CREATIVITY TEMPLATE

…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

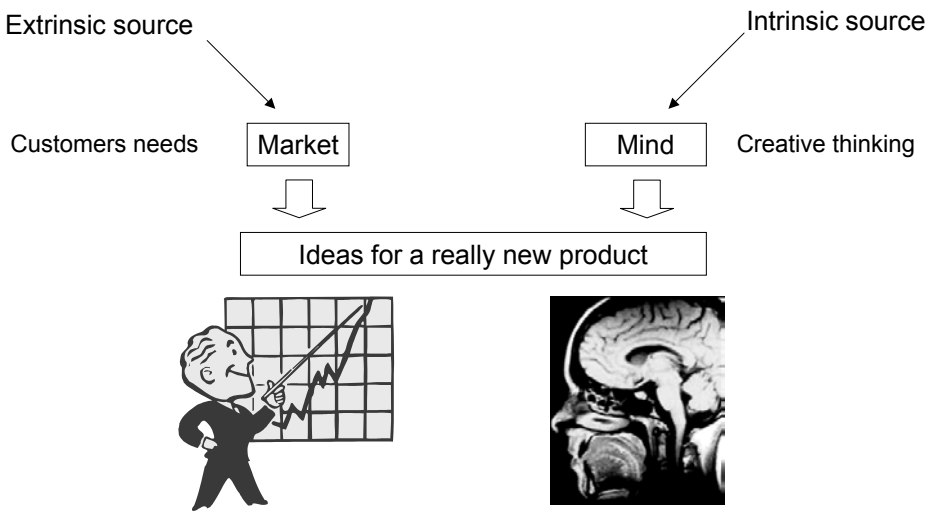
…think about what has been thought

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



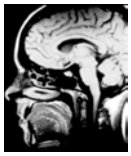
Creativity Template

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);

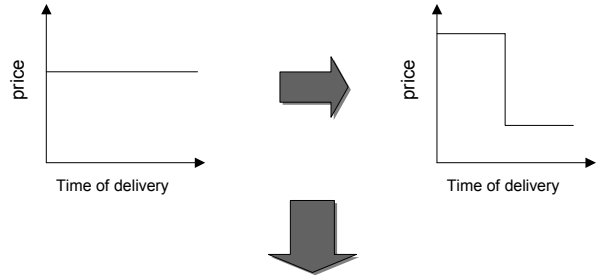
3) **function follows form**: first of all suggest new product or service configurations and then deduce benefits, aesthetic values and other market parameters in order to create a new idea.



Creativity Template

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

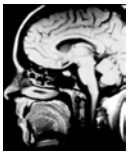
Creativity Template

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)

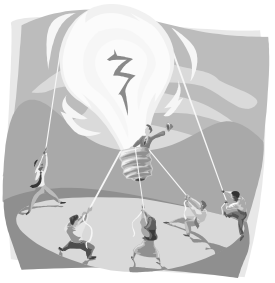
What do the following cases have in common?

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

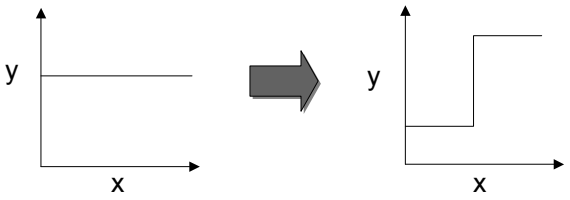
Attribute dependency template (II)

Basic principle:

identify 2 independent variables and create a new dependency between them



The connection can be represented by a step function



Attribute dependency template (III)

variables ⟷ **components**

Variable:
element subjected to a **measurable change**

Measure: → Exact (quantitative)
Measure: → Categoric (qualitative)

Ex.:

Components	Variables
Eyes	colour, vision clearness
chair legs	length, colour
screws	number, length, thickness
hat	measure, colour, water proof
…	time

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)

