

Business Oriented Product Structures

Presented at the Workshop Design-Konstruktion on Product Structuring
TU Delft, The Netherlands, June 22-23, 1995

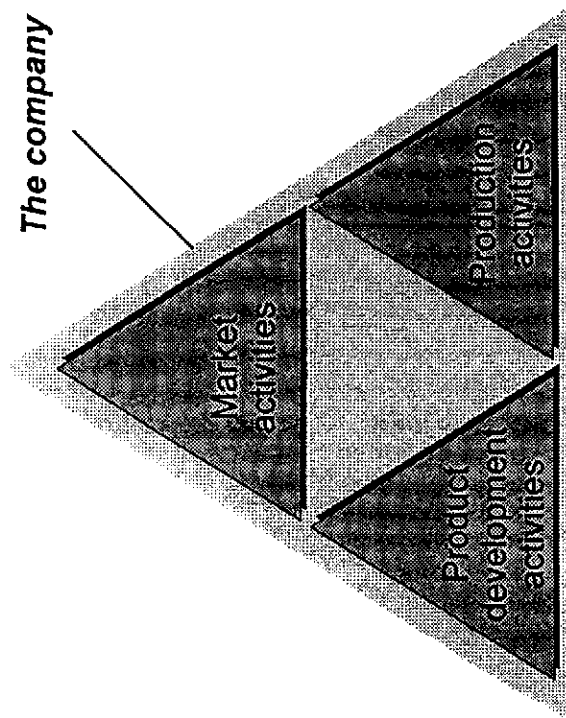
The presentation discusses the use of different types of product structures identified in literature and industry. The focus is the order handling process aspects on product structuring, including product development, parts production, purchasing, logistics and assembly.

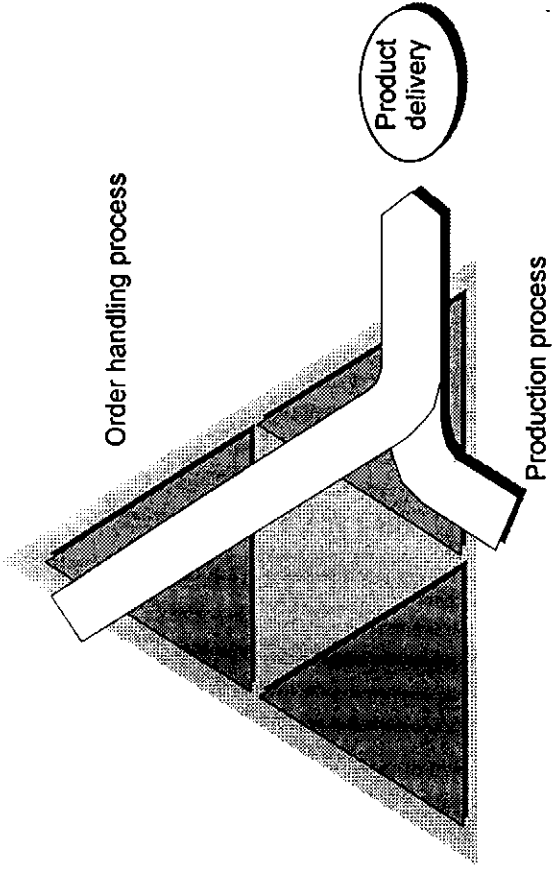
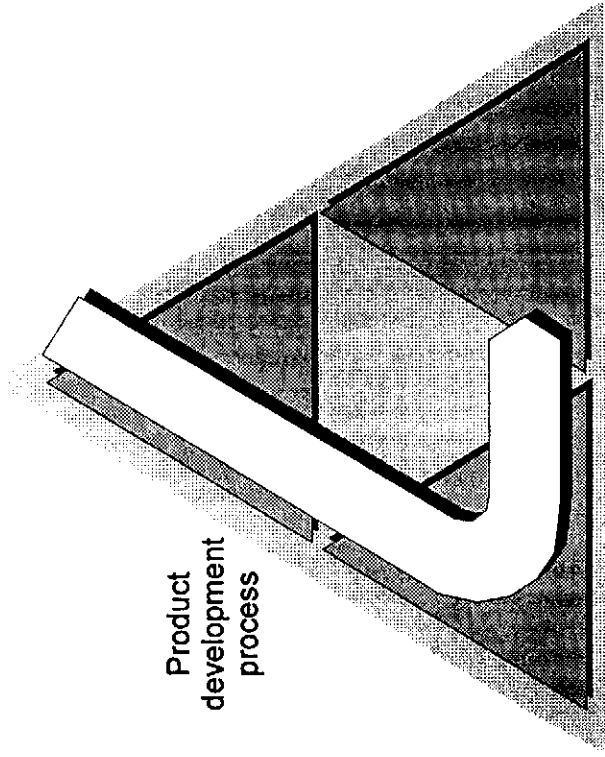
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June 1995

