D 2.3 Annex 2

Presentations in English
CREATIVE PROCESS

“Imagination is more important than knowledge”

Albert Einstein
THINKING CATEGORIES (I)

**LEFT HEMISPHERE**

Memory, logic, thinking, analysis, calculation…

**RIGHT HEMISPHERE**

Synthesis, intuition, aesthetic, feeling, imagination…

Trondheim, 18th March 2004
THINKING CATEGORIES (II)

CONVERGENT THINKING
(ex ante logic)

- deduction
- modelization
- razionalization

DIVERGENT THINKING
(getaway from established mental models)

- originality
- fluency/ flexibility
- processing skills
THINKING CATEGORIES (III)

VERTICAL THINKING
(use of established mental models)

- problem simplification
- sequential logic steps
- consequents events

LATERAL THINKING
(ex post logic)

- disrupting problem’s bounds
- use of imagination
- forced associations

Trondheim, 18th March 2004
VERTICAL THINKING

• A position is assumed and building starts from there

• Each step is logically derived from the previous one (sequential logic)

*Vertical thinking* → The same hole is dug more in depth

*Lateral thinking* → Digging is carried out in different points
LATERAL THINKING

«... seeking to solve problems by unorthodox or apparently illogical methods»

Oxford English dictionary

- formalized in the 60s by E. De Bono, a Maltese psychologist
- non-linear, non-sequential and illogic
- it adopts specific techniques to go beyond the conceptual models of human thinking

RESULT:
Ability to generate new ideas and concepts
CREATIVE THINKING

3 basic variables

- phases:
  - opening
  - closing

- variety of points of view:
  - low
  - high

- logic:
  - ex ante
  - ex post
VERTICAL AND LATERAL THINKING

<table>
<thead>
<tr>
<th>PHASES</th>
<th>VERTICAL THINKING or convergent</th>
<th>LATERAL THINKING or divergent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing</td>
<td>Low</td>
<td>Ex-post (=forced associations at the beginning illogic)</td>
</tr>
<tr>
<td>Opening</td>
<td>High</td>
<td>Ex-ante (=logic and sequential associations)</td>
</tr>
</tbody>
</table>

LOGIC
vertical thinking AND lateral thinking
Anatomy of creative moment (I)

Human mind is a self-organized system

It creates models of perception and uses them to organise information

Brain perceives only what it expects to perceive: pre-existent models and shapes
Anatomy of creative moment (II)

«… if we can diverge from planned to lateral road, it is possible to come back to starting point and receive a creative intuition…».

E. De Bono, 1998

How it is possible to conceive an idea going along lateral path?

… using creative techniques
Anatomy of creative moment (III)

objectives:
- introducing instability
- achieving a new stable stage

steps:
1) Deviation from consolidated conceptual models
2) Return to starting point
3) Creative intuition or new idea

Lateral shifting
Creativity and humor:

They share the same logic: from a main to an unexpected path and return to starting point.
CREATIVITY BLOCKS (I)

Individual level:

- commanding values
- subjectives barriers
- limiting paradigms (unconscious level)
- mental models (conscious level)
- infanticide of ideas
- excess of information
CREATIVITY BLOCKS (II)

Organization level:

- **Past success**: when present situation works good, it is a strong inhibitor of change
- **Present structure**: the task of structures is to keep relations and make them stable
- **Prevailing culture**: it is the result of organization’s history and requires many years to be modified
CONCLUSIONS

How to get over blocks?

Destabilize existing models…

…using CREATIVE TECHNIQUES
...Think about what has been thought

"Only when we intensely think about what has already been thought, we understand the correct sense of what has already been thought"

Martin Heidegger
Creativity Template

- invented by J. Goldenberg and D. Mazursky (2002)
- **4 new ideative schemes** for a structured approach to innovation processes
- **fundamental principle:** products and services have inside the evolution of consumers’ desires and needs
- 70% of new and successful ideas about products or services can be taken back to one of the templates
- a lot of well-known enterprises adopt this approach (e.g. Philips, Ford, Kodak, Coca-Cola, Motorola, exc.)

