WORKSHOP IN: DERBI

Case Study Introduction

Hereby we present a Case Study about the application of *CREATE* methodology with the industrial partner Derbi (Piaggio group's company). The whole application lasted 6 days and was grouped in 3 two-days workshops, to be held at Derbi's headquarters in Mollet del Valles (Barcelona, Spain). The partners of *CREATE* Consortium that were involved in carrying out these sessions were, besides Derbi, University of Udine and Innova S.p.A., who acted as trainers and facilitators.

The following document is structured in five main parts:

I.   a general introduction, with common information about company and participant's profile, the creative phases involved in the sessions and the application fields which the methodology was used for;

II. the description of sessions nr. 1-2, complete with details and notes about the implementation and use of the methodology;

III. the description of sessions nr. 3-4, complete with details and notes about the implementation and use of the methodology;

IV. the description of sessions nr. 5-6, complete with details and notes about the implementation and use of the methodology;

V.   the general comments and issues emerging from this Case Study, along with conclusions.

Further information on *CREATE* methodology and organizational creativity in general may be found in our project's website (www.createproject.net) and public documents.

Enjoy!

PART I:

GENERAL INFORMATION

Company's profile

The story of Derbi Nacional Motor started in 1922 when Simeon Rabasa Singla established the first bicycle repair shop, at the age of 21. The shop soon expanded and Mr. Simeon had to buy new buildings to cover the production of bicycles.

After the 2nd World War, DERBI began mass production of its first SRS (motorbike model). It was the first moped built entirely by RABASA DERBI. The name "Derbi" comes from the acronym of "derivados bicicletas" (i.e.: "derived from bicycles"). With this choice Simeon wanted to clarify the commercial aim and the project of the company for the future, that was the production of small motorbikes.

In 1957 DERBI launched the motorcycles with the biggest cylinder capacity, the two-cylinder 350 cc and 16 HP mass-produced by DERBI. Production rose to 4,200 units and the number of employees to 280. These were the mass-motorization years when Derbi launched the model Antocha 49 that was sold in more than one million pieces. Nevertheless the racing spirit of the brand is better represented by models like the 74GS that ran and won in every track.

In the '60s and '70s Derbi produced the first automatic scooter and the first cross-country moped line. In the latter sector the company is still the market leader.

In the '90s the dream of Simeon Rabasa still lives on. Despite of his demise, his motorcycles and his company are the evidence of a dream become true.

In current years Derbi scooters and motorcycles are the result of the design ability of one of the most important European producer, leader in the 50cc market segment. Since 2001 Derbi has been part of the Piaggio Group, the most powerful European scooter manufacturer.

Derbi racing spirit is closely related to its results in moped championship. In the last 40 years the "Balas Rojas", the legendary red bullets, won 82 races in class 50, 80, 125, 250cc with 18 world champion title. Many famous drivers ran and won with Derbi, for example, Angel Nieto (5 times world champion), Jorge "Aspar" Martinez (4 times), Manuel "Champi" Herreros (one time), Alex Criville or Barry Sheene. Nowadays four official 125cc bikes are involved in the world moped championship with Derbi brand.

The racing spirit of Derbi appears in each model of the company to produce unique scooters in terms of glamour, design, technique and performance.

Description of the participants

The creative sessions in Derbi were articulated in three meetings, each one subdivided in two days.

The first one was merely a training session in which all the creative techniques and the conceptual framework were presented. The number of participants that attended this session was about twenty-five, since, as already said, this session was stand-alone, as mainly theoretical . After this, approximately a more limited group composed by ten people attended to the other two working sessions. The group was extremely heterogeneous. There were people with different nationalities (Italian and Spanish), with different levels of education, ages and roles. They came also from different organizational functions. In particular there were people from the department of New Product Development, Purchasing Unit, Production and Quality control. Every participant had his own personal experience in the company. However, in each working session employees and

managers worked together, developing new ideas and evaluating them. This fact could be a consequence of their attitude to run working groups. In fact they usually organize brainstorming sessions for new product development (once a month).

Application field of the methodology

New Product Development, Cost Reduction

Creative Phases involved

Predisposition, External Mapping, Internal Mapping, Idea Generation, Evaluation

PART II:

SESSIONS 1-2

Place and date(s) of the sessions

Mollet (Barcelona - Spain), 15th-16th March 2004

Agenda of the session

Starts on	Ends on	Item
MONDAY, 15 MARCH 2004		
15:30	15:45	Introduction
15:45	16:00	Presentation of the CREATE project
16:00	16:15	Presentation of the University of Udine
16:15	16:30	Compilation of the preliminary questionnaire by participants
16:30	17:00	Presentation: Creativity at the edge of chaos
17:00	17:15	Coffee break
17:15	18:00	Case Study: application of creative techniques to Derbi
18:00	18:15	Open discussion
TUESDAY, 16 MARCH 2004		
09:30	10:00	Presentation: Introduction to creativity
10:00	10:45	Presentation: The attribute-value chain analysis for external mapping
10:45	11:30	Workshop: World cafè
11:30	11:45	Break
11:45	12:00	Presentation: SWOT analysis for internal mapping
12:00	12:30	Presentation: The creative process
12:30	13:00	Are we creative?
13:00	14:30	Lunch break
14:30	15:30	Presentation: The provocation and the movement
15:30	16:00	Workshop: Provocation and movement
16:00	16:15	Coffee break
16:15	16:30	Workshop: Provocation and movement
17:00	18:00	Morphological analysis
18:00	18:15	Open discussion
WEDNESDAY, 16 MARCH 2004		

09:30	10:45	Presentation: Creativity Template for creative process
10:45	11:00	Coffee break
11:00	11:30	Presentation: Six thinking hats
11:30	12:15	Final questionnaire and open discussion

Description of the session

PREDISPOSITION PHASE

The first two days in Derbi were exclusively assigned to the predisposition phase which was carried out by training sessions supported mainly by Power Point presentations. Therefore, the tone was predominantly didactic and the audience was for a long while passive.

During the first day, a general introduction to themes of creativity and complexity management was given. After the presentation, a brief discussion arose about the concept of "edge of chaos" and about how an organization can understand if it is too chaotic, too ordered or correctly on the "edge of chaos". The facilitators answered that it is not easy to measure the inclination of a company towards order or chaos and further research on these topics (e.g.: company modelling, complexity and creativity indicators, etc.) is needed.
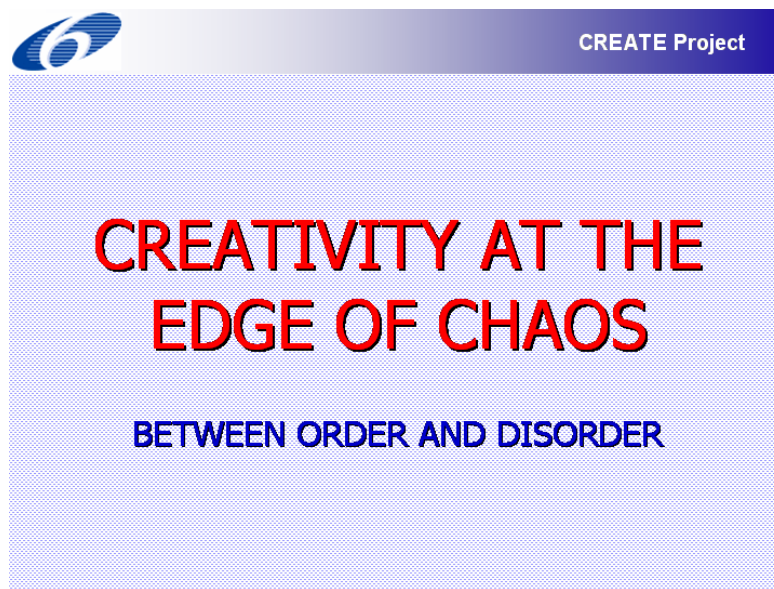

Fig. 1 –The title of a predisposition presentation

Subsequently, some examples of applications of creative techniques were provided. In particular, these examples were produced by a class of students who simulated the use of creative techniques in specific workshops held during an academic course. The process addressed by the students was the development of new motorbikes: in such a way, DERBI workers were able to be provided with some simple and effective examples related to their own industrial field ad market.

The idea of presenting some real examples before explaining in detail the applied techniques was due to the will of giving immediate evidence of the potentiality and the real applicability of the techniques of *CREATE* methodology.

Here follows a summary of the case study developed by the students and exposed to DERBI workers.

Example on NPD (motorbike sector)

Introduction

We started from the results of the attributes-value chain in order to identify the attributes of the product tightly linked to the most important final values
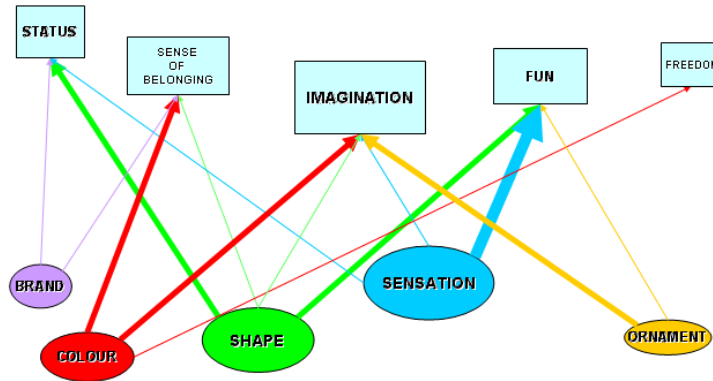
First steps

