THE EFFECTIVENESS OF CREATIVITY TECHNIQUES AS KEY FACTORS IN INNOVATION DEVELOPMENT

Yurii Stasovskyi

Ph.D., Kyiv National Economic University named after Vadym Hetman, Ukraine e-mail: ystasovskiy@gmail.com, orcid.org/0009-0006-5170-1140

Summary

The article examines both the theoretical foundations and practical aspects of organizational creativity in the context of the modern knowledge economy. The author pays attention to different approaches to studying creativity, analyzing the most influential models and theories applied in an organizational context. This has enabled the creation of a systematic classification of factors that determine the effectiveness of employees' creative activities in modern companies. In particular, both internal and external influences, as well as their interaction within the organization, are considered. The article pays special attention to the study of mixed factors, which combine internal resources and external opportunities to stimulate innovative thinking. The author emphasizes that knowledge and experience in using creativity techniques play a central role in the process of generating new ideas productively and transforming them into real innovations. The proposed classification of factors enables organizations not only to identify the factors they can influence but also to develop adaptive strategies to respond to external challenges beyond their control. This article contains a thorough study of the evolutionary development of creativity techniques.

Key words: innovation, innovation management, organizational creativity, creativity techniques, innovative culture.

DOI https://doi.org/10.23856/6626

1. Introduction

In today's world, the activities of leading organizations demonstrate the critically important role of creativity as a component of innovation, competitiveness, successful development, solving local issues and global challenges. This explains why government institutions, business, and scientific organizations have actively begun to explore the topic of creativity in innovation. Creativity is becoming a key skill that helps organizations adapt in today's dynamic environment. As early as the beginning of the 21st century, Richard Florida argued that creativity has become the main driver of economic growth (Florida, R. L. 2002, 2012). According to the of the study (which surveyed 11.3 million employees from 803 organizations from around the world, for the period November 2022 – February 2023), more then 70% of companies believe that creative thinking will become even more in demand between 2023 and 2027 (Statista). According to Deloitte's "2023 Global Marketing Trends" study (which surveyed 1,015 executives), among companies with annual revenue growth of 10% or more, about 90% of executives answered "agree" and "strongly agree" » to the statement that their companies promote creative ideas, support risk-taking and creative collaboration (Deloitte). So, understanding the importance of creativity for companies, the question arises as to how a company can influence the effectiveness of solving creative tasks.

2. Evolution of creativity techniques in the scientific community

Since the middle of the last century, when the active phase of creativity research began, it became obvious that this is a complex and multifaceted phenomenon. It depends on the interaction of many factors, both individual (cognitive processes, emotional state, motivation) and contextual (social environment, cultural norms, technological development). This complexity makes it difficult to unambiguously define and measure creativity, as well as to develop universal strategies for its stimulation. Today, there are many approaches to the study of creativity, each of which offers its own vision of this complex phenomenon. For a more complete understanding of what factors influence creativity in organizations, it is necessary to consider several theories that allow us to understand different aspects of this process. R. Rhodes proposed the 4P model, which became one of the most common approaches to understanding creativity as a multifaceted phenomenon. This model allows you to perceive creativity not just as an abstract phenomenon, but as the result of the interaction of four main components: Person, Process, Product and Press. Each of these elements plays an important role in shaping creative solutions and innovations.

- A person is an individual or a team that generates new ideas. Their skills, abilities, motivation and previous experience are essential for innovation.

- Process refers to the methods and approaches by which these ideas are formed, developed and implemented.

- Product is the result of a creative process, something that was created or developed as a result of this process.

- Press (Influence) refers to external conditions and environments that stimulate or, on the contrary, limit creativity — these can be social, organizational, or economic factors.

