“Technological & non Technological Innovation: A Challenge for the Fashion SMEs ”

Introduction

- **Strategic Objectives :**
  - Benefiting from the market proximity
  - Fostering the fashion creativity
  - Shortening the time to market (reactivity)
  - Permanent adaptation to the changes (Flexibility)
  - Customisation & personalisation
- **Key Success Factors :**
  - Mastering the core business knowledge (Expert Systems)
  - Implementing the collaborative working organisations
  - Developing the “Rapid Prototyping” methods
  - Elaborating the “Extended Micro Factory Concept”

Traditional Method:

Time consuming and expensive
Not fitting with the consumer morphology

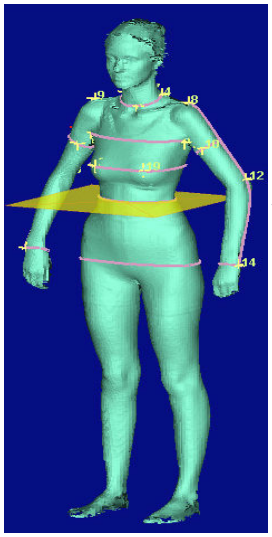
2D sketch 3D toile show sale

Innovation Strategy

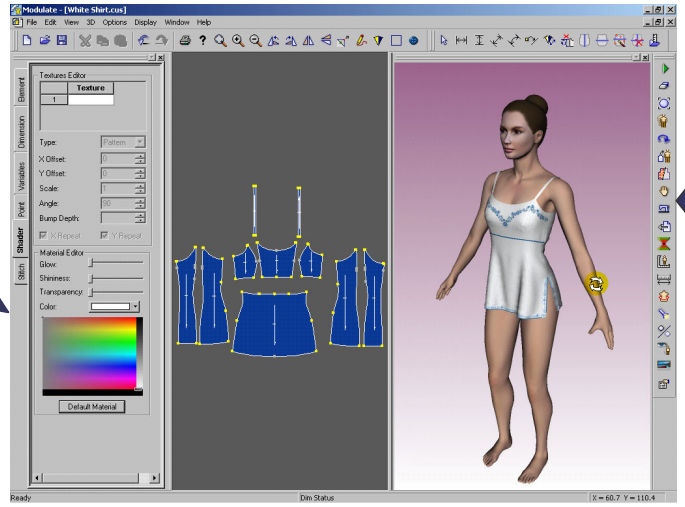
“From Virtual to Real”

The Roadmap

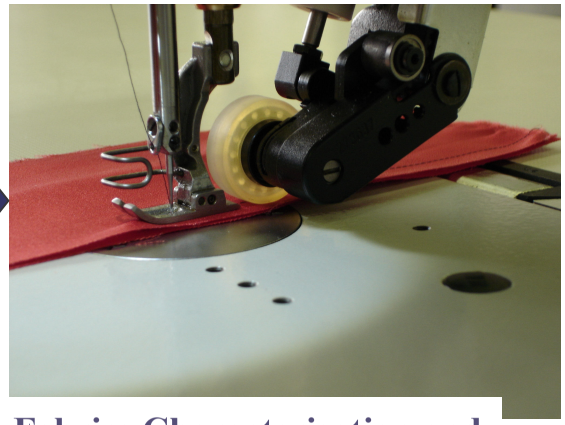
New Method of Work
“From 6 weeks to 6 hours” prototyping



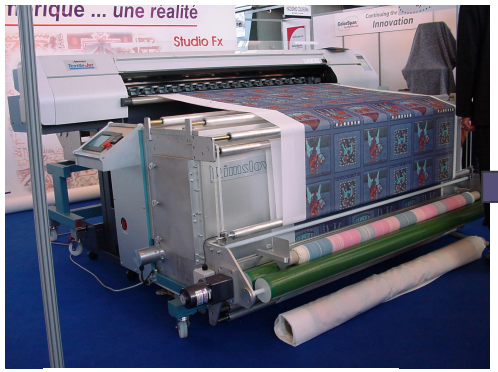
3D Avatars



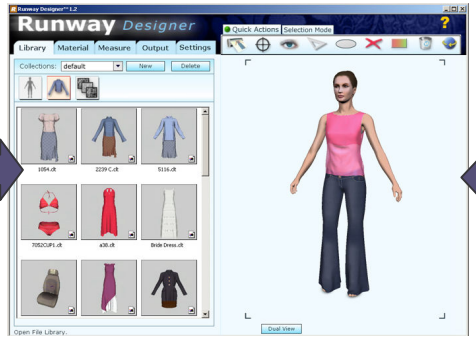
Style advice, Pattern Making and Fit evaluation



