



BET-EU

MATERIALS SYNERGY INTEGRATION FOR
A BETTER EUROPE

SUMMER SCHOOL 1 – PRINTED ELECTRONICS: BOOSTING INNOVATION FOR NEW MATERIALS TO VARIOUS APPLICATIONS

MAIN CONCLUSIONS



Partners:

1. Instituto de Desenvolvimento de Novas Tecnologias (UNINOVA)

(www.uninova.pt)



2. University of Cambridge (UCAM)

(www.cam.ac.uk)



3. NOVA ID FCT - ASSOCIACAO PARA A INOVACAO E DESENVOLVIMENTO DA FCT

(www.novaid.fct.unl.pt)



4. TECHNICAL RESEARCH CENTRE OF FINLAND LTD (VTT)

(www.vtt.fi)



**5. FRAUNHOFER INSTITUTE FOR CERAMIC TECHNOLOGIES AND SYSTEMS, BRANCH
"MATERIAL DIAGNOSTICS"**

(www.fraunhofer.de)



6. Sociedade Portuguesa de Inovação

(www.spieurope.eu)



Summer school 1 was organized on 24 May 2017 in Strasbourg, France, as a satellite event of the EMR-S Spring 2017 annual meeting of the European Materials Research Society. Summer school 1 was co-organised with the European Institute of Innovation & Technology and its EIT RawMaterials initiative.

The Summer school had 38 participants, mainly members of the printed electronics value chain, from researchers to manufacturers.

Some of the conclusions of the panel discussions held at the event are included below:

- EIT Raw Materials has published a new call (applications closing on 15 July 2017) for start-ups. More on <https://eitrawmaterials.eu/activities/business-creation-and-support/kick-starter-and-booster-funding/>
- Drivers for printed electronics in automotive applications: in-mold, lightweight, 3D molding and new digital production
- Industry is not seeing 3-D printing as a short-term possibility for mass production due to its costs and throughput. Aerosol printing might serve as a midterm solution.
- Silver is the best option for printing conducting lines due to the electrical conductivity and the possibility of making printable inks. So far pricing and availability have not been an issue (more resistant, suitable to many substrates). For this reason, for the producers of ink recycling is not a priority at the moment.
- Recycling: due to low concentration of critical raw materials, recycling is not economically sustainable at this point, except in the case of paper electronics where recyclability is a key factor.
- For flexible and autonomous systems, like paper-based ones, batteries can be a bottleneck for recycling due to some of the materials used. One option could be the development of fully recyclable batteries based on heavy metal free materials and safer electrolytes, e.g. organic batteries.
- One of the challenges of producing smart textiles is the current textile production delocalization to developing countries where less skilled work force

is used for this. The production of smart textiles requires specific handling. One possibility could be bringing back a part of the production of such added value products to Europe, contributing thus to the revitalization of the European economy and the creation of new jobs.

- It was thought that for raw materials producers the current TRL definition used by the EC is not fully suitable since the definitions of the various TRL levels are more proper for technology products.
- It is of utter importance to consider from the beginning all the existing legislation related to materials and workers' protection when developing new materials for printed electronics. This can be a major obstacle to further exploitation and commercialization.
- One of the obstacles to the commercialization of the printed electronics systems is the lack of market. The technologies are currently in the "valley of death". More realistic market forecasts are needed to orient innovation. Compared e.g. to the US, Europe is very conservative in risk capital as well as related to marketing. One opportunity could be to support innovative ideas from the early beginning with technical market assessment and technical marketing. This might help to take early decisions for investment.