



METIS a joined research initiative between  
a group of Textile and Paper industries  
and CEA research center

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**M E T I S**

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# M E T I S The goal of the initiative

- **Generate new industrial processes and products by mixing technological know how and cultural uses of**

Cea Minattec a large applied research center in micro & nanotechnology

**And**

Textile and Paper industries know-how in processing large area and flexible substrate

**To**

- **Improve the textile and paper industry competitiveness**

- Creating and improving products
- Breakthrough innovation
- Anticipating technological mutations

**By**

- **Use proximity to accelerate the innovation process**

- Create a common team between two professional local communities
- Shorten decision circuits, efficient networking
- Based on mutual confidence

- **Realize a close mixing of technology and tradition**

To overcome technological and cultural barriers between

- SMEs and large R&D public centers
- Micro/nanotechnology and traditional industries (textile and paper)



# METIS Partnership

- **Industrial cluster of coopted members**
  - Limited number of members
  - Generating benefits, with investing capacity
  - Good practices in innovation
  - Having No direct competition
  - Controlled opening to new partners
- **Research center for technology transfer**
  - CEA-Minatec, European leader in MNT and energy
  - Principal actor in the innovation ecosystem of the pole
- **High involvement of the local authorities**
  - Engagement for experimental period of 3 years 2004 to 2007
  - Complementarities with national and European fundings
- **Open to inter & national cooperation and networks**
  - Other research center or institut
  - Companies and start-ups



# METIS Core Partners

## ■ SOFILETA

METIS presidency

- North Isère Bourgoin 280 persons
- Technical textiles integrated producer : knitting, weaving , finishing
- Principal Markets : Protection (firemen ,soldiers, industry), extreme sports



## ■ Siegl / HTH

- North Isère 127 persons / 600 p
- Printing of high quality fabrics : ink jet and screen-printing
- Textile finishing : all support silk, polyamide, wool, sponge



## ■ THUASNE

- European group 800 persons, St Etienne 450 p
- Conception, knitting & weaving, finishing, confection & distribution
- Elastic compression products for medical and sport markets



# METIS Core Partners

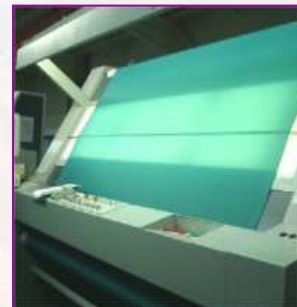
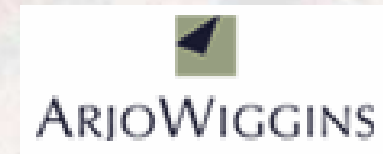
## ■ PIOLAT

- North Isère Bourgoin 170 persons
- Photoengraving Printing tools : flat and rotatry sceens, flexo & gravure
- All substrate : polymer films, paper, textile



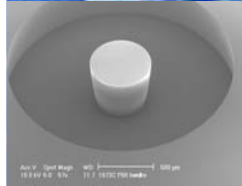
## ■ ARJO-WIGGINS

- French group 7000 persons
- World leader in technical and creative papers
- Fiduciary, art and medical markets

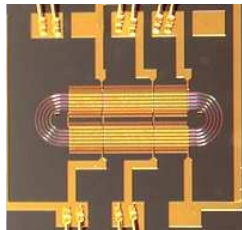


# CEA Grenoble **M E T I S** Research Partner

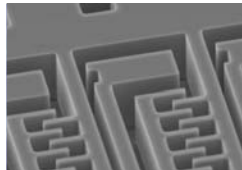
## CEA Minatec activities having interest for textile and paper industries



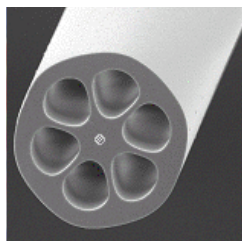
Forcemeter



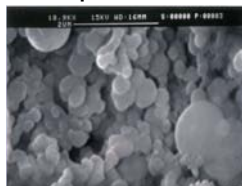
Magnetometer



Accelerometer



v photonic



Porous MIP

### ■ **Leti , 900 p→ Electronics**

- Polymer Electronics : flexible and large area electronics
- Micro & Nano Technologies and systems  
Sensors ; accelerometers, magnetometer, force...  
Wireless communication RFID, low consumption systems  
Medical applications , health monitoring

### ■ **Liten , 600 p→ Nano Material and Energy**

- Energy production, storage
- Plasma deposition for surface treatment
- Nanoparticules and tracers