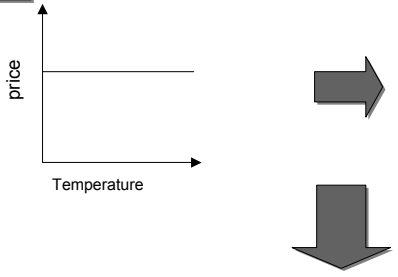
Variables for a new dependency

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

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…

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

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)

	Height	Diameter	Colour	heat transmission	transparency
Height	X	0	0	0	0
Diameter	0	X	0	0	0
Colour	0	0	X	0	1
heat transmission	0	0	0	X	0
transparency	0	0	1	0	X
temperature	0	0	0	0	0
%of alcohol	0	0	0	0	0
%of sugar	0	0	0	0	0

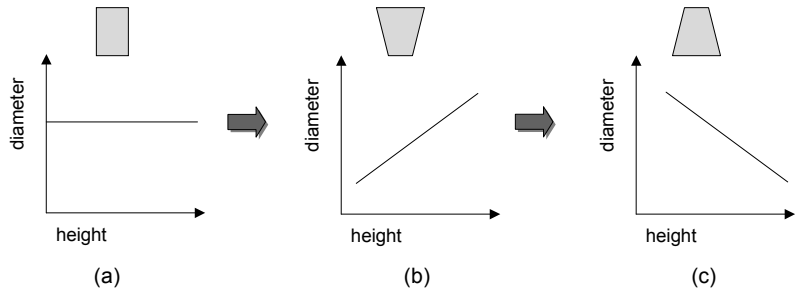
1 = yet existing dependence

0 = not yet existing dependence

Forecasting matrix (IV)

Elements connected with internal variables:

1) diameter - height



(a) (b) (c)

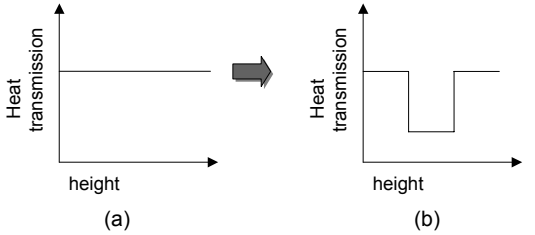
Advantages:

(b): easy to stack on top of each other

(c): increases glass stability (useful for car or train journey)

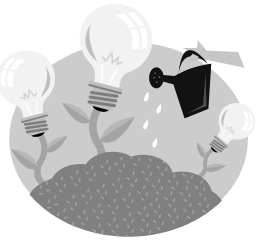
Forecasting matrix (V)

2) Heat transmission - height



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

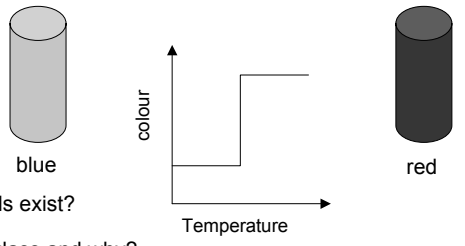
Advantage:
no handle required



Forecasting matrix (VI)

Elements connected with external variables:

3) colour - temperature

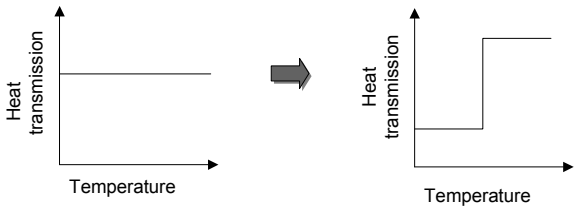


- Do adaptive materials exist?
- Who needs such a glass and why?

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 eccessively reducing the temperature

Forecasting matrix (VIII)

Degenerate matrix ⟺ **Full matrix**

	A	B	C	D
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0

Potentially wide supply of new products

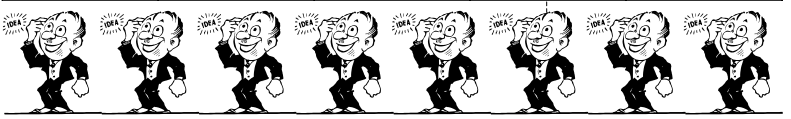
	A	B	C	D
1	1	1	1	1
2	1	1	1	1
3	1	1	1	1
4	1	1	1	1

