Celtic-Plus Event
27-28 May 2015, Vienna

Celtic-Plus Award winning projects present their results

SPECTRA

Lorenzo Iacobelli, Thales Communications & Security
Lorenzo.iacobelli@thalesgroup.com

SPECTRA Project

Celtic-Plus

EUREKA

THALES

indra

SPECTRA

CELTIC+ project

Start: 09/2010

End: 08/2014

www.spectra-celtic.eu

Monaco telecom

TELLEMENT MONACO

TeamCast

MINES TELECOM

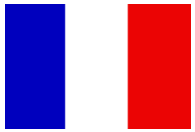
INSTITUT Mines-Télécom

EURECOM

Sophia Antipolis

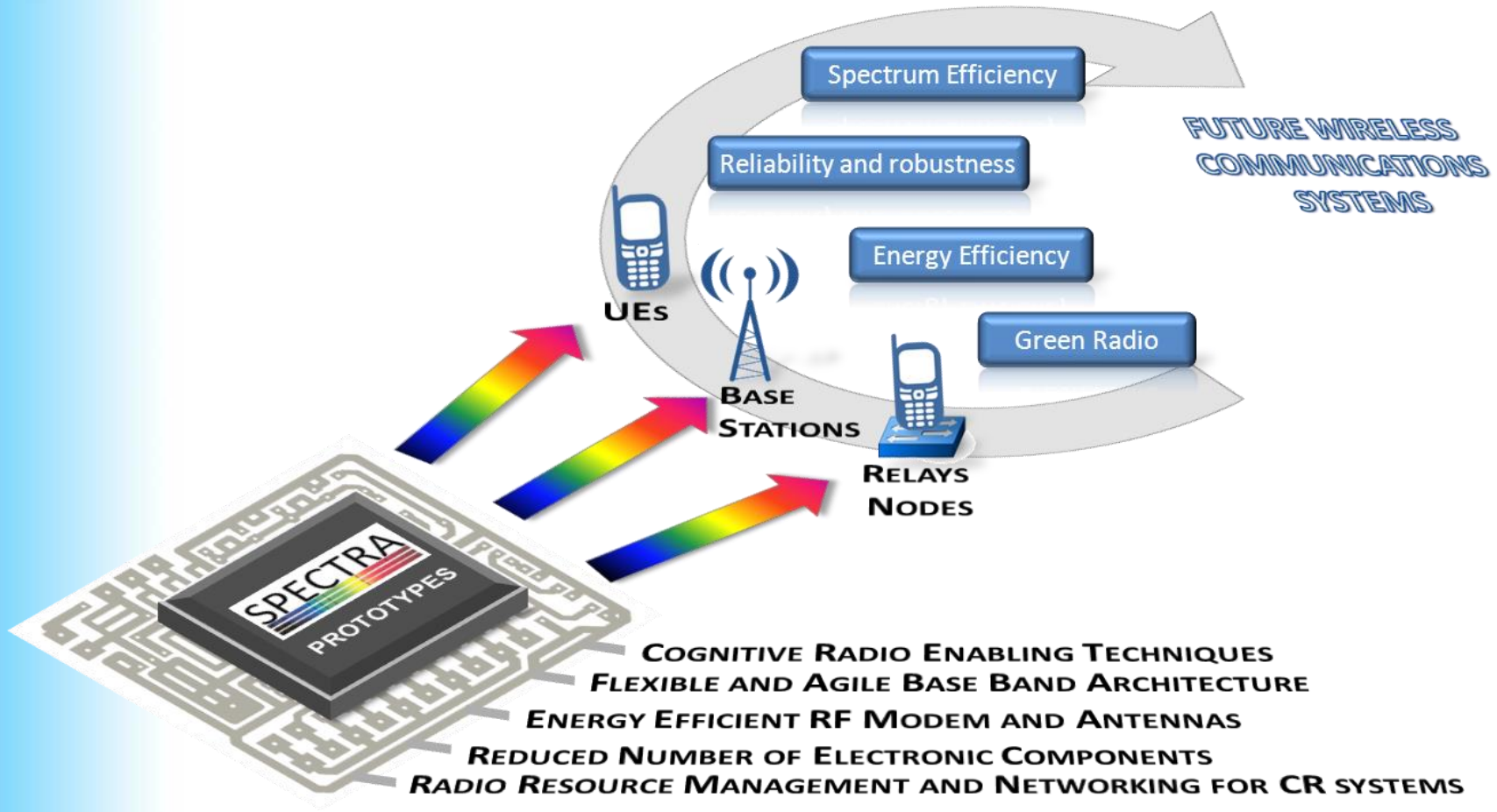
LEAT

LABORATOIRE D'ELECTRONIQUE ANTENNES ET TELECOMMUNICATIONS



SPECTRA

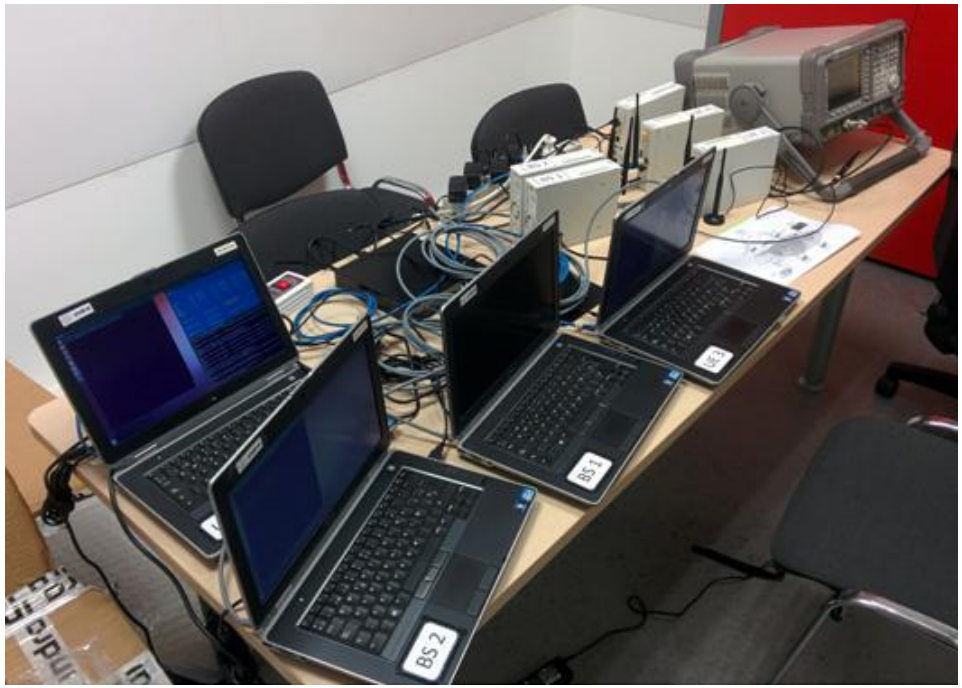
SPECTRA approach



COGNITIVE RADIO ENABLING TECHNIQUES
FLEXIBLE AND AGILE BASE BAND ARCHITECTURE
ENERGY EFFICIENT RF MODEM AND ANTENNAS
REDUCED NUMBER OF ELECTRONIC COMPONENTS
RADIO RESOURCE MANAGEMENT AND NETWORKING FOR CR SYSTEMS

Some numbers

- 2 demonstration platforms
  - Full compliant LTE platform
  - USRP-based Cognitive Radio implementation

