# CREATIVITY IN INDUSTRIAL CONCEPT

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**Rezumat.** *In mediul concurential actual, pentru a-si asigura succesul pe piata si pentru a se putea detasa fata de concurenta, intreprinderile trebuie sa lanseze produse cu un inalt character inovant. In sprijinul creativitatii, vin o serie de metode, menite sa ghideze designerii catre solutii viabile ce pot fi transformate in produse de succes.*

**Abstract.** *The companies must launch high innovative products, in order to ensure their success on the market and to detach from the competitors, in our days concurential environment. In order to support the innovative character of products, there are used a series of creativity methods. The role of these methods is to guide the designers towards viable solutions which can become successful products.*

**Keywords:** creativity, organisation, models

## 1. Introduction

All the products and production methods have a limited life. As the product passes through different stages of its life cycle to mature, intensifying the competition between producers and the sales growth slows. In this context creativity is a key: gaining competitive advantages by responding to the market needs.

Generally, the word “creativity” is associated with the image of an inventor or invention. Partial, this association is true, but in fact, just a small percent of this process results represents an invention. Many times it leads to an improvement of a product that already exists on the market. The last products are made as an answer to the more and more complex necessities difficult to satisfy. For this reason, the novelty degree of the products may vary from simple to complex.

Organizations depend on the ingenuity of employees to bring technology to the next level, and to design products that are radically different and valuable to create a competitive advantage. One way that organizations combine creativity of their employees while ensuring operational efficiency is through teams.

## 2. The concept of creativity

Creativity is a concept somewhat vague and imprecise. Creativity means daring: everything is new, uncertain and non-conformist. Creativity represents the ability to create, and create means to produce originals and useful ideas by combining elements already existed.

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The creativity represents the capacity of a person to generate solutions based on his knowledge. On the other hand, a high level of knowledge is not enough to form an inventive spirit. To teaching a person about "how to become inventive", "which steps to follow" does not necessarily means that the person will be able to generate creative solutions. That's why; we must make a very clear distinction between the capacity of a person to be creative and his qualification (between his creative spirit and his training of generating solutions to solve problems). In exchange, if a person has the capacity to be creative, he must know how to turn into account. According to this purpose, along the time, different researchers have elaborated many methods witch help a "creative spirit". Their role is to place the person in a favourable environment which allows a maximum exploitation of this person creativity.

## 3. Industrial Creativity – approach

Over the past hundred years, the literature on creativity has been enriched with various descriptive models concerning the implementation of an approach for a particular product.

The following lines will present several models implemented in industrial enterprises.

### 3.1. Wallas model

One of the earliest models of the creative process is attributed to Graham Wallas. Wallas (1926) proposed that creative thinking proceeds through four phases. preparation, incubation, illumination and verification. This model is a simple breakdown of a creative process.

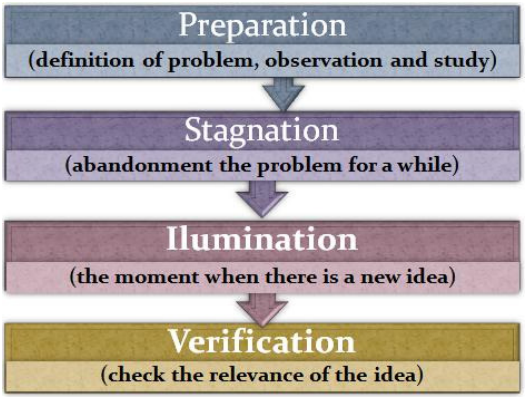


**Fig. 1.** The Wallas Model

### 3.2. Rossman model

Another researcher, Rossman (1931), proposing a model that hides a subtle balance between analytical thinking and subconscious or between analysis and imagination. After interviewing 710 inventors, Rossman has proposed a seven-phase modeling, based on Wallas's model.

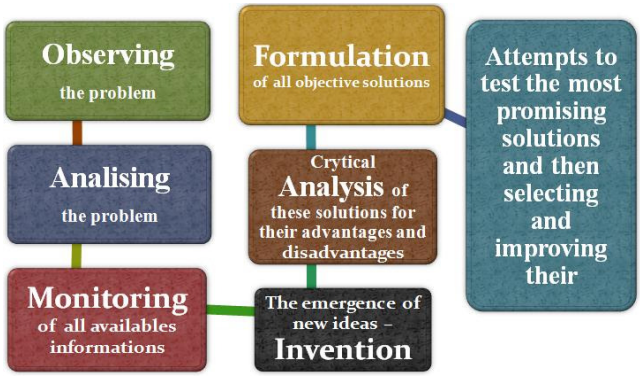


**Fig. 2.** The Rossman Model

### 3.3. Bouchard model

Bouchard is a researcher who thinks that creativity approach is a progressive transformation of the original objectives in tangible products. This approach consists of a lot of "go-forth between divergence and convergence." These improvements allow increasing the adequacy of the response to the request.

