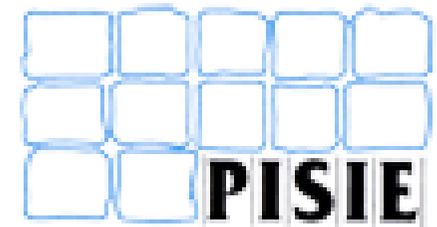


# Indo Leather Fair

## May 2010

### SEMINAR



POLITECNICO INTERNAZIONALE PER LO  
SVILUPPO INDUSTRIALE ED ECONOMICO

Technology Innovation between  
Change and Sustainability

*by Gianni Risso*

# Contents of the presentation

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- The product life cycle
- Enabling technologies
- State of the art in the technologies
- Technology and competitiveness
- A look into the future

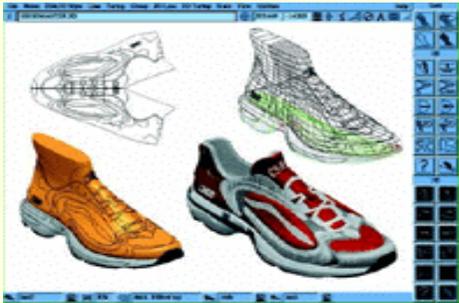
# What is “technology”?

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*Technology is not an  
“absolute” definition*

*A hammer, nails and  
glue “were” technology*

# The product life cycle



DESIGN



PRODUCTION



DISTRIBUTION



SALE



USE

DISMISSAL

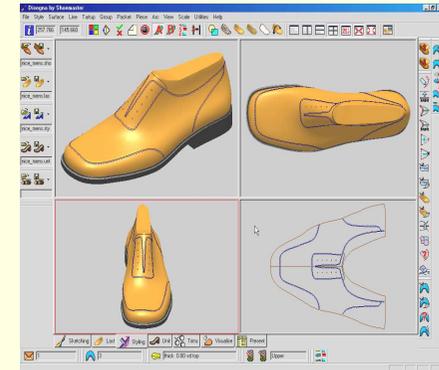


PISIE

# The relevance of the time factor

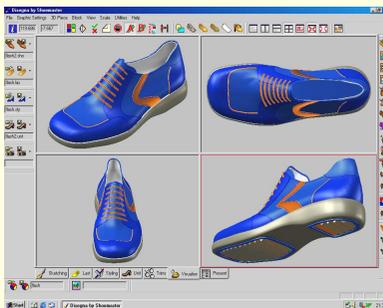


... is captured  
in the CAD  
environment.....

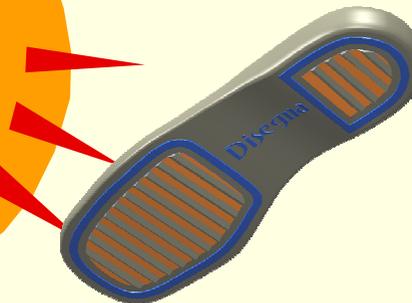


.... Translated in a  
complete shoe  
design....

The style concept....



... to end up with  
physical samples



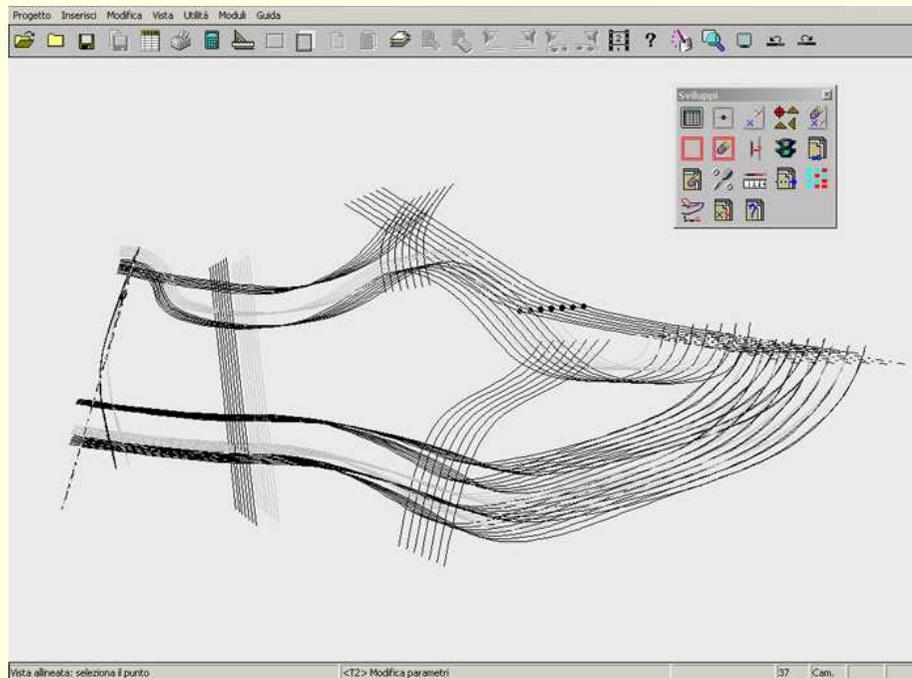
... integrated  
with all the  
components...

PISIE

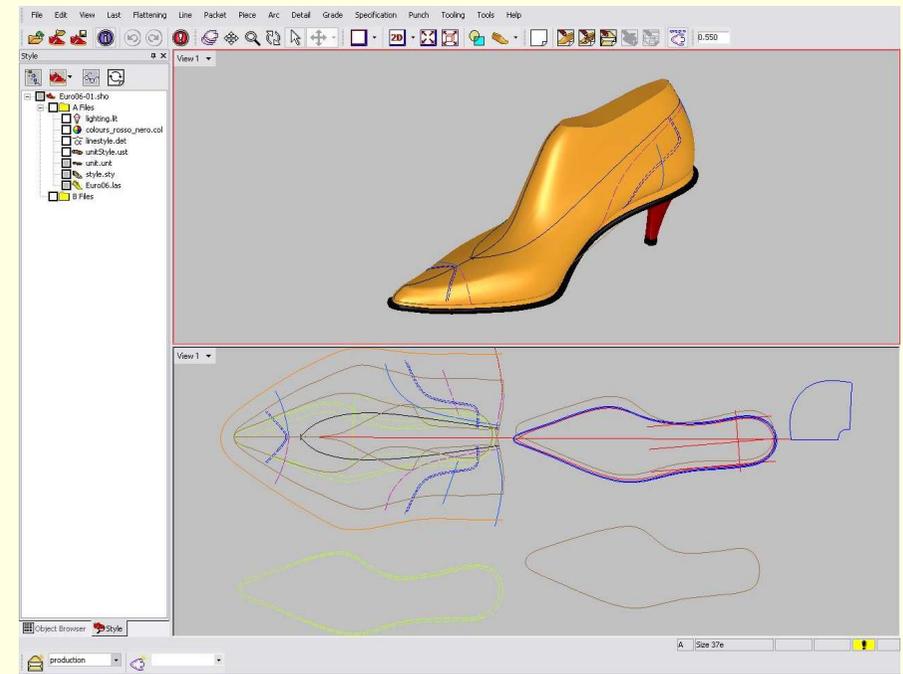


# Technologies for the design process

## ■ CAD systems for pattern and shoe design



*Typical 2D CAD:  
easy and intuitive,  
low cost entry  
investment*



*Typical 2D/3D  
integrated CAD:  
highly integrated, full  
potential, more  
difficult*

