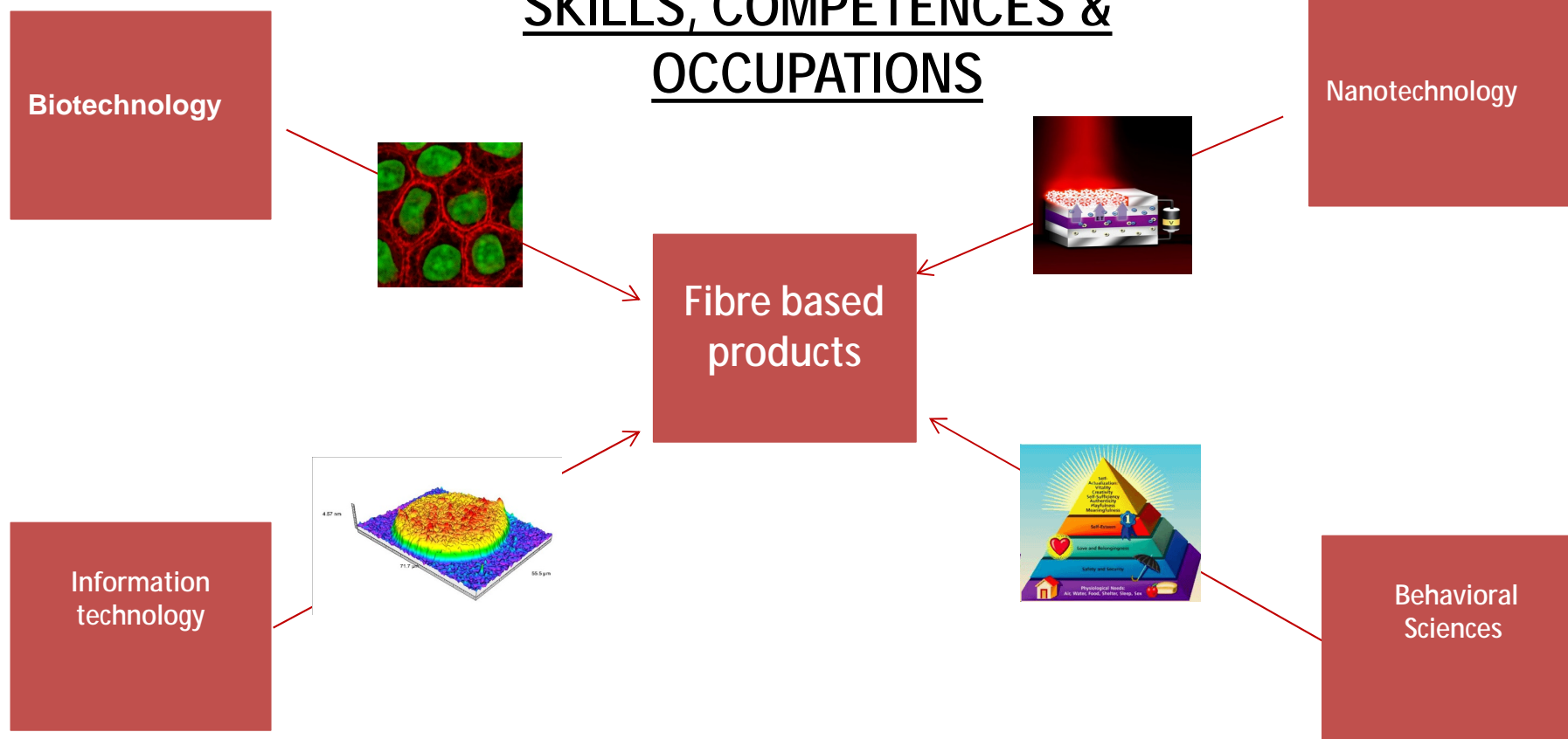


EMERGING TECHNOLOGIES IMPACTING ON SKILLS, COMPETENCES & OCCUPATIONS



Ø CHANGE DUE TO THE USE OF COMPUTERS AND INFORMATION TECHNOLOGY

- Increased use of **CIT** has changed **textile & clothing design & processing**;
- some operations have become extremely **automated**;

Ex. CAD/ CAM systems in weaving, knitting and cutting operations; practically total automation of cotton spinning; automated colour kitchens

Ø CHANGE DUE TO ADVANCED PRODUCTION & LOGISTIC SYSTEMS

- increased use of **flexible just-in-time manufacturing systems and advanced logistics** has changed **the way the supply chain works**;
- **quick response** has become the way to operate;

Ex. UPS cell systems in making up, TQM, zero stock, continuous shelf replenishing in shops.

CIT: computer & information technology; CAD: computer aided design; CAM: computer aided manufacture
UPS: unit production system; TQM: total quality management

Ø CHANGE DUE TO BIOTECHNOLOGY

- the increased use of **biotechnology** is changing **textile processing** and making some finishing operations much more **environmental friendly**;
- **advances in genetics are enabling better natural fibres**, and the **future** in this area is very **promising**, especially the advances in **nano-biotechnology**;

Ex. Enzymatic treatments, extremely fine wools

Ø CHANGE DUE TO NANOTECHNOLOGY

- the increased use of **nanotechnology** is changing **textile product development & textile processing** by increasing the performance of both **products & processes**;
- very **light and functional** products are emerging and this trend will continue;

Ex. Nano-coatings, nano-particles and nano-fibres

Ø THE ENVIRONMENT, SUSTAINABILITY & LIFE STYLE

Changes are also occurring in these areas which will influence the **PRODUCT LIFE CYCLE**.

Fast fashion



Slow fashion

Product massification



Personalised/
customised products

Ø HUGE GROWTH IN THE NUMBER OF APPLICATIONS OF FIBRE BASED PRODUCTS

- Fashion
- Personal protection
- Medical
- Transport
- Construction
- Etc.

OCCUPATIONS OF THE FUTURE

- More concerned with product design, product development, testing, process control, logistics...
- Less concerned with processing & operations in the traditional sense (spinning, knitting, weaving.....)

SOURCES OF INFORMATION

- The new world of fibre based materials (high-tech textiles)

<http://www.fibrenamics.com/en/website>

- Continuing education, e-learning, tech transfer & entrepreneurship

<http://www.tecminho.uminho.pt/index.php>

- Product design & marketing (fashion)

<http://www.eng.uminho.pt/Default.aspx?tabid=13&pageid=573&lang=en-US>

<http://www.design.uminho.pt/pt-PT/>

- Education & research in textiles

<http://autex.ugent.be/>