### ■ **Drfmc → Basic research**

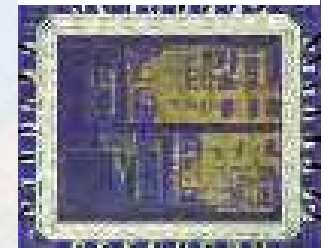
- Fonctionnal polymers, nanomaterials

### ■ **OMNT**

- Micro & Nano Technology Observatory
- CEA- CNRS technical watch tools



CNT flat screen



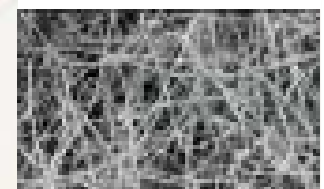
High speed RFID



Li Mini Batterie



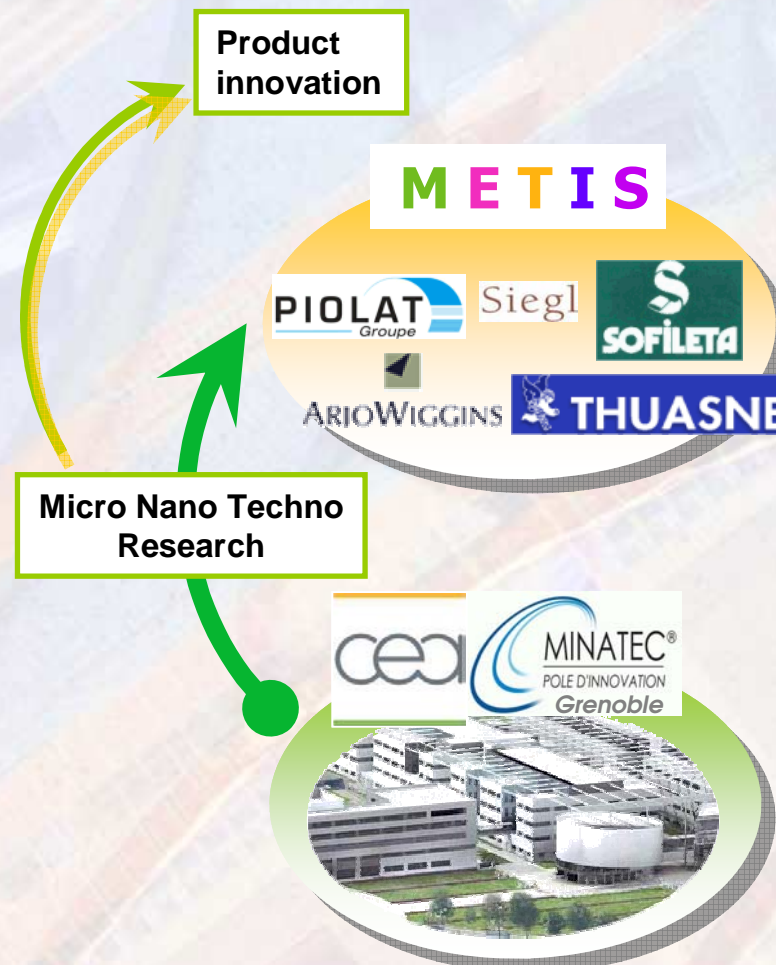
Polymer solar cell



Nano material

# METIS interactive projects 1

- MNTTechnologies valorisation to improve products or create breakthrough innovations
  - Specification needs and market analysis → Industrial partners
  - Adaptation of CEA Technological running development
  - Industrial adaptation → CEA and METIS