# Technologies for the design process

LAST  
ELABORATION

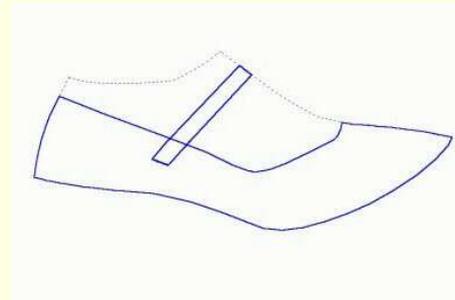
With CAD 3D



SHELL  
FLATTENING

With CAD 2D

STYLE LINES  
ON THE SHELL



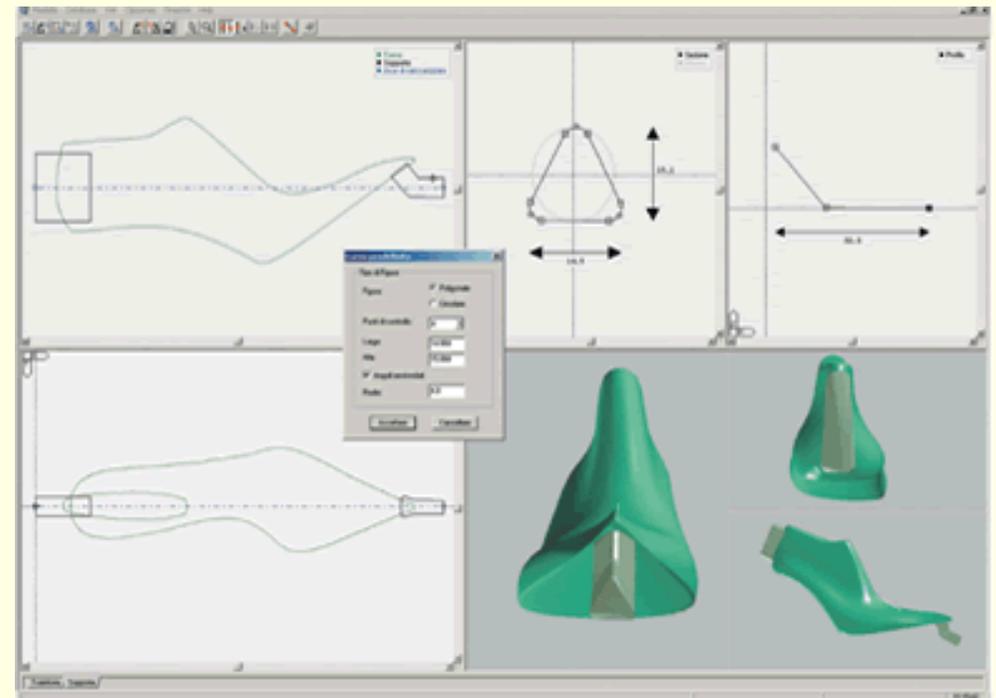
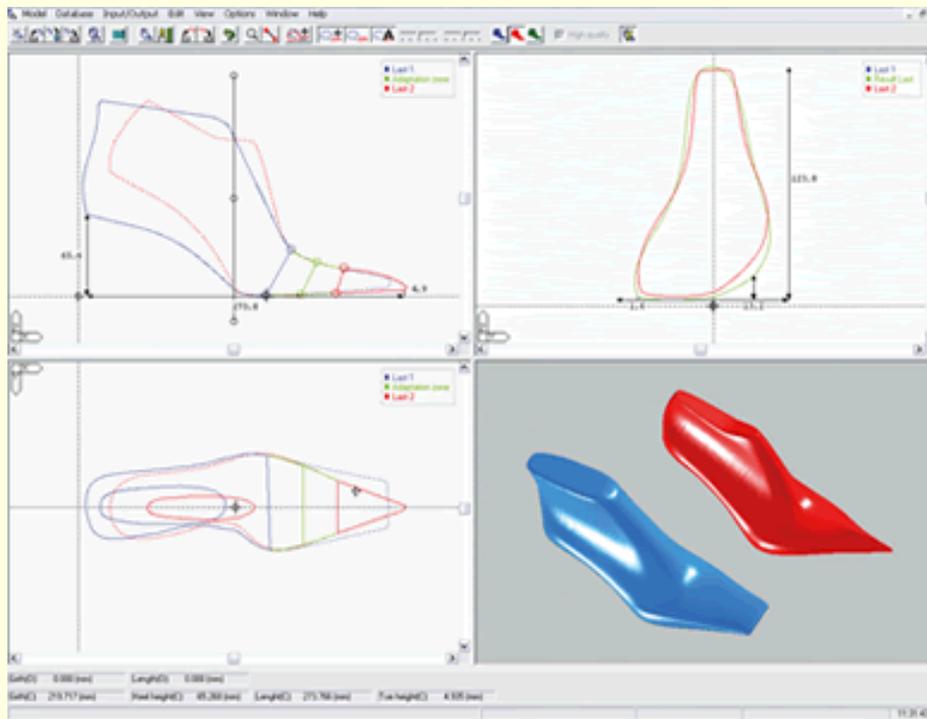
PATTERN  
ENGINEERING

Totally manual approach



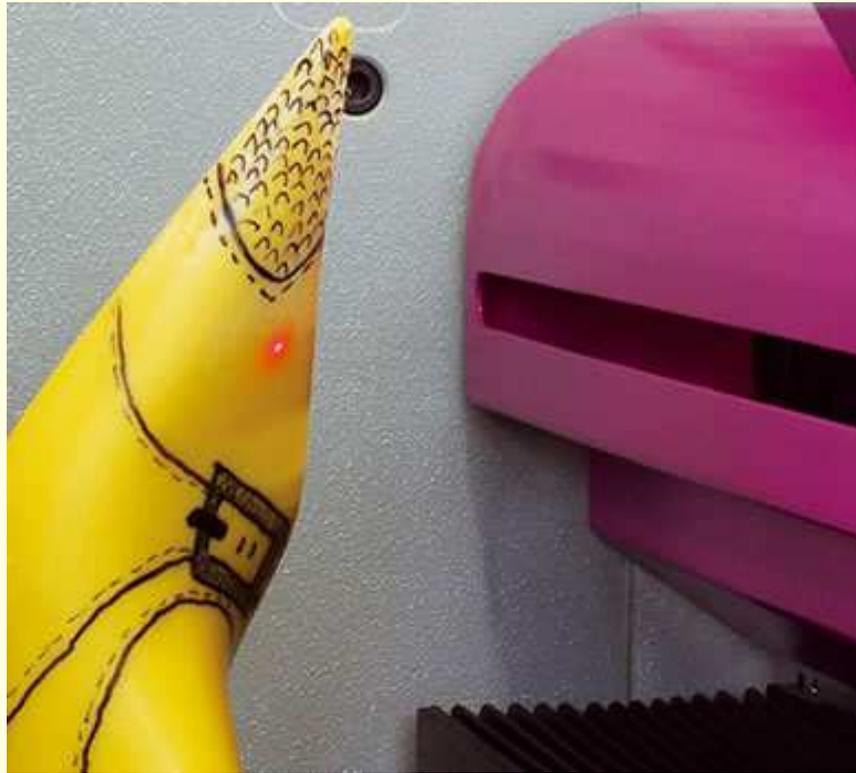
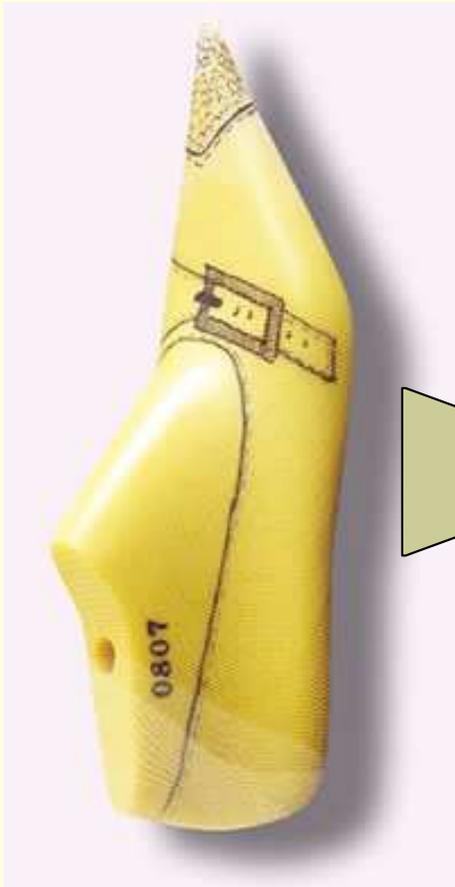
# Technologies for the design process