Fabrics Characterisation and Behavioural Models

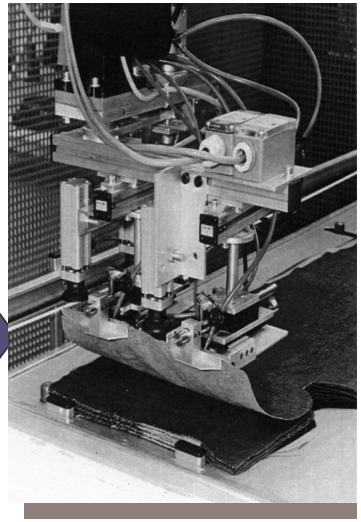


Fabrics Design & Digital Printing



Virtual Prototype and Comfort Simulation

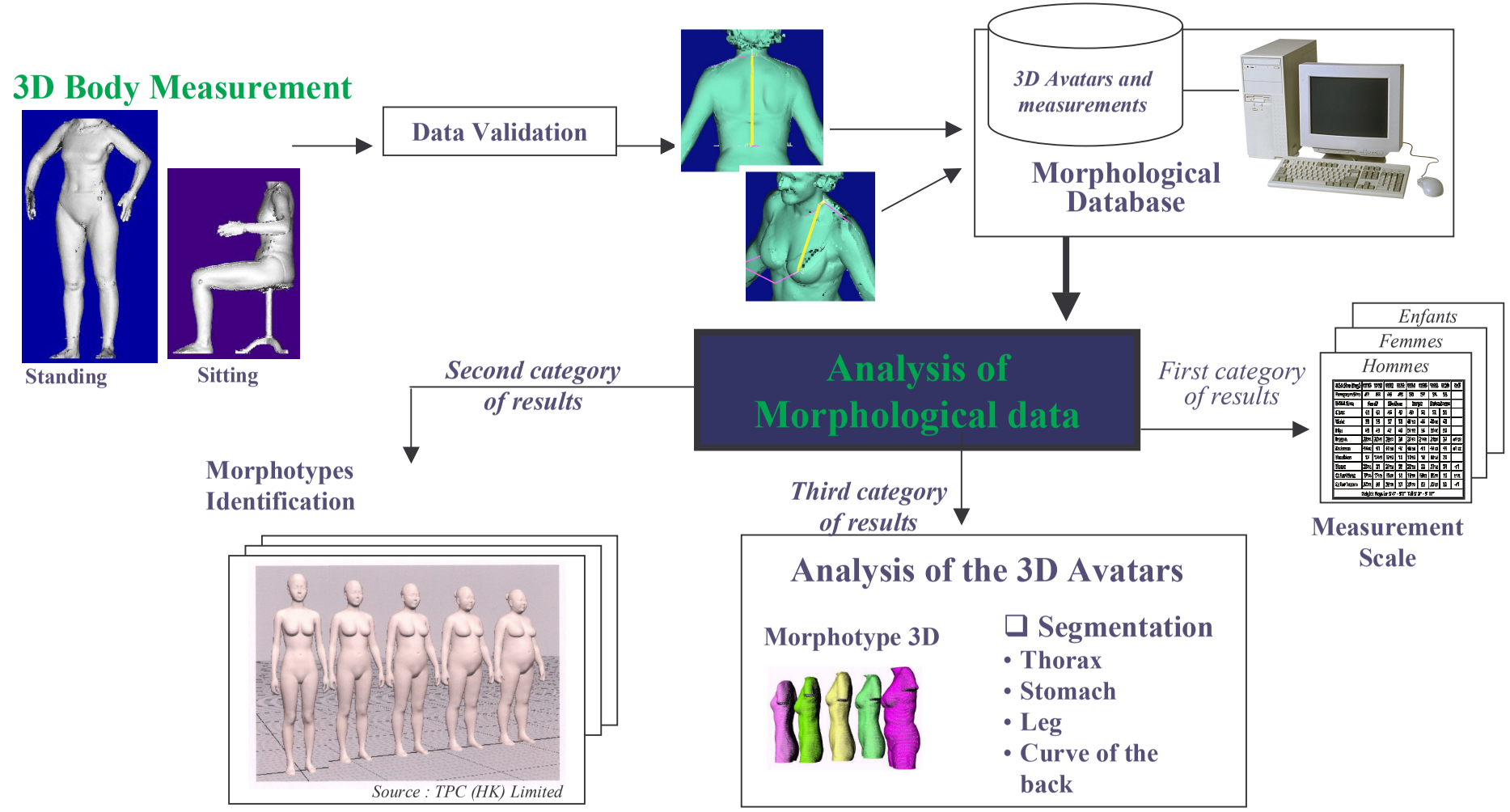
Prototype



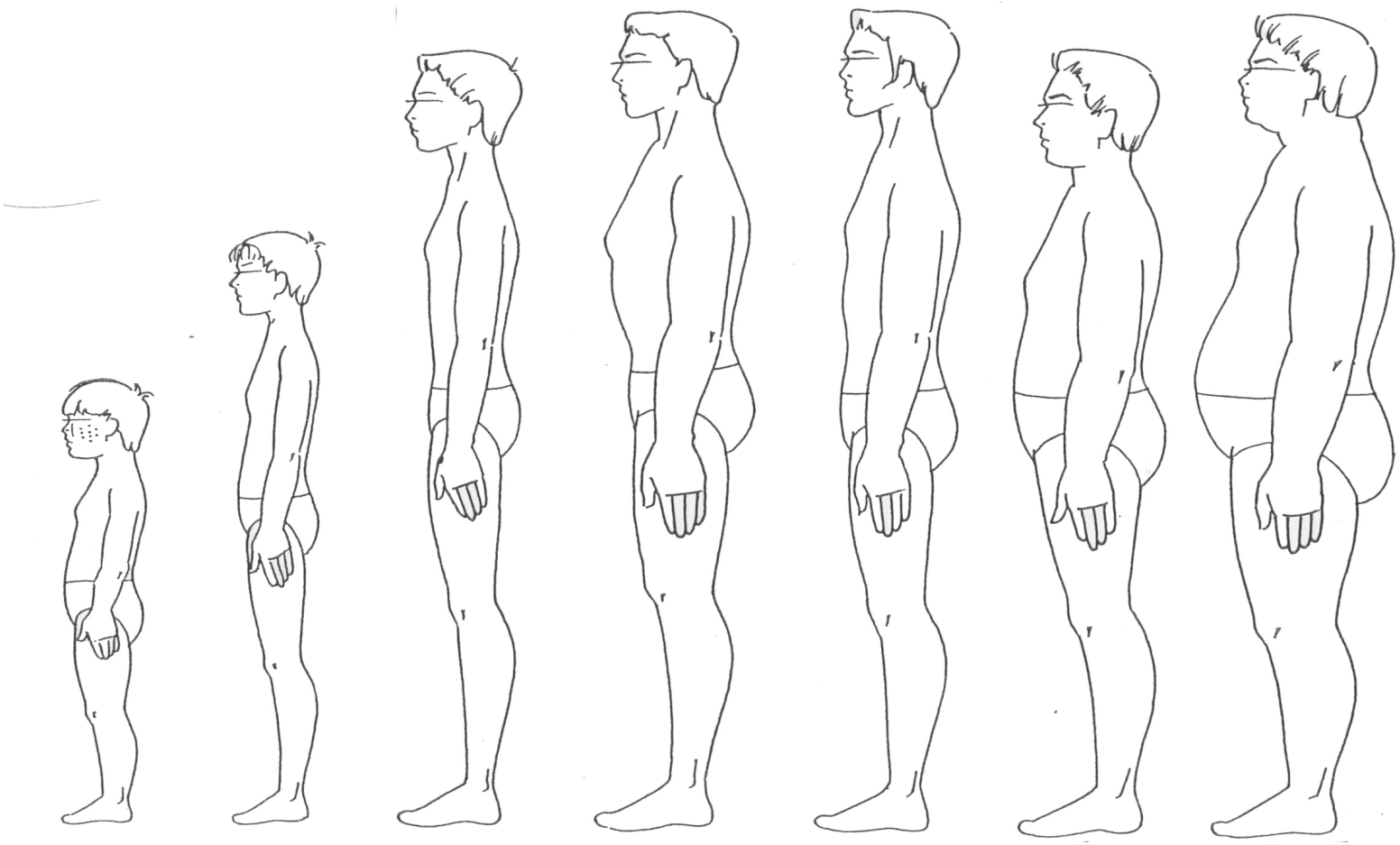
