



IP CREW

Cognitive Radio Experimentation World

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Cognitive Radio Experimentation World

- FP7 call 5
- Project starts October 2010
- 7 partners









- How to evaluate cognitive radio solutions?
 - … in a configurable environment
 - … in a repeatable way
 - ... allowing fair comparison of results
- Should/can I build my own heterogeneous testing environment?















establish an open federated test platform, facilitating experimentally-driven research on:

- advanced spectrum sensing
- cognitive radio
- cognitive networking
- spectrum sharing in licensed and unlicensed bands







CREW platform



- start of project: 4 operational wireless testbeds
 - heterogeneous ISM
 - heterogeneous licensed
 - cellular
 - wireless sensor
- augmented with State-of-the-Art cognitive sensing platforms





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TU Berlin TWIST testbed









The TKN Wireless Indoor Sensor Network Testbed (TWIST) is a multiplatform, hierarchical testbed architecture.











A variety of advanced concepts such as cooperative MIMO are currently in discussion as future LTE extensions. Such novel schemes are researched within EASY-C.



IRIS reconfigurable radio







IRIS can be used to create software radios that are reconfigurable in real-time.



imec advanced spectrum sensing









EADS is a global leader in aerospace, defense and related services and will implement an aeronautics use case.



THALES

Thales Communications France is a key player of SDR technology development, being involved in development of demonstrators, advanced research programs and standardization activities.





- common portal
- novel cognitive components
 - linking together software and hardware entities from the different partners using a **standardized API**
- creation of open data sets
 - a common data structure enables the emulation of CREW components in other experimental environments or in a simulator
- benchmarking framework
 - enables experiments under controlled and reproducible test conditions
 - offering automated procedures for experiments and performance evaluation,
 - allow fair comparison





CREW federation modes





MODE 1







Experimental validation of cognitive radio & cognitive networking concepts

Radio environment sensing for cognitive radio spectrum sharing

• Performance of spectrum sensing solution?

Impact of cognitive networking on primary cellular systems

• Can my solution coexist with existing networks?

Horizontal resource sharing between heterogeneous networks in ISM bands

- techniques for resource sharing in typical home/office/public building environments, densely populated with various wireless devices
- repeatable testing





Start

- October 2010
- Duration 5 years







■ 1 year into the project (Sept-Oct 2011):

- limited open access:
 - internal experimenters
 - external experimenters funded by CREW
 - open call 1 www.crew-project.eu
 - external experimenters, not funded
 - no guarantees on availability
 - \square feedback







2 years into the project (Sept-Oct 2012):

- open call 2: demand-driven extensions
 - www.crew-project.eu







■ Year 3 (Sept-Oct 2013)

- federation functionality and extensions completed
- development of business model
 - access policies





maintenance and 'natural' extensions







Creation of an open federated testbed

- cognitive radio
- cognitive networking

Elaborates on four existing testbeds

Get involved through one of 2 open calls:

- Sept-Oct 2011: external use of CREW testbed
- Sept-Oct 2012: demand-driven extensions







Website

http://www.crew-project.eu/

ICT2010: Belgian pavilion booth B13 (named: 'IBBT')

Project coordinator

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