Creatin

Leonardo Da Vinci

ES/08/LLP-LdV/TOI/149007

CREATIN Map of creativity techniques And Information Representation standard

Circulation:	Confidential
Partners:	FUNDITEC
Authors:	Eri Vazquez Claudia Panni
Date:	July 5th 2009
Doc. Ref. N°:	CREATIN-WP4-R5&R6-05072009

COPYRIGHT

Consisting of :

- Fundación para el desarrollo de la ciencia y la tecnología en Extremadura (FUNDECYT)
- Innovate
- Funditec
- First Elements Euroconsultants LTD
- Stichting Bussiness Development Friesland
- Xlab
- National Association of small and médium-Sized Business
- Fundación Centro Tecnológico Industrial de Extremadura
- Fundación Maimona

DOCUMENT HISTORY

Version	Date	Comment
01	5th July 2009	First issue
03		
04		

EXECUTIVE SUMMARY

The Creatin project aims to improve the creative capacity of European SME's. The aim of this document is to present the map of creativity techniques to be used in the Creatin project. Here, some key issues relating to creativity techniques' classification is presented and discussed. Next the approach to be taken in the Creatin project is introduced and the map is presented in detail.

TABLE OF CONTENTS

1 INTRODUCTION

Collectively, there are several hundred creativity techniques.

Creativity techniques are like tools in a workshop, with different tools for different parts of the creative process. For example, there are techniques for defining a problem, exploring attributes of a problem, generating alternatives, visualising explorations, metaphors, analogies, and evaluating and implementing ideas.

Like most tools, all creativity techniques have their good and bad points and Creatin's methodological framework stressed that, even if there are many factors that can facilitate or impede creativity management inside organisations, the Creatin project has mainly focused on the issues mentioned below:

Leadership

Culture

Structure

Motivation

Communication

During the analysis phase the Creatin project selected the most important and interesting elements for identifying those that are, potentially, more adequate and useful for SMEs.

Leadership
• Non conformity is tolerated • Senior management actively encourages the submission of new product ideas
Culture
• A formal idea-generation process is in place • There is a high level of trust in the organisation • Information and knowledge is shared throughout the organisation
Structure
• The structure enables the voice of the customer to be captured effectively • The organisational structure promotes idea generation and learning • Team members are empowered to make decisions • There is a high level of co-operation across the organisation
Motivation
• Knowledge sharing and reuse is rewarded • All team members are mutually accountable • Failures and mistakes are tolerated and not punished
Communication
• Alliances are formed with other organisations for mutual benefit • Information on ideas generated and problems raised are accessible to all • Individuals collaborate to solve problems

After considering the most relevant issues and after exploring a first selection of the partners' available materials and contents on creativity techniques for innovation in products and services, the Creatin project developed a Map of creativity techniques for identifying those that are potentially more adequate and useful for SMEs.

2 CLASSIFICATION OF CREATIVITY TECHNIQUES

In order to help SMEs in the creativity process, the Creatin project tried to categorize the techniques used by partners by classifying these techniques in terms of the factors that represent the core functionality behind each technique.

The Creatin project considers that a useful classification of the creativity techniques is represented by the combination of **three elements**:

1. **the categories of application**
2. **the fields of application**
3. **the level of complexity**

2.1 CATEGORIES OF APPLICATION

The categories of application of a creative technique can be divided into:

A. Problem Definition

B. Idea Generation

C. Idea Selection

D. Idea Implementation and Processes

A) Problem definition.

> Einstein is quoted as having said that if he had one hour to save the world he would spend *fifty-five minutes defining the problem and only five minutes finding the solution*.

The definition of the problem will be the focal point of the technique and of the problem-solving efforts. This definition will include a problem analysis, a redefinition, and all the aspects associated with defining the problem clearly[1].

Examples of problem definition are the **Five Ws** and **H** and **Why Why Why**[2].

Five Ws and H

I keep six honest serving-men:
(They taught me all I knew)
Their names are What and Where and When
And How and Why and Who.