Extended Micro-factory

First Step: Morphology Knowledge

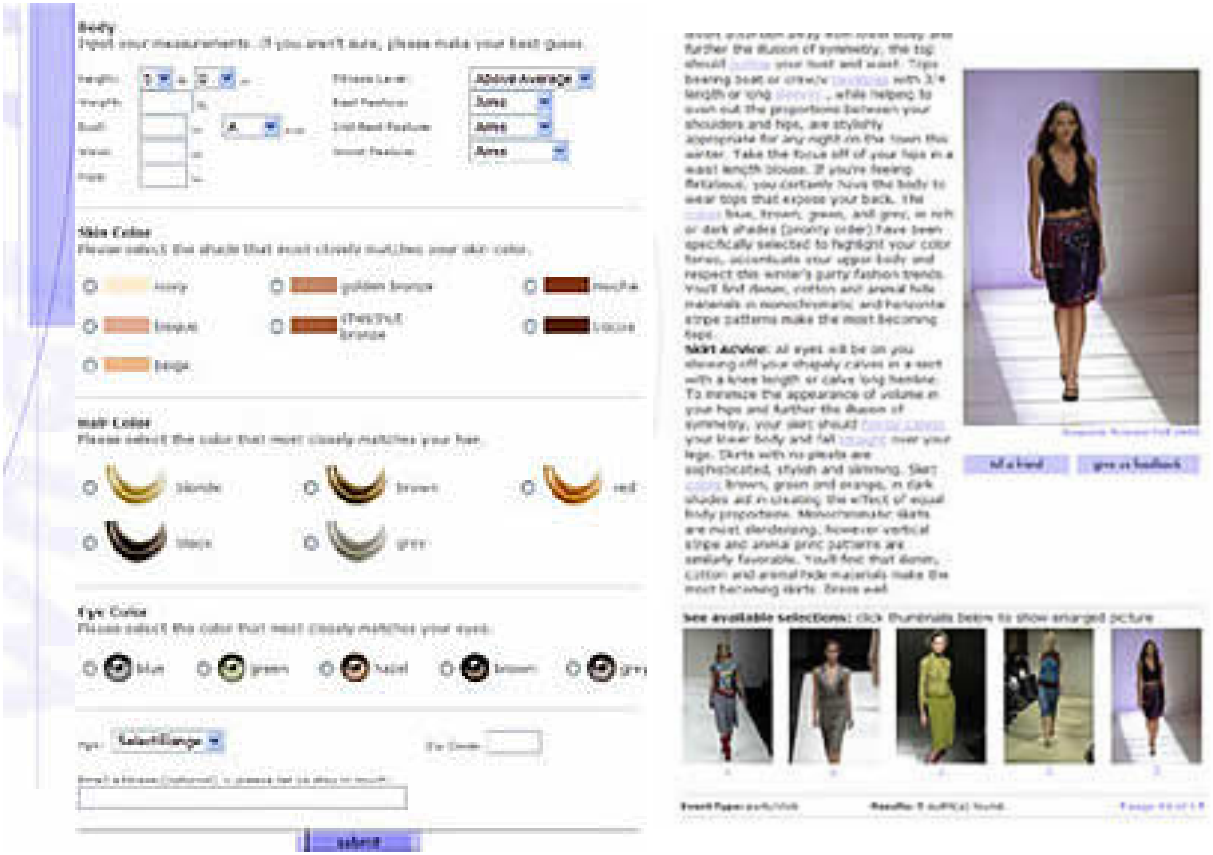
Morphotypes Identification Process



Accurate measurement: first step for correct sizing
Garment customised to target markets