For the chosen product (scooter), we decided to try to modify these attributes:

✓shape   ✓sensation   ✓colour and ornament

PROVOCATION *(Escape Method)*
Scooter is like clothes made to measure

MOVEMENT *(Positive aspects)*
An extremely custom-made product (both aesthetically and technically) can satisfy every customer for its design and the possibility to feel good sensations

IDEA
We propose a modular scooter with interchangeable components and wide possibility of regulating and monitoring performances

Evaluation (I)

The GREEN HAT: new further ideas

• Scooter with many interchangeable parts
• An electronic device checks different parameters linked to the driving behaviour
• According to the collected data the company works out the driver's profile
• Taking into consideration the driver's profile, the company suggests personalization on two levels: functional and aesthetic
• Parameters checked by the electronic device:
  ✓Opening of exhaust valve; ✓consumption; ✓average speed;
  ✓rpm (round per minute); ✓wear and tear of brakes; ✓ pressure brakes oil;
  ✓engine temperature
• The functional personalization, carried out by authorized selling points, takes into consideration:
  ✓ shock absorber; ✓ suspension; ✓ brakes; ✓ tyre;
• The aesthetic personalization is obtained through the purchasing by the customer of specific kits:
  ✓ rear-view mirrors; ✓small dome; ✓ hull; ✓ tail; ✓ rims; ✓stickers

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Evaluation (II)

The YELLOW HAT: positive aspects

✓ Push towards new components purchasing;
✓ Extremely customized product => CUSTOMER SATISFACTION;
✓ High perceived quality; ✓ Push towards customer's creativity;
✓ For the company, this is a free market research;
✓ Easiness of repairing; ✓ Brand loyalty; ✓High product differentiation;
✓ Personalization as elaboration, but legal

The RED HAT: emotions

✓ Scooter as status symbol; ✓ Image; ✓ Freedom; ✓ Sense of belonging;
✓ Self-esteem; ✓ Focus on creativity; ✓ Personal gratification from driving sensations;
✓ Entertainment; ✓ Curiosity

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Tab. 1 –An example presented in DERBI on New Product Development, taken from the educational sessions with the students at the University of Udine

During the second day, all the techniques that compose *CREATE* methodology were presented: the first technique presented was *Attribute-Value Chain* (External Mapping Phase), then *SWOT Analysis* (Internal Mapping Phase) was proposed and, finally, before the three creative techniques of the Idea Generation Phase (*Creativity Template, Morphological Analysis* and *Provocation&Movement*), a short presentation of the dichotomies of creativity was shown.

At the end of the second day, once concluded all the presentations, a discussion was opened to select the areas and the processes to be addressed in the following sessions in order to concretely apply the proposed techniques.

The figure below shows the areas suggested by the participants and the one which was selected among all (rounded in red).

Moreover, during the days, different questionnaires were distributed in order to collect feedback on the effectiveness of the proposed training framework: the data analysis, beside the comments gathered directly from the participants, highlighted that the participants appreciated the contents and the topic, but they would have preferred a more interactive and less didactical approach. This kind of observation helped the facilitators to improve the remaining sessions and to modify the overall approach also with other industrial users.

Finally, two questionnaires were given in order to be distributed to and filled by, respectively, DERBI's customers and by DERBI's employees. These questionnaires were used to gather data to feed the mapping phases. In fact, the first one was conceived on the basis of the technique *Attribute-Value Chain* used to collect information from the customers for the External Mapping Phase, while the second questionnaire was designed for the *SWOT Analysis* for the Internal Mapping Phase. Once collected the data from the customers and the employees (the gathering process took about two weeks), the facilitators elaborated them in order to present the results during the following sessions 3-4 that are described in the following section.

PART III:

SESSIONS 3-4

Place and date(s) of the sessions

Mollet (Barcelona - Spain), 28th-29th April 2004

Agenda of the session

WEDNESDAY, 28 APRIL 2004		
15:30	16:30	Presentation: The results of attribute-value chain
16:30	17:15	Discussion of the results
17:15	17:30	Coffee break
17:30	19:00	Discussion on the projects at Derbi
THURSDAY, 29 APRIL 2004		
09:30	10:30	Summary of the techniques
10:30	13:00	Workshop
13:00	15:30	Lunch break
15:30	17:00	Workshop
17:00	19:00	Final preparation of the reports
FRIDAY, 30 APRIL 2004		
9:30	10:30	Presentation of the reports
10:30	12:00	Evaluation (6 hats) of a project

Description of the session

The description of the session will follow this structure:

- External Mapping Phase phase[1];
- Idea Generation phase (use of Creativity Template technique);
- description of the Evaluation of the first generated idea (use of Six Thinking Hats technique);
- description of the Evaluation of the second generated idea (use of Six Thinking Hats technique);

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[1] The results of the Internal Mapping Phase (SWOT Analysis) are not presented here since they are considered confidential by DERBI.