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Introduction

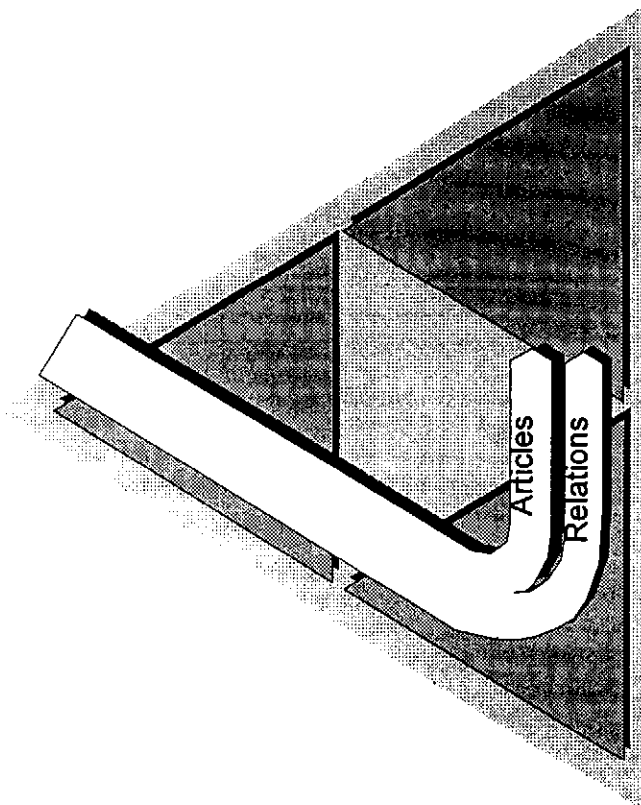
- 1 Could it be favourable to look upon the order handling process as two separate processes, one on-line process where no development is done and one off-line process which includes product development?





Demands on a product structure

- 2 What are the different types of demands of parts production, purchasing, logistics and assembly in the off-line process, and how to satisfy them?
- 3 What are the significant in the demands of the different departments?