From "The Elephant's Child" by Rudyard Kipling

- Who?
- Why?
- What?
- Where?
- When?
- How?

The Five W's and H, are an influential, inspirational and imaginative checklist (often used by journalists). The technique uses basic question generating prompts

[1] www.sxc.hu/index.phtml

[2] www.mycoted.com

provided by the English language. The method is useful at any level, from a formal checklist to complete informality.

Why Why Why

Repeating questions over and over generates as much or as little information as the quantity and type of questions demand. Differentiation between the two types of repeatable questions gives serial questions, used indefinitely and emptying questions used until the subject concerned is drained.

Serial

- Where the question and answers are related, you ask why C happened and the answer is related to another event B and so the same question can be reiterated, i.e.
    - WHY did C happen, because B did
    - WHY did B happen, because A did
    - WHY did A happen, because (etc.....)
- Causation,
    - 'WHY?' Encompasses:
    - 'What is the reason for?'
    - 'What is the cause of?'
    - 'What is the consequence of?'

B) Idea generation: or the act of generating[3] novel, applicable ideas, is the activity more frequently associated with creative[4] problem solving. As the ideas generated in this stage are used throughout the creative process, taking the idea generation phase seriously is crucial to the success of the creative problem solving process.

Examples of idea generation are the **Role Playing** and the **Brainstorm**.

Role playing

Role playing involves designers[5] acting out scenarios. These scenarios are often ones that the designers observed during the research phase of the design process when they participated in user research. This technique is a tool for both team-based ideation and communication to users and/or clients.

Brainstorm

Brainstorming involves generating a large number of solutions to a problem (idea) with a focus on the quantity of ideas. During this process, no ideas are evaluated in fact, unusual ideas are welcomed. Ideas are often combined to form a single good idea as suggested by the slogan "1+1=3. Brainstorming can be used by groups as well as by individuals.[6]

[3] P.A. Titus, Marketing and the creative problem-solving process. Journal of Marketing Education 22 (2000) 225-235.

[4] R. Van der Lugt, How sketching can affect the idea generation process in design group meetings. Design Studies 26 (2005) 102-122.

[5] www.sxc.hu/index.phtml

[6] A.F. Osborn, Applied Imagination: Principles and procedures of creative thinking, Scribeners and Sons, New York, 1963.

C) Idea selection

The idea selection consists in the selection of the best ideas according[7] to a company's internal assessment criteria.

Examples of idea selection definition are **Anonymous voting** and **Sticking Dots.**

Anonymous voting

Anonymity encourages[8] participants to feel safe enough to take creative risks. It is useful for groups that have significant pressures or anxieties between participants. It is a basic feature of all nominal group methods and is an excellent way of protecting people against accidental or unintentional inter-personal pressures, in climates where there is basic goodwill towards differences of viewpoint, and a commitment to respecting them.

Sticking Dots

It is a popular, quick method for determining priorities by voting.

- Ideas are itemised clearly on a flip chart (or similar aid).
- Nameless voting tends to work best.
- Give each group a different coloured set of dots, i.e. group A have red dots.
- Give each individual or group a number of dots (say 10 each)
- Allow the group time to deliberate over the ideas they wish to vote for.
- Once all the groups are ready, one person from the group sticks their dots by their preferred top ideas.
- In some variations, there is no maximum number of votes an individual / group give to one idea.
- Once all the dots are placed, all the groups enter into a discussion on any patterns, and general observations.
- A short-list of the top 5 is made
  This is not a deeply analytic method, but a short, sharp measure of the current thinking of the task in hand

7 P.A. Titus, Marketing and the creative problem-solving process. Journal of Marketing Education 22 (2000).

8 Source: www.mycoted.com

D) Idea implementation and processes: turning the refined ideas into reality[9] and schemes and techniques which look at the overall process from start to finish (or at least 3 of the above 4 areas).

Examples of these creative processes are the **Implementation Checklist** and the **Productive Thinking Model** (sometimes also known as **thinkx**).