---

**Creativity Template**

**Information sources for new products**

Extrinsic source

- Customers needs

  Market

Intrinsic source

-创意思维

  Mind

  Creative thinking

  Ideas for a really new product
Creativity Template

3 fundamental principles

1) **several universal templates**: underlying the evolution of products, they could be used to foresee new products;

2) **narrow ambit**: this means orienting creative thinking by using a structured approach (inventive schemes);

3) **function follows form**: first of all suggest new product or service configurations and then deduce benefits, aesthetic values and other market parameters in order to create a new idea.

Ex. 1  **Domino’s Pizza**: leader in home delivery. Its success derives from reducing price in case **time of delivery** is over half an hour.

Innovative element: **price** of pizza is no longer **constant**, but depends on delivery (step function).

**Attribute dependency template**: dependency between two independent variables
Creativity Template

Ex. 2

Wirefree (1999): mobile loudspeakers substituted by car loudspeakers

Advantages: sound quality (which depends on loudspeakers dimensions) increases significantly without any increment of cost

Replacement template: use of resources available in the context of product application, in order to substitute a fundamental component for product working

Creativity Template

4 fundamental templates emerged from models underlying products evolution

1) Attribute dependency
2) Replacement template
3) Displacement template
4) Control template
**Attribute dependency template (I)**

**What do the following cases have in common?**

1) Domino’s pizza:
   price reduction in case time of delivery is over than half an hour
2) Volkswagen “POLO harlequin” (1995):
   each part of the car is depicted with a different colour

![Pizza and Car Images](image)

**Attribute dependency template (II)**

**Basic principle:**
identify 2 independent variables and create a new dependency between them

The connection can be represented by a step function

![Step Function Diagram](image)
Attribute dependency template (III)

**Variables**

- element subjected to a **measurable change**

**Measure**

- Exact (quantitative)
- Categoric (qualitative)

Ex.: |
<table>
<thead>
<tr>
<th><strong>Components</strong></th>
<th><strong>Variables</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Eyes</td>
<td>colour, vision cleanness</td>
</tr>
<tr>
<td>chair legs</td>
<td>length, colour</td>
</tr>
<tr>
<td>screws</td>
<td>number, length, thickness</td>
</tr>
<tr>
<td>hat</td>
<td>measure, colour, water proof</td>
</tr>
<tr>
<td>...</td>
<td>time</td>
</tr>
</tbody>
</table>

Attribute dependency template (IV)

**How to compete with Domino’s Pizza: a hypothetical case**

**Domino’s:**

**Successful element:**
price reduction in case time of delivery is over half an hour

**Consequence:**
The consumer is less sensitive to delay in general

**Hypothetical competitor strategy:**

- Price as dependent variable
- Adding a new dependency to pizza home delivery
### Attribute dependency template (V)

**Variables for a new dependency**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Is it possible to add a new dependency by using this variable?</th>
<th>Motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>pizza dimensions</td>
<td>no</td>
<td>price already depends on pizza dimensions</td>
</tr>
<tr>
<td>number of extras</td>
<td>no</td>
<td>price already depends on number of extra</td>
</tr>
<tr>
<td>adding a drink</td>
<td>no</td>
<td>this is a component and not a variable</td>
</tr>
<tr>
<td>temperature</td>
<td>yes</td>
<td>very important and measurable variable</td>
</tr>
<tr>
<td>distance between customer and pizza-restaurant</td>
<td>yes</td>
<td>measurable but not very relevant variable</td>
</tr>
<tr>
<td>past orders</td>
<td>perhaps</td>
<td>interesting variable; but it often yet exists a dependency between price and customer's habits</td>
</tr>
</tbody>
</table>

### Attribute dependency template (VI)

**Is your pizza still hot and tasty???

Pizza is full price if it is over a certain temperature

Marketing message:

pizza taste depends on its temperature and not on time of delivery
**Attribute dependency template (VII)**

**How to turn problems into potential opportunities...**

<table>
<thead>
<tr>
<th>Problems</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>how to measure temperature?</td>
<td>measuring temperature of dough (ex. changing colour thermometer)</td>
</tr>
<tr>
<td>will customer accept that its pizza will be touched by a reused thermometer?</td>
<td>personal thermometer as a free gift for customers</td>
</tr>
<tr>
<td>how to maintain the temperature of pizza?</td>
<td>technical problem to be solved; otherwise the idea has no application</td>
</tr>
</tbody>
</table>

**Attribute dependency template (VIII)**

- How can we find Attribute dependency variables?
- How can we evaluate the feasibility and profitability of a new idea?