By analyzing these four components, organizations can develop effective strategies to increase creativity in innovation. Thanks to this approach, it is possible to better understand what factors influence creativity at different levels, and create conditions for the development of innovative solutions (Rhodes, M. 1961) Teresa Amabile proposes to consider creativity in organizations as a complex phenomenon determined by the interaction of four key components: skills in the subject area; processes that promote creativity; internal motivation; social environment. According to Amabile, creativity is not an isolated personality trait, but the result of the interaction of these four components. Each of them plays an important role in the process of generating and implementing innovative ideas (Amabile, T. M. 2012). Taking into account that the main goal of creativity in organizations is the implementation of innovations, Teresa Amabile offers The dynamic componential model of creativity and innovation in organizations, in which she supplements the previous theory with several essential details, including: recognizes the significant influence of extrinsic motivation, includes such factors as work orientation, meaningful work, progress in meaningful work, affect affecting individual components, introduces external factors affecting the work environment (social influence, economic influence, cultural influence) (Amabile, T. M., & Pratt, M. G. 2016).

Thus, in comparison with the author's previous model, The dynamic componential model of creativity and innovation in organizations becomes more detailed, iterative and shows dynamism, the dependence of the effectiveness of the implementation of innovations on an even greater number of factors. Robert Drazin considers creativity in organizations through the prism of sensemaking, and proposes a multi-level model of creativity, which consists of four interrelated concepts: individual sensemaking; intersubjectively shared frames of reference; a collective structure that represents a negotiated belief structure between parties that have different frames of reference; shift in the negotiated belief structure that results from crises. Unlike most studies that examine creativity in organizations in the context of individuals or small groups, Drazin examined creativity in organizations as a process in the context of large-scale projects that last for a long time and involve several interdependent teams. Thus, the authors of the model introduce such a factor as subcultures within the organization, which compete for influence on decision-making. Belonging to one or another subculture also affects the individual's behavior in different ways. The study of creativity as a long-term process, during which many factors change, emphasizes the dynamism of the model over time (*Drazin, R., Glynn, M., & Kazanjian, R. 1999*)

Firdaus E. Udwadia in the proposed a Multiple Perspective Model considers creativity in the organization as a process that occurs in the working environment under mutual influence: The individual, who is the central component of the model, the effectiveness of the individual is examined through intelligence, knowledge or expertise, and thinking style; technical support, which consists of human, physical, information and communications resources; organizational support, namely the provision of conditions for creative activity, through such aspects as Freedom, Openness, Flexibility, Encouragement, Challenge Recognition, good project management, cooperation, collaboration, sufficient time (*Udwadia, F. E., 1990*).

Michael A. West offers an integrative model of creativity and innovation in work groups, in which he identifies four main factors that influence innovation in groups: task characteristics; diversity of group knowledge and skills; external demands and threats; integrative group processes. Michael A. West emphasizes that external demands and threats, such as the expectations of customers, management, regulatory and legal obligations, competition, economic difficulties, uncertainty, political or economic changes, limit people's ability to think creatively and offer non-standard solutions. Group integration is also important, which, thanks to components such as clarity and commonality of goals, participation in decision-making, conflict management, psychological safety, creation of an environment to support innovation, ensures effective cooperation between members of the work group, allowing the use of their diverse knowledge, skills and experience to achieve a common goal (*West, M. A., 2002*).

Based on a significant number of various studies, proposed models and theories, it can be concluded that creativity in innovation is a complex and multifaceted phenomenon that continues to be actively researched due to the growing need of business for innovative solutions. In today's conditions of global competition and rapid changes, organizations increasingly turn to creativity as a critical resource to ensure sustainable development and adapt to new challenges.

3. Modern approaches to the formation of creativity in innovations

In modern organizations, the development of a new product involves a high degree of creativity in a controlled and managed process. Thus, creativity is aimed at creating a practical and feasible solution to a task that meets or exceeds the set goals (*Ambrose, G., & Harris, P., 2003*). 11 To enhance non-spontaneous creativity, you can use creative techniques, tools that facilitate the creative process and can be used to develop creativity, as they involve planning and designing situations for solving tasks (*Mansfield, R. S., Busse, T. V., & Krepelka, E. J., 1978*). 12 As early as the 60s of the last century, R. Rhodes claimed that the techniques of obtaining ideas can be learned and can be taught (*Rhodes, M., 1961*) Torrance believed that creativity is a skill that can be developed if stimulated and practiced (*Torrance, E. P., 1977*). Thus, the next step to increase the effectiveness of creativity in organizations is the use of