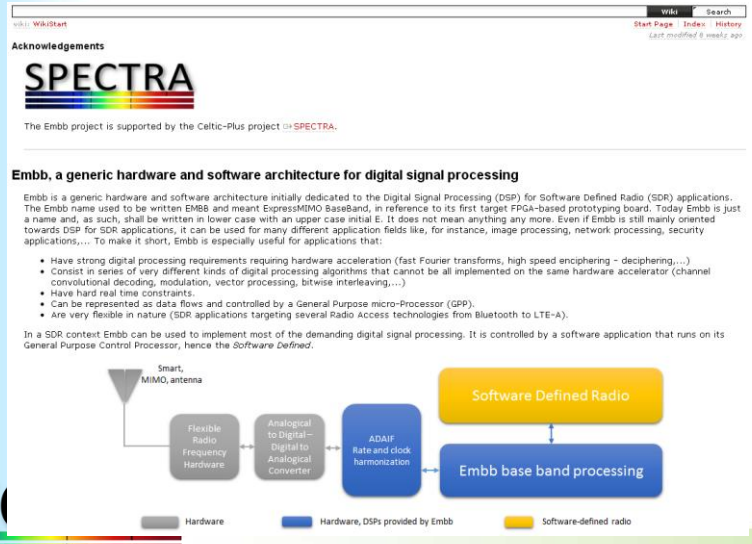


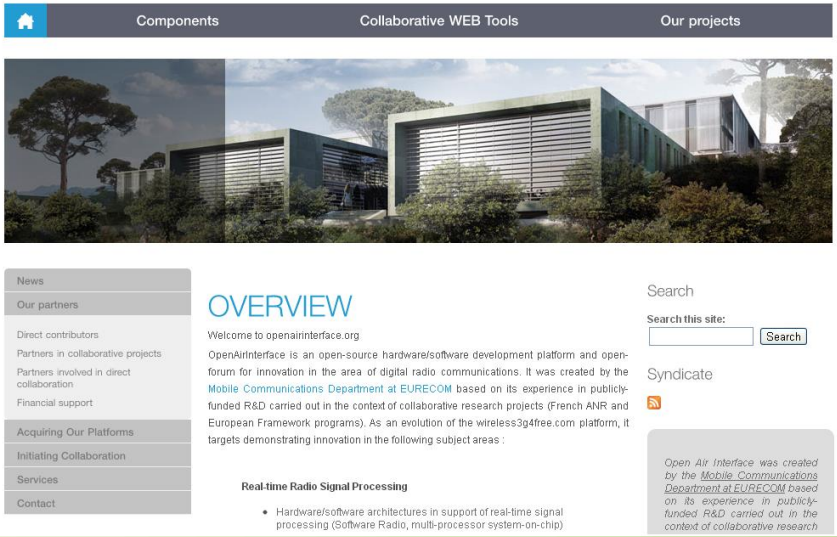
Some numbers

- 2 demonstration platforms
- 30 prototypes of components
  - Antennas, circuits…

Some numbers

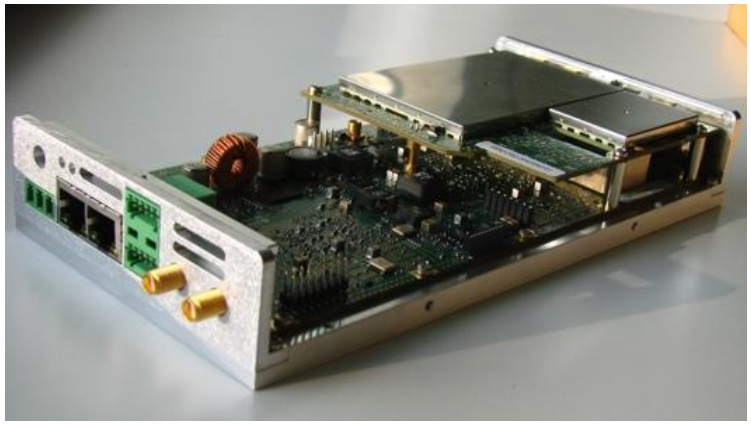
- 2 demonstration platforms
- 30 prototypes of components
- 4 open source softwares released
  - OpenAir Interface
  - Embb





Some numbers

- 2 demonstration platforms
- 30 prototypes of components
- 4 open source softwares released
- Several products improved and basis for new line of products
  - SDR line of products
  - DPD in TV line of products