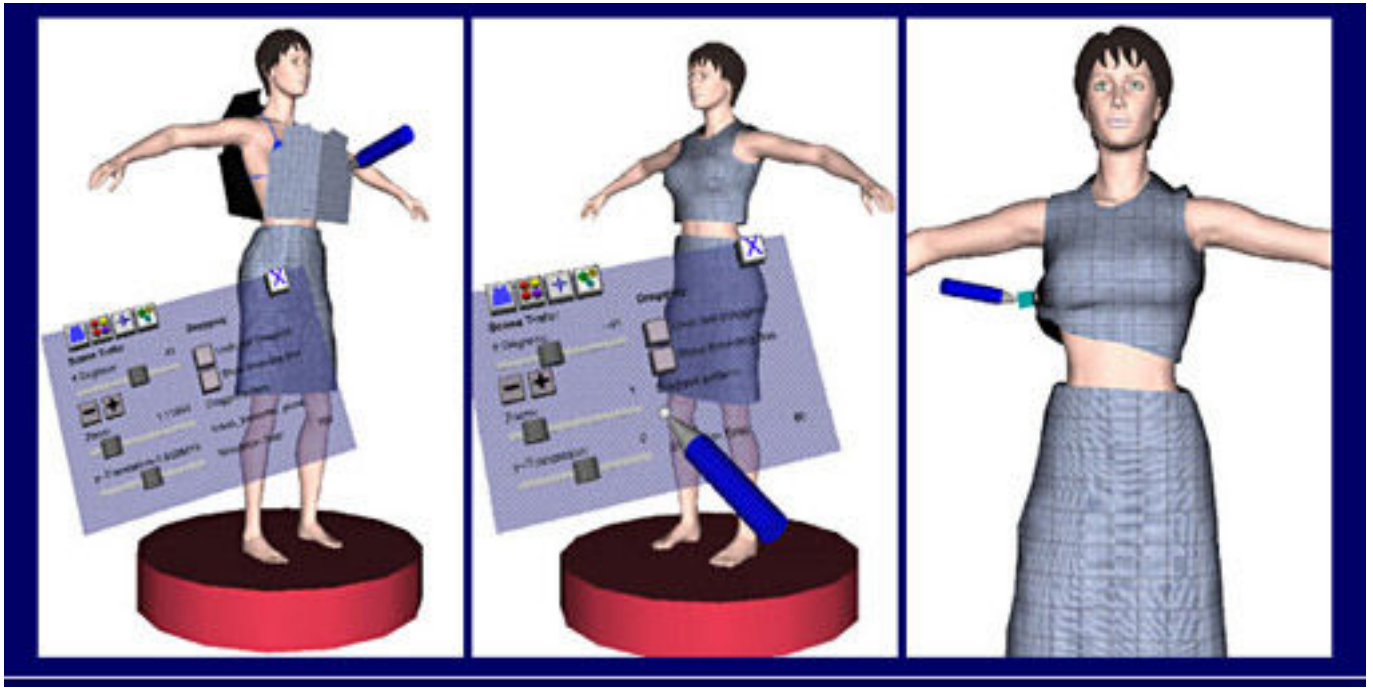
Second Step: Fostering Creativity



❑ Style Advise

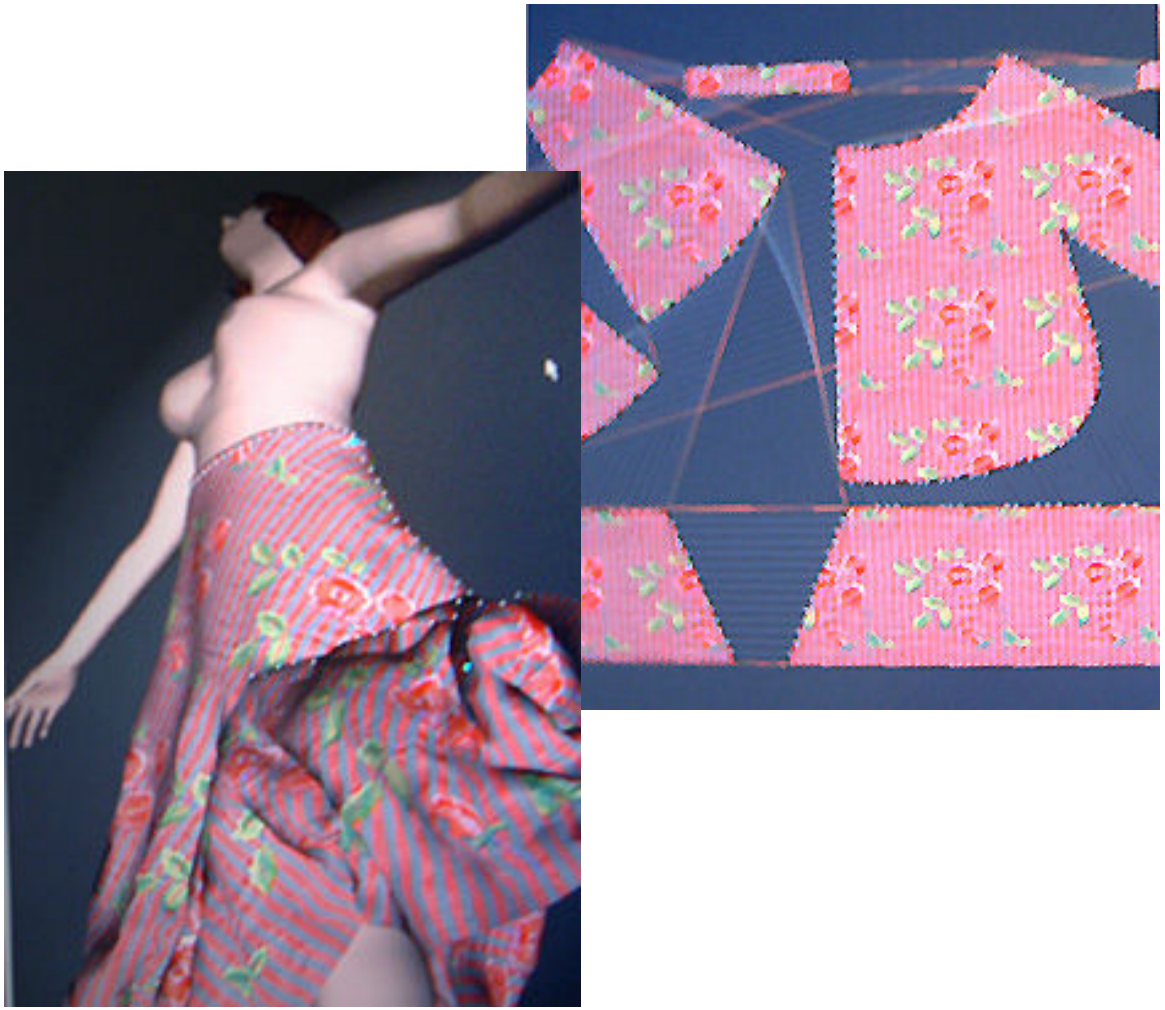
- Collaborative work with forecasters, manufacturers and fabrics suppliers
- Analysis of Economic environment, influence of culture and Social changes
- Design tools
- Iterations of style
- Virtual try on
- Cataloguing and archiving

New Working Interfaces



- Intuitive use of virtual models
- Intuitive interfaces that take account of the practice of fashion

Third Step: Material Characterisation and Modelling



- Mechanical and chemical properties,
- Variables capture and measurement,
- Behavioural models