EXTERNAL MAPPING PHASE

The first part of the session was used to present the results elaborated according to the questionnaires on *Attribute-Value Chain* filled by about 80 DERBI's potential customers. The data elaboration (based on statistical processing) allowed to structure two visual maps that links product's attributes to customers' value. The questionnaire was focused on the attributes of the scooter with particular emphasis on design (e.g.: color, size, image, etc.) and performance (e.g: reliability, safety, eco-compatibility, etc.) issues.

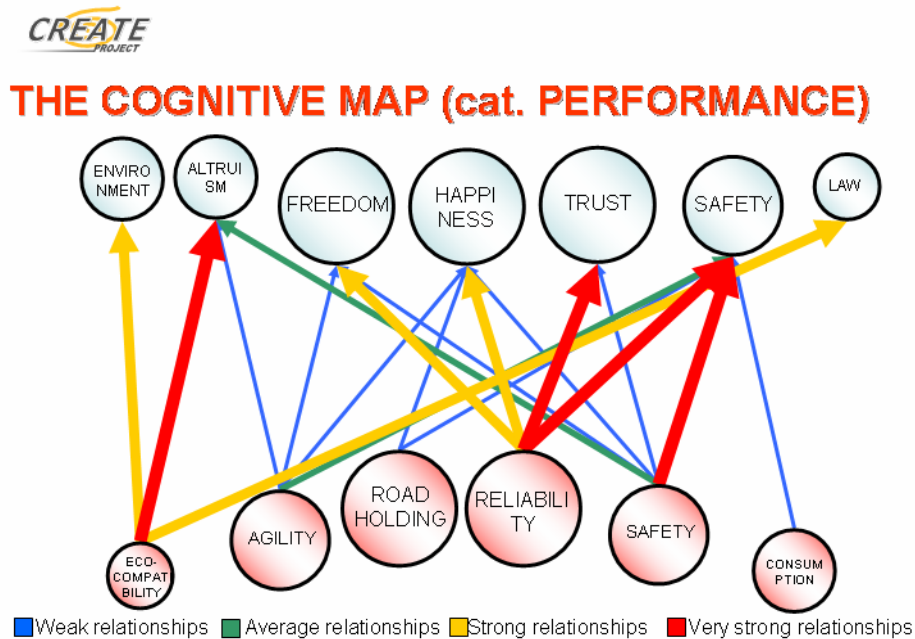The resulting visual maps are shown in the figure below.
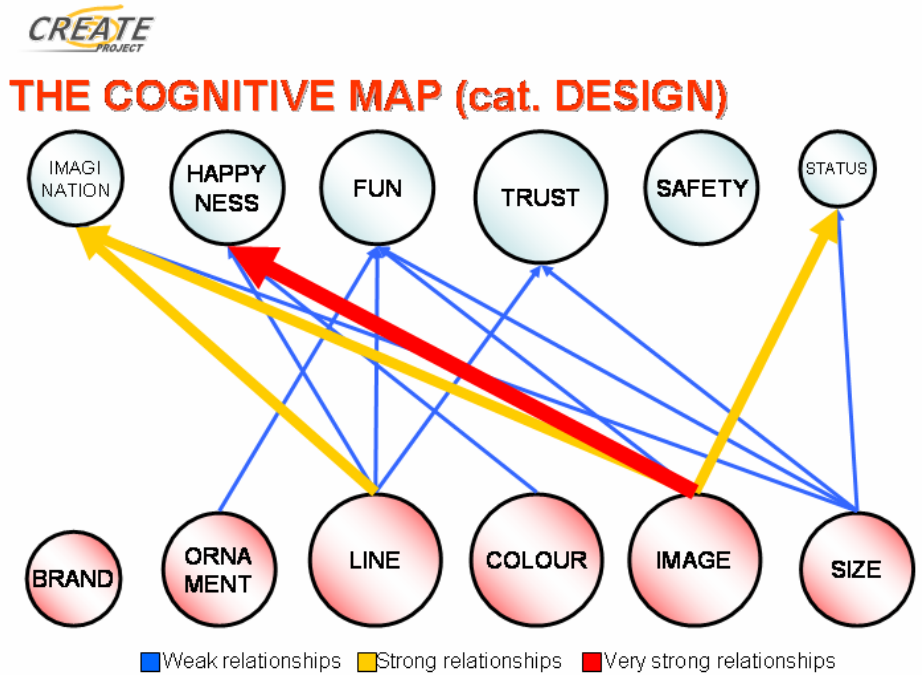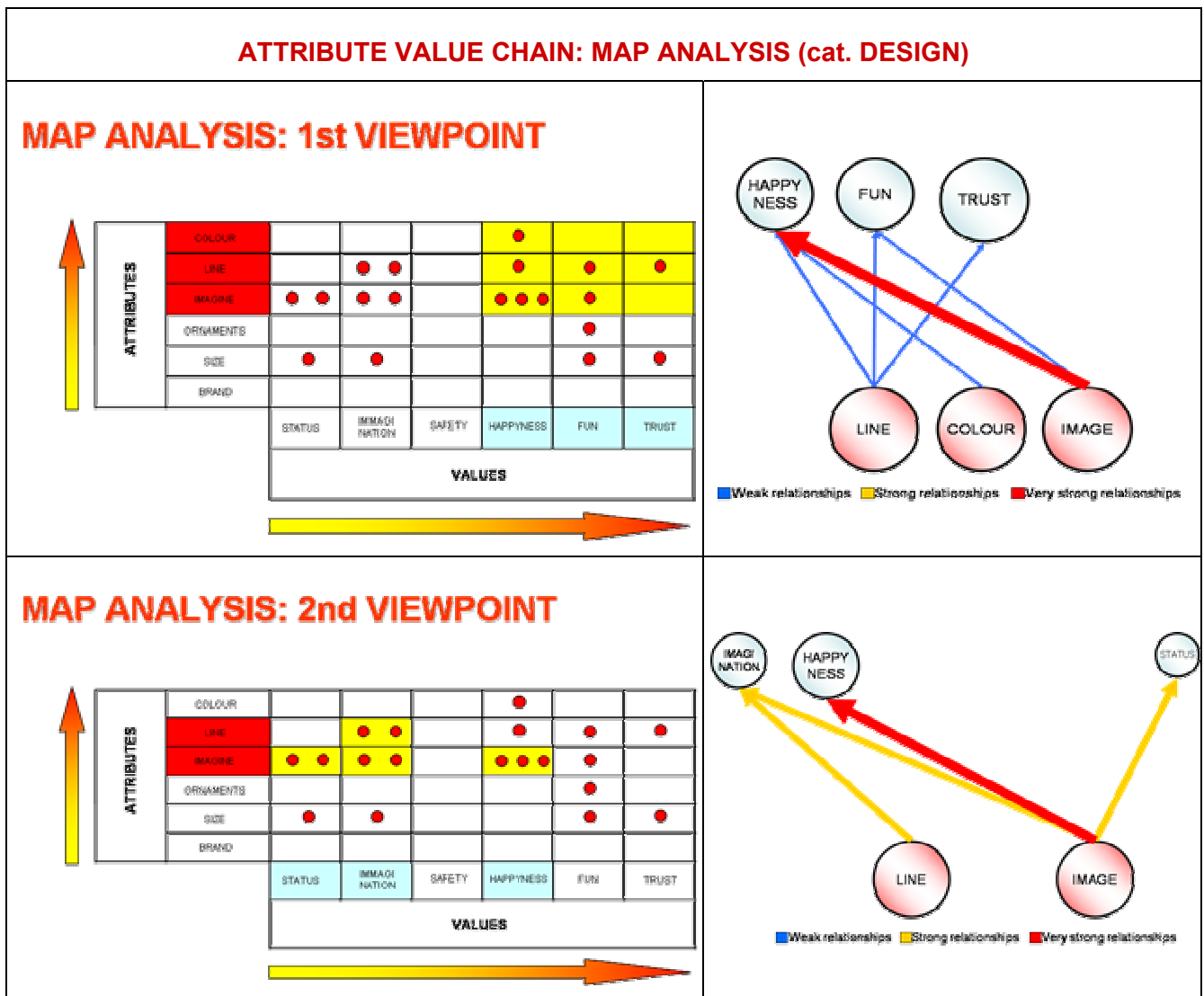