A lot of yet existing products based on Attribute dependency

Forecasting matrix (IX)

Columns and rows strategy

	A	B	C	D
1	0	0	0	0
2	0	0	1	0
3	0	0	0	0
4	0	0	0	0

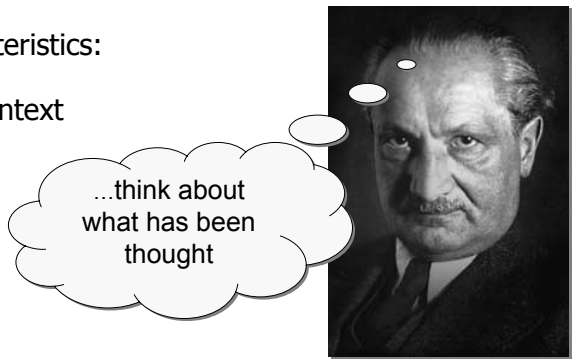


Replacement template (I)

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



Replacement template (II)

Some definitions:

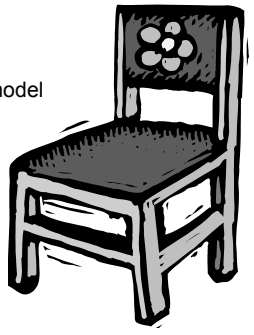
- **Component:** autonomous part or subsystem (static object)
- **Internal component:** in the product, under control
- **External component:** in close contact with product, out of control
- **Link between two components:** 1) Controlling component
  2) Controlled component
- **Product configuration:**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

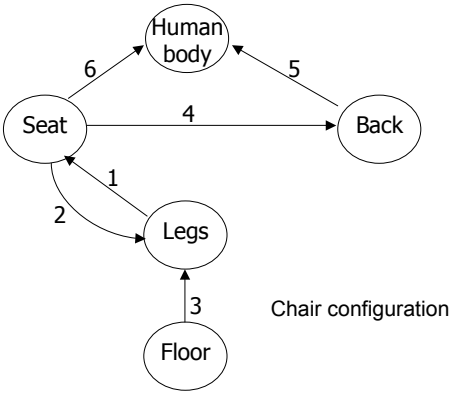
Replacement template (III)

Case study: a chair

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

Physical model

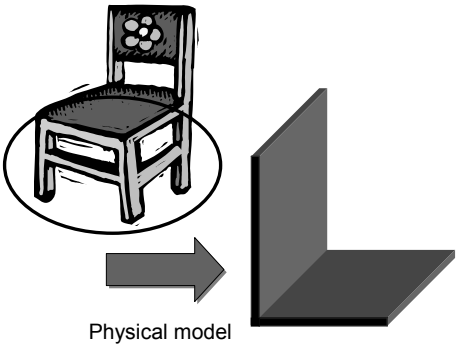




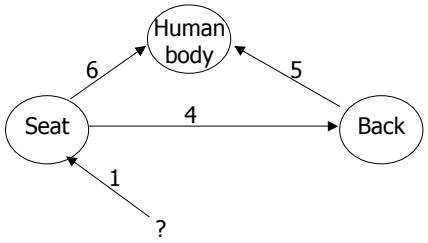
Chair configuration

Replacement template (IV)

- Intrinsic component elimination (without removing its function)



Physical model



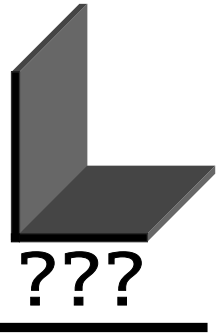
Intermediate chair configuration

Replacement template (V)

- Individuation of a component substituting the missing one

Criteria:

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

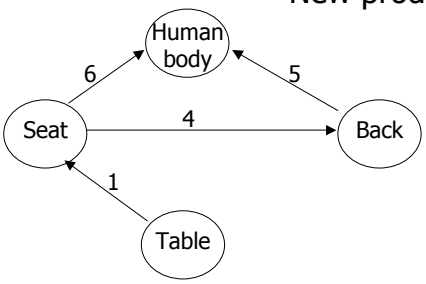


Possible solutions: wall, table, carpet, user, floor

Substitutive component: table (design and functional similarity)

