



FROM VALUE ANALYSIS TO VALUE MANAGEMENT

Inno **VAL**
valeur et qualité en innovation

4th International Conference on Excellence Management and Quality Systems

TEHRAN june 2007

Claude P. BAUMGARTEN – PVM, TVM

AGENDA

A) VALUE ANALYSIS (V.A)

B) VALUE MANAGEMENT (M.V)

C) APPLICATION OF V.A IN AUTOMOBILE INDUSTRY

- Product reasoning:

Hood hinge mechanism for a Peugeot car

- Process reasoning:

automation of a group of welding process

- Organization reasoning:

Defining the functions of the team managers in a PSA production unit

- In Design:

Renault X 90 project

FROM VALUE ANALYSIS TO VALUE MANAGEMENT

A) VALUE ANALYSIS(V.A)

1. WHAT IS VALUE ANALYSIS?

An **approach** helping to provide a solution *perfectly adapted to the user needs and expectations*, with **Minimum cost**.

It guides to improve the quality of a product, a service, or a process, without adding to the cost or, by reducing the cost without reducing the level of services given, or both.

2. WHAT IS THE APPLICATION OF THE V.A?

To design a product in a broad sense:

- a **product** (existant or new, simple or complex technology , repetitive or unique, tangible or intangible)
 - a **process** (commercial, industrial or administrative),
 - a **service** (internal to organization or service provided)
 - an **organization** (existant or new)
- ***If a design has not changed in 18 years, the product is either excellent or management has failed to improve it (Zimmerman, 1982)***

3. IN WHICH INDUSTRIES IS V.A USED?

- **In all kind of industries**(from MNCs to the SMEs), in all kind of services (Education, Distribution & Procurement, commercial, production, administration, after sales service, ...)
- And also in **all kind of organization** (Public and Private Enterprises,...).

4. ORIGIN OF V.A

Originated from three factors:

- A product considered as a group of functions which achieves user expectation.
- Judging the value of the product by balancing services offered and resources used.
- Mapping the stakeholder efforts in the project from the defining the services to be provided to the realization of the services and extending it to product support services.

4. ORIGIN OF V.A

This approach helps to:

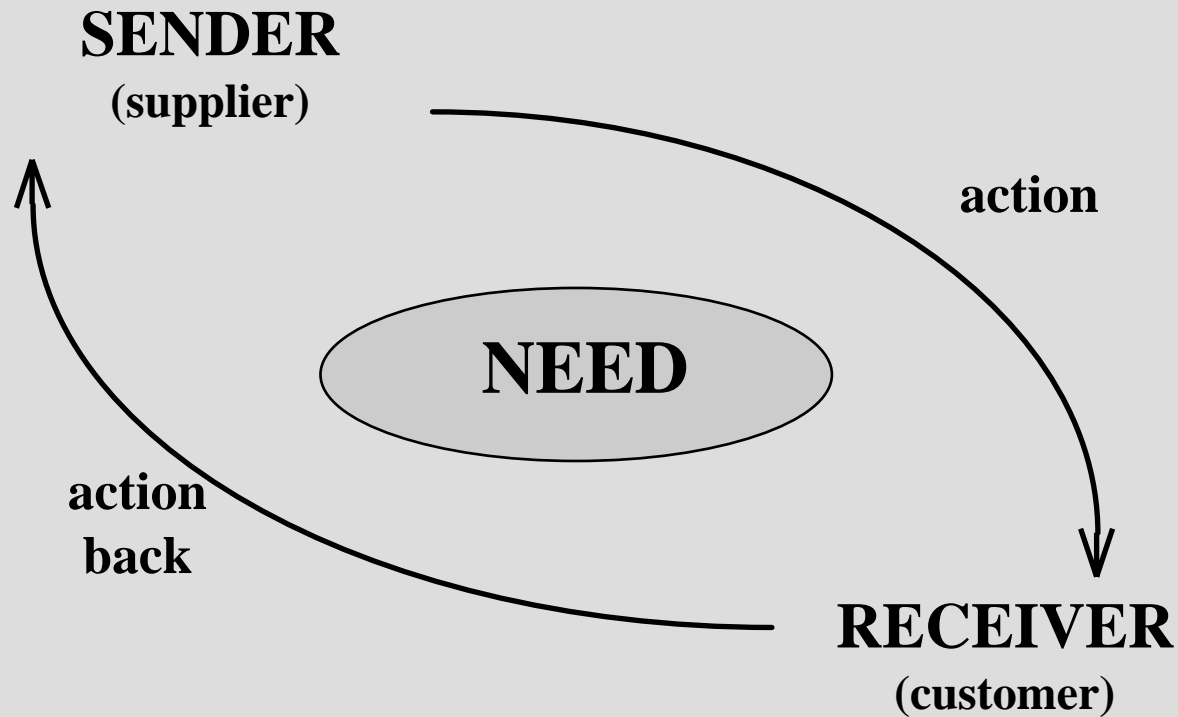
- **To delete the non essential functions that generate overheads**
- **To establish the useful functions at the convenient level**
- **To manage the cost of the « product »**
- **To chose between different **solutions** that may answer better to the **user needs** and minimize the **risks**, or which constitute a **real innovation** that is more or less acceptable.**

