiration (reaction "Ha-ha!").
- The sense of the "cattle" promoting the fact that people do not want to be the first discoveries, put forward new ideas, are afraid to be laughed at.

In the sphere of structures and systems (it can be compared to the environment in the "iceberg" model) one can detect many barriers of creativity in an organization:

- Absence of trust and efficient interrelations between colleagues.
- Encouragement of conformism and respect of authorities that is expressed in poorly managed system of evaluation and career lift.
- Ineffective ways of rewards, ignoring of real final results and an individual contribution of a worker.

At last, the level of habits and resources in an organization, corresponding to the level of a person's ability in the "iceberg" model develops the following restrictions of the creative activity of workers:

- A poor climate, killing all the hopes for creativity and innovations of thinking. For creation of the atmosphere of trust and collaboration decades are sometimes required, but for its destruction several wrong deeds of the boss are enough.
- Inadequate and inflexible methods of problem decision in an organization.
- Information barriers, putting an obstacle to free circulation of ideas and information, necessary for freedom of creativity
- Financial barriers, related to the absence of means for elaboration and introduction of innovations.

They distinguish the following among the external obstacles of creativity:

- Absence of an access to finance for introducing new ideas into the market, for example, due to the absence of ability to make financial bosses (banks, investors) believe in perspective innovations.
- Incompatibility of innovation product to expectations and demands of customers.
- When ideas or products appear at the market not on proper time (either earlier, or later).

For destruction of barriers of creativity in organizations or their minimum negative influence the following approaches can be useful:

- Creation and strengthening of atmosphere of trust and collaboration in an organization.
- Elaboration of efficient mechanisms of information and ideas exchange in an organization, creation of environment, promoting informal communication and creativity. For example, there are special "premises for creativity" in some creative organizations, there are no prohibitions

there, but there are things there that can stimulate freedom of self-expression: dye cylinders, felt-tip pens, stickers, instruments of systemic thinking, beverages, etc.

- Getting rid of all useless and harmful habits, procedures and systems, stimulating of Socrates' methods of discussing problems (by means of exchange of questions) instead of traditional way of asserting their ideas.
- Attracting of creative leaders into an organization who, indeed, are eager to increase its creative potential.
- To use as much as possible instruments for solving creative tasks.
- Creation of reserved funds for financing innovations and beginning of risky new things.
- Tough evaluation of all the innovation ideas from the view-point of their correspondence to market requirements.
- The proper choice of time for introducing of new products and services (Proctor, 2005).

The ability to plausibly forecast the future environment changes requires the employee alternating between broad and narrow ways of thinking. In such conditions groups in organizations should be able to change the view-points relatively to the situation at the attempt to have a look at it from basically other positions (Webb, 2017; Slagmulder & Devoldere, 2018).

According to the findings of Singh (2018), the main obstacle to creativity now is that criticizing instead of creating becomes the default practice in many corporate cultures. The leaders of organizations place great value on critical thinking and analytical skills. In the workplace, «the critic» is rewarded - for vigilance, for risk management, for avoiding danger and crises-while the creator mindset begins to atrophy. Another contributor to the culture of criticism is the disproportionate career tax on failure. But, as Singh supposes, an effective alternative model now exists: so-called «the Maker movement». «The Maker movement» is a growing community of creative thinking people: engineers, scientists, constructors and representatives of other professions. These people are engaged in experimentation, collaboration, and innovation based on open-source principles.

Singh (2018) identifies four main elements of “the Maker movement”:

- the initiating of creative ideas or projects, learning the skills and accessing the tools to bring that vision into reality;
- fostering interaction among creators; creating explicit opportunities for creator – to creator interaction and teaming;
- insisting on fluidity, flexibility, mobility;
- understanding the effectiveness of novel play – forming workspace with shared tools that are open to the community, balancing to learn with and from others.

As for Russian economy, it needs transition to a multidimensional policy oriented at the technological, structural and institutional changes and the formation of effective management teams for the implementation of creative approaches in organizations (Abankina, 2017; Alimov, 2018).

7. Conclusion

According to the contemporary creativity models, the economic growth and technological transformation require now creativity as an important non-material resource at personal and organization

levels. While making an organization creative, it is necessary to have a systemic and strategic outlook at the problem. It is required that all the components and systems, and habits, and resources should be in concordance to each other. They should comply with the company's strategy – only in this case it is possible to achieve the desirable effect.

There are spheres of activity where the creative approach gives a lot of positive results: elaboration of strategic vision and strategy of organization, carrying out continuous innovations, structural changes for increase of productivity, finding out some problematic areas in the work, creation of new technologies, forming and improving the image of an organization, development of the corporate culture, reengineering of the processes and modernization of the mechanisms of working, making the marketing activity perfect. The main obstacle to creativity now is that criticizing instead of creating becomes the default practice in many corporate cultures. But there is a growing community of creative thinking people: engineers, scientists, constructors and representatives of other professions who are engaged in experimentation, collaboration, and innovation based on open-source principles.

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