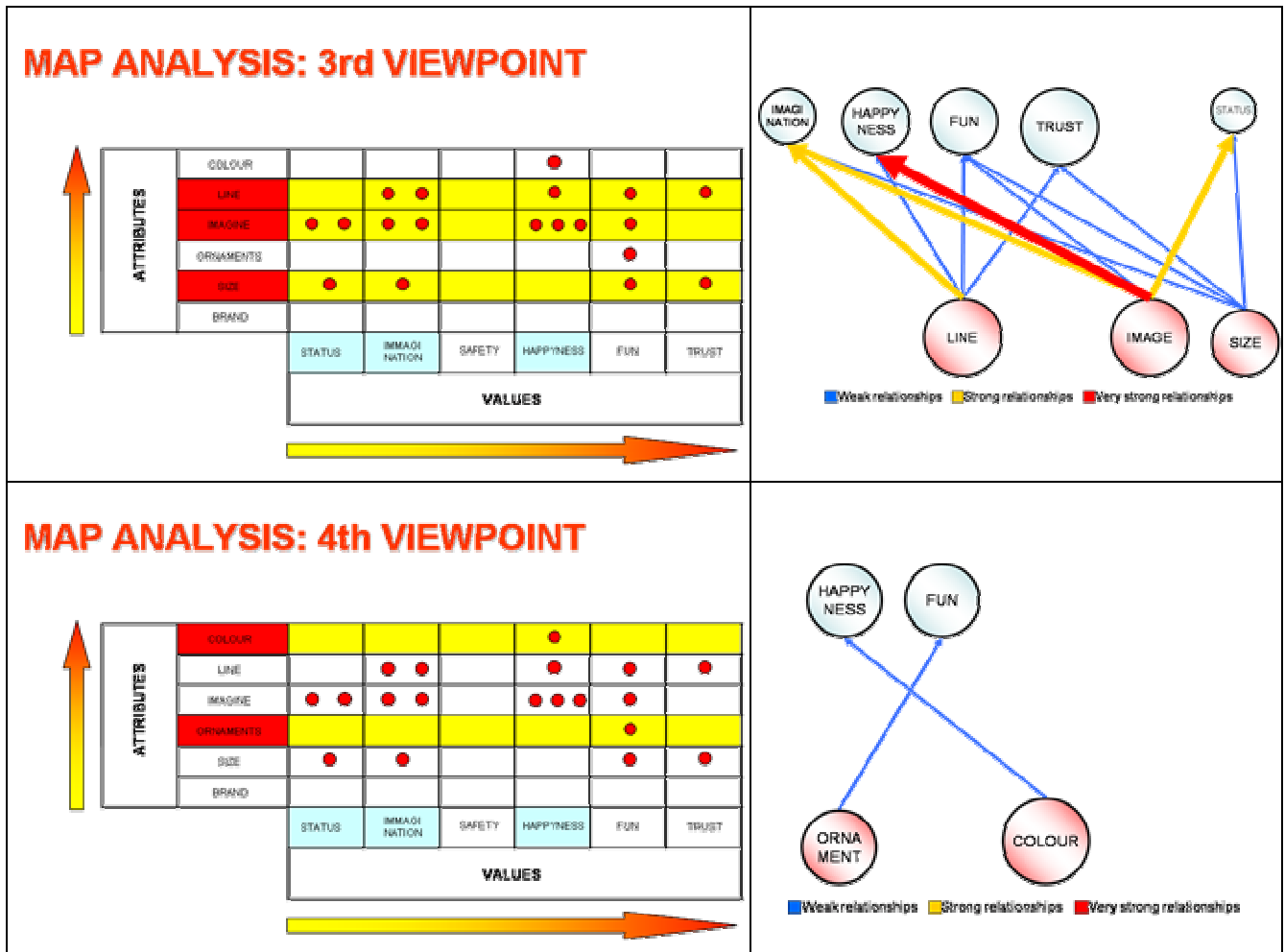Fig. 2 –Results of Attribute-Value Chain techniques in DERBI

Each map allows to highlight relationships, often not obvious or immediately evident, between an attribute of the product (e.g.: agility) and a value of the customer's (e.g.: freedom). These relationship can be very strong (red arrows), strong (yellow), average (green) or weak (blue). Moreover, the size of the circles is proportional to the "weight" that was attributed to each parameter (both product attribute and customer's value) by the people who filled the questionnaire.

The cognitive maps were analyzed and proposed from 4 distinct viewpoints that provided different possible explanatory keys, as detailed below:

- First viewpoint: focus on the most important values and attributes;

- Second viewpoint: focus on the most significant relationships;

- Third viewpoint: focus on the most significant attributes (since attributes are under manufacturer's control);

- Fourth viewpoint: focus on the important but less significant attributes (why are there so few relationships?).

Here below, an example is provided.

Tab. 2 –Possible viewpoints to read the results of Attribute-Value Chain technique

Each viewpoint was discussed in order to find out possible conclusions arising from the analysis.

It is useful to underline that the analysis could not have a proper statistical validity, since the sample was too little, while it was useful to show the functioning and the potential of the technique. Basically for these reasons, the conclusions drawn from the discussion were not used in the following phases.

IDEA GENERATION PHASE

Step 1: Product configuration

Once closed the discussion on the External Mapping Phase, the participants were asked to address the first application area selected during the first session, that is Cost Reduction Action.