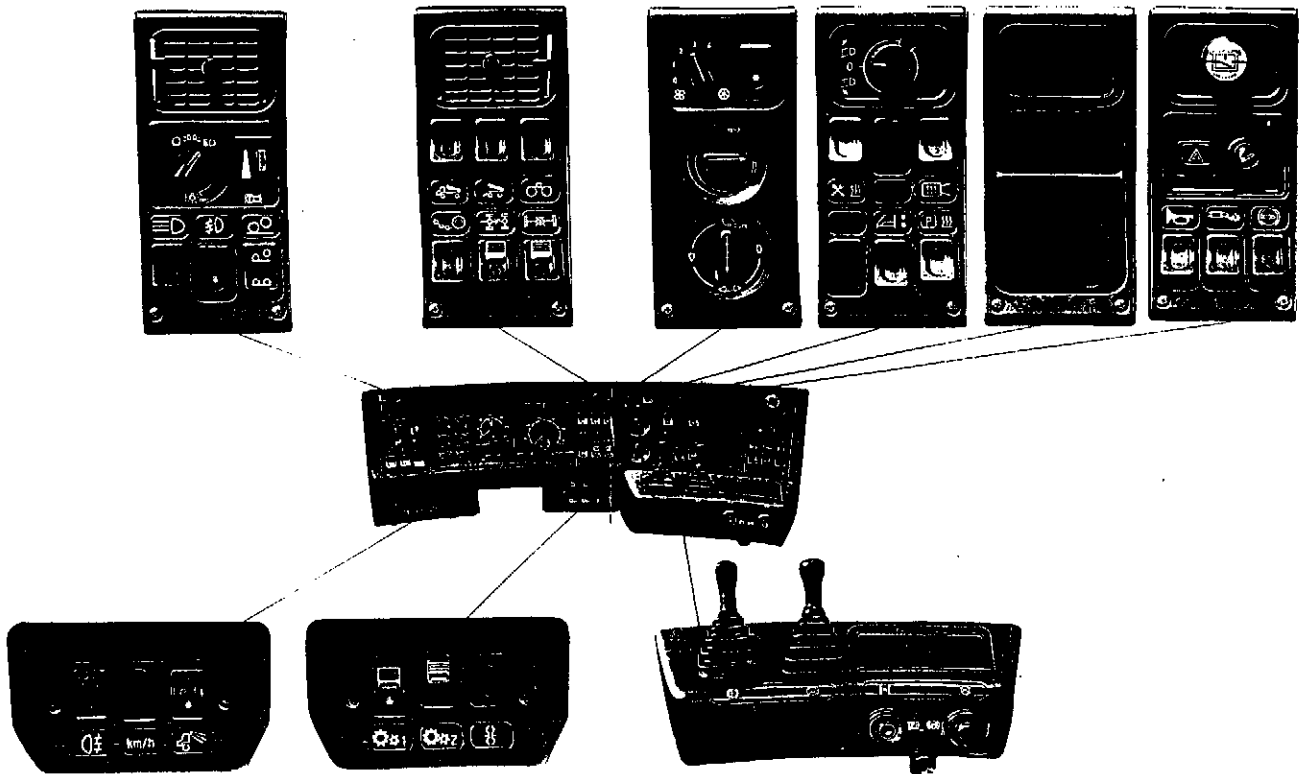


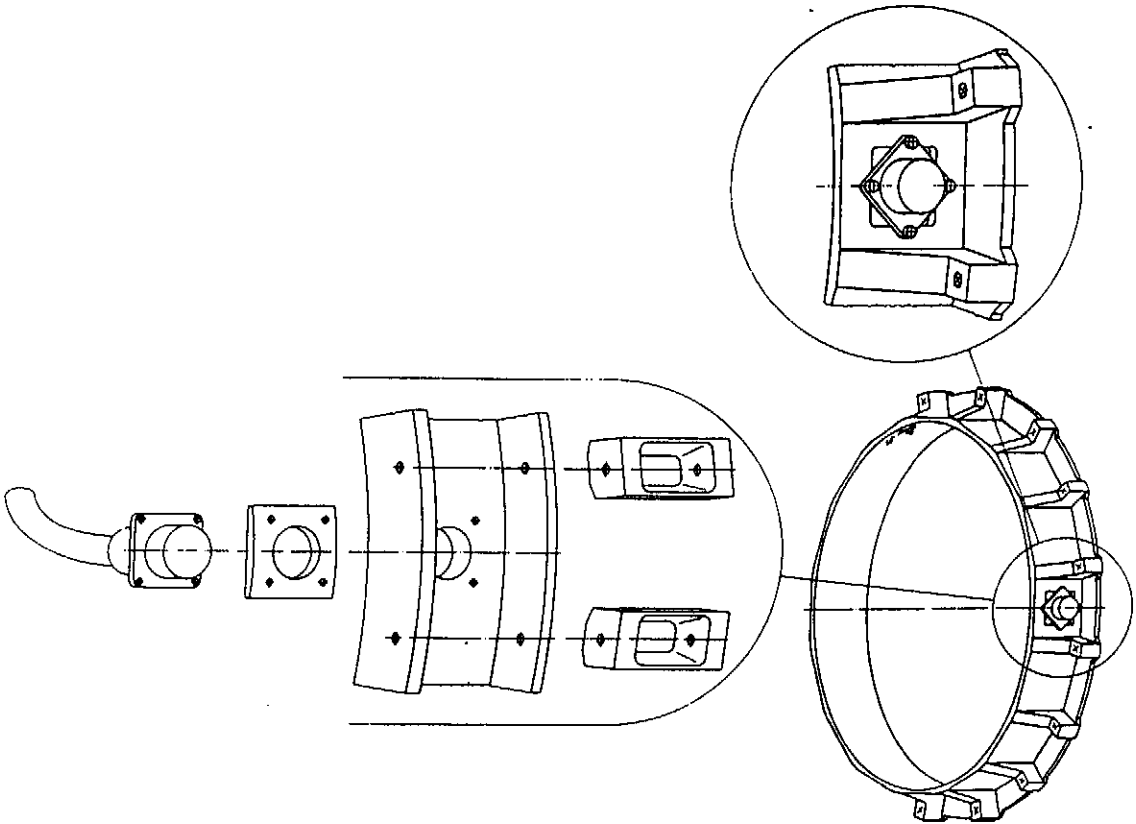
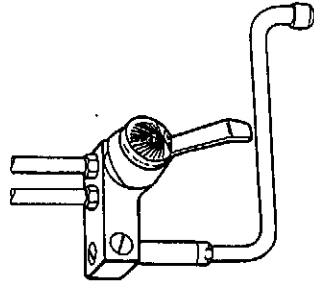
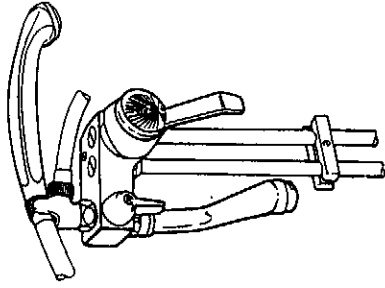
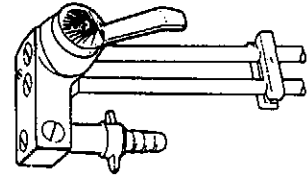
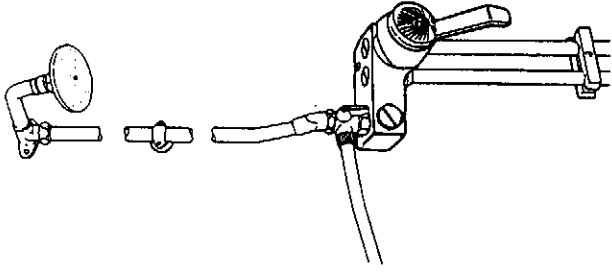
Vision

One way to make both the off-line and the on-line processes more