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# CREATIVITY IN NEW PRODUCT DEVELOPMENT: AN INNOVATIVE METHODOLOGY

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The paper describes an innovative methodology for the improvement of creativity in the new product development process (paragraph 1). The elements of novelty regard the definition of five methodological phases to improve creativity in business process (par. 2), the mapping and the classification of creative techniques in new product development (par. 3), the definition of some criteria for the choice of the most suitable techniques according to the specific contexts of application (par. 4). The methodology will be tested in two pilot industrial companies (par. 5).

## 1. The creativity process

Creativity can be defined as the art of problem setting and problem solving (Joui, 1991); it is also the capability of outside scheme thinking, in order to reach some new and functional conclusions which can let you solve a problem or take an opportunity (Bertone, 1993). According to Theresa Amabile (1998), creativity is the synergic product of three components: *expertise*, *capability of thinking in a creative manner*, and finally *intrinsic motivation*.

Adopting a creative approach requires enterprises accept the principle of “creative destruction” (Schumpeter, 1942) and become able to use contemporarily both divergent and convergent thinking (Foster and Kaplan, 2001). The application of these kinds of thought to enterprises will let them evolve from a risk minimizing logic (which leads to put creativity down), to a logic which enhances creativity in order to guide the creative destruction process.

We worked out a methodology for creativity development, based on an analysis of the specific Literature, guided by the following objectives:

- Mapping already existing methodologies and techniques to develop business creativity;

- Evaluating them and the relative documentation;
- Classifying supporting techniques;
- Choosing the best techniques to work out a “best of breed” methodology;
- Applying the techniques into new product development process.

## **2. Phases of the proposed methodology**

The proposed methodology is articulated into five phases:

1. Predisposition: it aims to create a work environment allowing employees to express their creativity (McFadzean, 2002).
2. External mapping: it mainly deals with the analysis of the environment external to the company in order to find new business opportunities (Foster and Kaplan, 2001);
3. Internal mapping: it is concerned with the analysis of the company from an internal perspective by collecting signals and suggestions coming from employees (Joly, 1993);
4. Creative process: this is the proper creative session, focused on the generation of new ideas (Michalko, 1991);
5. Evaluation: it deals with gathering and evaluating the results of the creative sessions (De Bono, 1992).

## **3. Creative techniques in New Product Development**

The suggested methodology has been applied in new product development process, by choosing the most suitable techniques in each phase. Even if Literature is rich in supporting tools, only a limited number of techniques seems to be really effective (see fig. 1).

- Predisposition: during this phase the enterprise organizes a real creative training and takes the decision about which specific NPD techniques will be used.
- External mapping: it focuses on picking up signals from the external environment by using

*Means-End Chains* (Reynolds and Gutman, 1988), which is a technique for creating a map where product attributes are linked to individual values.

- Internal mapping: the suggested technique is a *double level Swot analysis*. The first level is a strategic one and its results influence the activity of strategic planning; the second level is more operative: the analysis is applied to NPD process.
- Creative process: it is the proper creative phase and it directly influences the first step of NPD process, i.e. product conceptualization.
- Evaluation: ideas generated by using one or more creative techniques are evaluated just in a following moment as it is important to divide the creative moment from the selective one. This can be guaranteed by using *Six thinking hats* technique (De Bono,1992) which allows to approach a problem or an idea within a variety of perspectives, represented by different coloured hats.

#### **4. Criteria for the choice of the most suitable techniques**

We use the following variables as criteria to choose the techniques supporting the creative process:

- structuring and easiness of application;
- preponderance of divergent or convergent phase;
- level of cohesion and of acculturation of the team;
- specificity and analytics degree of the technique;

According to these variables, the creative techniques are classified into two categories: *basic* and *advanced*.

*Morfological Analysis* is an example of basic technique (Joly, 1993), which is particularly suitable in the field of products, services and patents, and based on the analysis of the dimensions of a problem.

*Provocation and Movement* (De Bono, 1992), *Synectics* (Gordon, 1961) and *Creativity Template* (Goldenberg, Mazursky, 2002) are examples of advanced techniques.

The first one, for instance, is a mental operation which uses ex-post logic and is articulated into

two steps: *Provocation* (which takes you out of rationality by using an apparently illogical thinking) and *Movement* (which consists into using previous provocation to obtain a new and useful idea).