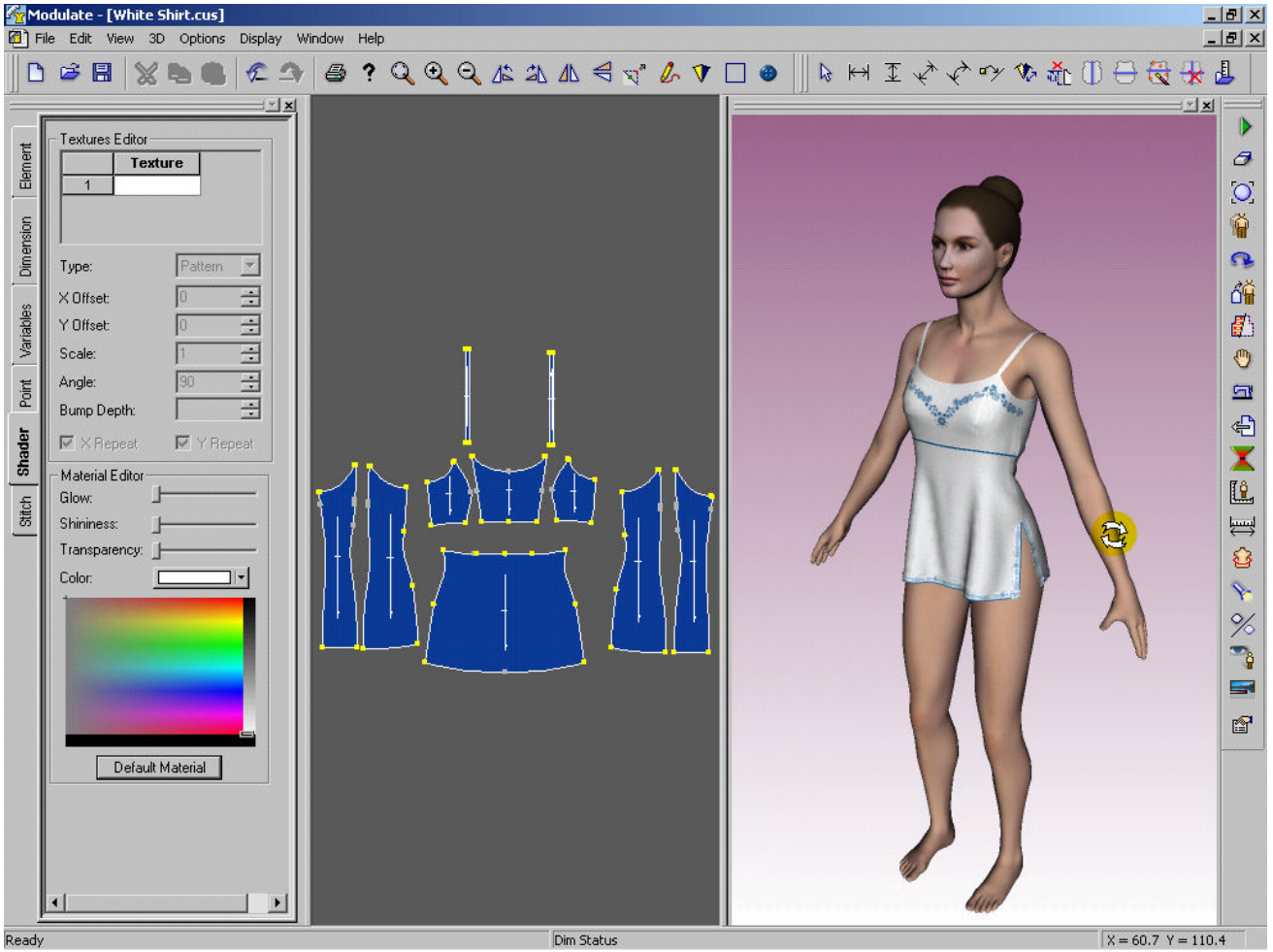
Interaction with virtual pattern making

- Draping Real Garment Patterns with Fabric Parameters
- Real-time fabric rendering and animation to show materials behaviour.