... By using the *Forecasting Matrix*
Forecasting matrix (I)

How can we identify relevant variables and research new dependencies?

Classification of variables

Internal: under producer’s control
(pizza price, pizza temperature, car colour, …)

External: in contact with product but not under producer’s control
(environment temperature, …)

Forecasting matrix (II)

- Systematic tool for the analysis of variables dependencies
- Columns: internal variables
- Rows: internal and external variables

Ex.: cylindrical glasses

1) internal variables: height, diameter, colour, heat transfer, transparency
2) external variables: drink temperature, external temperature, sugar or alcoholic drink level
Forecasting matrix (III)

<table>
<thead>
<tr>
<th></th>
<th>Height</th>
<th>Diameter</th>
<th>Colour</th>
<th>heat transmission</th>
<th>transparency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>X</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Diameter</td>
<td>0</td>
<td>X</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Colour</td>
<td>0</td>
<td>0</td>
<td>X</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>heat</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X</td>
<td>0</td>
</tr>
<tr>
<td>transmission</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td>transparency</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>temperature</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>% of alcohol</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>% of sugar</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

1 = yet existing dependence
0 = not yet existing dependence

Forecasting matrix (IV)

Elements connected with internal variables:

1) diameter - height

Advantages:

(b): easy to stack on top of each other
(c): increases glass stability (useful for car or train journey)
Forecasting matrix (V)

2) Heat transmission - height

Useful idea:
- a glass with insulating strips (to hold it) and transmitting heat at its basis

Advantage:
- no handle required

Forecasting matrix (VI)

Elements connected with external variables:

3) colour - temperature

Useful idea:
- baby’s bottle with chromatic thermometer (safety attribute)
Forecasting matrix (VII)

4) Heat transmission - temperature

Advantages:

- drinking coffee at the right temperature without excessively reducing the temperature

Forecasting matrix (VIII)

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Potentially wide supply of new products

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

A lot of yet existing products based on Attribute dependency
**Forecasting matrix (IX)**

Columns and rows strategy

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Replacement template (I)**

*It substitutes a resource or a component existing in the system or in its immediate neighbourhood to satisfy a specific function*

New component characteristics:

- available in the local context
- fulfil required function

...think about what has been thought
Replacement template (II)

Some definitions:

- **Component**: autonomous part or subsystem (static object)
- **Internal component**: in the product, under control
- **External component**: in close contact with product, out of control
- **Link between two components**: 1) Controlling component  
  2) Controlled component
- **Product configuration**: the whole links of the product

Replacement template (III)

**Case study: a chair**

- Internal components: legs, seat, back;
- External components: floor, wall, user.

Physical model

![Chair configuration](image)
**Replacement template (IV)**

- Intrinsic component elimination (without removing its function)

![Physical model](image1)

Intermediate chair configuration

**Replacement template (V)**

- Individuation of a component substituting the missing one

**Criteria:**
- External
- In contact with product
- Physically or functionally similar to missing component

**Possible solutions:** wall, table, carpet, user, floor

**Substitutive component:** table (design and functional similarity)
**Replacement template (VI)**

- New product configuration

![New chair configuration](image.png)

**Advantages:**
- children could sit at the appropriate height in relation to the table
- easy to transport
- easier cleaning

**Replacement template (VII)**

**Operative prescriptions**

- List internal components
- List external components
- Build product configuration
- Point out essential components and their function
- Choose an essential component and remove it from the configuration without removing its function
- List external components physically or functionally similar to the excluded one
- Connect each external component to the function lacking in component
- Look for a new market advantage
Displacement template

It excludes an intrinsic component and its functions from product configuration

Case study: a chair

![Diagram of a chair configuration](image)