Replacement template (VI)

- New product configuration



(a)
New chair configuration

(b)
Physical model

Advantages:

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

Replacement template (VII)

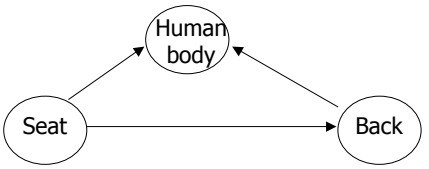
Operative prescriptions

- 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 <u>and its functions</u> from product configuration

Case study: a chair



(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

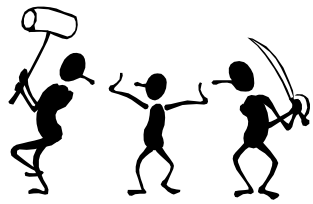
Advantages:

- lower density
- floating

DISPLACEMENT

Ex.: **kit furniture**

Advantage: **price reduction**



UNBUILDING

Component control template (I)

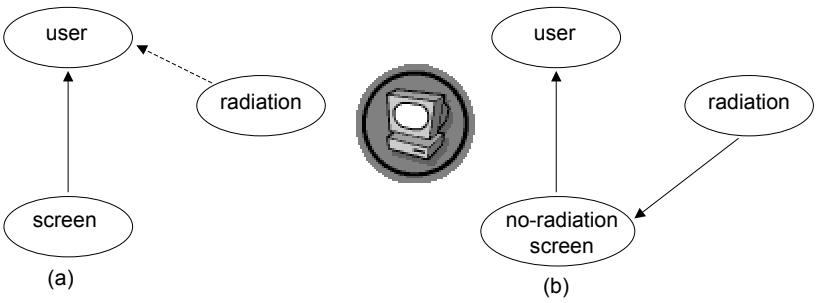
It establishes a new link
between internal and external components
to eliminate negative links and create a new advantage

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)

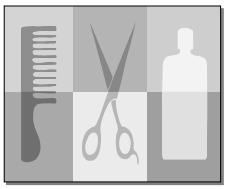
Ex.1: computer screen

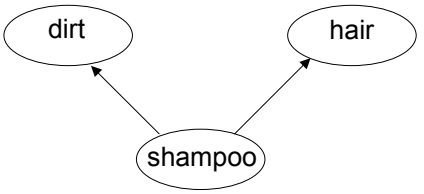


Component control template (III)

Ex.2: non-UVA shampoo

- Product configuration





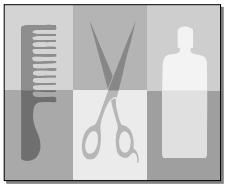
(a)

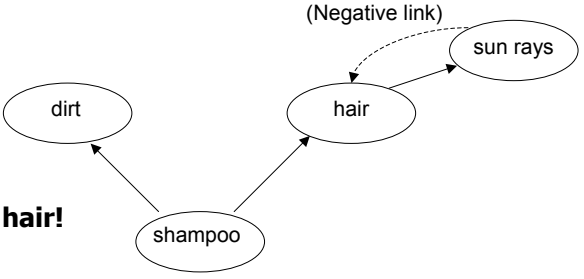
- What external component is in contact with shampoo?

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

Component control template (IV)

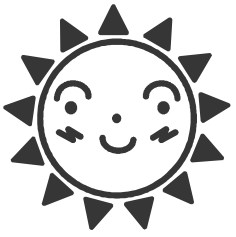
- What problems does it create?





(b)

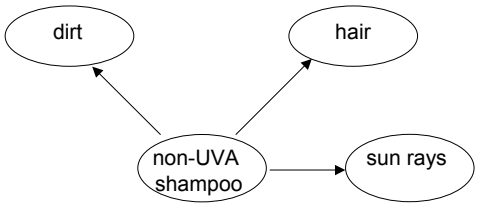
Sun rays damage your hair!



- 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



(c)

Advantage: shampoo protects your hair!

NB: it is necessary to include a new component if internal ones can't solve the problem