Behaviour Prediction

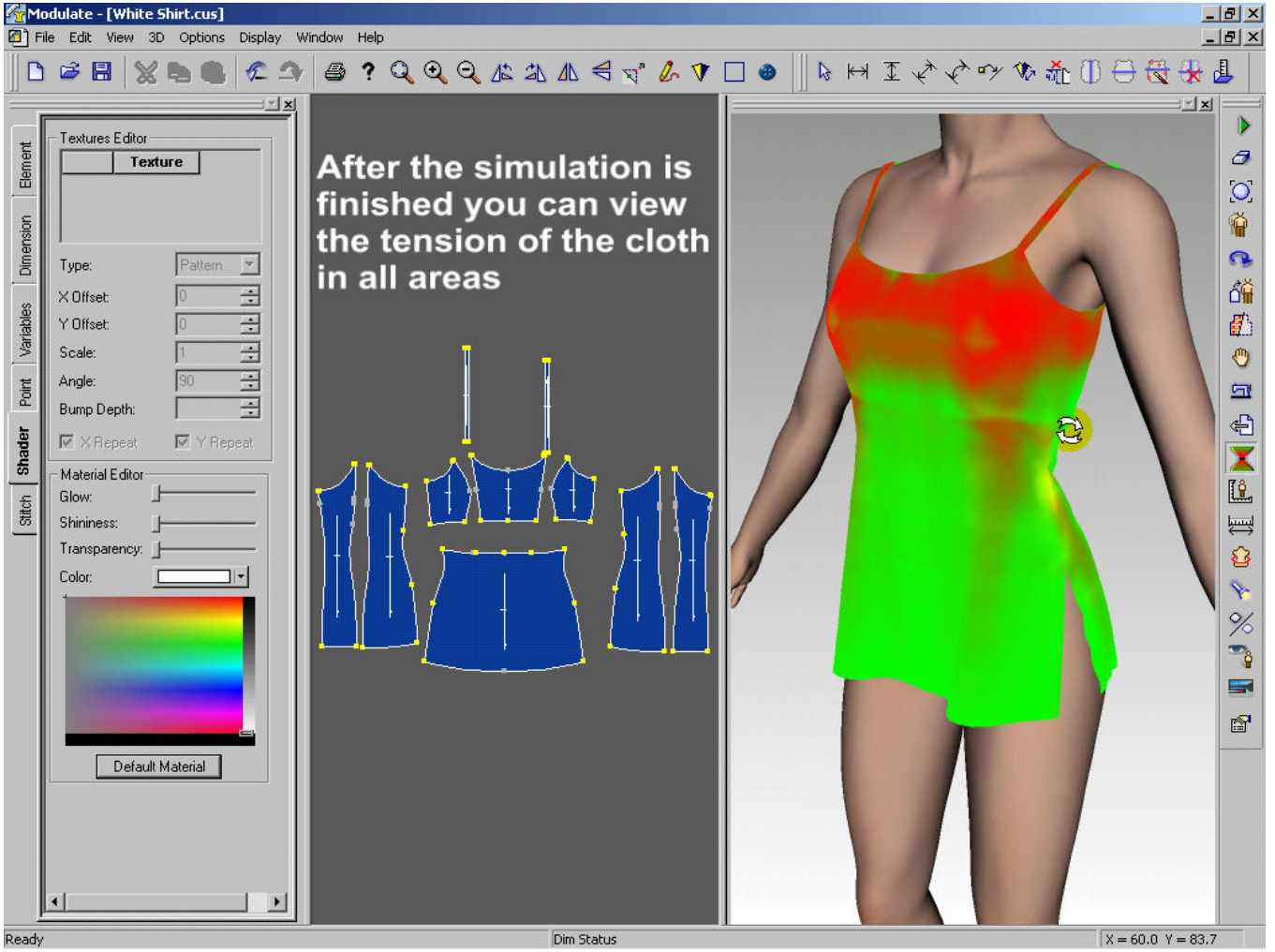
- Fabrics Behaviour prediction in process (Manufacturability),
- Fabrics Behaviour prediction in use (Usability),
- Impact Evaluation on the cost price

Fourth Step: Virtual Pattern Making



Pattern making according to selected “Avatar” imported from standard 3D files : VRML, 3D Studio Max, MAYA, IGES (3D).

Fit Evaluation



Evaluation of fit according to the morphotype and highlighting the tensions. Interactive process with material characterisation and modelling

Fifth Step: Digital Technologies

The Amber machine, from Stork.

CAD fabrics design connected to an inkjet printer

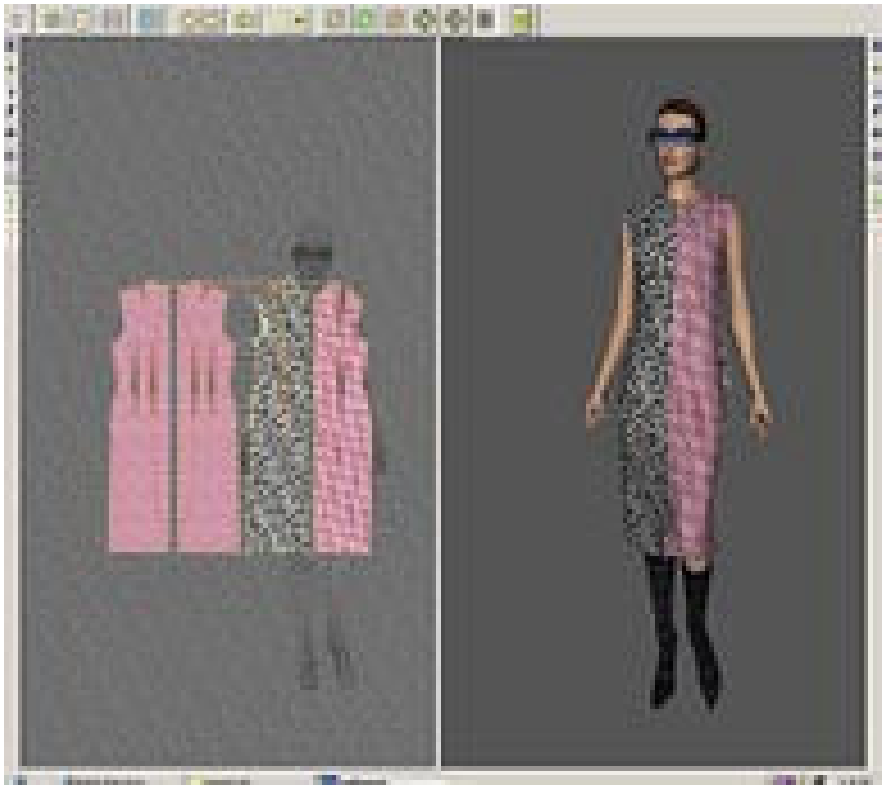
Sixth Step: Virtual Prototyping & Show

Converting patterns into virtual prototypes for fit and costing checks provided for approval and testing to makers and managers.