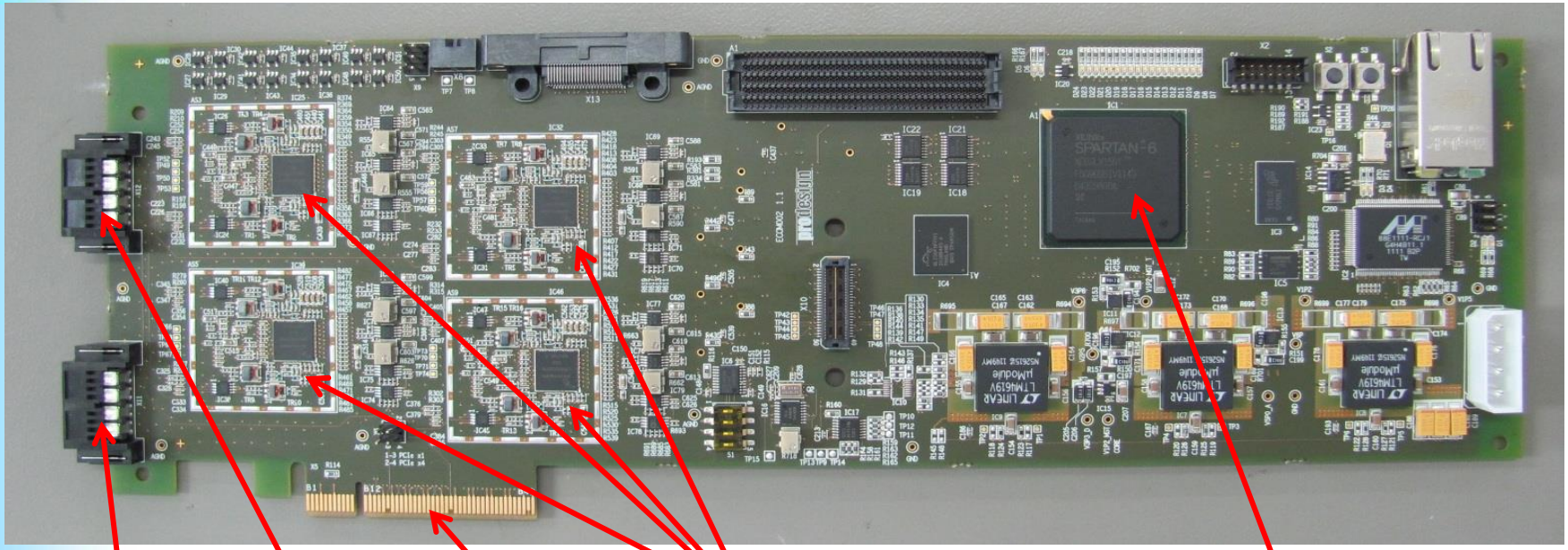
Some numbers

- 2 demonstration platforms
- 30 prototypes of components
- 4 open source softwares released
- Several products improved and basis for new line of products
- More than 30 scientific pubblications
- 1 foundation around SPECTRA software

Experiments in Monaco

- Experimental network in Monaco:
  - 2 bands 700 MHz and 2.6 GHz
  - Real field trials, with a SPECTRA experimental cellular network.
  - Interoperability with a commercial equipment (real-time over-the-air operation between the SPECTRA relay and a commercial LTE equipment)