5. HOW DOES V.A CONTRIBUTE TO QUALITY IMPROVEMENT?

V.A can be a tool for global quality methodology
Through Functional Analysis, it contributes to the expression of needs, to the process analysis of the company and problem solving.

- ***Total Quality Management is doing the job right;
Value Management is doing the right job (Kaufman, 1998)***

V.A: THE « SYSTEM » OF PROVIDING «Total Satisfaction»



6. WHAT ARE THE BENEFITS OF V.A OPERATION?

Its a profitable investment because:

- A V.A operation bring a rationalisation of product that is translated to the level of expected quality or higher,
- Cost reduction by 20 to 30% or even up to 70% or more
- The return on investment (RI) is generally very fast and the initial investment is recovered 10 to 20 times faster, often in less than one year.
- V.A permits the acquisition of Know-How
- The capitalisation of Information Resources, most often used in the functions, are 're-usable' for the future operations and projects.

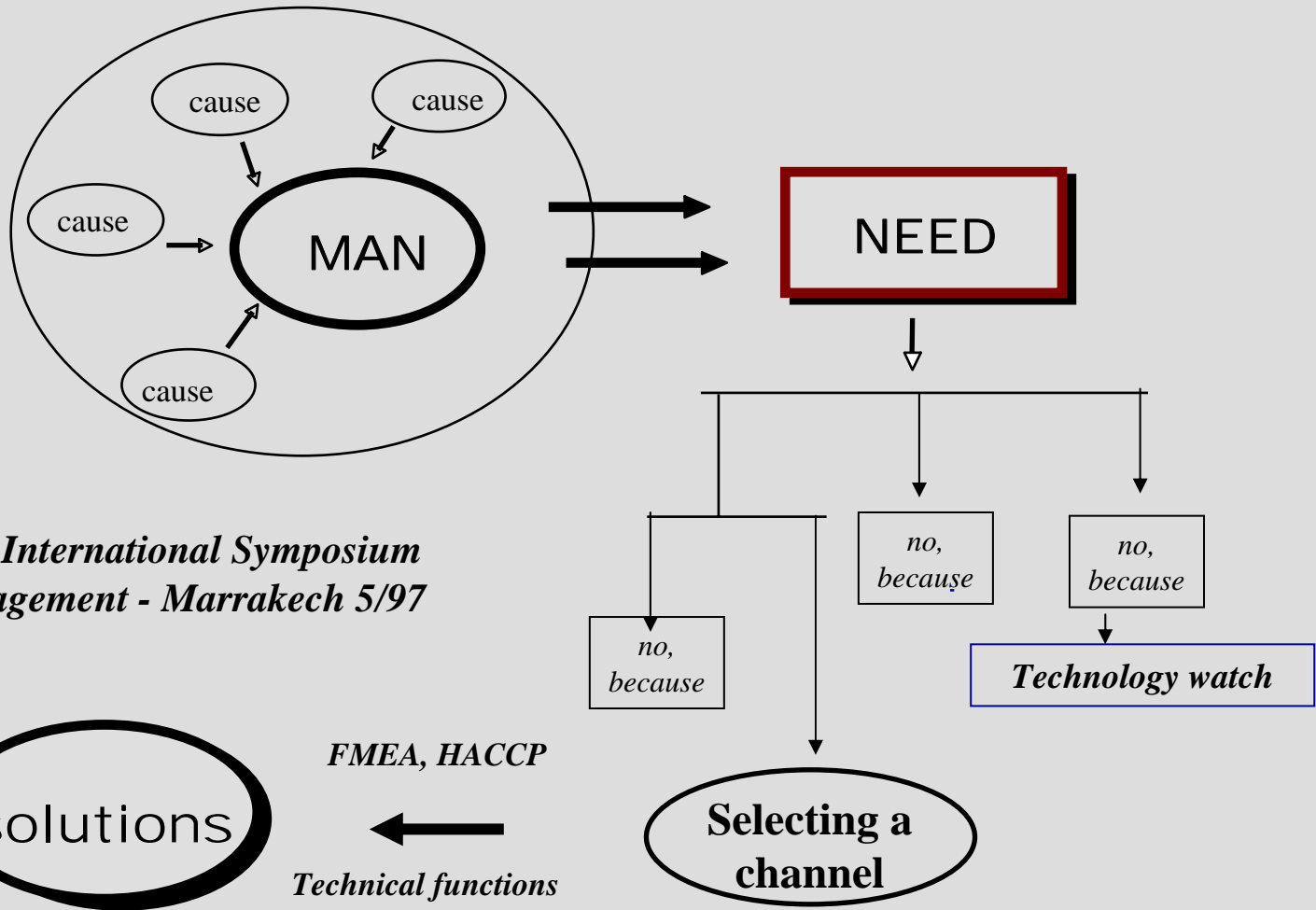
7. WHAT ARE THE STEPS FOR V.A OPERATION?

- The top management assigns a Coach/Project manager, who is trained in Value Management, capable of creating and managing cross functional team work, composed the personnel drawn from diverse services related to the problem in the organization. The coach/project manager could be internal or external (consultant).
 - A normal V.A project needs in general about 10 work meetings.
 - The work is done based on a project planning.
- *Working independently, the resolution of a problem by one Discipline becomes the problem of another. (J.J. Kaufman)*

7. WHAT ARE THE STEPS FOR V.A OPEARTION?

1. Researching for the information
2. Analysis of the functions and the costs
3. Researching new ideas and different solutions
4. Feasibility study and evaluation of the solutions
5. Balance sheet, profit and loss statement and recommendations
6. Guiding the action
7. Evaluation of the results

→ *The system of need**



•presented in the *International Symposium on Project Management - Marrakech 5/97*

*See the best, not Perfection.
(Kirk, 2003)*

If it was given one hour to solve a problem on which my life depended, I would take 40 minutes to study it, 15 minutes to review it and 5 minutes to solve it.
(Albert Einstein)

If you accept the premise that understanding the problem is fifty percent of its solution, then separating the problem from its symptoms and effects by analyzing its functions is essential to the process. (J.J. Kaufman)

All human development, no matter what form it Takes, must be outside the rules; otherwise, We would never have anything new.
(Charles Franklin Kettering)