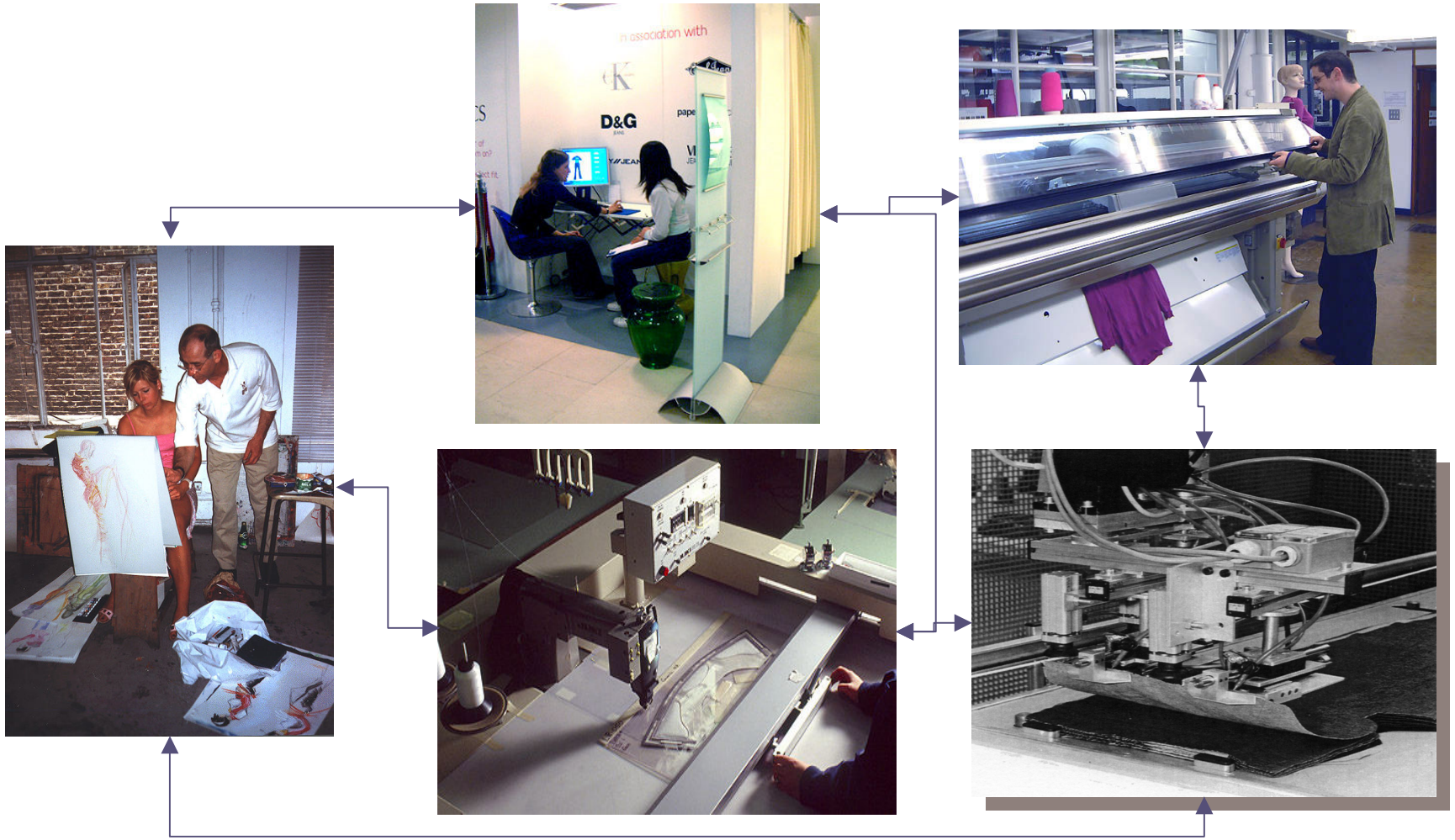
Virtual catwalk enabling comfort and elegance evaluation through Real Time Cloth Simulation

Seventh Step: Real Prototyping

Interactive Physical Evaluation with Virtual Prototype



Eighth Step: New Working Environment



Collaborative working Environment between designers, technicians and manufacturing sharing information and knowledge. Organisation of the micro factory concept.

IFTH Technology Platform

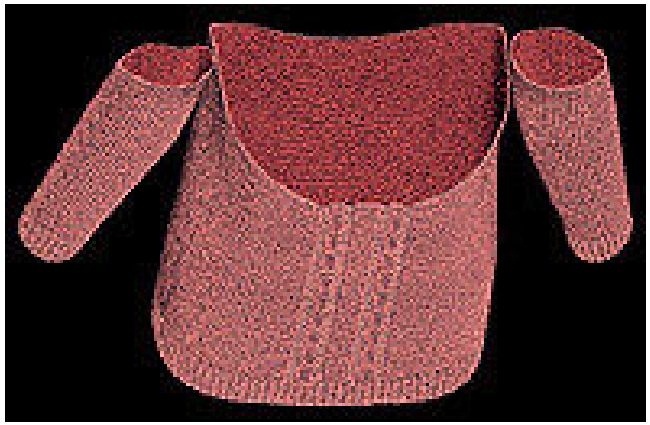
Current Status

Support for Creativity

- Benchmarking and advising in design tools
- Model creation for aesthetic validation
- Virtual catwalks (commercial support)

Collaborative Working Environment

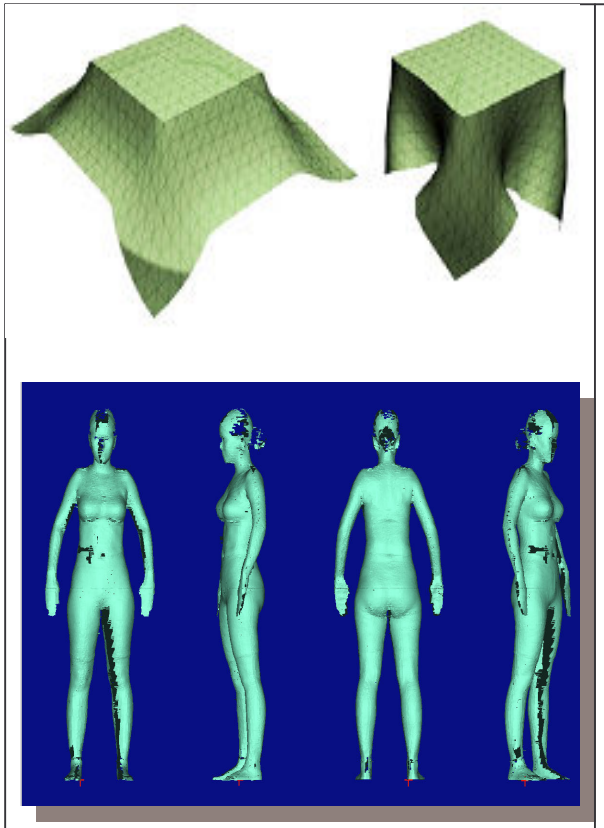
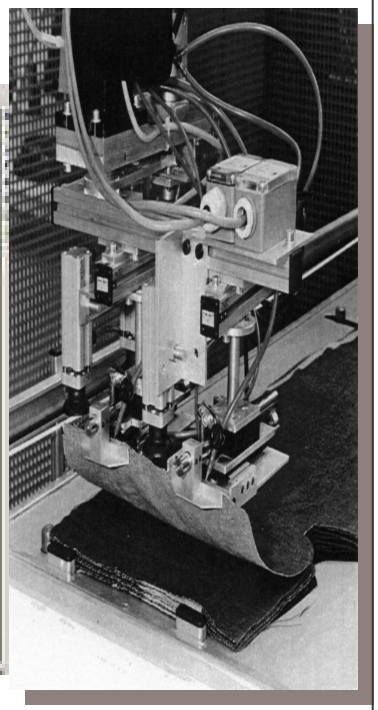
Teamwork between designers, technicians and manufacturing
Taking into account the potential and limitations of CAD systems and shared communications and file formats .