Platform 1: EXPRESSMIMO2

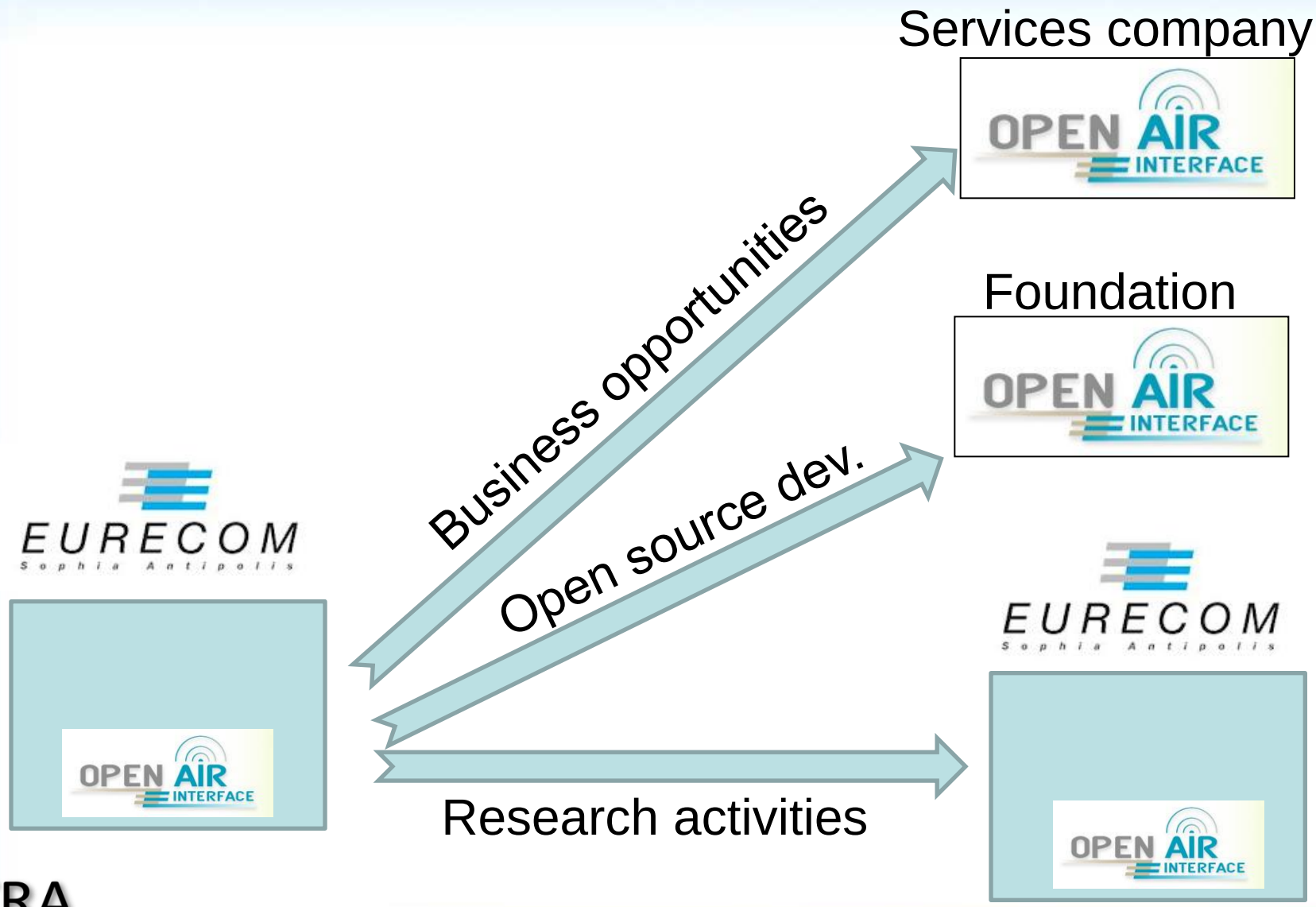


- 300 MHz to 4 GHz
- MIMO 4*4 (4 TX and 4 RX) : LTE-A compliant
- FDD and TDD
- Flexible and reconfigurable card, usable in real deployments

Commercialization of SPECTRA HW

- Clients:
  - Academics: Telecom Paris Tech (FR), UoA (Gr), KCL (UK)…
  - Large companies: Agilent, TCS, Volkswagen, …
  - SMEs: Ercom, Air-Lynx
- 92 boards produced so far (70 sold)
- Contract with Telmat (French SME, www.telmat.com)
  → TELMAT is now the official distributor of EXPRESSMIMO2 (exclusive in Europe)
- EURECOM is in discussion with a company in Malaysia to distribute the board in Asia

Development of OAI eco-system



Thank you!

Contact Info

SPECTRA

www.spectra-celtic.eu

Lorenzo Iacobelli (Project coordinator)
Thales Communications & Security
Mail: lorenzo.iacobelli@thalesgroup.com
Phone: +33 (0)1 46 13 31 70
Adresse: 4, avenue des Louvresses 92622 Gennevilliers (France)
www.spectra-celtic.eu

Dominique Nussbaum (HW platform)
Eurecom
Mail: dominique.nussbaum@eurecom.fr
Phone: +33 (0) 4 93 00 81 63
Adresse: Campus SophiaTech, Les Templiers, 450 Route des Chappes, 06410 Biot (France)
www.openairinterface.org