(a) New chair configuration

(b) Physical model of the new chair

Legs function is not satisfied and the chair is on the floor

**Advantages:** high stability (very useful on the beach)

---

Displacement template vs. Unbuilding

Unbuilding

Drop of service quality and effectiveness

Decrease of product components

lower prices

---

Ex. Procter & Gamble Ivory soap

displacement of a quantitative attribute

![Air bubble in the soap](image)

**Advantages:**
- lower density
- floating

---

Ex.: kit furniture

**Advantage:** price reduction

![Kit furniture](image)
Component control template (I)

It establishes a new link between internal and external components to eliminate negative links and create a new advantage

Operative prescriptions

- List internal components
- Build a product configuration
- List external components and look for negative connections with product configuration
- Solve them by creating a new link between external and internal components

Component control template (II)

Ex. 1: computer screen

(a) user -> radiation -> screen

(b) user -> radiation -> no-radiation screen
**Component control template (III)**

**Ex.2: non-UVA shampoo**

- Product configuration

  ![Diagram](image)

- What external component is in contact with shampoo?

  ... hair, head, water, balsam, soap, towel, body, sun rays

**Component control template (IV)**

- What problems does it create?

  ![Diagram](image)

  Sun rays damage your hair!

- New physical connection between internal components and sun rays to eliminate the negative link
Component control template (V)

- **Solution:** shampoo with substances filtering sun rays

![Diagram]

Advantage: shampoo protects your hair!

NB: it is necessary to include a new component if internal ones can’t solve the problem.
...LIMITLESS COMBINATIONS

"In the battle there are only the normal and the extraordinary forces, but their combinations are limitless; no one can comprehend them all"

SUN TZU

造 = to create

Morphological Analysis

- Defined in 1942-43 by Fritz Zwicky, an American astrophysician
- It allows to find possible solutions to complex problems characterized by several parameters
- It can be effectively applied in:
  - new product development
  - services
  - patents
Morphological Analysis

Parameters: $X \ Y \ Z \ \ldots$

Solutions for each parameter: $m \ n \ p \ \ldots$

Possible answers to the complex challenge: $m \times n \times p \times \ldots$

StepS:

1) Specify your challenge

2) Select the corresponding parameters

3) List variations

4) Research all the possible solutions to the problem

5) Try different combinations

6) Increase the examined solutions
Morphological Analysis

Ex.: New product development

1. **Objective:** "Improving existing models of cars"

2. Analyze cars and **list** some of their **parameters**:
   - improving elements
   - optional equipment
   - internal processes
   - temporary properties

3. Generate the **variations** for each parameter:
   - Which *improving elements* can be found?
   - Which *optional equipment* can be offered to customers?
   - Which are the different kinds of *internal processes* in a car?
   - Which *temporary properties* can make a car special in its early phases of life?

4. Research all the **possible solutions** to the problem:
   - 5 alternatives X 4 parameters → 1024 different combinations

<table>
<thead>
<tr>
<th>IMPROVE EXISTING MODELS OF CARS</th>
<th>IMPROVING ELEMENTS</th>
<th>OPTIONAL EQUIPMENT</th>
<th>INTERNAL PROCESSES</th>
<th>TEMPORARY PROPERTIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>fuel consumption</td>
<td>ABS</td>
<td>automatic</td>
<td>powerful engine</td>
</tr>
<tr>
<td>2</td>
<td>breakdowns</td>
<td>air-conditioning</td>
<td>operator-controlled</td>
<td>perfect tyre</td>
</tr>
<tr>
<td>3</td>
<td>vibrations</td>
<td>heated seats</td>
<td>random</td>
<td>absence of dust</td>
</tr>
<tr>
<td>4</td>
<td>noise</td>
<td>CD player</td>
<td>continuous</td>
<td>cleanness</td>
</tr>
<tr>
<td>5</td>
<td>odor</td>
<td>Bluetooth technology</td>
<td>intermittent</td>
<td>new car smell</td>
</tr>
</tbody>
</table>
Morphological Analysis

5. Try different combinations:
   - Choose randomly one variation for each parameter and connect them to create new possibilities