scientifically based creativity techniques. These methods are aimed at systematizing and stimulating the creative thinking of individuals, helping to expand the boundaries of usual solutions and find new approaches to solving problems, (*Zusman, A. 1998*). They not only improve individual cognitive processes, but also create structured conditions for the collective generation of ideas, promoting innovation. The use of such techniques is becoming an important tool for organizations seeking to innovate more efficiently and systematically. Therefore, it is the knowledge and successful experience of using creativity techniques that is the critical element that must be added to the factors affecting the effectiveness of organizational creativity in the development of innovations. This factor is also highlighted by: W. Gordon, who is the author of the creativity technique Synectics (*Gordon, W. J. J., 1961*), A. Osborn, who is the author of the creativity technique Brainstorming (*Osborn, A. F., 1963*), Edward De Bono as lateral thinking (*De Bono, E., 1993*), T. Amabile as skills in generating ideas (*Amabile, T. M., 2012*).

As an example of the successful application of creativity techniques, we can cite the Samsung company, which in the early 2000s began to implement a systematic approach to innovation. In particular, the company started using the Theory of Inventive Problem Solving (TRIZ). Already on the initial projects, Samsung achieved the first results thanks to TRIZ. In 2003, this approach allowed the company to patent 50 inventions, and in 2004, one of the projects, an innovative DVD selection solution, helped save more than \$100 million. Today, knowledge of TRIZ is a mandatory condition for career growth at Samsung. *(Cheong, S. H., Lenyashin, V. A., & Kynin, A. T., 2008)*. In 2022, Samsung registered 6,300 patents in the United States, and ranks 7th in the Most Innovative Companies 2023 ranking by the Boston Consulting Group *(BCG, 2023)*.

As another example of the successful application of creativity techniques, we can cite Google, which actively implements the Design Thinking method to stimulate innovation. This approach involves a deep understanding of user needs and focuses on empathy, rapid ideation, prototyping and testing. One of Google's tools is the so-called Design Sprints — five-day sessions during which the team generates ideas, develops prototypes and tests them on real users. This allows the company to quickly solve complex problems and implement innovations taking into account feedback from users at every stage. Google entered the top 10 most innovative companies in the world, ranking 8th in the Most Innovative Companies 2023 ranking by the Boston Consulting Group (BCG, 2023) Using design thinking and cultivating a creative environment allows the company to remain a leader in developing new technological solutions and improving user experience. (Smart, M., 2024, Schoes, L., 2021). Thus, it can be concluded that in modern conditions, the professional competence of employees alone is not enough to ensure high innovative activity of organizations. It is critically important to master creativity techniques that allow you to systematize the process of generating new ideas and finding original solutions in difficult situations. The use of such methods as Design thinking, TRIZ, and other scientifically based approaches helps to accelerate innovative development and increase the competitiveness of companies on the global market.

On the example of Samsung and Google, we can see the effectiveness of such approaches, which is confirmed by their high patent activity and stable positions in the rankings of the most innovative companies in the world. The use of creativity techniques allows not only to find new solutions, but also to structure the processes of innovative activity, making them more systematic and effective. Thus, the integration of creativity techniques in the development strategy of organizations becomes a key element of their success in the global market. Thus, the first conclusion of this study is that knowledge and experience in using creativity techniques is an independent factor that directly affects the effectiveness of organizational innovations.

The systematic use of these methods not only improves the quality of idea generation, but also optimizes the process of finding non-standard solutions, which, in turn, strengthens the competitiveness of the organization in the conditions of the modern knowledge economy.

It is the use of creativity techniques that allows to systematize the generation of ideas, to transform creative chaos into a controlled process. It is true that individuals occasionally have flash ideas, but this is an unpredictable outcome that can be compared to playing the lottery and should not be counted on. Organizations need to have their own "idea factories" that systematically produce quality products. Therefore, from the point of view of organizational creativity, the term creativity is proposed to be understood as the systematic production of original, valuable ideas, with the help of creativity techniques, aimed at achieving the goals of the organization.