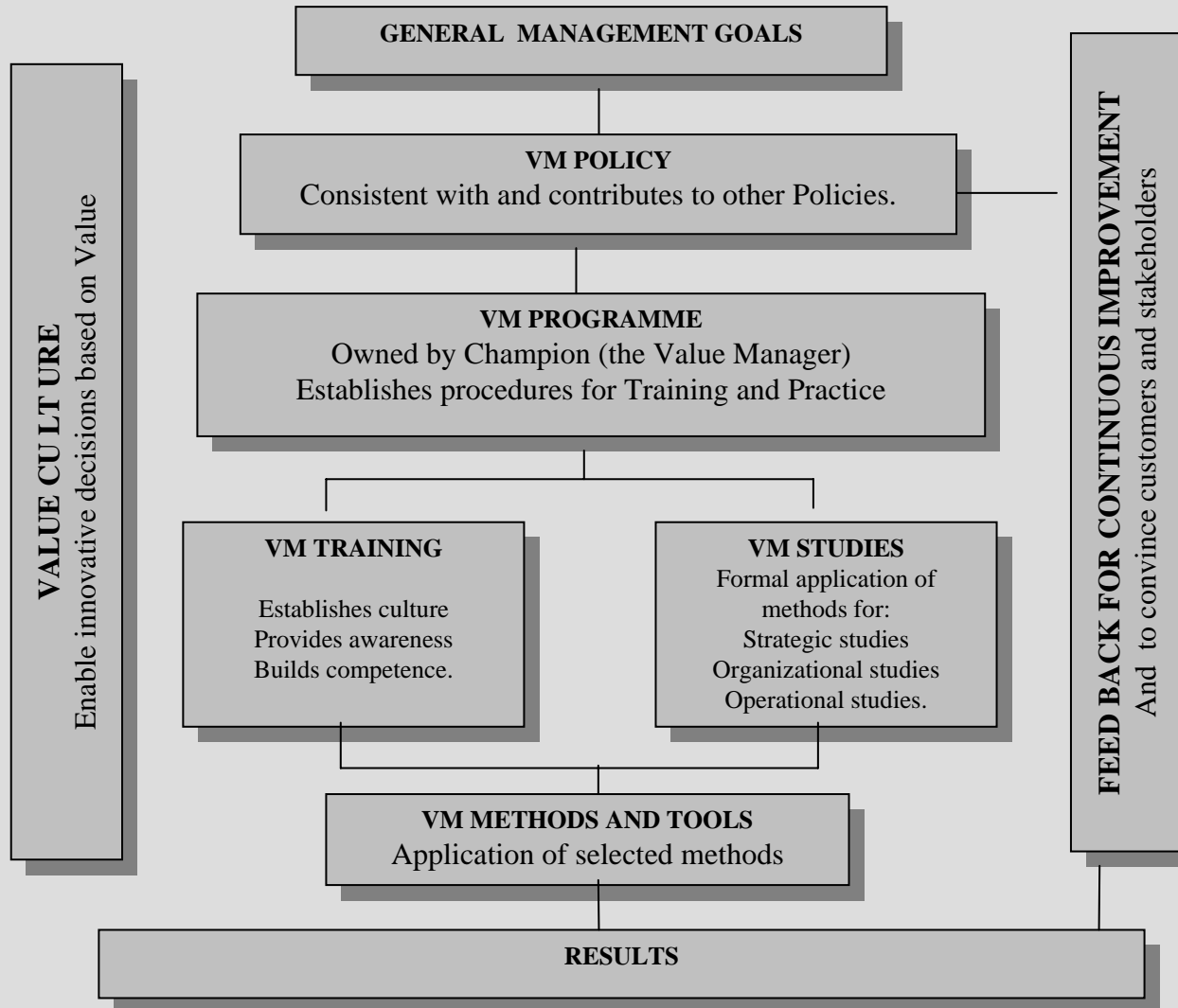
8 . WHAT IS THE CREDIBILITY OF V.A?

