CREATE:

Creative Processes for Enterprise Innovation

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KM Europe 2004
Amsterdam, Nov 10th 2004
Summary

- Creativity and theory of complexity
- Organizational dichotomies to promote creativity
- Methodology and tools from CREATE project
- Experiences from the workshops
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Midway upon the journey of our life
I found myself within a forest dark,
For the straightforward pathway had been lost.

(Dante Alighieri, *La Divina Commedia, Inferno*, 1306)

**MIDWAY UPON THE JOURNEY OF OUR LIFE** = STORE OF KNOWLEDGE

**FOREST DARK** = COMPLEXITY
Provocations from Santa Fe
Walking on the Edge of Chaos
Praise of Continuity: the 'Excellence' Circle

- Lever
  - RELATIONAL CAPACITY
  - OBJECTIVE
    - Sharing to improve the context
  - ACTION
    - Plan the present
  - EFFECT
    - Continuity
  - STATE
    - Operational Excellence

[source: De Toni - Comello, 2005]
Future belongs to those who can imagine it

*Logic takes you from A to B.*
*Imagination takes you everywhere.*
(Albert Einstein, 1955)

*Imagination is the first source of human happiness*
(Giacomo Leopardi, 1837)
Praise of Discontinuity: the 'Creation' Circle

[Diagram showing the cycle of Creative capacity, action, effect, state, and objective with the lever at the center.]

[Source: De Toni - Comello, 2005]
Dynamic equilibrium at the edge of chaos

'Excellence' Circle

- RELATIONAL CAPACITY
- ACTION: Plan the present
- EFFECT: (+) Continuity
- STATE: Operational excellence
- OBJECTIVE: Sharing to improve the context

Creative disorganization

MANAGERIAL APPROACH

EDGE OF CHAOS

ORDER

'Destruction' Circle

- RELATIONAL CAPACITY
- ACTION: Imagine the future
- EFFECT: (+) Discontinuity
- STATE: Creative destruction
- OBJECTIVE: Creation of new contexts

ENTREPRENEURIAL APPROACH

EDGE OF CHAOS

ORDER

DISORDER

[source: De Toni - Comello, 2005]
Towards creative disorganization

Creative disorganization is a concept that involves a shift from a state of continuous improvement (Operational excellence) to a state of creative destruction (Efficient path). This transition is characterized by disequilibrium, which represents a departure from dynamic equilibrium at the edge of chaos. The diagram illustrates the process of moving from order to disorder, and vice versa, as part of the creative process.

Key terms:
- **Operational excellence**: Represents a state of continuous improvement and efficiency.
- **Creative path**: Transition from operational excellence to creative disorganization.
- **Efficient path**: Transition from creative disorganization to a state of destruction.
- **Disorder**: Represents a state of creative destruction or breakdown.
- **Creative destruction**: Represents a state of creative destruction.
Inside creative disorganization
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Enterprises need to be re-imagined in order to strengthen their capability to evolve, instead of their capability to perform

R.N. Foster, S. Kaplan, 2001
1st dichotomous coexistence

**continuity**
- routines in order to improve efficiency
- pursuit of order
- incremental innovation
- managerial guidance

**discontinuity**
- projects in order to support development
- pursuit of disorder
- radical innovation
- entrepreneurial guidance

plan the present while imagining the future
2\textsuperscript{nd} dichotomous coexistence

\textbf{learning by exploitation} & \textbf{learning by exploration} \\
\begin{itemize}
  \item exploit acquired knowledge
  \begin{itemize}
    \item use already tested models
    \item problem solving
    \item efficiency
    \item priority of analysis over action
  \end{itemize}
\end{itemize}
\begin{itemize}
  \item explore new ways
  \begin{itemize}
    \item develop new models
    \item problem solving & setting
    \item flexibility
    \item priority of action over analysis (try & learn)
  \end{itemize}
\end{itemize}

learning to adapt & learning to create
Categories of thinking

**LEFT HEMISPHERE**

memory, logic, reasoning, analysis, computation...