4. Classification of factors of creativity in innovations

Considering the variety of existing theories and models of organizational creativity, there is an urgent need to develop a systematic classification of factors affecting the productivity of creative activity of individuals in the organization. As noted in my dissertation, such a classification will reveal not only internal and external factors that determine the level of creativity, but also assess the possibilities of organizational influence on them (*Stasovskyi, Y., 2024*). This, in turn, will enable organizations to develop effective strategies for stimulating creative activity in order to increase the efficiency of innovative processes and the competitiveness of organizations in a modern, dynamic environment. A new classification of factors of creativity in innovation is proposed, which is based on the principle of the degree of influence of the organization. This approach makes it possible to structure various factors affecting the creativity of individuals in organizations and to determine which of them the organization can influence directly, which partially, or indirectly, to which it is necessary to adapt (*Stasovskyi, Y., 2024*). The main classification categories:

Internal factors are elements of the internal environment controlled by the organization, which create conditions for the activities of employees and influence their motivation, behavior and performance in order to achieve organizational goals.

These factors include both tangible and intangible aspects and operate mainly within the organization.

Internal factors are key to creating a favorable environment for innovation, as they influence employees' creativity, motivation, and ability to find new solutions.

| | internal factors and ending the productivity of creative activity | | | |
|----|---|-----------------------------------|--|--|
| N⁰ | Category | Factors | Description | |
| 1 | Organiza- tional struc- | The structure of the organization | The way work is organized in the company directly affects the ability to generate new ideas. A flexible structure that promotes collaboration and | |
| | ture | | employee autonomy is usually more conducive to the development of creativity. | |
| | | Distribution of powers | Determines how much freedom employees have for independent deci- sion-making and implementation of new ideas. Clearly defined roles and responsibilities, combined with sufficient autonomy for employees, | |
| | | | enable efficient generation and implementation of innovative ideas. | |

Table 1

Internal factors affecting the productivity of creative activity

Continuation of table 1

| | ~ | ~ | |
|---|-------------------------|--|--|
| 2 | Corporate culture | Company values | They form the culture of the organization, which either stimulates or suppresses creativity. If the values are aimed at innovation, experimentation and openness to new ideas, then this creates a favorable environment for creative manifestations of employees. |
| | | Ethics | They create unspoken rules of the game that affect the perception and encouragement of creative ideas. If norms promote openness, experimentation, and tolerance for failure, it stimulates creativity. |
| | | Climate in the organization | A set of factors that influence how employees perceive their work and interact with each other. A favorable climate, where individu- ality and diversity of opinions are valued, promotes the develop- ment of creativity. |
| | | Knowledge and experience of using creativity techniques | Determines the level of employees' knowledge of creative thinking techniques and their ability to apply this knowledge in practice. Reflects the extent to which the company promotes the development of the creative potential of its employees and inte- grates creativity into its processes. |
| 3 | Personnel management | Motivation system | It directly affects the level of creativity. If the system is aimed at encouraging innovation and new ideas, it encourages employees to be creative. |
| | | Staff evalua- tion | Affects the stimulation of creativity. If the evaluation focuses not only on results, but also on process, innovation and the develop- ment of new skills, it contributes to the fact that employees will be more inclined to creative pursuits. |
| | | Training and development | Systematic improvement of employees' knowledge and skills, creation of conditions for self-realization and professional growth contribute to the formation of a culture of innovation and stimu- late activity in the search for new solutions. |
| | | Career growth | Stimulates employees to show creativity. The opportunity to reach new professional heights, gain recognition and realize one's potential encourages individuals to search for non-standard solu- tions and develop innovative products or services. |
| 4 | Leadership | Leadership style | It affects the level of creativity in the team. A leader who models creative behavior, encourages employees to express new ideas and supports their initiatives, creates an atmosphere conducive to the development of innovation. |
| | | The leader's vision | A clearly articulated and inspiring vision gives employees direction for their creative pursuits, motivates them to achieve common goals, and creates an atmosphere that fosters innovation. |
| 5 | Communica- tions | Communica- tion channels | Effective communication channels provide an atmosphere of trust, openness and mutual understanding, which encourages employees to express new ideas and search for non-standard solutions. |
| | | Openness of communication | Active exchange of information, which is built on the principles of trust, honesty and mutual respect. This creates a conducive environment for collaboration, development and problem solving. |