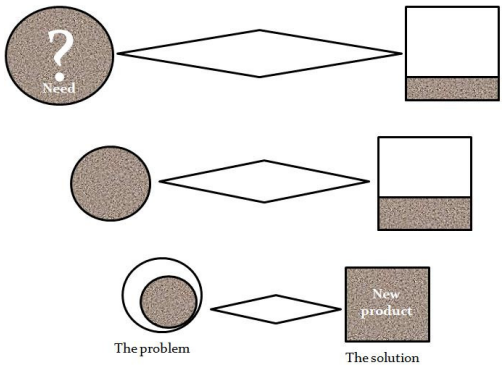


**Fig. 3.** The Bouchard Model

## 4. General model of a creative approach

The following model is an example of creative approach, who differs from previous models. In this model interaction provides a random, sequential or simultaneous among different actions specified above. All other models start with an interview, but this model does not require a specific starting point.

This model does not require incubation and illumination phases because they are default operating arrows. Arrows symbolize the flow of time between different actions; they are clashes of ideas, assumptions, judgments and knowledge. Those arrows who connect the circles represent activities of masked approach individual creativity: confrontation brain information, develop new ideas of project.

This model has 3 phases: ***review phase; explanation phase and generation phase***. In ***the review phase*** is intended to define the desired services provided by product which is: define customer needs in accordance with constraints imposed because of how it is used (average); the serving approach: define the objectives that are intended to be achieved by design and not by the product resulting from the project; environmental assessment. In the ***explanation phase*** is desired: note the main ideas, like data to be transformed into information about future product; translate ideas – information is translated into a form simpler, understandable; reflect on ideas: saying spontaneous expression of ideas. ***The generation phase*** consists: sieving information – this action belongs to the same action approach to assessing the environment, which is below the level of abstraction and evaluation criteria are higher; finding new research directions, means define the functional point of view of concepts; assessment of trends – observing , analyzing and understanding the operating modes of the users on all products on the market; formalize ideas consists in materializing and communicating the ideas; clarification of new services refer to express functional role; clarification of concepts means express the choice of concept.

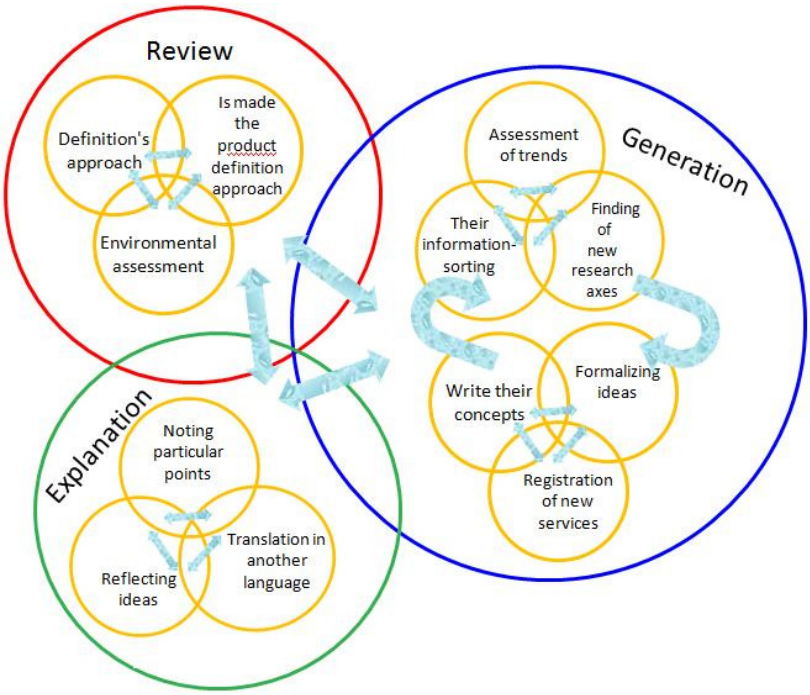


**Fig. 4.** General Model of a Creative Approach

## 5. Creativity tools

Creativity methods have been developed to obtain essentially two interrelated objectives like:

- events encouraging the creative attitudes;
- optimize the role of creative research.

The creative process includes the following phases:

- knowledge problem and its formulation;
- research study;
- finding solutions and choice of solutions as appropriate;
- communication solutions and their implementation.

In next lines are presented some ways to help implement of creativity.

### 5.1. Method 5W2H

This is a method of research on causes of a problem, asking questions: What? Who? Where? How? Why? How? In this method are known causes of the problem and sufficient information to determine exactly which the main cause of

it is. This information is often based on observations recorded during the investigations.

### 5.2. **Triz method**

"TRIZ" is the (Russian) acronym for the "Theory of Inventive Problem Solving." G.S. Altshuller and his colleagues in the former U.S.S.R. developed the method between 1946 and 1985.

TRIZ is a problem solving method based on logic and data, not intuition, which accelerates the project team's ability to solve these problems creatively.

The principle of TRIZ is that the majority of problems and progresses of the industrial domain can be solved with the prior knowledge and the used instruments hint at the exceeding of the psychological inertia. Psychological inertia is the main brake of a man that's why Altschuller (TRIZ promoter) guides us in respecting some rules and don't fall in the trap of the psychological inertia:

- We shall be never convinced that the solution is founded in our competence domain.
- To favorize the multidisciplinary.
- To identify the terms of expressions which carried psychological inertia and to replace with more neutral ones.
- To respect ball ideas even the eccentrically ones.