**RIGHT HEMISPHERE**

synthesis, intuition, aesthetics, sensation, imagination...
Convergent and Divergent Thinking

![Convergent and Divergent Thinking Diagram](source: De Toni, Sanfilippo e Comello, 2004)
3rd dichotomous coexistence

convergent thinking & divergent thinking

- rationalization
  - ex-ante logic (sequenced associations)
  - well-defined problems
  - use of consolidated models
  - analytical model

- imagination
  - ex-post logic (odd associations)
  - breaking problem boundaries
  - escape from established models
  - synthetrical model

CREATIVE ACTION

source: R.N. Foster, S. Kaplan, 2001

KM Europe, Nov 10th 2004
## Formal and Informal Systems

<table>
<thead>
<tr>
<th>ORDER</th>
<th>FORMAL SYSTEM</th>
<th>INFORMAL SYSTEM</th>
<th>PREVAILING SYSTEM</th>
<th>EFFECTS</th>
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<tbody>
<tr>
<td>perfect order</td>
<td>• organizational structure</td>
<td>• conventional behaviour</td>
<td>• formal system</td>
<td>• death because of fossilization</td>
</tr>
<tr>
<td></td>
<td>• defined control systems and procedures</td>
<td>• risk aversion</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>• inertia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORDER AND DISORDER</td>
<td>• see above</td>
<td>• see below</td>
<td>• balance between formal and informal system</td>
<td>• life</td>
</tr>
<tr>
<td>chaotic order</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DISORDER</td>
<td>• Not defined control systems and procedures</td>
<td>• diversity</td>
<td>• Informal system</td>
<td>• death because of disintegration</td>
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<tr>
<td>chaotic disorder</td>
<td></td>
<td>• propension to risk</td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>• change</td>
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4th dichotomous coexistence

control & freedom of action

<table>
<thead>
<tr>
<th>control</th>
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<tbody>
<tr>
<td>• organizational</td>
<td>• emergence from the bottom</td>
</tr>
<tr>
<td>structure</td>
<td></td>
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<tr>
<td>• respect for</td>
<td>• making people responsible</td>
</tr>
<tr>
<td>formal procedures</td>
<td>• chance of making mistakes</td>
</tr>
<tr>
<td>• error reduction</td>
<td>• propension to risk</td>
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<tr>
<td>• risk reduction</td>
<td>• importance of diversity</td>
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<tr>
<td>• importance of</td>
<td></td>
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<td>conformity</td>
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formal & informal systems
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**CREATE European Project**

<table>
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<tr>
<th>CREATE Project</th>
<th>EU Flag</th>
<th>Information Society Technologies</th>
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<th>UNIVERZA V MARIBORU</th>
<th>SINTEF</th>
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<th>Merloni Elettrodomestici</th>
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CREATE methodology

It originates from a compared analysis of methodologies and techniques for creativity:

- **16 methodologies** analysed
- **More than 100 techniques** evaluated

Development of a methodology articulated in **5 phases** and **6 techniques**
Phases and techniques

1. Predisposition
   - Training on creativity

2. External mapping
   - Attribute value chain

3. Internal mapping
   - SWOT Analysis

4. Idea generation
   - Creativity Template
   - Morphological analysis
   - Provocation & Movement

5. Evaluation
   - Six thinking hats

TRAINING
QUESTIONNAIRE SESSIONS
GROUP SESSIONS
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CREATE
WORKSHOP IN DERBI
COST REDUCTION ACTION (C.R.A.)

Aim: Try to find new product or process features that allow a considerable cost saving. Priority to modifications to already existing products.
Cost Reduction Action

Using the **CREATIVITY TEMPLATES** to substitute a component in order to save money:

```
TANKS <-> PEDALS <-> SADDLE <-> PLASTICS
ELECTRIC SYSTEM <-> STRUCTURE
COMPLEMENTARY TO ENGINE <-> ENGINE
TRANSMISSION <-> WHEELS
SUSPENSION SYSTEM <-> BRAKE SYSTEM
```
Is it possible to replace the metal pedals with other ones made of plastic? *(Replacement Template)*
Cost Reduction Action: evaluation

Brake and gear pedals in plastic material

The WHITE HAT: all the analytical data

- After a few calculations, this replacement on the whole range of motorcycles would save more than 280,000 €/year

The RED HAT: emotions

- Afraid to break the brakes!
- Plastic is a ‘poor’ material
Cost Reduction Action: evaluation

Brake and gear pedals in plastic material

The BLACK HAT: what’s wrong with it?
- The brake is a safety element: it must never break
- No one ever did this before: why?

The YELLOW HAT: positive aspects
- Heavy cost reduction
- The pedal should break less frequently in case of falling
- Wide range of suppliers once plastic material has been identified
Cost Reduction Action: evaluation

**Brake and gear pedals in plastic material**

**The GREEN HAT: new further ideas**

- Paint the pedal (*PROVOCATION*)
- Extend this technology to other similar metal parts (like footboard, stands, etc.)

**The BLUE HAT: final overview**

- This is a very promising idea
- The material replacement depends on the innovation and research capability of their technological partners
"All things are ready, if our minds be so"
(Shakespeare, 1599)
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