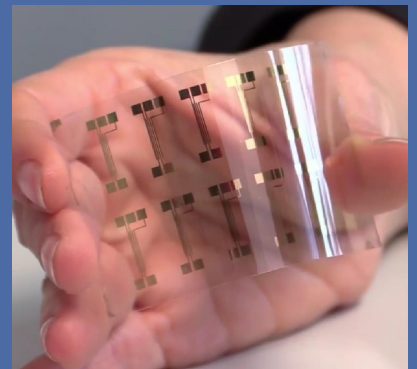


# i-FLEXIS NEWSLETTER

1.



march 2014

## i-FLEXIS

Integrated flexible photonic sensor  
system for a large spectrum of  
applications: from health to security

[www.iflexis.eu](http://www.iflexis.eu)



The project is co-funded by the European  
Community under the Information and  
Communication Technologies (ICT)



# 1. What is i-Flexis?

The target of i-Flexis is the development of an innovative, reliable and low-cost integrated X-ray sensor system based on heterogeneous inorganic, organic and hybrid components.

i-FLEXIS integrates three major novel concepts, recently demonstrated as a proof-of-principle operation at laboratory scale, allowing for totally new sensing systems: **organic single crystals** as the active, **X-ray direct sensing material**, high mobility thin film transistors based on nm-thin films of novel **high mobility oxide materials** operating at ultra-low voltages and **flexible transparent electronics**, all integrated onto low cost plastic substrates.

It offers real time, direct X-ray detection, room temperature operation and a “designed for industrial production” approach, delivering operationally robust and environmentally friendly devices. These surpass current state-of-the-art sensors thanks to new and highly needed functionalities like conformability, **flexibility**, **large active area** coupled to low weight, low power consumption, **portability**, optical transparency, **recyclability** and/or **sustainable disposability** (zero waste, according to REACH directives).

These new concepts, will be developed and implemented using micro/nanotechnology and will be integrated into the final well beyond-the-state-of-the-art sensor system that will consist of **multiple sensing units integrated as a 2D matrix** and will be scaled up to 10cm x10cm with printing techniques compatible with industrial production.

The readout electronics for the whole system will be implemented using printed organic and oxide TFTs.

To validate the project outcome, the key-enabling technology of the i-FLEXIS system will be applied to two demonstrative contexts (test vehicles), to highlight its wide application potential:

1) **health diagnostic radiation sensor** for bone density analyses and to determine the dose on the exposed area;



2) **Identification tags** to monitor the airport X-ray screening history of luggage.



## 2. i-Flexis Consortium and Workplan



ALMA MATER STUDIORUM  
UNIVERSITÀ DI BOLOGNA



UNIVERSITÀ  
DEGLI STUDI DI TRIESTE



nanograde®



UNIVERSITÀ  
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DI CAGLIARI



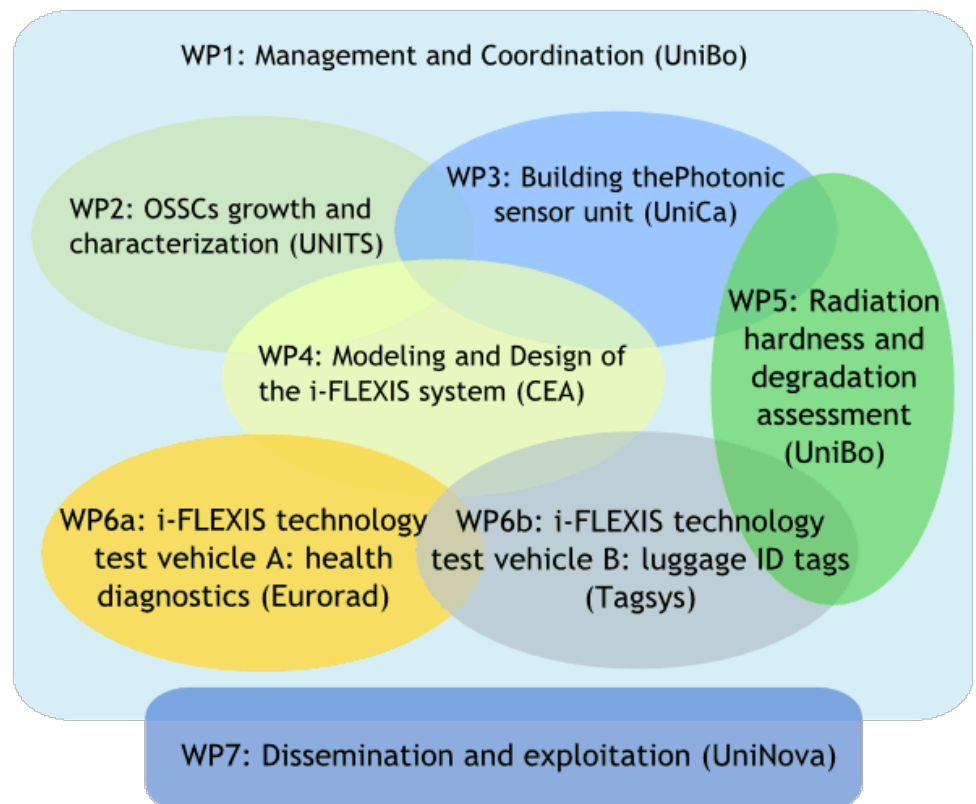
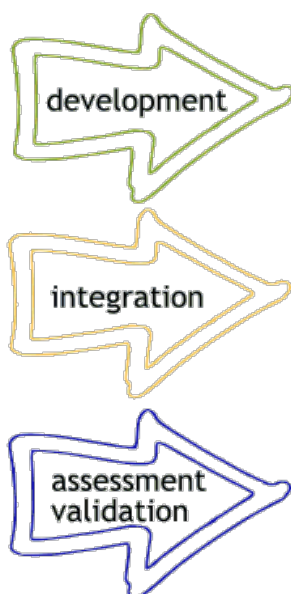
BIOAGE