- The method originated in U.S.A. in 1945; it was developed and applied in Japan and Europe (Germany, France,...); comprehensively used in organizations of all sizes.
- It became an accepted standard in France (**NF X 50 - 100, 151, 152, 153, 156**)
- Later in Europe(**EN 1325-1 et 2 ; EN 12 973**).
- A professional certification recognized in a number of countries (USA, Japan, Canada, France, rest of Europe).
- Used in development of products such as Minitel, Ariane launch vehicles etc and used to a lesser extent in public utility products, packaging, organisation restructuring, etc.

FROM VALUE ANALYSIS TO VALUE MANAGEMENT

B) THE VALUE MANAGEMENT (V.M)

The Value Management Framework



DEFINITIONS

Management is:

- *To define and decide the strategies and objectives*
- *To organize and to manage the process of evolution*
- *To manage the use of different techniques and kind of resources to reach the objectives,*
- *To take choices and decisions,*

(To take into account the environment and the context)

Value Management:

(European standard EN 12973)

is defined as a transversal approach which focuses on the Value concept in order to validate operational objectives and define specific strategies. This gives the enterprise or the organization a position where it makes the best choice by considering all the circumstances, organization levels and the appropriate conditions at that time.

Value

$$\text{VALUE} = \frac{\text{satisfaction of Needs (Q)}}{\text{use of Resources (R)}}$$

needs of user

(people, material, finance...)

Value increases when the satisfaction of the customer's need augments and the expenditure of resources diminishes.

(Tassinari 1985)

Value... a guide for Management

The value concept:

Appreciation of the services proposed or given by a solution for a problem, with respect to the appreciation of the resources that are used.

This double appreciation gives the necessary clarity for decision making.

In a V.A Operation the following issues have to be defined:

- All the personnel and entities are involved in the operation and its product life cycle(from its creation to its decline) and so their appreciation has to be taken into account,
- The system and the circumstances in which the services given by this product are utilized.

IDENTIFICATION OF THE NEEDS TO SATISFY And Functional Performance Specification

To express what is expected from « product », The identification and the functional expression of the need:

- Ensures the translation of the users needs and expectation and the different actors in terms of Functions
- contributes, to the Marketing Dept., in terms of perception of the market or client needs.

The Functional Performance Specification (FPS)

is a document by which an enquirer expresses a synthesis of their needs, and shows the criteria of examination between possible solutions.

*For a well trained mind, a product is not an assembly of elements,
But an assembly of functions. (Robert Tassinari)*

FUNCTIONAL ANALYSIS TECHNIQUE

It allows solution roadmap by:

- Defining the functions to be completed in the future
- Directing the design for obtaining the product
 - With Minimum of cost
 - With an acceptable risk (FMEA, Risk analysis)

We are using particularly the tools such as:

- The flow diagramme that allows the visualization of its differents functions
- The table of functional analysis that allows the quantification of its functions

APPLICATION OF V.A IN AUTOMOBILE INDUSTRY ...

HOOD HINGE MECHANISM FOR A PEUGEOT CAR

« Product reasoning »

Reason for action?

-Technical reasons

Many breakdowns in manufacturing of the Sheet-Iron and Painting;

Many cases of bad presentation of the cap assembled on the body.

- Economic reason:

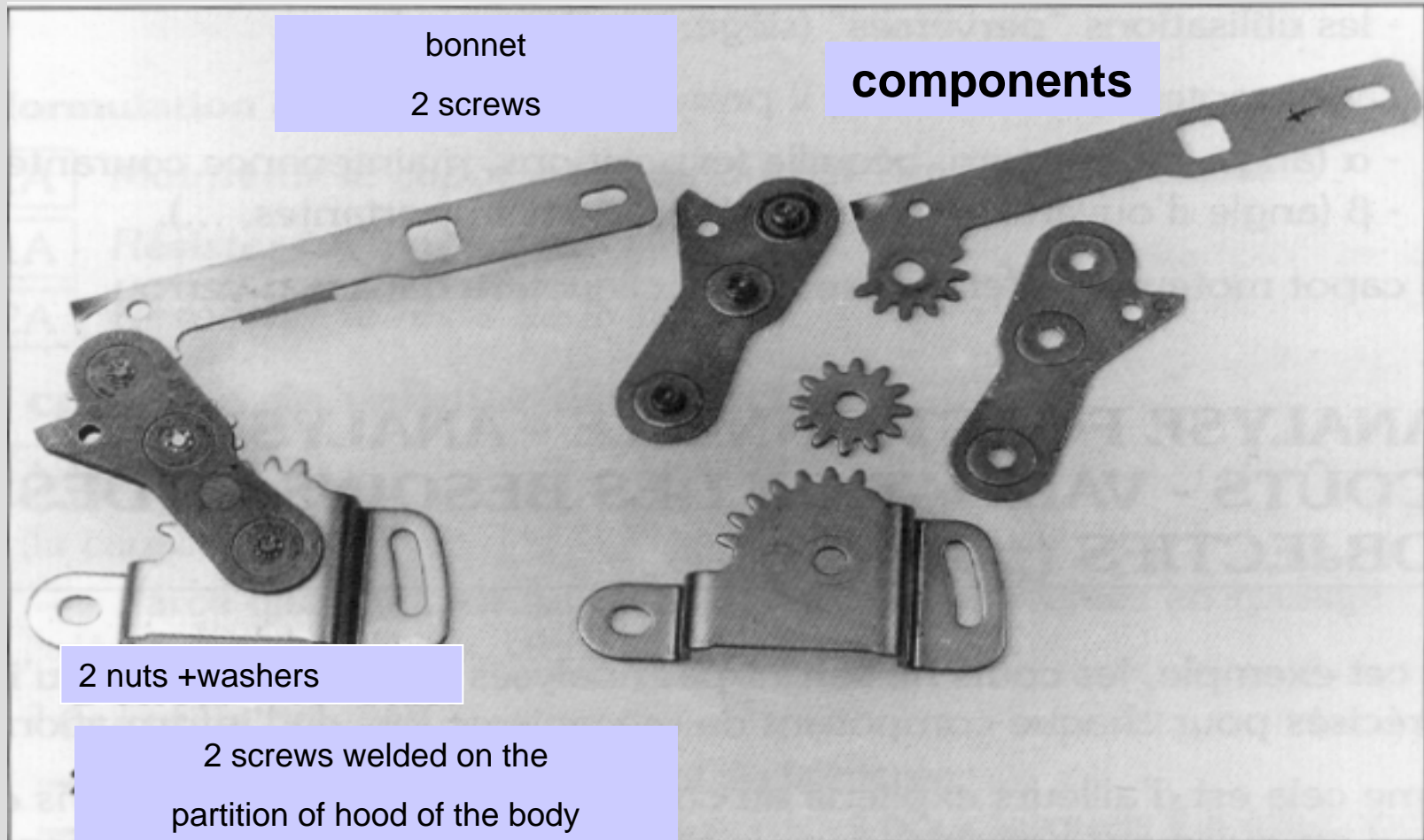
-The cost of an intervention after a breakdown is 207 € per cap;

- The cost of the mechanism is too high (5,7 M€ for 450 000 vehicles produced)