Finally it is important to underline that the methodology we have just described is not a rigid scheme to be observed, but it is a flexible instrument which can be modified into its articulation and techniques according to the business reality it has to be applied in.

## **5. Pilot tests**

The test of the proposed methodology will be carried out during the European project named CREATE (Creative Processes for Enterprise Innovation), which started on 1<sup>st</sup> January 2004. University of Udine is the coordinator of the project; the objectives are:

- to test the proposed methodology in two pilot companies in Italy and Spain;
- to discuss the results of the tests in some Slovenian and Norwegian firms, in order to increase the awareness and the capability about methodologies and techniques that may promote the creative climate inside the enterprise and the innovation process as a consequence.

The consortium gathers a well balanced mix of partners of:

- Universities and Research Institutes: University of Udine (Italy), University of Maribor (Slovenia) and Sintef (Norway);
- Industrial Companies: Merloni (Italy) and Derbi of Piaggio Group (Spain);
- Consulting Firms: Innova (Italy).

The objective of the project is to test the effectiveness of the suggested approach, including number and type of phases and value of techniques. The results will be diffused to the European research community and to industrial associations thanks to seminars within European research programmes, scientific publications, participation to meetings and workshops both in the academic and in the industrial world.

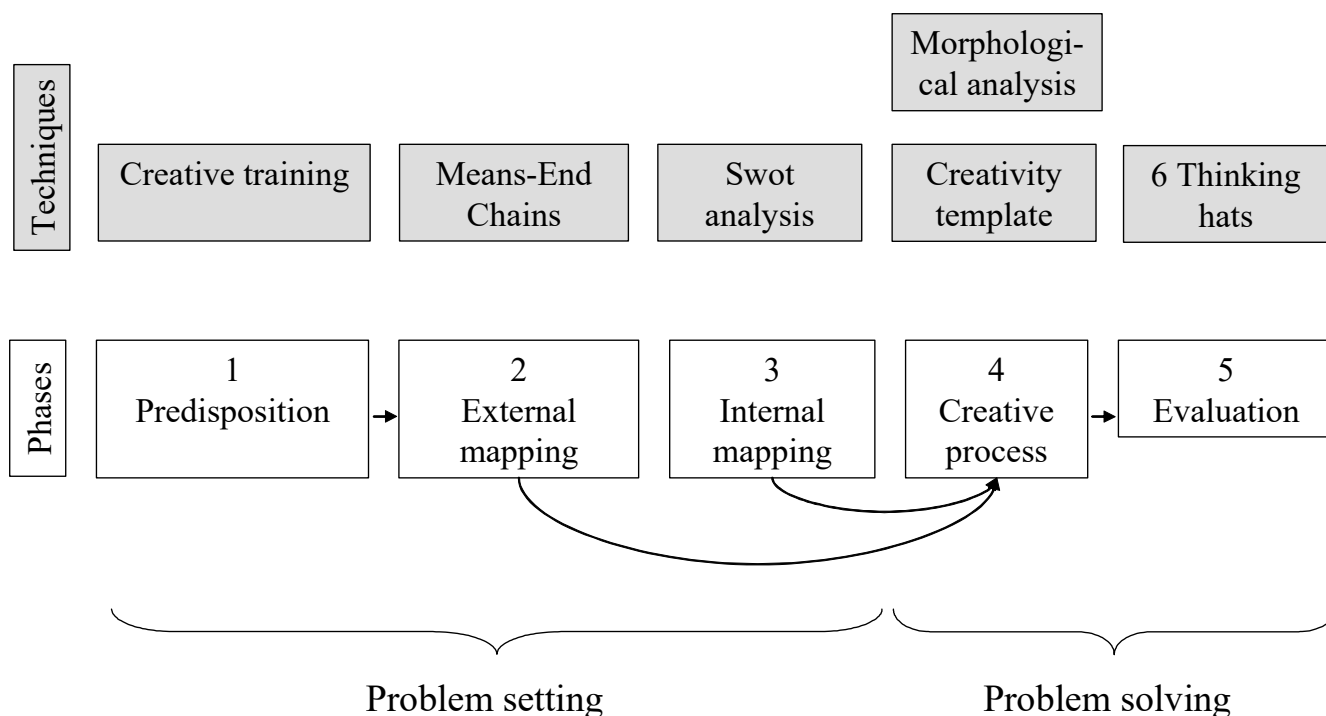


Fig.1 – Creativity in new product development

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