**TAGSYS RFID™**  
e-connecting goods

**EURO RAD**



UNINOVA



### 3. Meetings: Kick off Meeting

Kick-off meeting (KoM) was held in Bologna, Italy, at the Alma Mater Studiorum - Università di Bologna, during October 7th and 8th, 2013.

The main objectives of the KoM were to present the overall scientific research and innovation activities envisaged in i-FLEXIS, clarify financial and managing aspects and what will be the specific methodologies and objectives of each work package to achieve the final project goals.

Partners from all the consortium were present, resulting in a total of 21 participants.

During the KoM, guidelines on management issues were discussed, to be implemented in Deliverable 1.1 (submitted in December 2013).

Also, specific needs of characterization and fabrication processes for the different materials studied within the project were discussed. In line with this, initial collaboration routes between the partners were defined. Also relevant was the definition of methods to list exploitation and dissemination activities of the partners, including dissemination of knowledge, education and training, and exploitable knowledge and its use.



Two workshops and summer schools were already planned, to be held during EMRS Spring 2015 and EMRS Spring 2016, in Lille and Strasbourg, respectively.

#### 3.1 Next General Assembly

The next GA will be held in **Almada, Portugal, during April 14th and 15th**. Meeting will be hosted in UNINOVA, which is located inside the Campus of Universidade Nova de Lisboa, a few minutes to the south of Lisbon, crossing the Tagus river.





## 4. Dissemination activities

### 4.1 Project Web Site

Project website is online at <http://www.iflexis.eu>, as a fast and convenient communication tool among partners and also with the overall scientific community. Regarding open access content, it includes the project description, objectives, workplan, target apps, presentation of the consortium and a section dedicated to announce job opportunities created within the framework of i-FLEXIS.

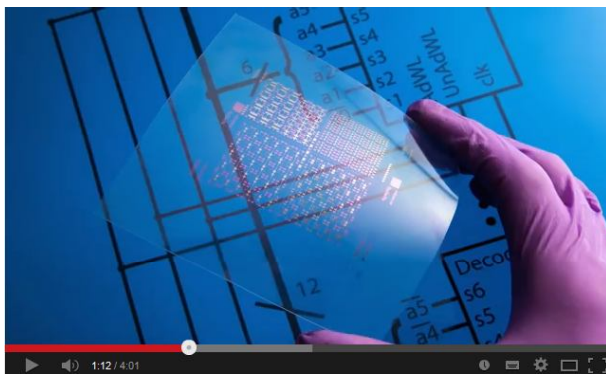
Publications and events are also listed. Users can also easily join a mailing list to receive the newsletters of the project.

There is also an area with restricted access, exclusive for project beneficiaries. This is used to facilitate exchange of information among them, enabling the upload and download of relevant data and information in an easy way.

Website contents will be updated on a regular basis.



### 4.2 Promotional Video



The promotional video is available on YouTube at <http://youtu.be/z3MSWekJ5Hk>.

It shows the concepts and applications resulting from the work developed within i-FLEXIS to a large audience.

### 4.3 Project Flyer

Project flyer – to be distributed by partners in events and throughout their networks, giving more visibility to the project.



### 4.4 Presentations in International Conferences

**2013 Institute of Electrical and Electronics Engineers Nuclear Science Symposium & Medical Imaging Conference & Workshop on Room-Temperature Semiconductor X-Ray and Gamma-Ray Detectors (2013 IEEE NSS/MIC/RTSD), Seoul, Korea**

(UNINOVA) E. Fortunato, R. Martins, Beyond Conventional Electronics: Metal Oxide Semiconductors (Session R11-1 - invited)

(UNIBO) B. Fraboni, Flexible, Low-Cost, Room Temperature Radiation Detectors Based on Organic Semiconductors (Session R11-1 – invited)

**Organic Devices: The Future Ahead (ODeFA-2014), Mumbai, India**

(UNIBO) B. Fraboni, Ionizing radiation sensors based on semiconducting organic single crystals (invited)