The facilitator, in order to start collecting useful information and to contextualize the problem, proposed to use the *Creativity Template* technique, which is very useful for finding out the critical features of the problem. This technique was preferred to the *Morphological Analysis,* as the latter seemed to be too time-consuming and easily the discussion could get stuck.

Therefore, together with Derbi's staff, the group drew the product configuration and then started reasoning on it. The product configuration was structured taking into account the purchasing groups and not exclusively the physical configuration, since the general aim was to find a way to save money in the procurement and manufacturing process.
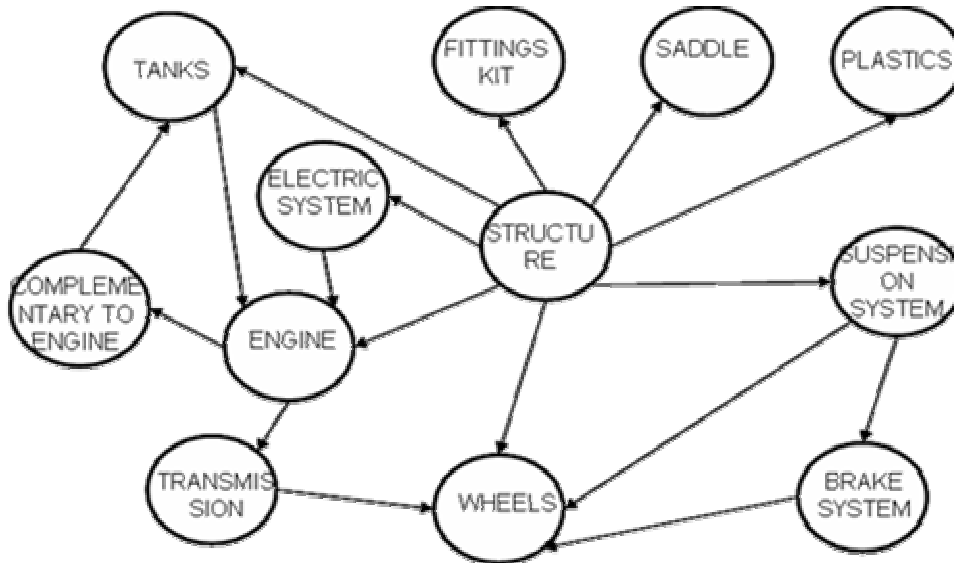
Fig. 3 –Product configuration (*Creativity Template* technique) based on purchasing groups

Once defined the product configuration, it was decided to apply the *Replacement Template* (sub-technique of *Creativity Template*) which seemed to be very appropriate for the purpose of cost reduction.

Step 2: Component replacement

According to the prescriptions of *Replacement Template*, the first effort was spent trying to find a component to be replaced with a resource or a component available in the local context and fulfilling the same function.

From these considerations, two ideas arose quite quickly:

1. To procure some components jointly with the parent company PIAGGIO which controls DERBI and operates in similar markets: in this case, DERBI *replaces* (in a figurative way) some parts of its product founding upon PIAGGIO's contractual power in order to gain a cost reduction.

2. To *replace* the metal pedals with other ones made of plastic: in this case, the resource should be available in the local context, as DERBI has many suppliers of plastic components.

Both ideas could, from the group's perspective, allow to save a consistent amount of money. Hereafter we are going to start with the description of the Evaluation phase for the first idea, which will be followed by the second one.

EVALUATION PHASE (1st IDEA)

1. "Joint procurement within the PIAGGIO Group"

The next phase aimed to fully discuss this idea by using the *Six Thinking Hats* technique. The purpose of the Evaluation phase would be to assess if the idea emerged is feasible and, at least, if some initial implementation steps can be defined. Otherwise, if the evaluation was negative, this idea would be rejected before taking into consideration a possible implementation plan. The *Six Thinking Hats* technique was presented during the first session, but a brief resume of the technique was provided to refresh participants' memory.

Hereafter we provide indications on how the session was run with a few considerations from the facilitators' point of view:

- after the training presentations, each participant was given a set of 6 coloured cards, each one representing one different hat; coloured cards were preferred over hats because hats may be considered 'ridiculous' to wear by someone, while cards are as funny as hats but more 'neutral'; moreover, hats may be difficult to transport while coloured cards may be easily obtained with simple materials (paper, scissors, marking pens, etc.) usually present in most offices. Coloured cards proved effective anyway;

- the session began with the White Hat, for two main reasons:

  1. it is useful to collect all objective data (costs, norms, restrictions, etc. etc.) before evaluating positive and negative aspects of an idea;

  2. participants are more easily involved in the discussion if they start by explaining 'neutral' information;

  During this session, many people soon afterwards started using the other hats correctly without support from facilitators;