efficient is to build many product variants by creating a box of building blocks (including a minimum of articles), and describe the relations between them in a more comprehensive way than what is normal.

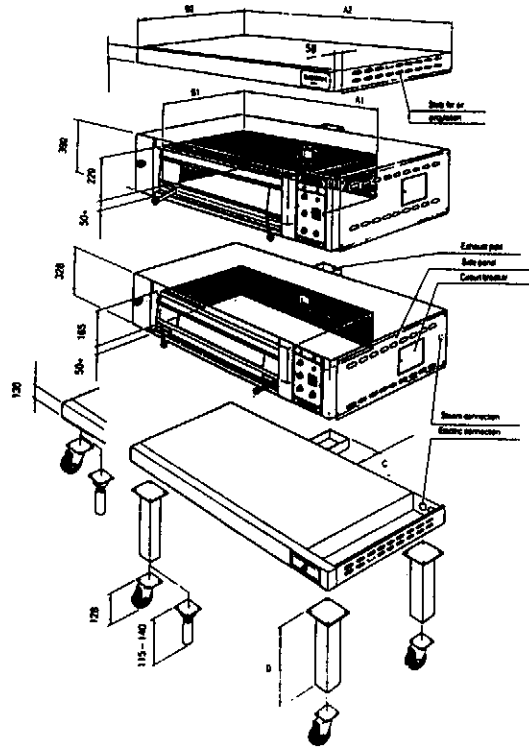
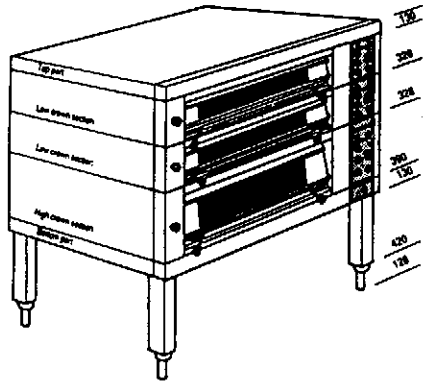
Business oriented structures