Implementation Checklist

Resources are the resources (time, personnel, equipment, money, information) sufficient for executing this idea?
Motivation, are there others with equal motivation and commitment required for successful implementation?
Resistance, is the idea likely to come across any 'closed thinking' and/or resistance to change in general?
Procedures, are there any procedural complications to get over
Structures, are there any structural obstacles to surmount (e.g. bad communication channels)?
Policies, What official/unofficial policies need to be overcome?
Risk, will risk taking be tolerated by those responsible for implementation and if so to what level?
Power, do any power struggles exist relating to the idea that might obstruct implementation?
Clashes, are there any clashes of personalities that may hinder advancement in the implementation?
Climate, is the organisational environment one of teamwork and co-operation or suspicion and distrust?

Productive thinking model is a structured approach to solving problems or generating creative ideas that is based in part on Creative Problem Solving (CPS) and NASA's IDEF. The **productive thinking model** is a framework rather than a

9 VanGundy, A. B., Jr. (1988), *Techniques of structured problem solving*, New York: Van Nostrand Reinhold Co.

technique; that is, various creativity techniques such as brainstorming and lateral thinking [10]can be applied at different stages of the process.

2.2 FIELDS OF APPLICATION

A creative technique can have various fields of application.

It can be used to generate a new idea or process[11] or to planning a new strategy.

Considering the general interests of our SMEs the most relevant fields of application we considered as useful are:

- Strategic planning
- Creative processes in general
- New product development
- New service development
- Advertising
- Standing off situations
- All business processes in general

2.3 LEVEL OF COMPLEXITY

The complexity of a creativity technique can be based on different factors such as its application, how difficult it is to use it or how expensive can be to use it.

Time required to train the team: quantity of time necessary to make the team familiar with the technique. If the required time for the teaching of the technique is scarce, this technique is preferable than those requiring a lot of time to be assimilated.

Transversal application: possibility to apply the technique to one or more organizational processes (product development, process control, quality management, etc.). If the technique is suited to be applied in several processes, it is preferable than others.

10 The information on "**Lateral Thinking**" is Copyright ©The McQuaig Group Inc. Reproduced here by permission from APTT.

11 Buzan T., The Mind Map Book – How to Use Radiant Thinking to Maximize Your Brain' s Untapped Potential, Plume, 2003.

Difficulty of application: SME's resources to be allocated to "creativity" are not so many. For this reason it is important to exploit resources appropriately, preferring easy-to-apply techniques.

Combining these factors we can distinguish 3 levels of complexity for creativity techniques:

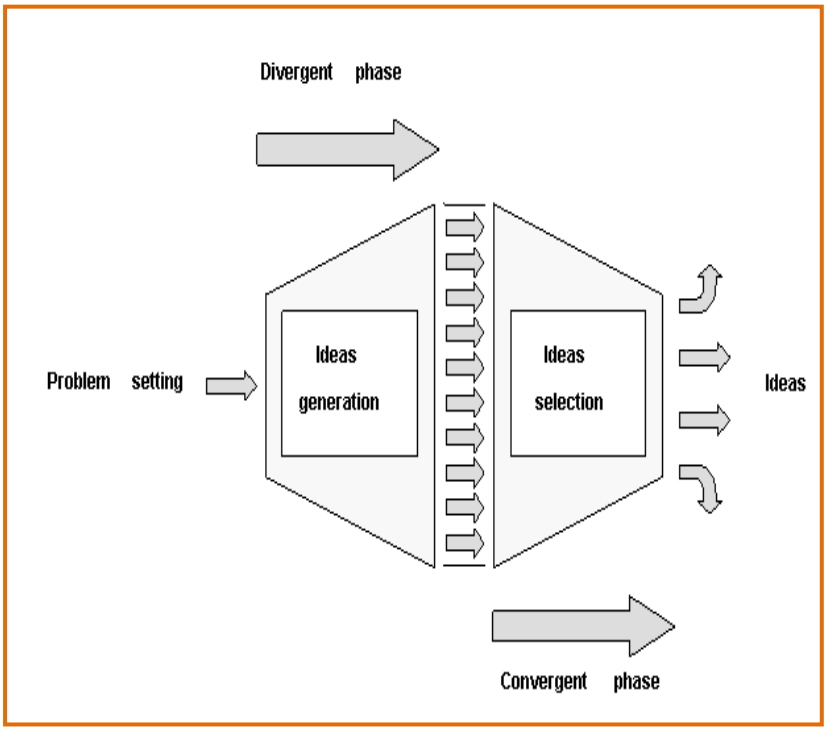
		High
	Medium	
Low		

3 MAP OF CREATIVITY TECHNIQUES

The level of complexity, the category and the fields of application, represent the core of the Map of creativity techniques that Creatin project proposes.

Here we can find the scheme of Creatin's map of creativity techniques developed using Brainstorming as an example of how to classify a creativity technique.

MAP OF CREATIVITY TECHNIQUE	
Name of technique	Brainstorming
Category of application	Idea generation
Field of application	Business processes in general; in particular new product development.
Description	Brainstorming is a creativity technique designed to generate a large number of ideas for the solution of a problem. The method was first popularized in the late 1930s by Alex Faickney Osborn in a book called Applied Imagination. Osborn proposed that groups could double their creative output with brainstorming. The term refers to the "disconnected thought" or "creative thought". This tool asks people to leave their mind free to explore new ways, to invent new associations, to abandon old mental patterns. It is based on a group crossed discussion managed by a moderator. The brainstorming discussion provides a list of ideas, which should be used as a hint to solve a specific problem and which could be evaluated and elaborated subsequently. This technique is based on the consideration that ideas refer to other ones, if they are expressed by different people. This process is metaphorically called cross-fertilization. The process of brainstorming is very simple: when focusing on a specific problem this technique allows the group to create as many solutions as possible, as far as possible, without a pre-established order (see fig.1). The technique provides a great number of ideas and the linkages between them stimulate the generation of new proposals, in an auto-feeding process. The most important thing which must be taken into consideration during the discussion is that each idea must be respected and must not be judged a priori. There are four basic rules in brainstorming. These are intended to reduce social inhibitions among groups' members, stimulate idea generation, and increase overall creativity of the group. 1. Focus on quantity: This rule is a means of enhancing divergent production, aiming to facilitate problem solving through the maxim, quantity breeds quality. The assumption is that the greater the number of ideas generated, the greater the chance of producing a

	radical and effective solution. 2. Withhold criticism: In brainstorming, criticism of ideas generated should be put 'on hold'. Instead, participants should focus on extending or adding to ideas, reserving criticism for a later 'critical stage' of the process. By suspending judgment, participants will feel free to generate unusual ideas. 3. Welcome unusual ideas: To get a good and long list of ideas, unusual ideas are welcomed. They can be generated by looking from new perspectives and suspending assumptions. These new ways of thinking may provide better solutions. 4. Combine and improve ideas: Good ideas may be combined to form a single better good idea, as suggested by the slogan "1+1=3". It is believed to stimulate the building of ideas by a process of association. 
Suggestions	This technique could be applied individually but it should be better applied in group. The latter must be heterogeneous and free from inhibitions/restraints.
Level of complexity	LOW: The technique does not need specific requirements and, in particular, the working group does not require preliminary training. A single session of brainstorming produces more good ideas than a traditional discussion, requiring short time.
Reference	Osborn, A.F. (1963) Applied imagination: Principles and procedures of creative problem solving (Third Revised Edition). New York, NY: Charles Scribner's Sons. Bertone V., Business creativity. Methods, techniques; case studies to enhance the creative potential of managers and entrepreneurs., Milan, Franco Angeli, 1993. Toubia, Olivier, "Idea Generation, Creativity, and Incentives," Marketing Science (2006).
Available training	www.creatin.project.com/ material

material	

4 INFORMATION REPRESENTATION STANDARD

A first identification and classification of the materials and metadata for innovation provided by the partners will be conducted using the table below.