<table>
<thead>
<tr>
<th>IMPROVING ELEMENTS</th>
<th>OPTIONAL EQUIPMENT</th>
<th>INTERNAL PROCESSES</th>
<th>TEMPORARY PROPERTIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>fuel consumption</td>
<td>ABS</td>
<td>automatic</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>powerful engine</td>
</tr>
<tr>
<td>2</td>
<td>breakdowns</td>
<td>air-conditioning</td>
<td>operator-controlled</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>perfect tyre</td>
</tr>
<tr>
<td>3</td>
<td>vibrations</td>
<td>heated seats</td>
<td>random</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>absence of dust</td>
</tr>
<tr>
<td>4</td>
<td>noise</td>
<td>CD player</td>
<td>continuous</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>cleanness</td>
</tr>
<tr>
<td>5</td>
<td>odor</td>
<td>Bluetooth technology</td>
<td>intermittent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>new car smell</td>
</tr>
</tbody>
</table>

Random combination: odor
- air-conditioning
- operator-controlled
- new car smell

Result: Fragrance-control system for cars

Advantages: With a touch of button, drivers can choose from jasmine, mint, a fresh leather smell, or perfume scents, all blowing through the air-conditioning system
Morphological Analysis

Ex.: New service for car washes

<table>
<thead>
<tr>
<th>METHOD</th>
<th>PRODUCTS WASHED</th>
<th>EQUIPMENT</th>
<th>PRODUCTS SOLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>full cars</td>
<td>sprays</td>
<td>related products</td>
</tr>
<tr>
<td>2</td>
<td>self trucks</td>
<td>conveyors</td>
<td>novelties</td>
</tr>
<tr>
<td>3</td>
<td>hand houses</td>
<td>stalls</td>
<td>discount books</td>
</tr>
<tr>
<td>4</td>
<td>mobile clothes</td>
<td>dryers</td>
<td>edible goods</td>
</tr>
<tr>
<td>5</td>
<td>combination dogs</td>
<td>brushes</td>
<td>cigarettes</td>
</tr>
</tbody>
</table>

Fonte: M. Michalko, 1991

- Random combination: self, dogs, brushes, stalls, sprays, dryers and related products
- Result: self-service dog wash characterized by:
  - ramps leading to waist-high tubs to spray pets, scrub them with brushes, shampoo, and blow dry them;
  - Selling dog products (shampoos and conditioners).
- Advantages: Pet owners wash their dogs while their car is going through the full-service car wash.
SIX THINKING HATS

Are you always the same person if you wear different hats???
How we think...

- Different ways of thinking:
  - information
  - logic
  - emotions
  - desires
  - creativity

- We think in different ways simultaneously, often generating confusion
  Ex.: we look for a logical excuse for emotions

Six hats = Six kinds of thought

Aim: to clarify how we think

Six thinking hats allow us to think separating different ways of thinking and then combining them

As for stained print...
It’s easy… you just need six hats!

- Rational
- Organizational
- Pessimistic
- Optimistic
- Creative
- Emotional

Why… six hats?

- To play a part
  (if you wear a clown’s costume, you can behave like a clown!)

- To protect yourself
  (you can freely express your *EMOTIONS*)

- To pay attention
  to every aspect of a problem

- To change your register
  *(stop being pessimistic!)*
### Basic rules

1. **WHITE**: **ABSENCE** of colour... neutrality, data, numbers, facts, information
2. **RED**: like **LOVE**!... emotions, sensations, premonitions, intuitions
3. **BLACK**: like **THUNDER**!... negative aspects, risks, problems
4. **YELLOW**: here comes the **SUN**! ... positive aspects, constructive attitude, opportunities
5. **GREEN**: like **GRASS**... fertility of thoughts, new ideas, creativity
6. **BLUE**: like the **SKY** above us... supervision, control, direction

---

### Basic rules

- "Let's put the white/red/black/yellow/green/blue hat on"
- No more exhortations or reproaches
THE WHITE HAT

...like a COMPUTER!!

Data, numbers
Information
True things
Things said by others

THE WHITE HAT

“Let’s put the white hat on”

✓ NO interpretations
✓ NO opinions
✓ Precise and specific questions
✓ Two levels of information:
  • controlled facts
  • believed facts
THE RED HAT

...like **LOVE!!**

Do you see red?
Emotions & sensations
Premonitions
Intuitions

THE RED HAT

“*Let’s put the red hat on*”

- Reactions & concerns
- NO justifications
- NO need to explain reasons
- Visible sensations

Two categories:

1) common emotions (fear, aversion, suspicion)
2) premonitions, impressions, aesthetich regards
THE BLACK HAT

...like \textbf{THUNDER!!}

Devil's advocate
Negative judgments
Why isn't your idea good?