- 4 Is it useful to have more than one structure (with different objects) in a company, and if so, why?
- 5 Does this conflict with established design theory?
- 6 What is best practice in industry?





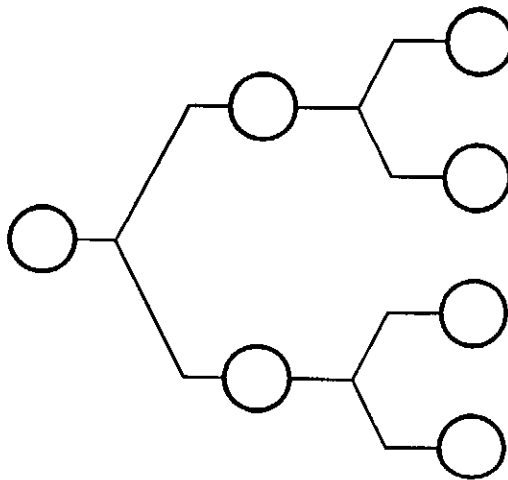
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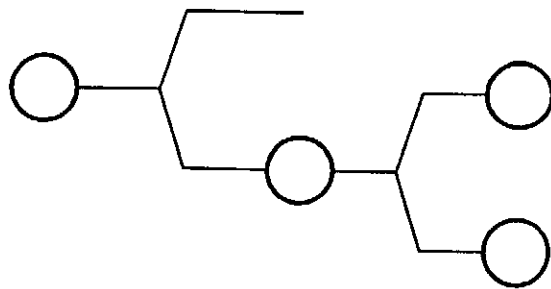
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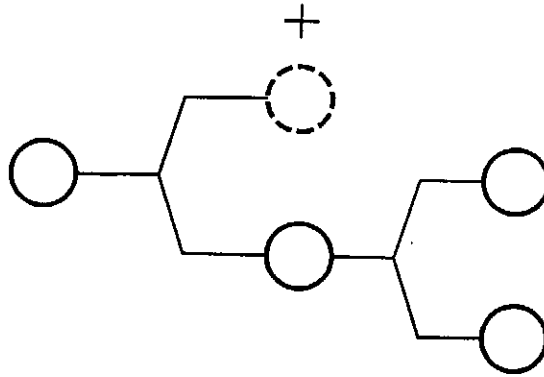