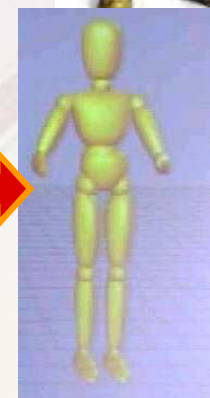
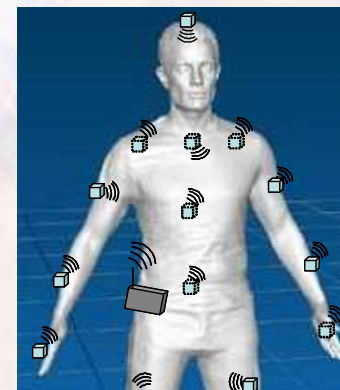
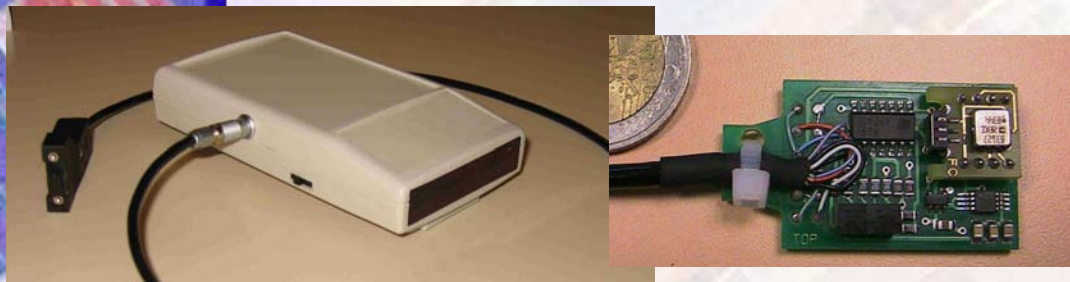


# Example of technological valorisation

- **Functionalized nanoparticles for optical functions**  
Needs and market definition → METIS partners  
Nanoparticles & fonctionnalisation developpement → CEA  
Textile process adaptation → METIS & CEA
- **Sensor integration for medical / sport monitoring**  
Product and market definition → METIS  
Existing or new Sensor developpement → CEA  
Textile integration: knitting, weaving, lamination → METIS partners
  - **European consortium FP6**  
Biochemical sensor textile patch for body liquid analysis **BIOTEX**  
Bio-sensing textile for health management  
**ProeTEX** fonctionnal textile with Energy/sensing/communication  
For emergency Disaster Wear → Kick off 3/2/6
  - **Body position recording**  
Referenceless measurement  
Low cost and miniaturized sensing points