- the author's recommendations about the use of the *Six Thinking Hats* state that each hat must be worn simultaneously by all participants in order to force people to assume the hat's point of view; in our experience, we let the participants use the cards freely: for instance, someone could state a Yellow Hat consideration while immediately after another one could interrupt with a Green Hat suggestion. The only restraint was that each people had to hold the relevant coloured card in front of him while stating his consideration (e.g., he had to hold the yellow card if he was going to state a 'yellow hat' sentence). This allowed people to freely express their thoughts without having to wait for the hat's turn, while at the same time they were shielded by other people's opinion because they were 'wearing a hat' anyway. On the other side, this method may lead to chaotic discussion if facilitators are not strict in

enforcing the use of the cards and limiting people who tend to interrupt frequently (mainly with a Black Hat attitude);

- the facilitators paid attention if the same participant held the same card every time he intervened; in this case, the person was invited to 'wear a different hat' and make a relevant statement; this approach was fruitful for both the participants and the overall discussion;

- the session was managed with the support of a notebook and a projector; six different PowerPoint slides were prepared with different background colours, one for each hat; as statements were thrown, one facilitator reported them in the relevant slide;

- at several points during the discussion, the facilitators or one of the participants held the blue card (representing control) and overviewed the collected sentences, by cycling through the different slides. If some slides were too empty in comparison with others, the facilitators invited the participants to wear the hat in question and throw a few more considerations;

- during the intermediate overviews, pending issues were noted (usually Black Hat negative remarks or Yellow Hat possible exploitations); therefore facilitators invited people to wear a given hat (usually the 'green hat') and try and solve the issues;

- while using the Green Hat, participants usually generated new ideas and solutions by sheer intuition and common brainstorming; if the group was stuck with some problem that could not be solved, the facilitators recalled the Provocation methods: they proved helpful also in these cases;

- at the end of the sessions, all the participants and facilitators wore the Blue Hat and summarized the conclusions in the final Blue Hat slide.

Here follows a summary of the evalutation of the "Joint Procurement" idea with the use of the *Six Thinking Hats*[2]:

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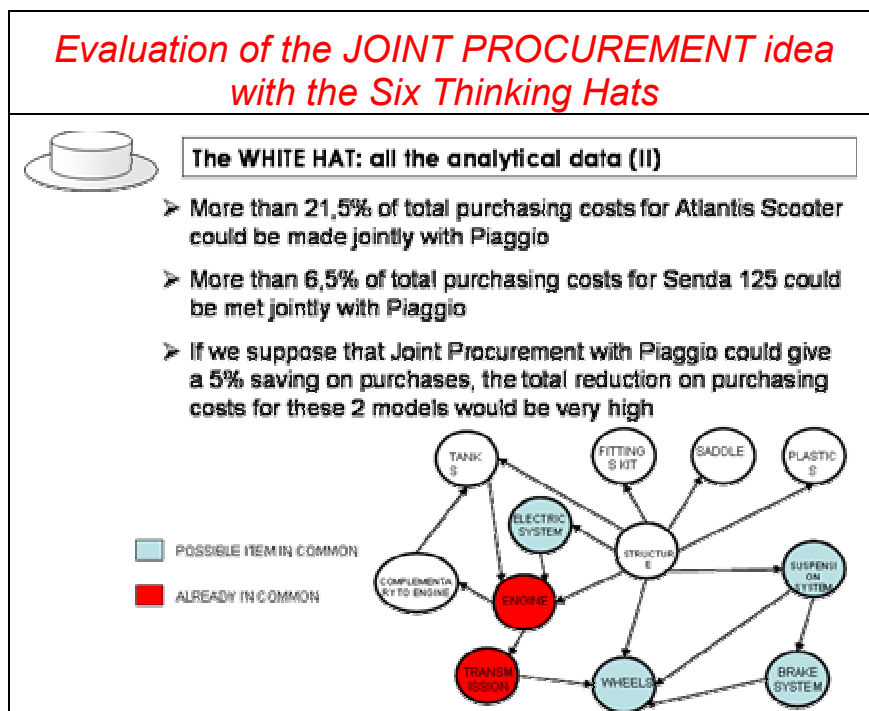
[2] Some critical data are not presented here due to their confidential nature.

The RED HAT: emotions

➢ It strengthens the feeling of being an industrial group

➢ Afraid to compare business units within the industrial group (are they performing better than us?)

The BLACK HAT: what's wrong with it?

➢ Too costly and complicated to share data on suppliers and purchasing actions with Piaggio

➢ Distance from the suppliers, less flexibility

The YELLOW HAT: positive aspects

➢ Cost reduction

➢ More contractual strength also with current suppliers

The GREEN HAT: new further ideas

➢ It is possible to extend this solution to the whole Piaggio Group: component standardization at group level (win-win logic)

The BLUE HAT: final overview