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Thematic Workshop

WG5: Textiles in Sports and Wearables
Scientific and technological bottlenecks

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Member of the WG

Porto
3rd April 2019

Cost Action
CA17107

BARCELONA MEETING

- The first action of the previous meeting in Barcelona was the presentation of the participants.
- As result there is a list of institutes, universities, labs etc with the corresponding fields of interest and individual expertise.

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Scientific and technological bottlenecks

BARCELONA MEETING

Group mainly described

Education, Research and development

Some in: Electronics, Embroidery, Pick and place, GPS, 3D printing
- Sensors (movement, impedance,…) and antennas
- Textile printing

Education not only students, also industries

Textile characterization, Functionalization, Comfort testing

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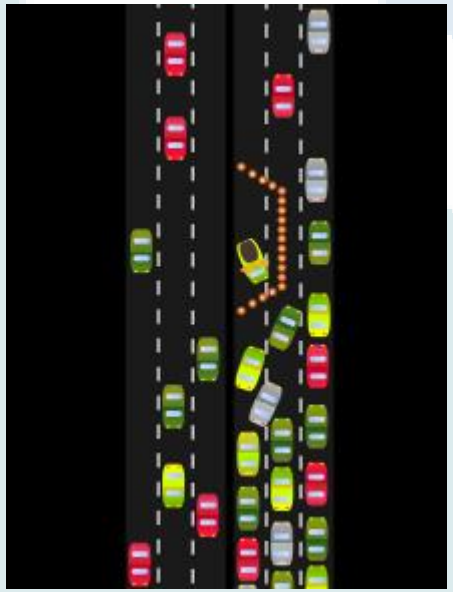
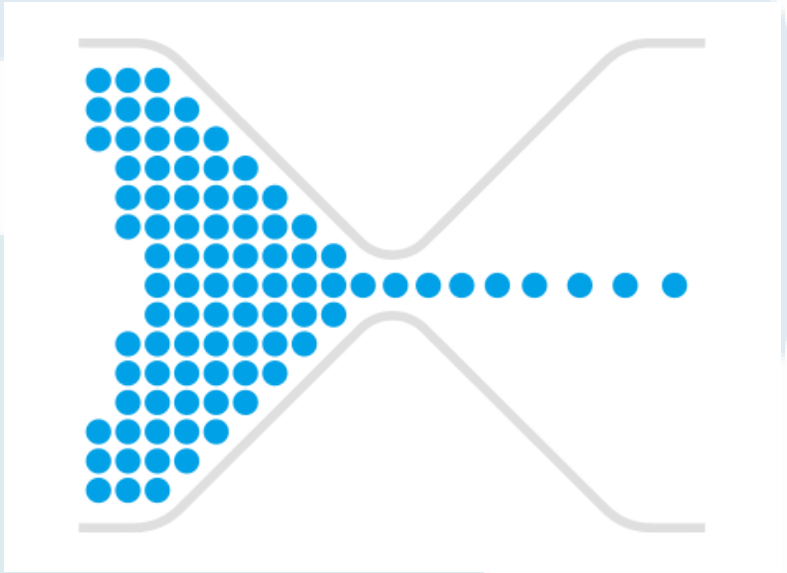
WG5: Textiles in Sports and Wearables

Scientific and technological bottlenecks

BOTTLENECK?





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Scientific and technological bottlenecks

BOTTLENECK

Towards industry: from what happens in the school (research) to the industry

- Filling the gap between the prototype and the industrial environment
- From lab to industry: scale and economy of production
- From the idea/design to the production (better definition of yarns, structures…)
- Simulation of interaction of smart textiles with human

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Quality and stability of the systems

- Electronics adapting to textiles (not the other way round)
- Quality of smart textiles
- Reliable interconnections joining technologies for electronics and textiles
- Stability of flexible sensors
- Care issues

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Environment and sustainability

- LCA in smart textiles: guidelines for optimization
- Smart and ecofriendly clothes

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Energy harvesting

- Energy harvesting in smart textiles
- Energy concepts for wearables

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More generic issues

Customization (fit) of sportswear (anthropometrics)
Freely-confeccionable, mass-customizable, energy-harvesting sport clothes
Integration technologies for durable integration of electronics with good user comfort
Mapping of user needs

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More detailed topics

Micro-/nano- sensors in smart textiles
Design of a textile antenna
Antibacterial properties in natural fibers
Thermoregulation textile
Soft-rigid connections, continual soft-working systems
The implementation of location sensors in smart textiles
User interfaces: developing relevant scenarios for sports
Integration of 3D printing processes in sport smart garments
Metallic components on printing materials not allowed on fashion industry
Smart textiles: only electronics and software?
Textile with integrated ECG (biking, medical grade…)
Electrodes for EMS integrated in clothing (forefoot running)
Cooling capability of sportswear

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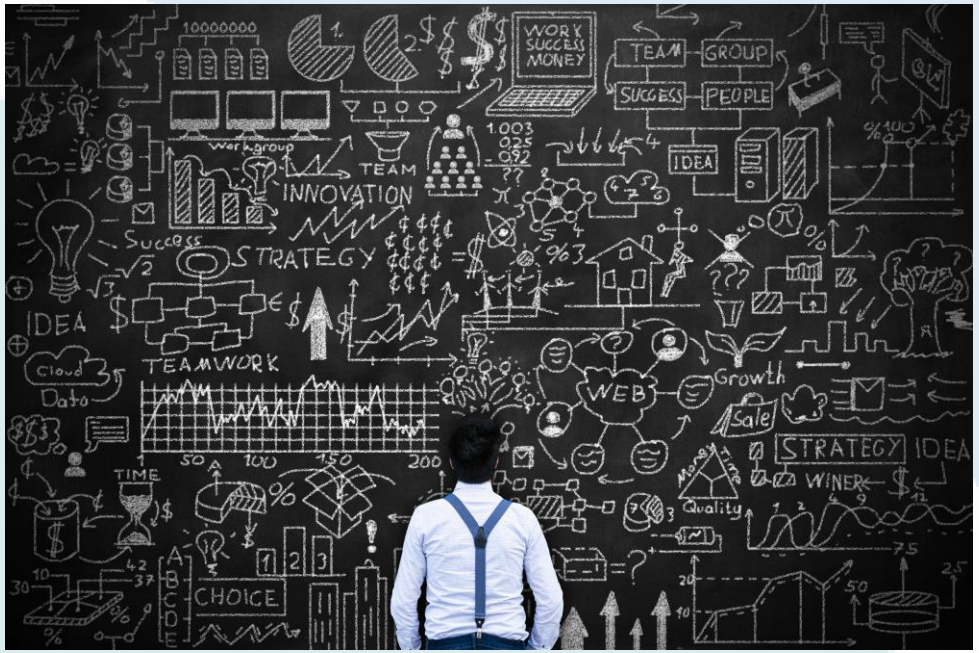
Scientific and technological bottlenecks

MULTIPLE BOTTLENECKS?



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THE WAY OUT?

- Cluster organization
- Multidisciplinary research
- User needs analysis
- Technology push/technology pull balance
- Industry – Academia cooperation

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- Thank you for your attention

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