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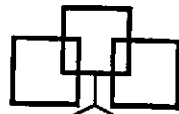
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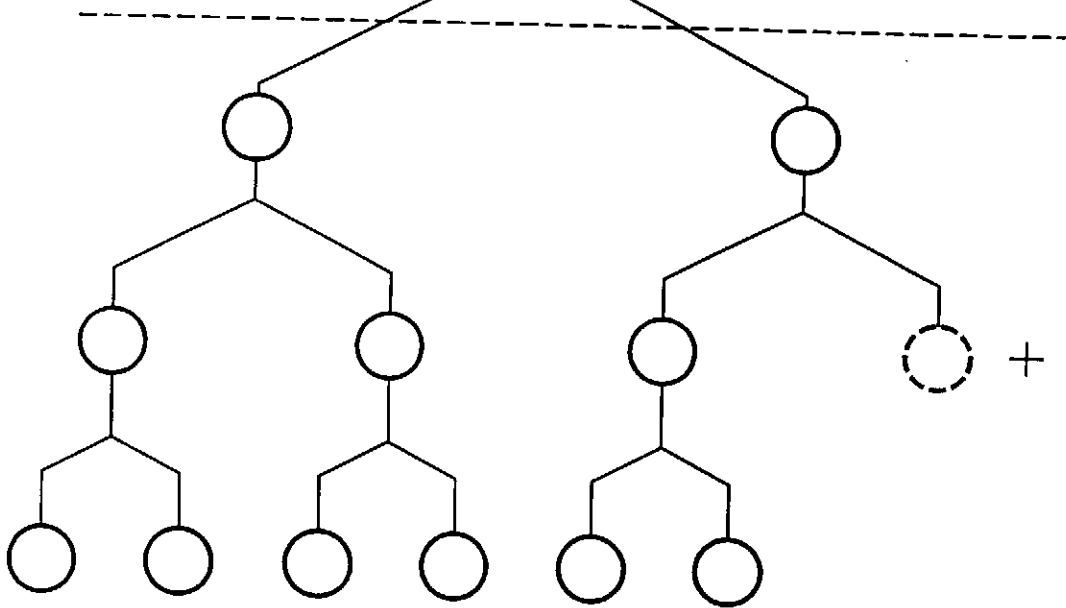
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PRODUCT LEVEL

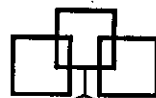


Combination of design characteristics



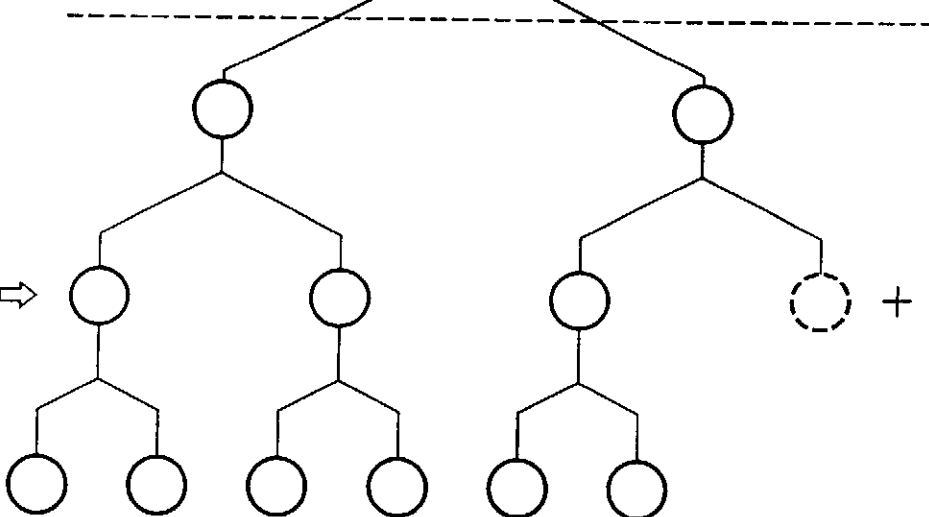
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Selection of additional characteristics } ⇒


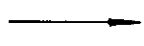




Combination of design characteristics

Selection of conditional characteristics } ⇒



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PHYSICAL CONSTRUCTIONAL STRUCTURE	
PRODUCTION VOLUME	Low  High
NUMBER OF VARIANTS A few  Many	Integration Base object
	Integration Enclosed Material combination
	Base object
	Building blocks
	Base object Building blocks (standard elements)
	Qualitative structuring (small blocks)
	Qualitative structuring (big blocks)
	Qualitative structuring

LOGICAL CONSTRUCTIONAL STRUCTURE	
NUMBER OF VARIANTS	A few  Many
VARIANT CHARACTERISTICS	Similar  Different
	Straight Straight open (openings on a high level)
	Straight Completely open (openings on a low level)
	Design characteristic
	Top level structure Straight open characteristic (openings on a low level)

Use the knowledge

- 7 Are there any design principles that can be useful?
- 8 Can the conditions under which the principles and structures ought to be used, be described?
- 9 How should the principles be presented to be useful in product development? - Can it be described in a methodology?
- 10 What supporting tools does such a procedure need in forms of guidance, examples, tables, diagrams, check lists, forms, and so on?