Continuation of table 1

| \Box | Dura | During | |
|--------|-----------|--|--|
| 6 | Processes | Business pro- cesses Project manage- ment systems | Structured ways of working that are specifically designed to encour- age the emergence of new ideas and their implementation. There can be various techniques, such as brainstorming, design sprints, or creat- ing special teams for innovation. Effective business processes allow you to generate creative ideas and ensure their further development and implementation in business. Approaches and tools that create a favorable environment for the emergence and development of innovative ideas within projects Effective project management systems often include elements such |
| | | | as flexible methodology (Agile), regular feedback, cross-functional teams and allocation of time for research and development new ideas. Thanks to such systems, employees experience greater freedom for |
| | | | creativity and willingness to take risks, which are key factors for successful innovation. |
| | | Innovation management processes | A set of actions aimed at creating, developing and implementing new ideas, products or services. These processes include idea generation, evaluation, prototyping, testing, scaling, and commercialization. |
| | | Risk manage- ment processes | A systematic approach to the identification, assessment and man- agement of uncertainty that accompanies any innovative project. Accepting the risk of failure is an integral part of the innovation process. Being prepared to fail helps an organization learn and adapt more quickly. |
| 7 | Resource | Financial resources | Having sufficient funding allows you to invest in research and devel- opment, support creative projects, and provide the necessary tools and resources to implement new ideas. Financial stability creates confi- dence in the future and allows employees to focus on creative tasks without being distracted by everyday problems. Adequate financing of creative projects is a powerful incentive for innovation and develop- ment of the organization. |
| | | Technological resources | A collection of tools, platforms, and software that enable people to realize their creative ideas and collaborate effectively. They provide a wide range of opportunities for experimentation, prototyping and visu- alization of concepts, which stimulates the development of innovation and creative solutions. |
| | | Human resources | Employees of the organization with their knowledge, experience and skills. They are carriers of innovative ideas and ensure their implementation. |
| | | Time resource | The amount of time spent on creative activities directly affects the quality and quantity of ideas generated, as creativity is a process that requires time for exploration, experimentation, and refinement. |

Mixed factors are factors that are formed both under the influence of the organization and external circumstances (*personal, social, cultural*, etc.). They arise at the intersection of organizational conditions and influences from the environment, which are not always subject to the organization's control. The premise of distinguishing mixed factors is that there are a significant number of factors that are influenced by both the internal mechanisms of the company and external circumstances, including the personal characteristics of the employee, his social environment outside the organization.

Table 2

Mixed factors affecting the productivity of creative activity of individuals in the organization

| No | Category | Factors | Description |
|----|--|--------------------------|--|
| 1 | Psychoemo- tional and physical features | Fear | Inhibits creativity, destroying self-confidence and blocking the generation of new ideas. It can be triggered by both external factors, such as social, cultural and religious norms, and internal factors, in particular, fear of loss of financial stability, illness or job loss. In an organizational context, fear can occur when employees fear criticism, not being rewarded, or losing their job. The destructive influence of fear, regardless of its source, prevents employees from focusing on creativity and innovation, which in turn limits organizational development. |
| | | Motivation | Influences creativity in the organization, and can be classified into internal and external. Intrinsic motivation encompasses company-created factors such as rewards, recognition, praise, and competition that encourage employees to achieve creative results. Extrinsic motivation is related to the employee's need for self-realization, challenges and satisfaction, which stimulates his energy and desire to generate new ideas and search for crea- tive solutions. Together, these two forms of motivation create a favorable environment for innovation and creativity in the organization. Despite the fact that they are formed during life under the influence of many external factors (upbringing, edu- cation, social environment), the organization can influence the change of attitudes through trainings, coaching and other tools |
| | | Ability to take risks | A complex phenomenon that includes both internal (personal beliefs, self-esteem) and external (corporate culture, market trends) components. It is an important factor affecting people's willingness to experiment and implement new ideas. Organiza- tions can encourage the development of this ability by creating a safe environment for mistakes and providing support to employ- ees. |
| | | Health | Influences the creativity of individuals in organizations, as physical and psycho-emotional well-being are directly correlated with the ability to generate new ideas. The internal influence of the company, in particular, through the maintenance of a healthy work environment, stress prevention programs and encourage- ment of physical activity, can have a positive effect on the cre- ative potential of employees. At the same time, external factors such as the social environment, bad habits, family circumstances and general living conditions also affect general health, which in turn can limit or stimulate employees' creativity. |