---

THE BLACK HAT

"Let's put the black hat on"

- critical judgment
- pessimism

**STEPS:**

1) is the premise valid & well-grounded?
2) is the consequence correct?
3) is the consequence necessary?
4) is it possible to find other consequences (or conclusions)?
THE YELLOW HAT

...like the SUN!!

Brilliance, luminosity
Optimism

Opportunity
Positive logical judgments (not emotional)

THE YELLOW HAT

“Let’s put the yellow hat on”

- advantages (gain & benefits)
- towards positive results (efficiency & feasibility)
- concrete and precise suggestions
- prediction about the future
- dreams & fancies
THE GREEN HAT

...like GRASS!!

Fertility, creativity  Movement, provocation
Plant from the seed  Random words

THE GREEN HAT

“Let’s put the green hat on”

✓ NEW ideas, concepts, perceptions
✓ NEW approaches to problems
✓ change
✓ alternatives & options
✓ lateral thought
✓ humour
✓ beyond what is well-known
THE BLUE HAT

“Let’s put the blue hat on”

- instructions to think
- organization of thought
- control & respect of the rules
- right questions
- define the problem
- define the targets
- explorative questions
- summaries, conclusions, data, ...
# A possible sequence

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1)</strong></td>
<td><strong>GREEN:</strong> new ideas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2)</strong></td>
<td><strong>YELLOW:</strong> opportunites from the new ideas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4)</strong></td>
<td><strong>RED:</strong> enthusiasm for the new ideas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>WHITE:</strong></td>
<td>in every phase for necessary information</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BLUE:</strong></td>
<td>in every phase to drive the discussion, focus the most important ideas and get the results</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PROVOCATION

&

MOVEMENT

A DIVERGENT TECHNIQUE

FOR THE CREATIVE PROCESS
CREATE Project

Trondheim, 18th March 2004

Tools

- **Creative process**
  - Creativity Template
  - Morphological Analysis
  - Provocation & movement

- **Evaluation**
  - Six hats

- **External Mapping**
  - Attribute Value chain

- **Internal Mapping**
  - SWOT Analysis

**Fasi**
- 0 Predisposition
  - Creative training

**Tecniche**

**EDUCATION**

**QUESTIONARY SESSION**

**GROUP SESSION**

WE ARE HERE!
PROVOCATION & MOVEMENT

Author: E. De Bono

**PROVOCATION:** you leave reasoning by using an apparently illogic thought

Example: *restaurants do not let you to pay*

**MOVEMENT:** you get a new useful idea after having accepted the provocation

Example: *it is not necessary to pay immediately* (Diners Club)
Techniques of Provocation & Movement

**Provocation**

1. Escape method

2. Stepping stone method
   2.a Reversal
   2.b Distorsion
   2.c Exaggeration
   2.d Pious illusion

**Movement**

1. Extracting a principle

2. Focusing on differences

3. Istant by instant

4. Positive aspects
TECHNIQUES OF PROVOCATION
1. Escape method

**Steps:**
1) Detailed description of something we take for granted

2) Escape from reality through its negation

- Particularly useful to examine methods, procedures or stable systems
- It shakes existing procedures, forcing to consider them deeply and in a new way
1. Escape method

**EXAMPLES:**

Ex. 1: “Scooter is a mass product”

‘**Po:** Scooter is a tailoring product ”

Ex. 2: “You change your hull when it is strictly necessary”

‘**Po:** Let’s change our hull just for the fun of it”

Ex. 3: “You buy your scooter at the shop and it is ready”

‘**Po:** I create my own scooter by myself”
2. Stepping stone method

STEPPING STONES:


A stepping stone is a practical instrument to prepare a provocation.
2.a. Reversal

You observe the usual way of doing something and then you turn about and you proceed in the opposite direction.