### 5.3. **Synectica method**

This is a research method of marketing that is based on use of psychological mechanisms existing creative work to a collaborative group composed of 4-5 members, lead by a group leader. The basic principle of the method is the combination of apparently unrelated ideas together. The result is completed by practical applications.

### **5.4.4. P's method of innovation and creativity**

This method is based on four P, which are: Product, Price, Promotion, and Placement. Products realized with this method are developed to meet the desires of groups of customers. The product must be original and it must have a good environmental for his achievement.

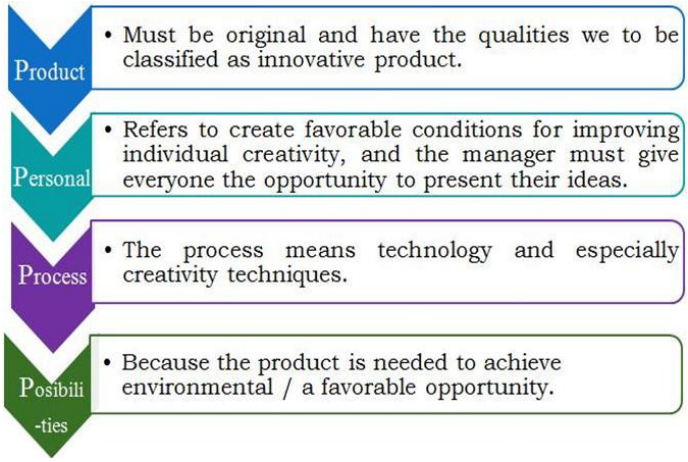


**Fig. 5.** 4P's Method of Innovation and Creativity

### 5.5. Six thinking hats method

The method is attributed to Dr. Edward de Bono and is a thinking tool for group discussion and individual thinking. The premise of the method is that the human brain thinks is a number of distinct ways which can be identified, deliberately accessed and hence planned for use in a structured way allowing one to develop strategies for thinking about particular issues. (figure 5)

Dr. de Bono identifies five distinct states in which the brain can be "sensitised". In each of these states the brain will identify and bring into conscious thought certain aspects of issues being considered (e.g. gut instinct, pessimistic judgment, neutral facts).

## Conclusions

To conclude, the enterprises want a continuous improvement of the products that they develop and therefore a rise of the creative potential of the people that are in charge with the conception in order to be competitive on the market. Thus, research workers from various domains have developed a series of methods of creativity such as brainstorming, Synetics, 6 hats etc. These “traditional” instruments that support the creativity encourage the analysis and implicit the solving of the problems from all the points of view and possibly lead to a wide spectre of solutions (directions for solving). Moreover, these methods are based on human competence. Because of that, the creativity has remained an aleator process, fact that doesn’t enable an immediate found/finding of solutions.

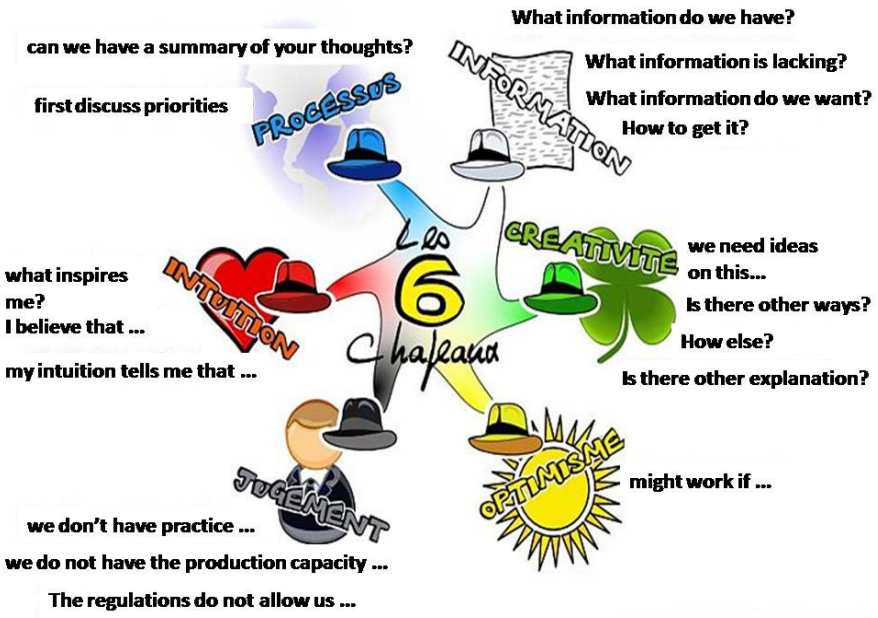


**Fig. 5** Six Thinking Hats Method

The need to create may be due to a problem but also a desire to progress, to create a competitive advantage. Goals that demonstrate return on investments allowed for creativity are launching a new product before others, finding the most ingenious ways to highlight its advantages, boost research and development team, sales force mobilization.

Creativity is not an end in itself. Without a practical application isn't makes sense.

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