Continuation of table 2

| 2 | Social and professional factors | Social envi- ronment | The employee's environment, both internal (colleagues, corpo- rate culture) and external (family, friends), significantly affects the ability to generate new ideas. Interaction with other people can both stimulate creativity through the exchange of ideas, and limit it through social pressure or conflict. |
|---|---------------------------------------|--|--|
| | | Social expec- tations and pressure | Expectations from colleagues, supervisors, and social norms outside the organization can facilitate or hinder the creative process. Positive expectations create motivation for new ideas, while negative social pressure can create fear of mistakes and stifle creativity. |
| | | Competition | Influences creativity through the individual's desire to be better compared to others, both in the professional environment and outside of work (among friends, relatives, siblings). Internal competition among employees stimulates the search for new solutions and innovations, while external competition - with other companies or in personal life - can motivate the develop- ment of new skills. However, excessive pressure from competi- tion can cause stress and block creativity. |
| | | Knowledge and experi- ence | Knowledge and experience are the foundation on which the generation of new ideas and solutions is based. They are formed both in the process of continuous learning, gaining unique experience by an individual during his life, and through organ- izational learning processes and participation in organizational projects. |

External factors influencing the creativity of employees are formed outside the organization and include a wide range of factors, starting from genetic characteristics and socio-cultural context, and ending with macroeconomic conditions. Since the organization has limited ability to influence these factors, its success depends on the ability to adapt to changes in the external environment and use them as a source of new ideas and opportunities (Semenets-Orlova, I., Klochko, A., Shkoda, T., Marusina, O., & Tepliuk, M., 2021).

Table 3

| N⁰ | Category | Factors | Description |
|----|------------|------------|---|
| 1 | Basic | Family and | The atmosphere in the family, the support of the child's interests, the |
| | factors of | upbringing | presence or absence of restrictions - all this forms certain attitudes and |
| | personal | | beliefs in a person, which affect his ability to think creatively |
| | develop- | | and solve problems. |
| | ment | Education | The acquired knowledge, skills and ways of thinking form the cognitive |
| | | | basis on which creative activity is built. Education not only conveys |
| | | | facts, but also develops critical thinking, the ability to analyze and syn- |
| | | | thesize information, which is the basis for generating new ideas. In addi- |
| | | | tion, education forms a person's worldview, his values and motivation, |
| | | | which directly affects his readiness for creative searches and innovations. |

External factors of personality development

| Macro | Economic | A dynamic system of interconnected economic factors that directly |
|----------|-----------------|---|
| environ- | environment | affects the opportunities for creativity in the organization. Economic |
| ment | | stability, the level of investment, consumer demand and government |
| | | policy form the conditions that stimulate or limit the development of |
| | | innovative ideas and their implementation. |
| | Political envi- | Favorable political conditions, such as clear rules of the game, |
| | ronment | stability of the tax system and government support for research and |
| | | development, promote investment, reduce risks for innovative pro- |
| | | jects and stimulate cooperation between business and scientific insti- tutions. It provides organizations with the necessary resources, such |
| | | as funding, equipment and access to knowledge, allowing individuals |
| | | to realize their full creative potential. |
| | Social envi- | It shapes the context in which the organization operates, influencing |
| | ronment | its strategies and culture. Cultural norms, values, and societal expec- |
| | | tations determine what products and services will be in demand in |
| | | the marketplace, and shape attitudes toward innovation and change. |
| | Technological | As the driving force of the modern world, it is constantly evolving, |
| | environment | creating new opportunities for business development and at the same |
| | | time posing complex challenges. To keep up with the rapid pace of |
| | | change, organizations must not only innovate, but also be prepared |
| | | to constantly transform their business processes and models. After |
| | | all, it is the interaction of technologies and human creativity that is |
| | | the key to success in modern business. |
| | Natural envi- | Environmental conditions, climate change, natural resources and |
| | ronment | geographical location directly affect production processes, logistics, |
| | | availability of raw materials and energy, as well as the psychological |
| | | state of people. |