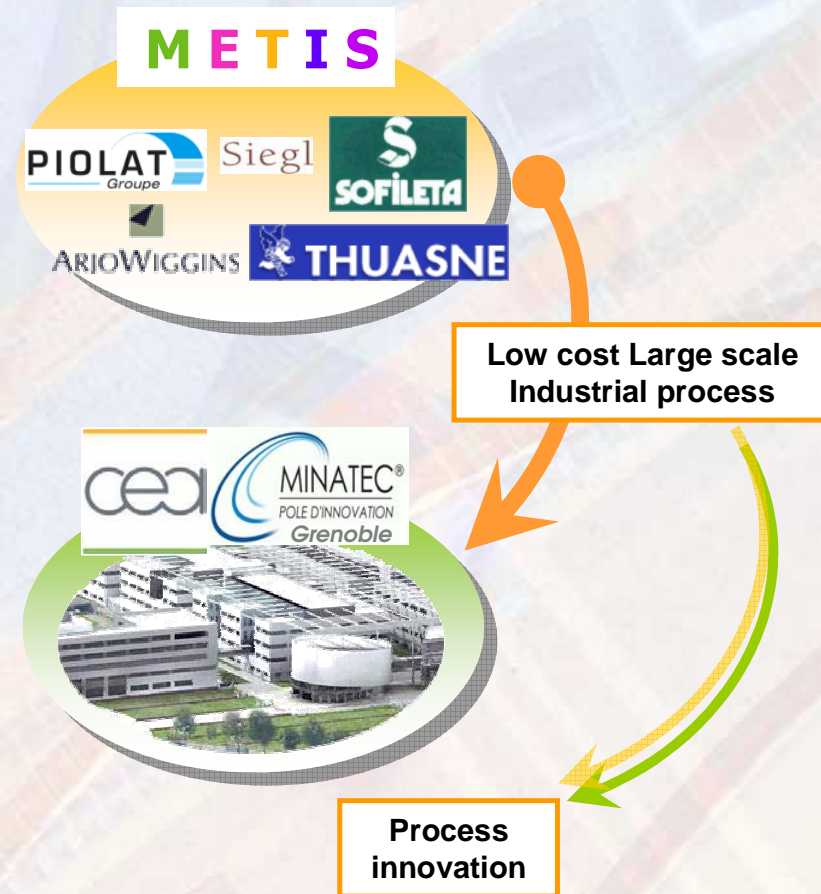


**BIOTEX**  
Bio-sensing textile for health management

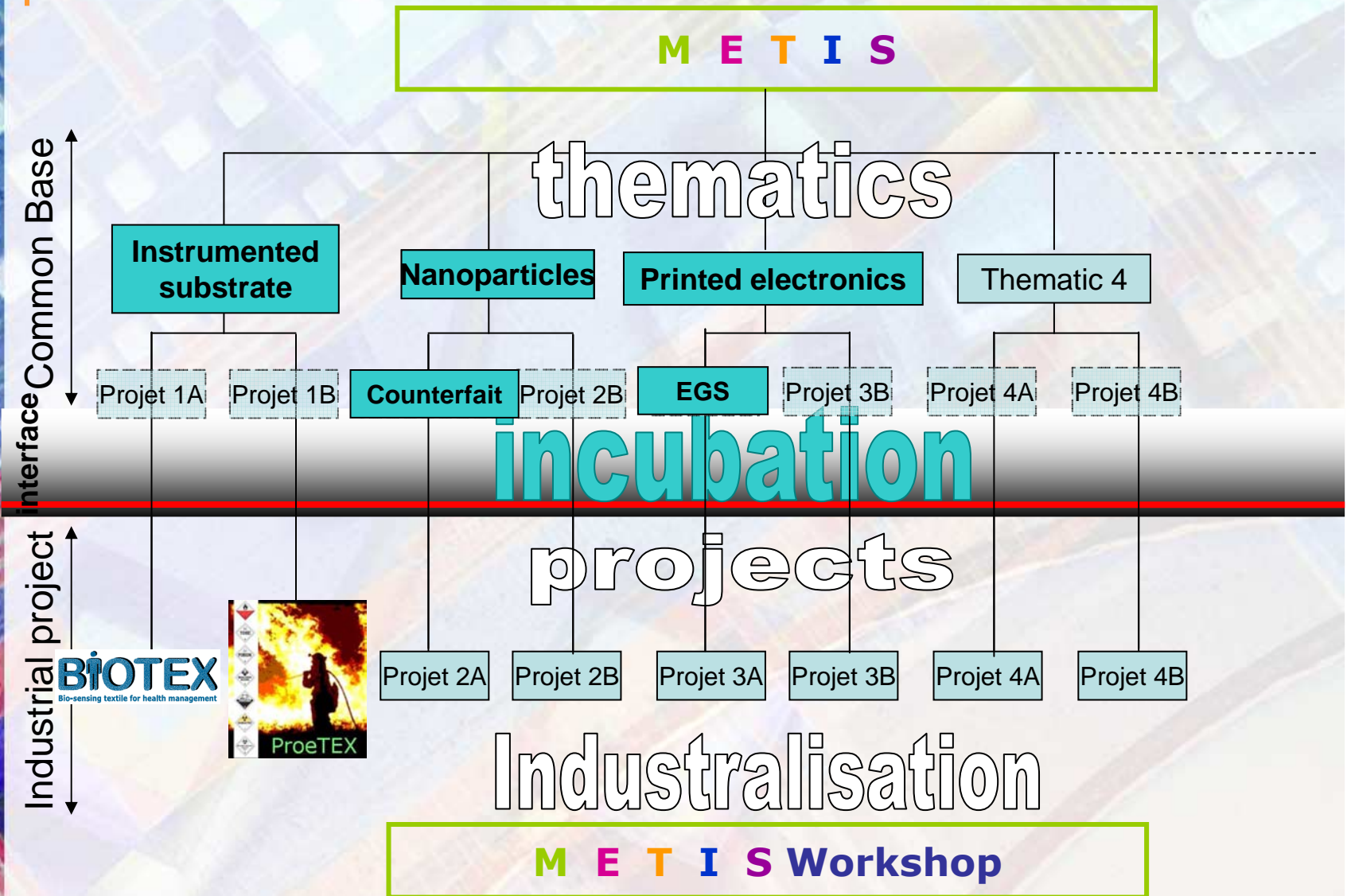


## METIS interactive projects 2

- Industrial process optimization for large surface flexible technology
    - Technological specification and conception → CEA
    - Industrial processes development and adaptation → METIS & CEA
    - Industrial pilot equipment → METIS
- **Technological Mutation** for METIS industrial partners



# Reactivity a success key for innovation



Development of pilot industrial equipments  
Multidisciplinary teams

# METIS next steps

- **Creation of METIS Workshop in Bourgoin Jallieu**
  - Build and share industrial pilot equipments
  - Common team between the different industrials partners and CEA
- **Sucessfully run the launched projects**
- **Build and launch new projects**

Participate to the emergence of a new technological textile industrie