Integral knitting machinery can use 3D scan data to create seamless garments.

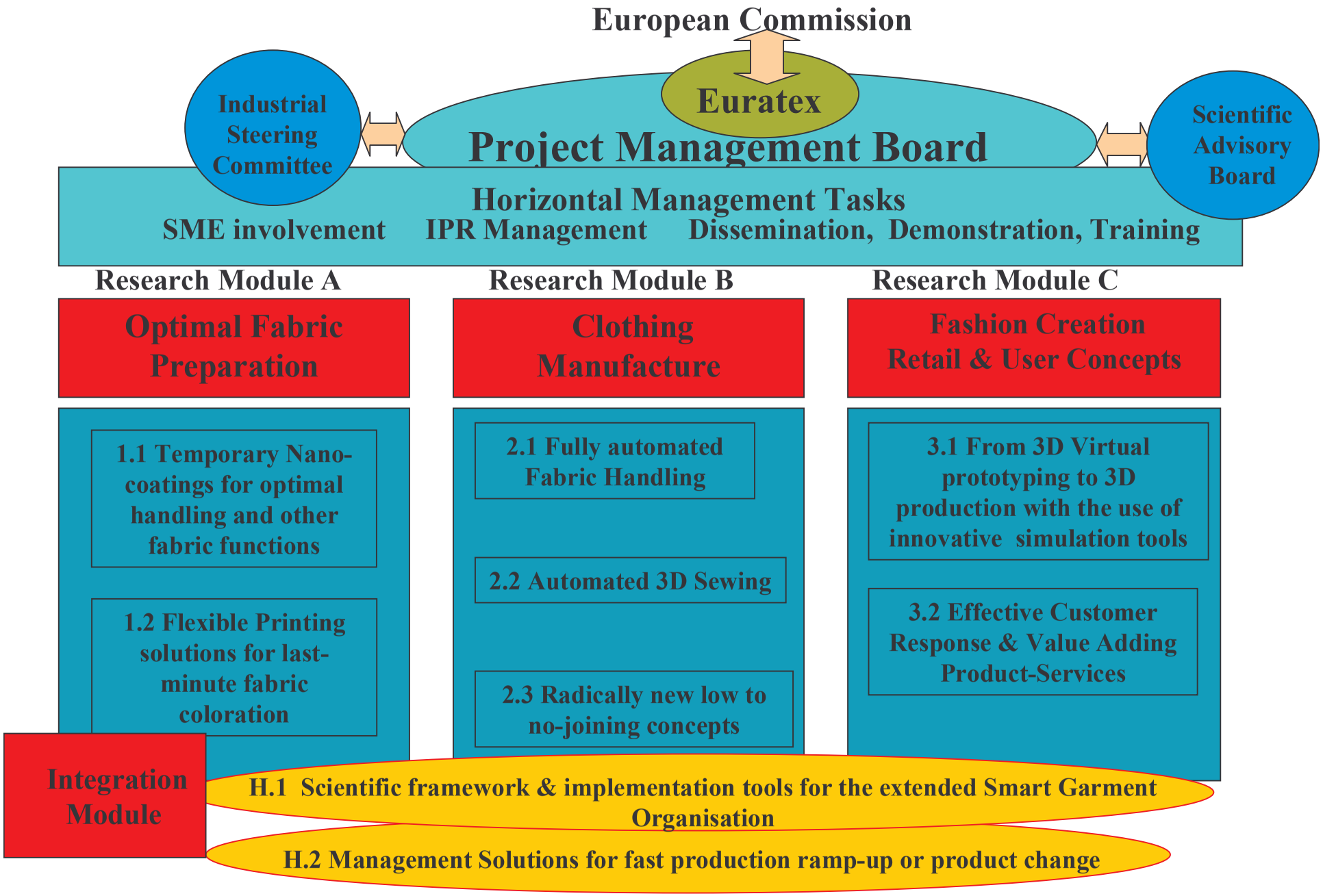
Sized to fit for lingerie and hosiery

From VIRTUAL PROTOTYPES to CUSTOMISATION

			
Material Characterisation (1) **Human Body Characterisation (2)**	**Direct 3D design & 2D Flattening (3)**	**Real Time Simulation (4)**	**Customisation (5)**

LEAPFROG Initiative

Main Objectives


European Commission
Euratex
Industrial Steering Committee
Project Management Board
Scientific Advisory Board
Horizontal Management Tasks
SME involvement
IPR Management
Dissemination, Demonstration, Training
Research Module A
Optimal Fabric Preparation
1.1 Temporary Nano-coatings for optimal handling and other fabric functions
1.2 Flexible Printing solutions for last-minute fabric coloration
Research Module B
Clothing Manufacture
2.1 Fully automated Fabric Handling
2.2 Automated 3D Sewing
2.3 Radically new low to no-joining concepts
Research Module C
Fashion Creation Retail & User Concepts
3.1 From 3D Virtual prototyping to 3D production with the use of innovative simulation tools
3.2 Effective Customer Response & Value Adding Product-Services
Integration Module
H.1 Scientific framework & implementation tools for the extended Smart Garment Organisation
H.2 Management Solutions for fast production ramp-up or product change

Thank you!