## ■ CAD systems for last design



# Technologies for the design process

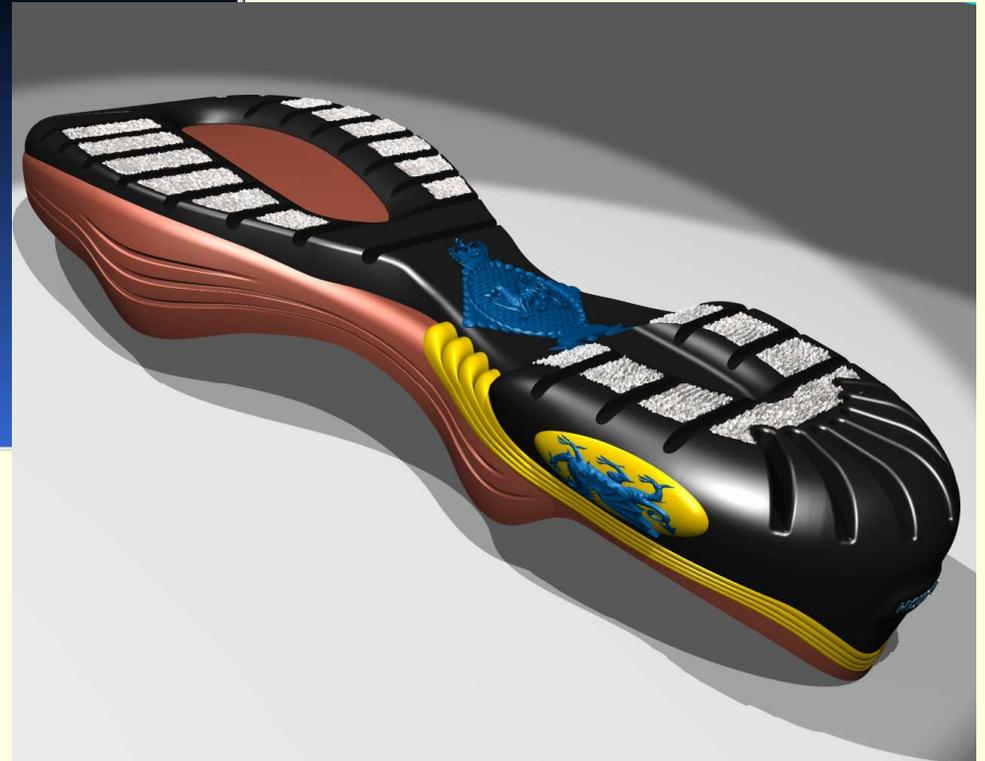
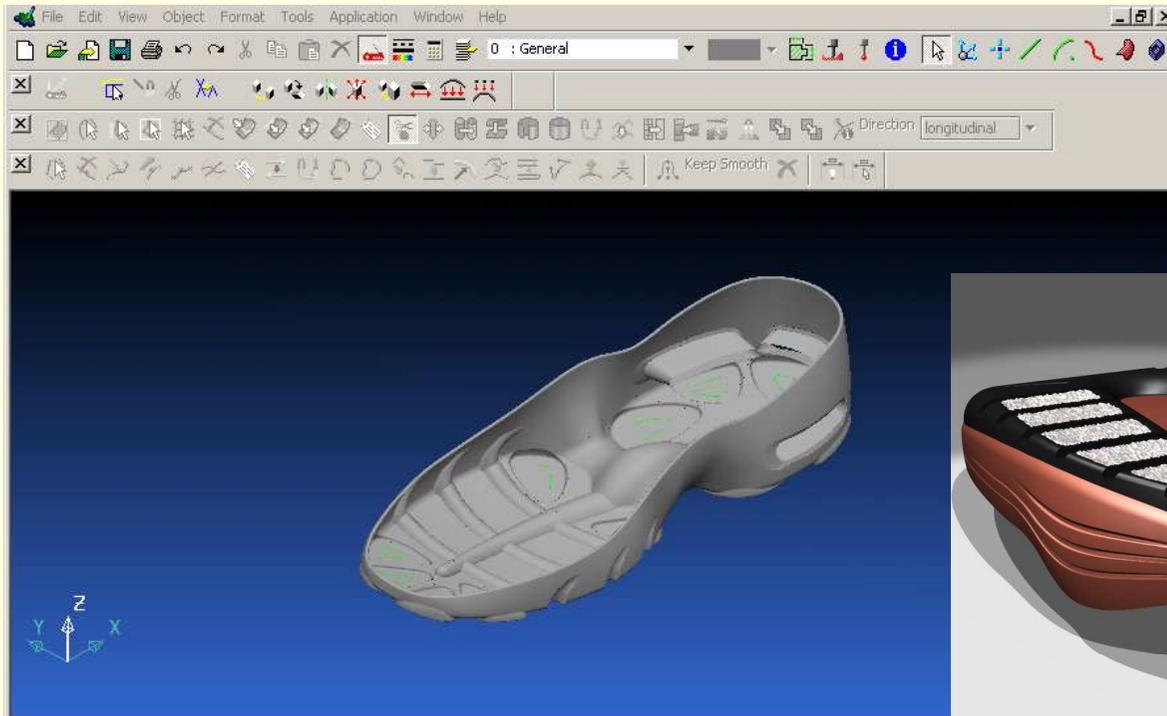
- Automatic import of style lines