Figure 1 visualizes the proposed classification of factors based on the principle of the degree of influence of the organization. Internal factors (shown in white) are the main tools of influence on individuals in the organization and are shaped by the organization. External factors (shown in black) affect both the organization and the individuals in the organization and are not influenced by the organization. Mixed factors (shown in gray) are partly influenced by the organization and partly formed outside the organization. For a deeper understanding of the interaction between internal, mixed and external factors, you can draw an analogy with the elements of ninjutsu, which are built on the Japanese philosophy of Godai (\pm ,), (*Okamoto, S. 2012*). Godai means "five great" and includes the five elements: earth (chi), water (sui), fire (ka), wind (fu), and emptiness (ku). This concept describes not only the physical aspects, but also the emotional and strategic patterns of behavior that can be applied in martial arts, including ninjutsu (*Miller, J. 1996*).

In our case, we can build the following analogy:

- Earth symbolizes stability and structure, which corresponds to the internal factors of the organization. This is what the company controls, for example, the organizational structure and corporate culture;

- Water reflects flexibility and adaptation to external conditions, which characterizes mixed factors. Water can change its form, just as mixed factors can vary under the influence of internal and external conditions;



Figure 1 Factors affecting the productivity of creative activity of individuals in the organization

Source: developed by the author

- The wind represents the dynamism and unpredictability of the external environment, which corresponds to external factors. An organization cannot control external forces, but must adapt to them, like the wind changing its direction.

This analogy between Godai-based ninjutsu elements and classes of creativity factors highlights the importance of stability, adaptability, and flexibility in the processes influencing organizational creativity.

Further research should focus on a deeper understanding of creativity techniques as a key element of innovative activity in organizations. It is necessary not only to study existing methods of stimulating creative thinking, but also to develop optimal combinations of techniques depending on the needs of developers, which will contribute to increasing the innovative potential of companies. The effectiveness of the application of these techniques should be justified on the basis of detailed analyzes and practical studies, which will allow to evaluate their effectiveness in different organizational contexts.

In addition, it is important to conduct an empirical study of the influence of each of the factors that have been identified as internal, mixed, and external. Surveying organizations of different sizes and industries will provide a deeper understanding of how these factors affect creative productivity. The obtained results can become the basis for correcting the existing classification of creativity factors, which will allow taking into account their real influence at various stages of organizational activity. In particular, additional clarification or revision of individual factors may be needed to more accurately reflect their role in creativity and innovation processes. Such an empirical approach will allow not only to deepen theoretical knowledge, but also to create practical recommendations for companies regarding creativity management at different levels of the organizational structure. The proposed directions of research will allow a more in-depth study of the phenomenon of creativity and the development of new tools and methods for its development in organizations.

5. Conclusions

In the process of research, an analysis of various theories and models of creativity was carried out, which made it possible to formulate important conceptual conclusions regarding its functional role in the conditions of the modern knowledge economy. It has been found that in the context of dynamic market conditions, the knowledge and experience of employees' creativity techniques become key factors that enable the predictable generation of quality ideas. These ideas, in turn, are transformed into effective innovations that are crucial for ensuring the competitiveness of organizations. In order to systematize factors affecting organizational creativity, a classification of these factors was developed, focusing attention on the potential influence of organizational structures and processes on them. This classification allows the identification of factors that the organization can directly influence, which, in turn, creates conditions for the formation of purposeful strategies for their development. In addition, an analysis of factors on which the organization has a partial influence was carried out, which indicates the need to formulate recommendations for their optimization and efficiency improvement. In addition, the understanding of external factors over which the organization has no influence emphasizes the need for adaptability and flexibility of organizational processes in response to changes in the external environment. This enables companies to remain competitive and implement innovative strategies in a rapidly changing market landscape. The obtained results make it possible to develop practical recommendations for organizations that seek to increase the level of creativity of their employees and use modern technologies to support creative processes.

References

1. Florida, R. (2002). The rise of the creative class: And how it's transforming work, leisure, community and everyday life (Nachdr.). New York, NY: Basic Books.