Isn't modularization the way to solve this problem?

Logical component structure check list

Priority
Not important Very important

Market

Marketing

- Good product assortment overview
- Possibility to read the structure
- Possibility to read price
- Possibility to predetermine characteristics combinations
 - Against applications
 - Against markets
- Sales material handling (brochures, etc)
- Computer aided sales material handling (PC)
- Possibility to create dedicated instruction manuals

Sales

- Final conditional characteristics selection authority
- Complete information concerning selected product (price, etc)
- Connections to other information systems (order register, sales statistics, etc)

Product development

Design

- Use of the system in development of new products
- Use of the system for one of the kind design
- Use of the system for application specific equipment
- Connections of drawings
- Connections to geometry (CAD/CAM system, drawings)
- Cost estimation abilities

Technical administration

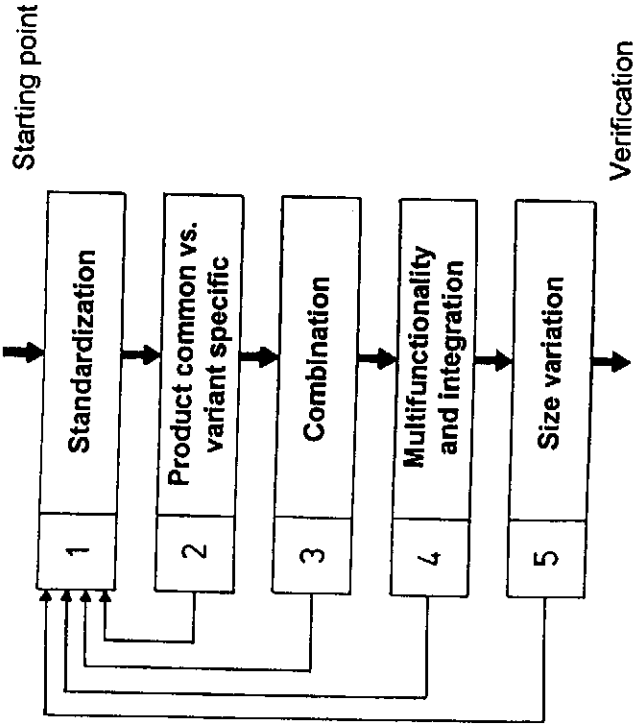
- History
- Handling of revisions and status
 - Replaced by
 - Replaces
 - Excluded
- Assembly information
 - Included in
 - Consists of
- Authorisation to read and write