CAD 3D

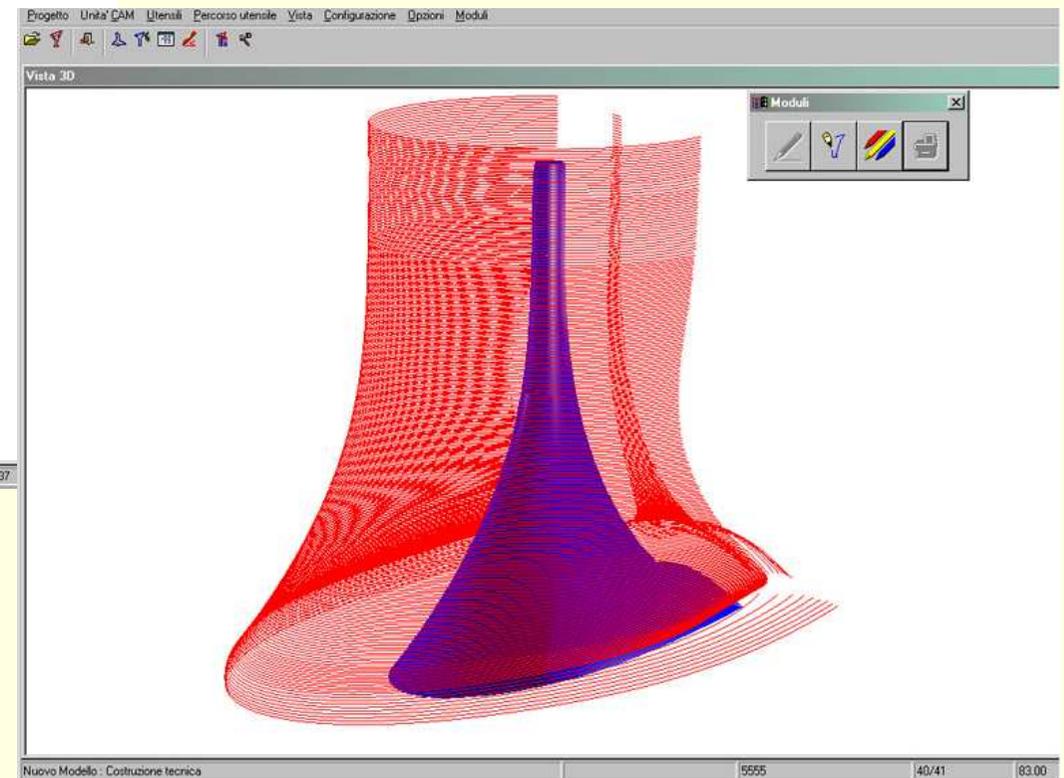
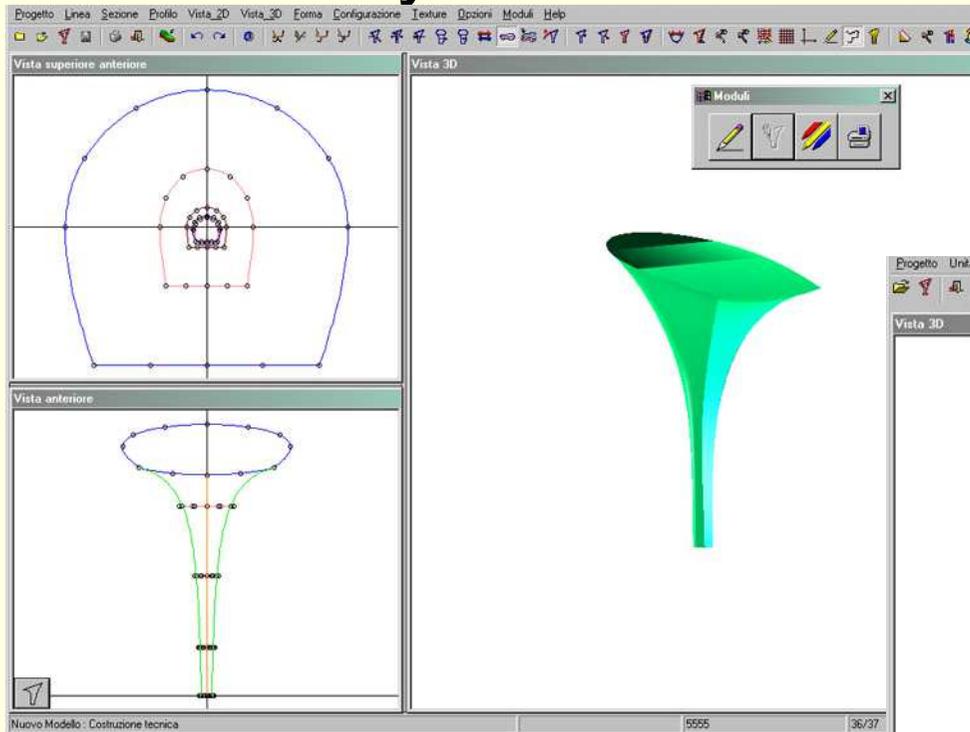
# Technologies for the design process

## ■ CAD systems for bottom design



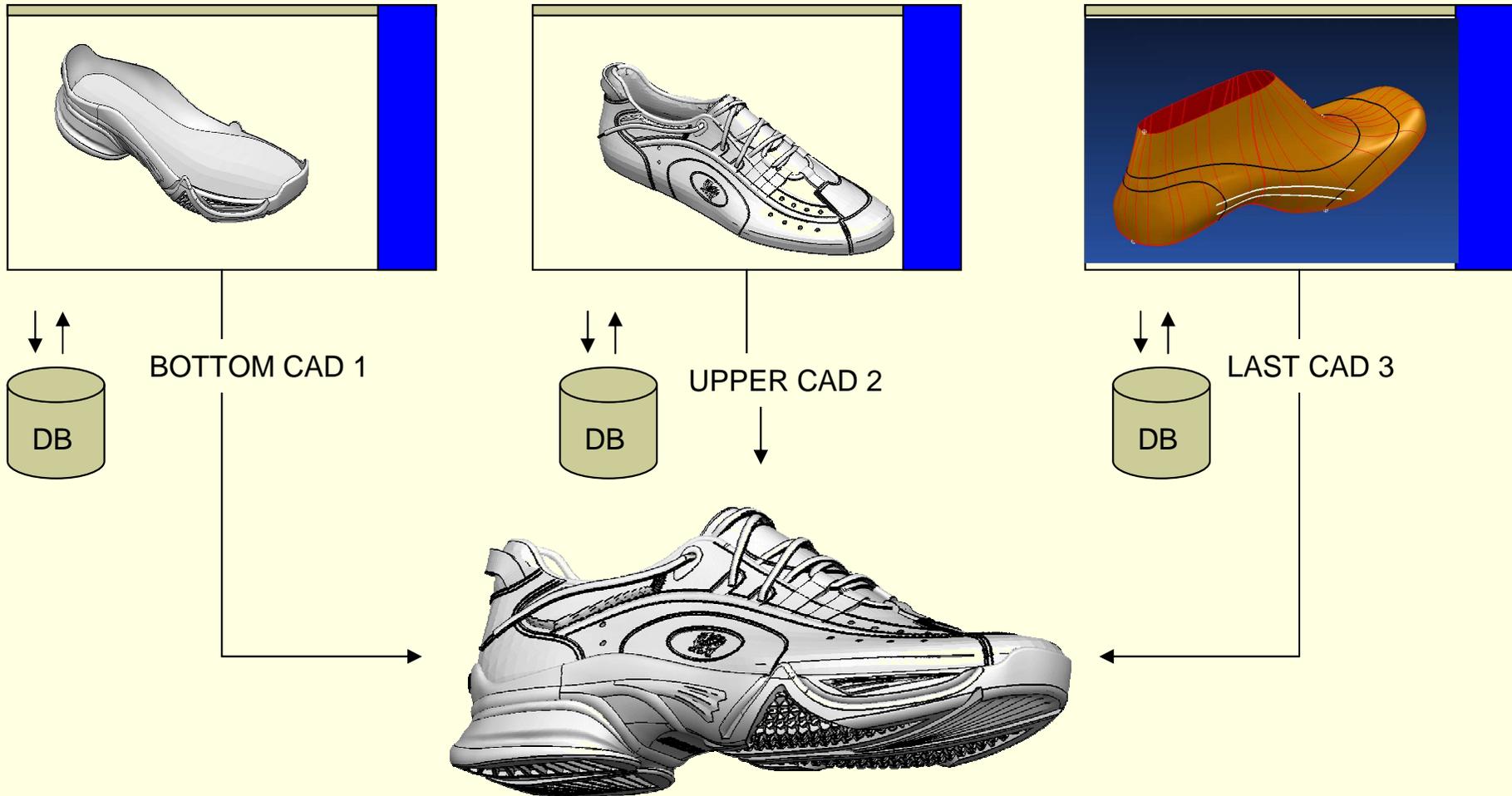
# Technologies for the design process

## ■ CAD systems for accessories



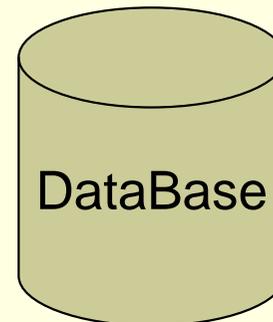
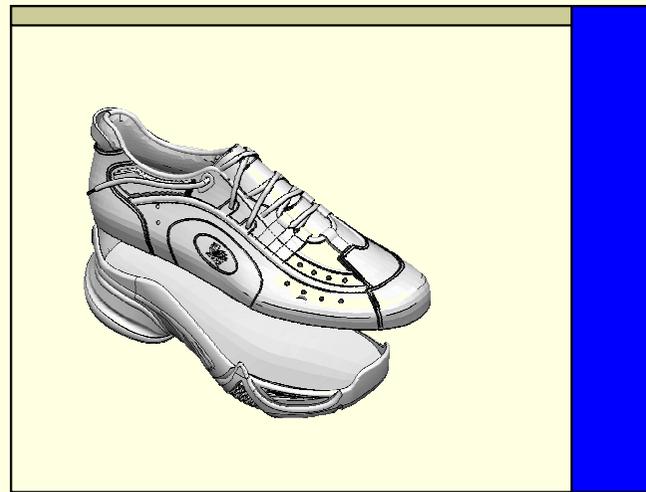
# Technologies for the design process