2. Florida, R. L. (2012). The rise of the creative class, revisited. New York, NY: Basic Books.

3. Statista. (n.d.). Skills on the rise. Retrieved from https://www.statista.com/statistics/1383183/ skills-on-the-rise/

4. Deloitte. (2023). 2023 Global marketing trends.

5. Rhodes, M. (1961). An analysis of creativity. The Phi Delta Kappan, 42(7), 305–310.

6. Amabile, T. M. (2012). Componential theory of creativity. Harvard Business School, April 26, 2012.

7. Amabile, T. M., & Pratt, M. G. (2016). The dynamic componential model of creativity and innovation in organizations: Making progress, making meaning. Research in Organizational Behavior, 36, 157–183.

8. Drazin, R., Glynn, M., & Kazanjian, R. (1999). Multilevel theorizing about creativity in organizations: A sensemaking perspective. Academy of Management Review, 24(2), 286–307.

9. Udwadia, F. E. (1990). Creativity and innovation in organizations: Two models and managerial implications. Technological Forecasting and Social Change, 38, 65–80.

10. West, M. A. (2002). Sparkling fountains or stagnant ponds: An integrative model of creativity and innovation implementation in work groups. Applied Psychology: An International Review, 51(3), 355–424.

11. Ambrose, G., & Harris, P. (2003). The fundamentals of creative design. AVA Publishing SA. 12. Mansfield, R. S., Busse, T. V., & Krepelka, E. J. (1978). The effectiveness of creativity training. Review of Educational Research, 48(4), 517–536.

13. Torrance, E. P. (1977). Encouraging creativity in the classroom. National Education Association, Washington, D.C. https://doi.org/10.2307/4443233

14. Zusman, A. (1998). Overview of creative methods. Ideation International, Southfield, MI, USA.

15. Gordon, W. J. J. (1961). Synectics: The development of creative capacity. New York, NY: Harper & Row.

16. Osborn, A. F. (1963). Applied imagination: Principles and procedures of creative problem-solving (3rd ed.). New York, NY: Charles Scribner.

17. De Bono, E. (1993). Serious creativity: Using the power of lateral thinking to create new ideas. New York, NY: HarperBusiness. Retrieved from https://archive.org/details/seriouscreativit00debo

18. Cheong, S. H., Lenyashin, V. A., & Kynin, A. T. (2008). TRIZ and innovation culture at Samsung Electro-Mechanics Company. The Fourth TRIZ Symposium in Japan. Retrieved from https://www.osaka-gu.ac.jp/php/nakagawa/TRIZ/eTRIZ/epapers/e2009Papers/eCheong-TRIZSymp2008/09eP-Cheong-TRIZSymp2008-090709.pdf

19. Semenets-Orlova, I., Klochko, A., Shkoda, T., Marusina, O., & Tepliuk, M. (2021). Emotional intelligence as the basis for the development of organizational leadership during the covid period (educational institution case). Estudios de Economía Aplicada, 39(5). DOI: 10.25115/eea.v39i5.5074

20. BCG. (2023). Global innovation survey 2023; BCG analysis. Retrieved from https://web-assets.bcg.com/45/1a/7c66e24b48c08619e61cf0d6afea/bcg-most-innovative-companies-2023-reaching-new-heights-in-uncertain-times-may-2023.pdf

21. Smart, M. (2024, July 1). How Google uses design thinking to innovate! Design thinking blog. Retrieved from https://designthinkingblog.com/design-thinking/design-thinking-google/

22. Scholes, L. (2021, September 2). Sprinting ahead: How design sprints became the way Google—and the world—creates. Design Google. Retrieved from https://design.google/library/ design-sprints

23. Stasovskyi, Y. V. (2024). Combinatorics of creativity techniques in innovative entrepreneurship: Doctor of Philosophy dissertation: 076 / Stasovskyi Yuriy Volodymyrovych; Kyiv National Economic University named after Vadym Hetman. Kyiv, 2024. 260 p. Retrieved from https:// ir.kneu.edu.ua/handle/2010/46552. [in Ukrainian]

24. Okamoto, S. (2012). Around the philosophy of Godai. Journal of International Society of Life Information Science, 30(1).

25. Jeff M. Miller (1996) 5 ELEMENT CODES (PART 1) http://www.ninjutsu.co.uk/uraomote/96/june.html