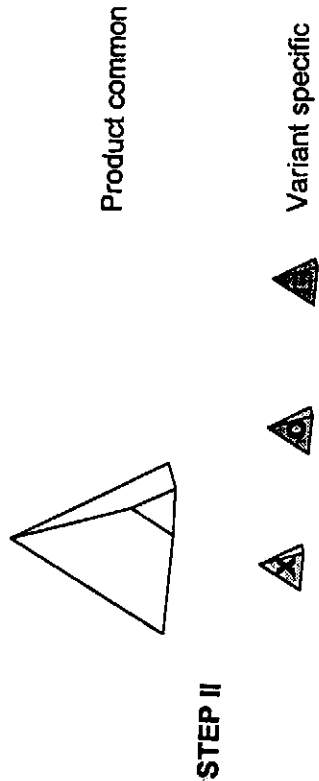
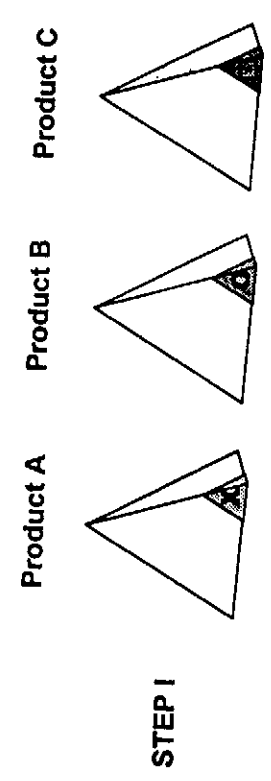
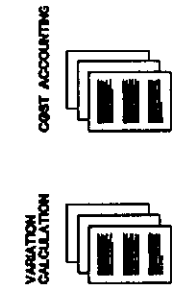
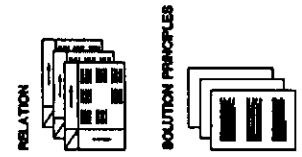
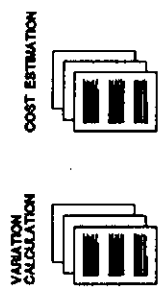
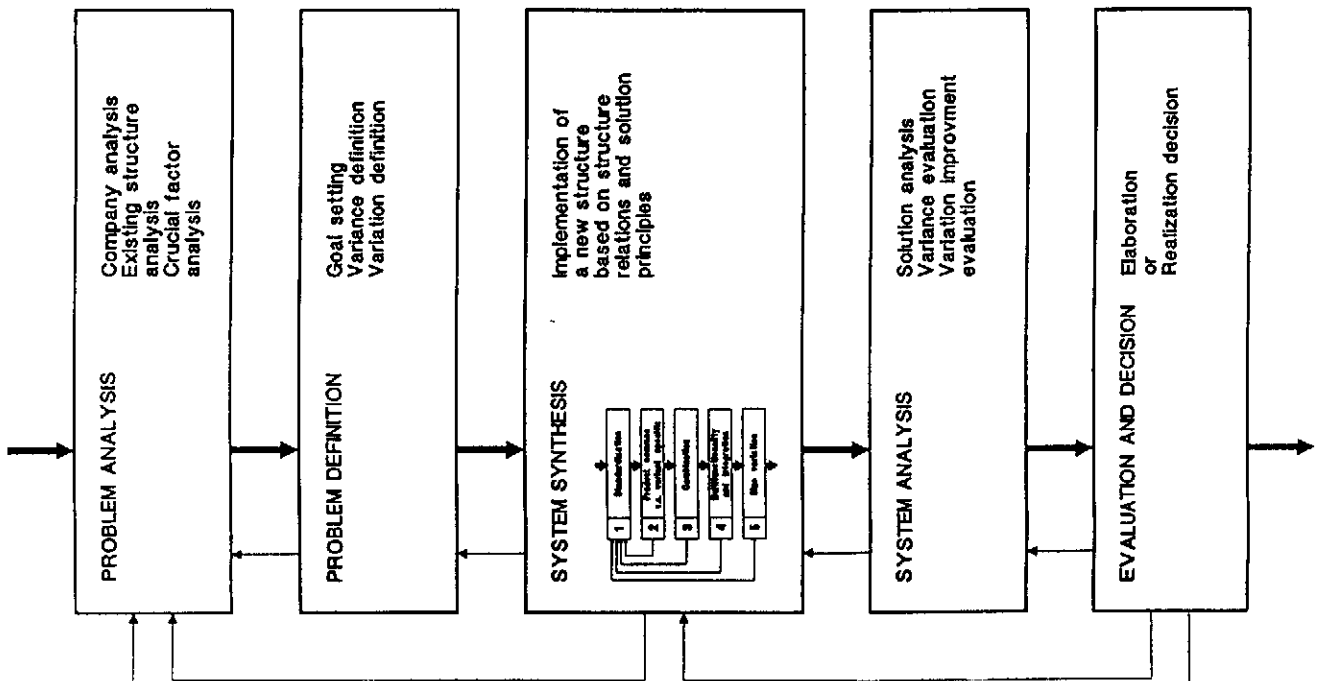
Production

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After sales

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