## ■ CAD systems – integration - today



# Technologies for the design process

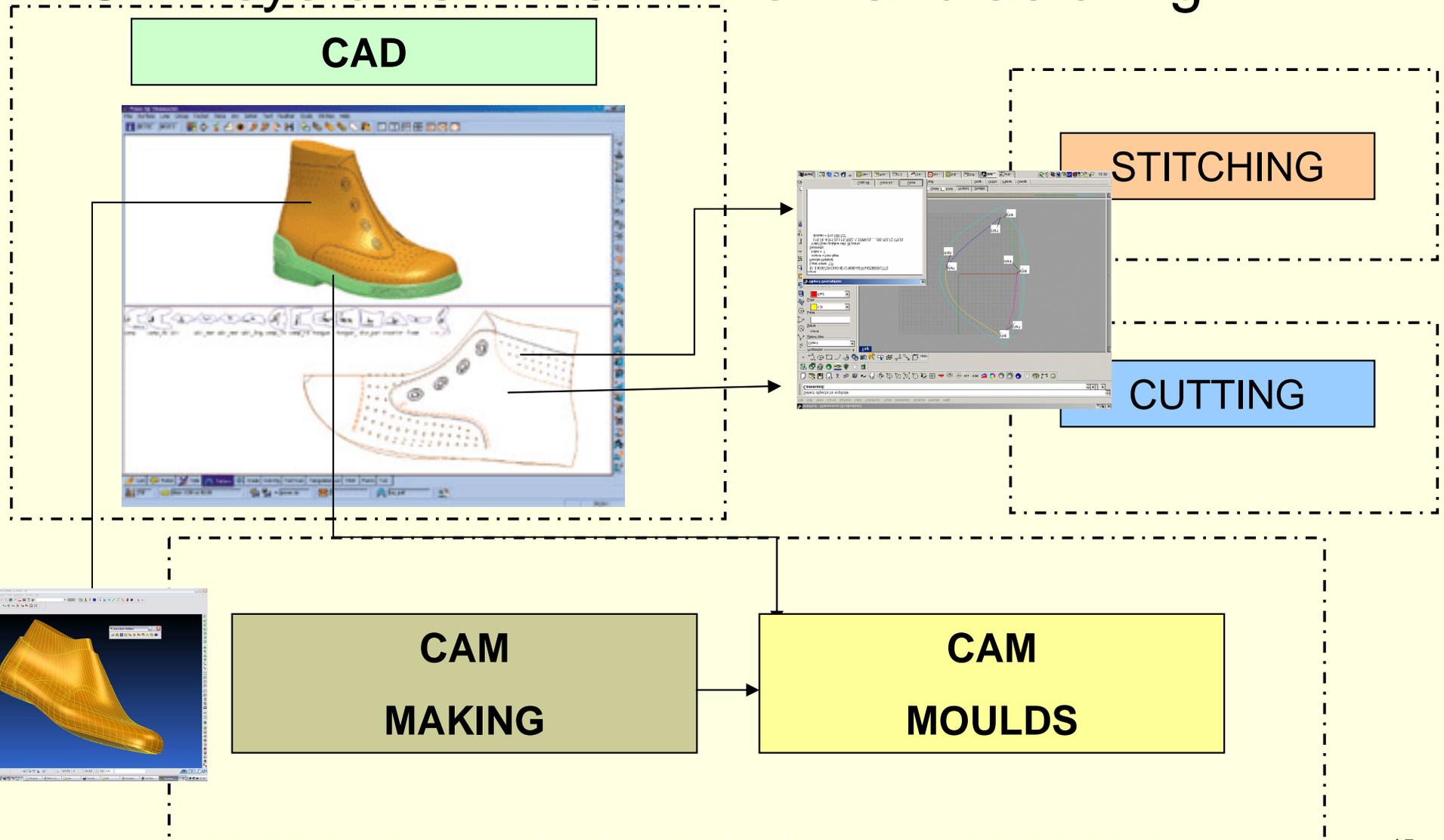
- CAD systems – integration - tomorrow



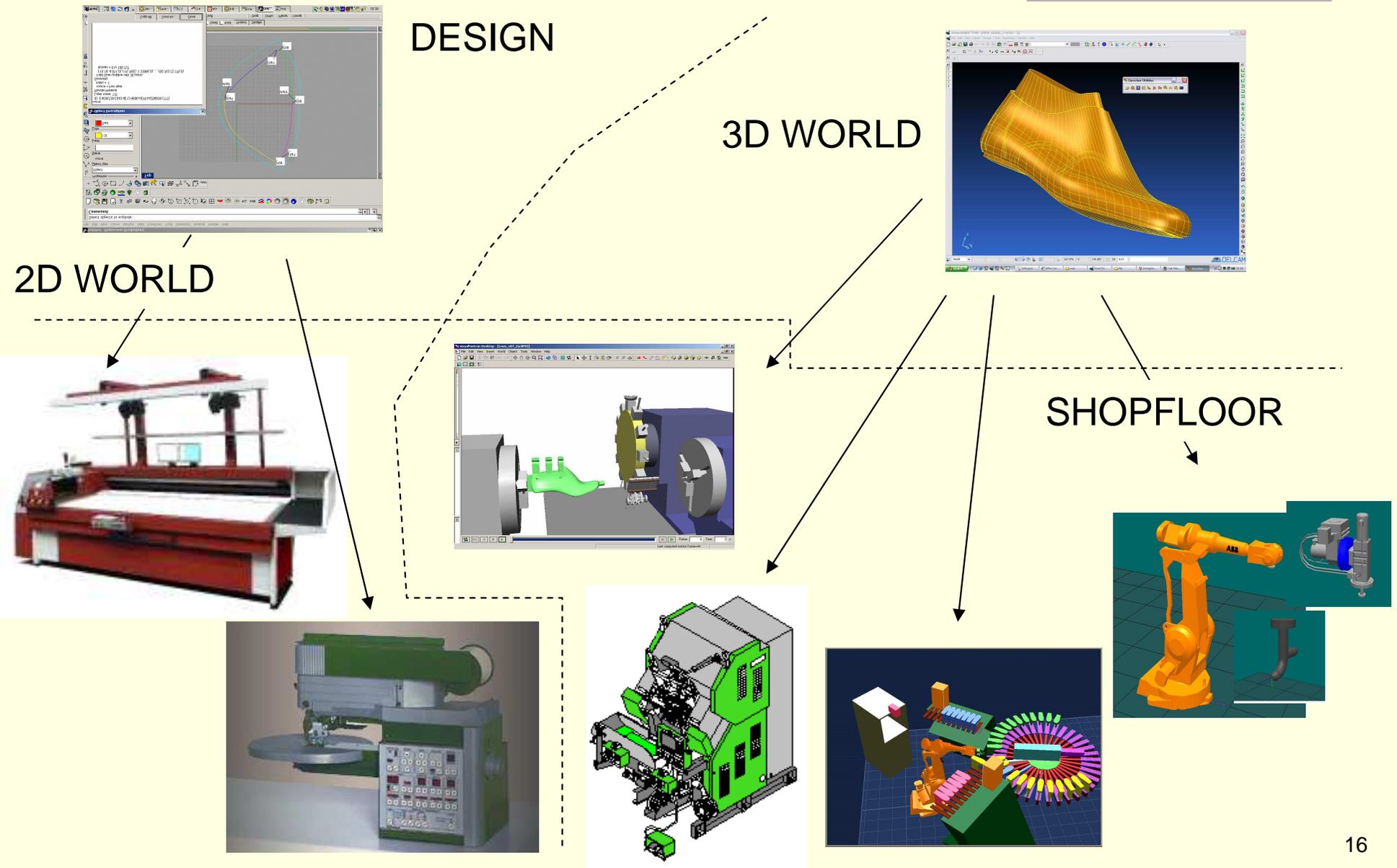
ONLY ONE CAD ENVIRONMENT FOR  
LAST, UPPER, BOTTOM,  
ACCESSORIES

# Technologies for the design process

## ■ CAD systems – the link to manufacturing



# Technologies for the design process



# Technologies for the design process

## PDM

**Bill of material - Northwind**

Collection	man fashion 2003
Season	autumn
Year	2003
Line	man classic
Gender	man shoe
Model style	classic
Product class	fashion
Approved	yes

**Properties**

PropertyName	PropertyValue	UMNa
Collection	man fashion 2003	
Season	autumn	
Year	2003	
Line	man classic	
Gender	man shoe	
Model style	classic	
Product class	fashion	

**File system**

- File Name = clarks
- File Name = Clarks\_Last
- File Name = Derby A1 Brown
- File Name = Derby A2 Blue
- File Name = Derby A2 Brown
- File Name = Derby A2 Grey
- File Name = Liste-cuoio-o
- File Name = shmShell

**Model: Northwind**

Collection	man fashion 2003
Season	autumn
Year	2003
Line	man classic
Gender	man shoe
Model style	classic
Product class	fashion
Approved	yes

**Technical Specifications**

Article: *Laced blue*

Laced grey			
UPPER	Material	Consumption	Waste
Color 1	grey calf	1.2 sqft	
Color 2			
Color 3			
Color 4			
LINING			
Upper lining	brown calf	1.0 sqft	
Side lining			
Leg lining			
Insole lining	brown soft leather	0.2 sqft	
Reinforcement	brown calf		
Stitching			
Soles			

**PDM**

Stitching specifications