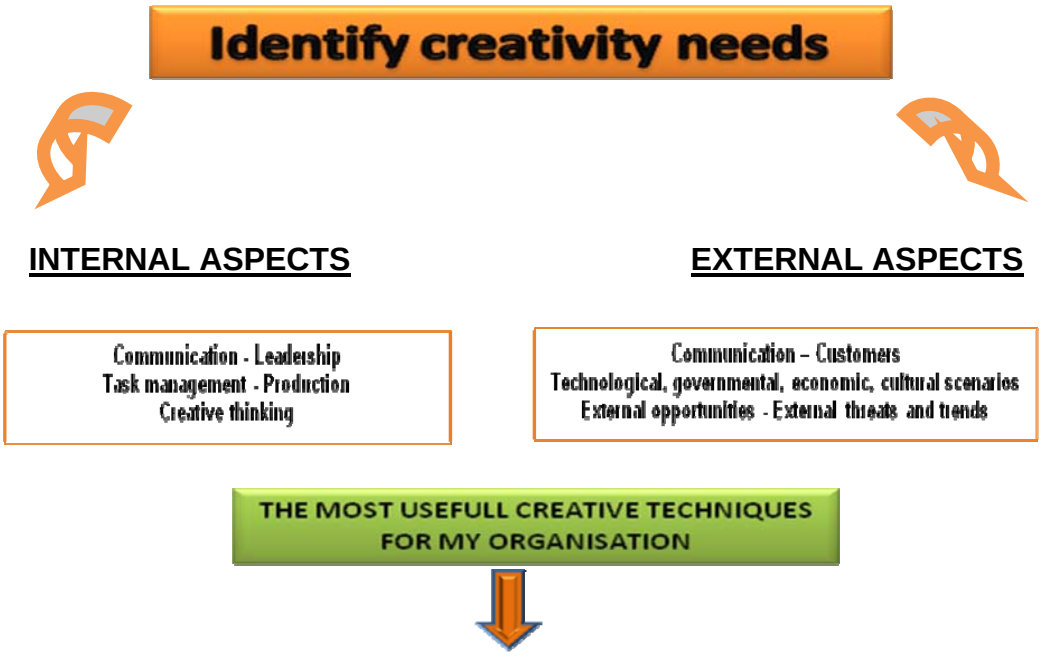
The table aims at creating an information representation standard and it will be used to classify partners' material such as books, papers, training materials, information materials, web site, etc.

INFORMATION REPRESENTATION STANDARD	
Title	
Creator (author)	
Subject or keywords	Creativity – Innovation - Creativity Technique - Lifelong learning
Description	
Publisher	
Date	
Standard Book Number	ISBN – ISSN – ISAN - ASIN
Language	
Rights management	Yes - No
Links	

5 WORK PROPOSAL

The Funditec Team suggested, during the meeting held in Amsterdam, the necessity to develop a creativity self-diagnosis tool for Sme's and intermediary agents. By means of this instrument and through the analysis of internal and external assets, firms will be able to identify which are their needs in terms of creativity practices. This process will provide a tailor-made creativity-performance profile for each individual organisation and will identify the *most suitable creativity techniques* for each one of them.

All the information will be gathered in a brief and concise creativity record card.



RESULT OF THE ANALYSIS	
ORGANISATION: **The current state**	Typology of organisation, internal / external results
ORGANISATION: **Identified shortcomings**	• Creativity awareness increase • Creative leadership is required for your innovation to succeed
Techniques suggested	**Brainstorming - Why Why Why**
Category of application	Idea generation – Problem definition
Field of application	Business processes in general; in particular new product development.
Suggestions	This technique could be applied individually but it should be better applied in group. The latter must be heterogeneous and free from inhibitions/restraints.
Available training materials	www.creatin.project.com/ material

6 CONCLUSIONS

The "Map of creativity" and the "Information representation standard" were presented to the Management Committee for approval.

It is hoped that all the partners in the Creatin project will use this document to conduct future activities of classification of techniques.