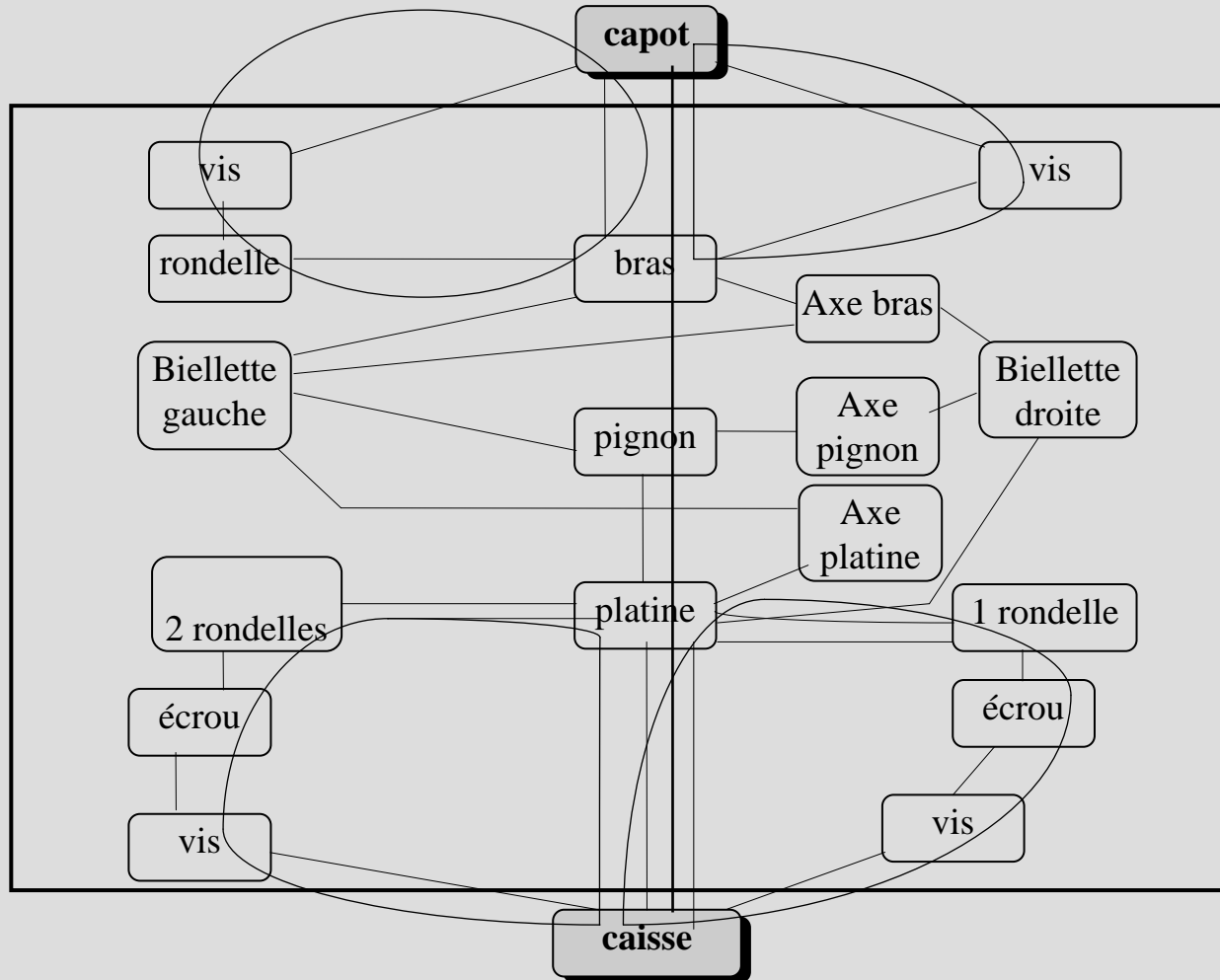
Objectives :

- Reduction by 20 % in the cost of the mechanisms
- Return on investment within 2 months of production.