Article: *Laced blue*

**Instruction 1**

**Instruction 2**

# Technologies for the (design) process

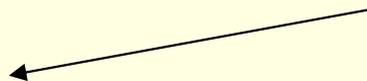
## ■ Rapid prototyping

*Laminated object manufacturing*

*Selective laser sintering*

*3D printing*

.....



# Technologies for the manufacturing process

- Cutting – dieless cutting systems architecture



INCLINED BED



FLAT BED

# Technologies for the manufacturing process

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- Cutting – dieless cutting systems architecture



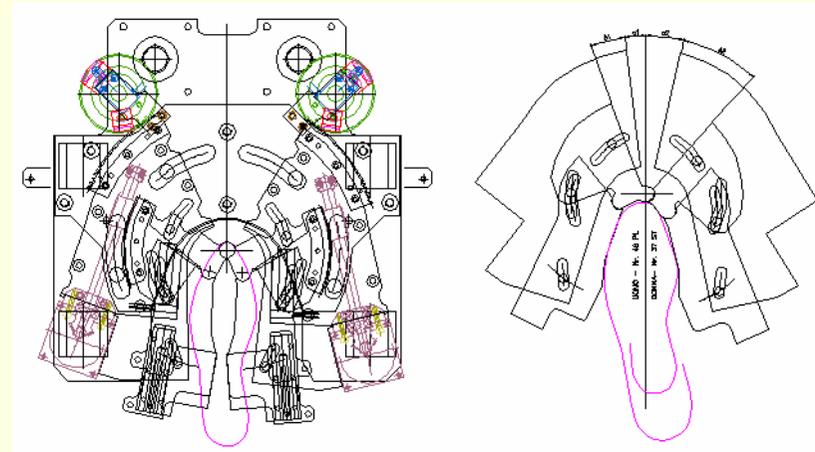
**CONVEYOR BELT**



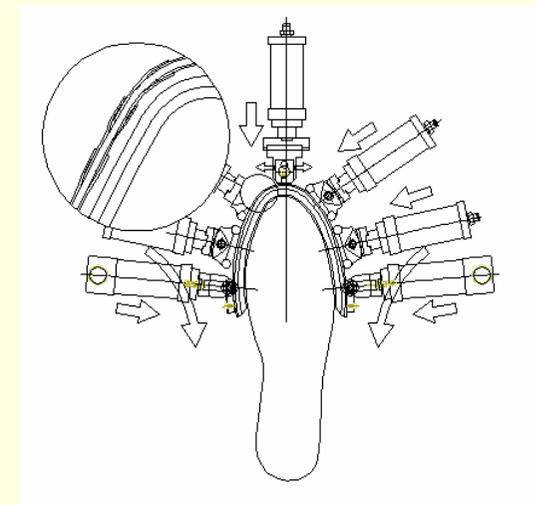
**WATERJET**

# Technologies for the manufacturing process

- Making – dedicated machines – toe lasting



*Flexible and programmable functional modules for the automatic adjustment of the machine to different shoe styles*



# Technologies for the manufacturing process

- Making – dedicated machines – heel and side lasting



*Programmable nailing heads to adjust position, number and spacing of nails in the heel seat region*

# Technologies for the manufacturing process

- Making – dedicated machines – processing of the bottom of the lasted shoe

*NC controlled  
roughing and  
cementing of the  
lasted upper (single  
station or double  
station machines)*



# Technologies for the manufacturing process

- Making – dedicated machines – processing of the sides of the lasted upper

*NC controlled  
roughing and  
cementing of the  
sides of the lasted  
upper (single or  
double station  
machines)*