Ex. 1: “You spray the paint on the scooter”
   ‘Po: The scooter submerges in the paint”

Es. 2: “I look for the keys”
   ‘Po: The keys look for me”
2.b Distortion

It is obtained by modifying usual order of events (relations, temporal sequence…) …

Ex.1: “You seal a letter, and then you post it”
‘Po: you post a letter, and then you seal it”

Ex.2: “For the trip I fill the scooter up”
‘Po: During the trip I ‘fill up’ too”
2.c Exaggeration

It requires measures and dimensions: number, frequency, volume, temperature, duration...

It means suggesting a measure which is outside from usual range.

Es. 1: “Policemen have two eyes”
   ‘Po: Policemen have six eyes”

Es. 2: “Scooters present few colour variations”
   ‘Po: Scooters are colourless”
2.d Pious illusion

It is obtained by expressing a fanciful desire which is impossible to realize.

Ex.1:  "The aeroplane leaves at a settled time"

‘Po: the aeroplane waits for you if you are stuck in a traffic jam”
2.d Pious illusion

**EXAMPLES:**

Ex. 2: “The hull of a scooter can be scratched very easily”

‘Po: My scooter should always be brand-new”

Ex. 3: “Travelling by scooter is not very comfortable”

‘Po: My scooter is as comfortable as my car”

Ex. 4: “I drive my scooter”

‘Po: The scooter drives by itself”
TECHNIQUES OF MOVEMENT
Techniques of movement

They allow your mind to move freely after a provocative statement in order to reach a useful idea.

1. Extracting a principle
2. Focusing on differences
3. Instant by instant
4. Positive aspects
1. Extracting a principle

It consists into deriving a principle from the provocation.

Ex. 1: finding new means of communication for an advertising agency

**Provocation:** “Po: let’s go back to the public town crier”

**Movement:**
- The town crier stays among people
- The town crier can modify his message according to the audience
- The town crier can’t be “turned off”

**Solution:** You use public telephones free of charge and the conversation is interrupted by advertising messages
1. Extracting a principle

Ex. 2: DERBI

**Provocation:**

‘Po: *The scooter guides by itself*”

**Movement:**

- Lights turn on automatically when you start or when the sun goes down
- The user has to focus on driving only

**Solution:**

The scooter automatically performs all the additional operations; the driver just uses steer, brakes and throttle
2. Focusing on differences

You compare the provocation with the old way of doing things, listing diverging points and exploring them.
2. Focusing on differences

Ex. 1: finding a new idea about stamps

**Provocation:**

‘**Po:** stamps should be long and thin’.

**Movement:**

- You might use stamps for sealing letters
- They could be sold as rolls of adhesive tape
- The length of the tape could be proportional to the value of the stamp

**Solution:**

Dividing the stamp roll into postal units instead of printing values on stamps
Ex. 2: DERBI

Provocation: ‘Po: Scooters are as comfortable as cars”

Movement:
- Scooters might have heating
- Living spaces are wider
- Position is more correct thanks to a comfortable seat

Solution: Wide loading rooms focused on one use (laptop, bottle rack,…). Mobile back that can also be used as a backpack. Adjustable seat.
3. Instant by instant

You observe the consequences of a provocation instant by instant, as if they were in slow-motion.
3. Instant by instant

Ex. 1: Finding a new idea for suspensions

Provocation: ‘Po: cars have square wheels’

Movement:
- Each wheel rises until it rests on a corner
- The car bumps

Solution: Suspensions could anticipate the rise and adapt by reducing their extension (intelligent suspensions)
3. Instant by instant

Ex. 2: DERBI

Provocation: ‘Po: my scooter is never scratched when it falls’

Movement:
- Scooter falls down
- Floor comes into contact with scooter’s surface
- Floor does not come into contact with scooter’s hull

Solution: Application of a cover made of plexiglass that protects the hull and the paint
4. Positive aspects

It consists into choosing a positive aspect in the provocation and making it real.
4. Positive aspects

Ex. 1: DERBI

**Provocation:**

Po: *the keys look for me*

**Movement:**

- I do not lose time while searching for the keys
- I do not have to do an additional operation (inserting the key) in order to start my scooter

**Solution:**

The scooter recognizes a remote control key and starts by itself when its owner approaches