The mechanism before study



Flow diagramme of the original mechanism

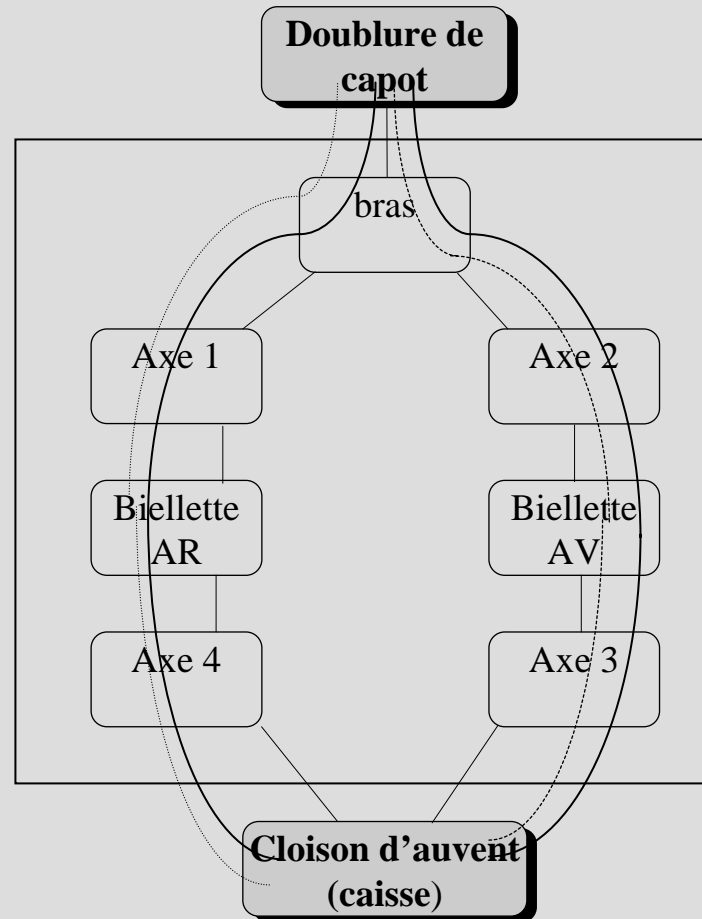


The mechanism after study



Claude P. BAUMGARTEN – PVM, TVM

Flow diagramme of the new mecanism



RESULTS

	Cost	Weight in kg / Car	Number of Parts/Elements
Previous solution	15.60 €/ car	0.554	8
New solution	6.00 €/ car	0.120	5
Saving	9.60 €/ car (61 %)	0.434	3

IN AUTOMOBILE INDUSTRY ...

- **AUTOMATION OF A GROUP OF WELDING
PROCESS**

« Process reasoning »

Objectives

- To double the rate of production per hour
- To reduce manpower

Tools:

- Need Analysis
- FPS
- Technical Functional Analysis

Results:

- Multiply Production by 2.3 times by the end of 18 months
- Reducing cost of production by 17 %

IN AUTOMOBILE INDUSTRY ...

- **DEFINING THE FUNCTIONS OF THE TEAM MANAGERS IN A PSA PRODUCTION UNIT**

« Organization reasoning »

Objective:

- To prepare the introduction of Automation

Tools that were used:

- Expression of needs
- FPS
- Technical Functional Analysis

Results:

- Redefining the functions of the team manager
- Description of the unimportant tasks
- Definition of the training needs

IN AUTOMOBILE INDUSTRY ...

« In Design »

Renault X 90 project

A CAR AT 5€/KG?

Renault X90 Project

- Objectives:

- To produce a family car; modern and reliable; market price of 5000 € at the time of launch

- It has resulted in:

- A price /space ratio without competitors
- Services which answer exactly to the local conditions in terms of reliability and robustness
- to be a general-purpose: to be as useful in downtown as in the countryside, on different roads, for work and vacation
- 5-Seater car with ample leg space and a trunk
- to have a modern design

Method used by the Project Manager:

(Pierre-Edouard Sorel)

**Value Management
(Design to Cost)**

Result: **LOGAN**

- That could be sold for less than 5000 €
- Economical for user in terms of easy maintenance
- Average duration of usage by the first owner, is more than 5 years (*@ 20000km a year*)



CONCLUSION

Powerful ultra method which allows:

- To define the approach effectively
- To identify the best solution
- To implement the solution
- To make the good decision

Based on:

- Rigour of the reasoning
- Control of the multi-disciplinary groups
- Powerful methodological tools approved by the standards

We must end the debate about whether the value methodology is what should be used « instead of » something else, and recognize that it is a Valuable tool to be used in concert with or in support of other programs. (Ginger Adams)