# Technologies for the manufacturing process

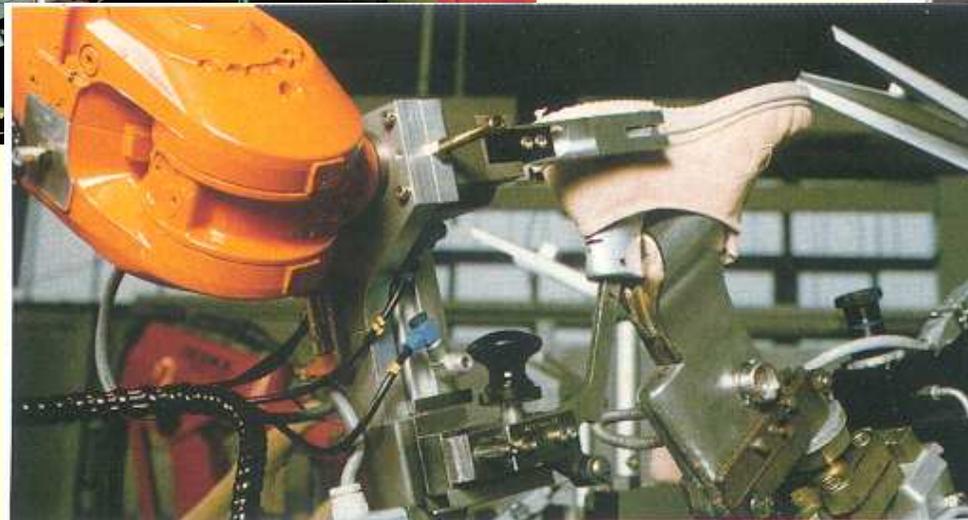
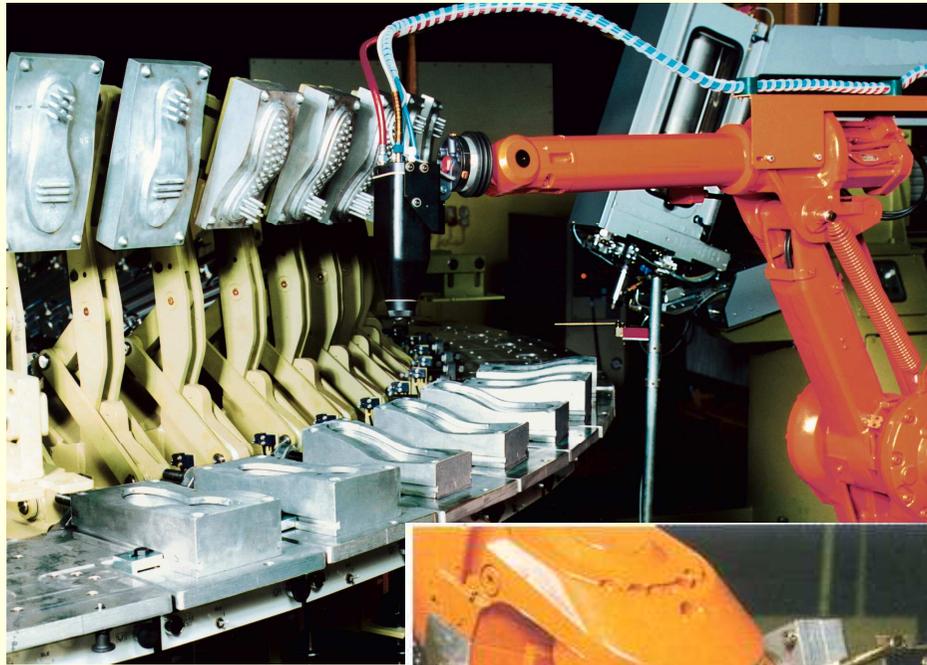
- Making – dedicated machines – cementing of the bottom units

*NC controlled  
cementing  
machines for plastic  
and leather soles*



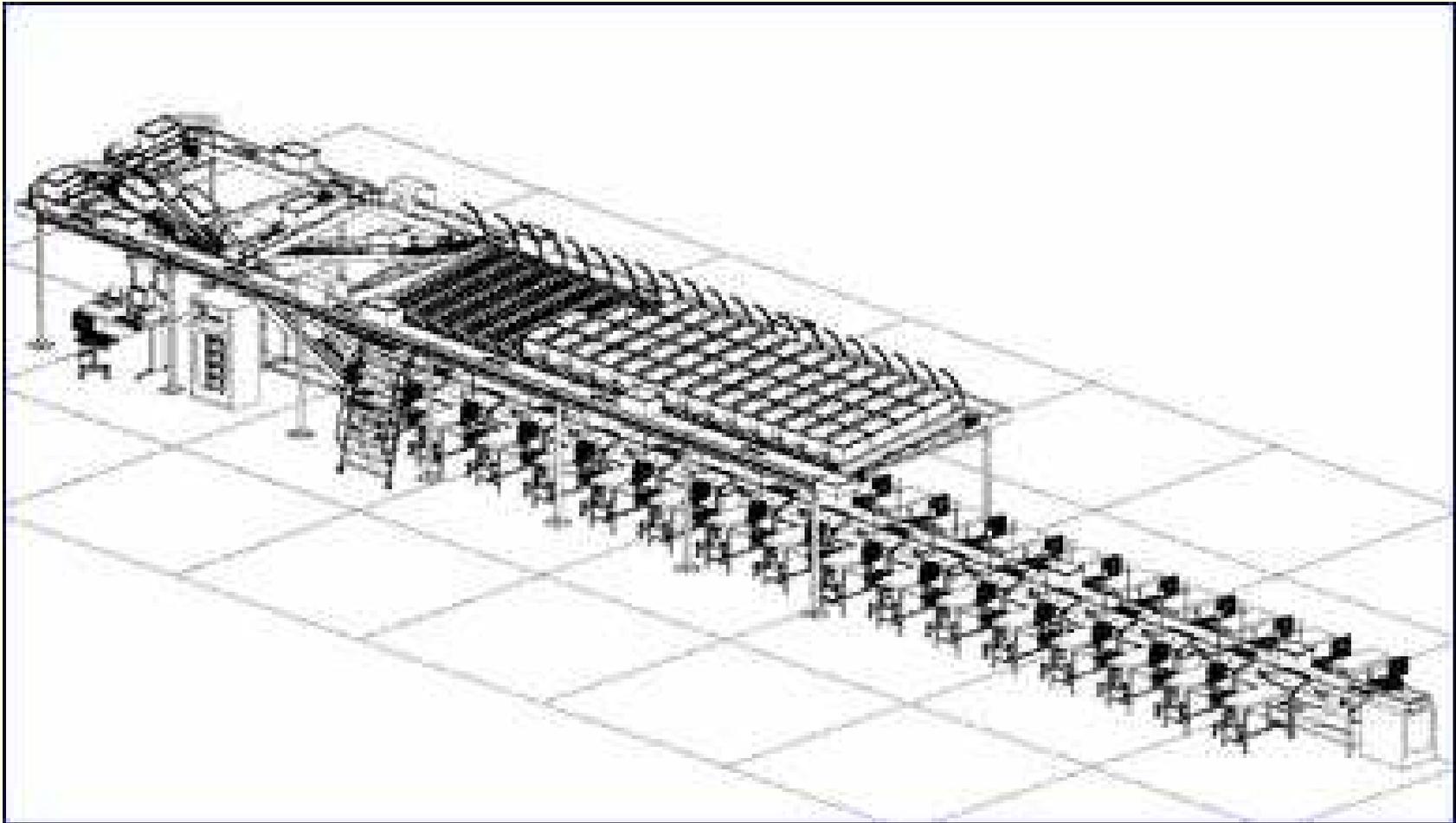
# Technologies for the manufacturing process

- Making – robots as machines and manipulators

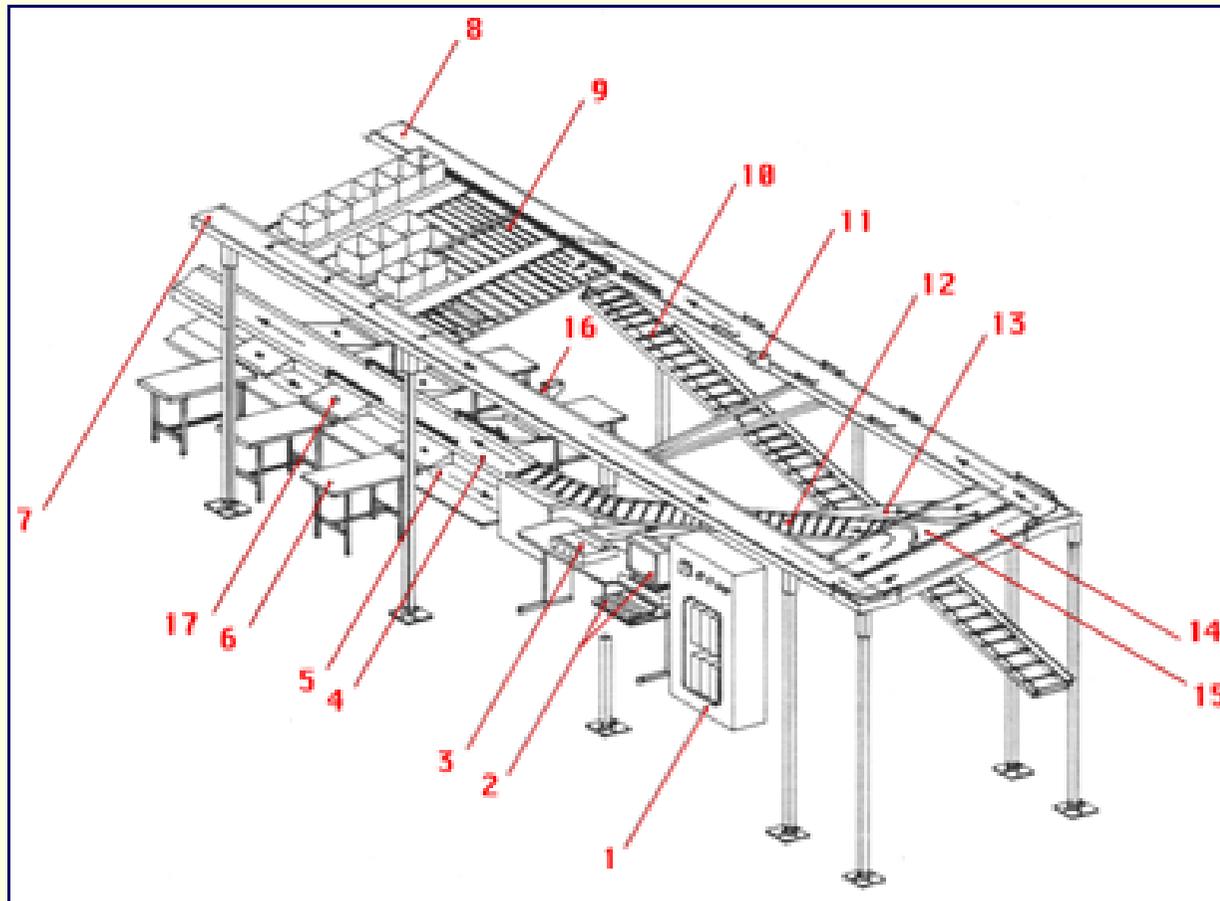


# Technologies for upper stitching dept

- Conveyor for the automatic distribution of the semi-finished goods and the control of all production data by means of a continuous cycle workstation-storage area



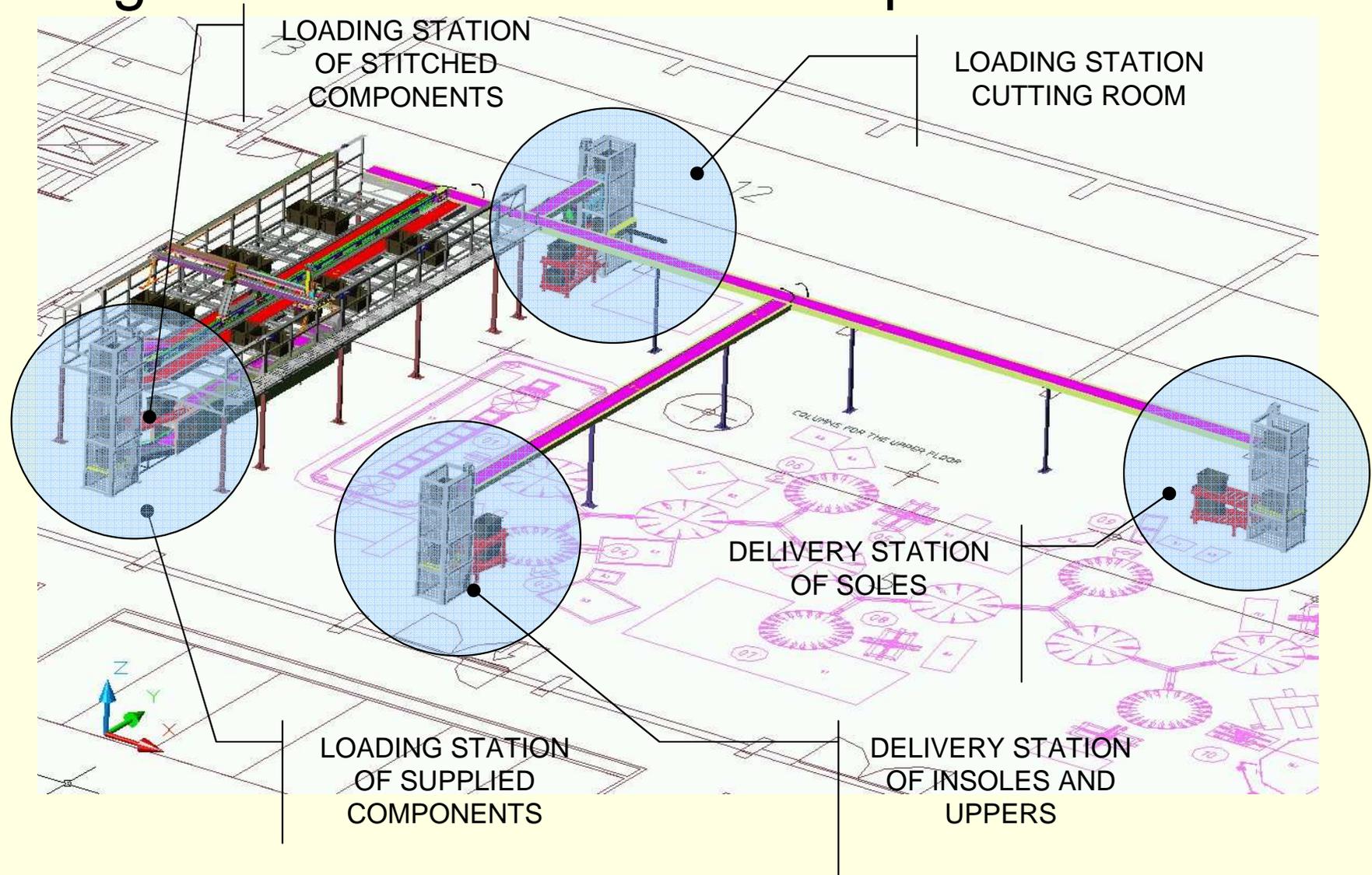
# Technologies for upper stitching dept



- 1 PLC BOARD
- 2 COMPUTER
- 3 PRINTER
- 4 BOX DISPATCHING LOWER BELT
- 5 BOX RETURN LOWER BELT
- 6 WORKSTATION
- 7 BOX DISPATCHING UPPER BELT
- 8 BOX RETURN UPPER BELT
- 9 OVERHEAD STORAGE AREA
- 10 FINISHED PRODUCT CHUTE
- 11 BOX STORAGE BAR CODE READER
- 12 BOX DESCENT CHUTE
- 13 ELEVATOR BELT
- 14 BOX RECYCLE BELT
- 15 STORAGE AREA LOADING AND UNLOADING
- 16 BOX RELEASE BAR CODE READER
- 17 SENSOR

# Technologies for the manufacturing process

## Logistics – in and between departments



# Technology as a modernity factor

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- New technologies are a motivation for changing old and bad system
- Improvements in productivity reflect improvements in organization
- New and better work organization becomes a necessity
- The whole working environment is improved

# Conclusion: technology and product quality

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- Machines are more predictable than human workers
- Their performance is more stable
- They improve the quality of work thus making also the performance of the workers more stable
- They increase the level of control that is possible on the various processes
- They hence contribute in increasing the quality of the service delivered by the company

# Conclusion: a look into the future

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- Intelligent knowledge based CAD
- New machines for new materials
- New machines for new shoe concepts
- And .... much more

- 
- Thanks for attention



Technology Innovation between  
Change and Sustainability  
*by Gianni Risso*