



THINK DIFFERENTLY

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FARAMIR: Enabling Spectrum-Aware Radio Access for Cognitive Radios

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Introduction

- Wireless systems are become increasingly complex due to higher efficiency requirements
- Cognitive radios and cognitive wireless networks have recently been proposed as a new paradigm to reduce this complexity
- However, much of cognitive radio research has still been very conceptual, with few facts known about the real potential of such systems



Project Objectives

- The key objective of FARAMIR is to move the state-of-the-art in cognitive radios to factual engineering science and business
- We believe the main enabler for this is providing increased radio environmental and spectral awareness for cognitive radios
- The project plans to achieve this by developing first concrete reference architecture and implementation for **Radio Environment Maps**



Key Issues (I)

- The core task is the development of the Radio Environment Map (REM) reference architecture
- REMs will serve as a foundation of comprehensive technology chain for measuring, collecting, and representing spectrum data, all developed in the project
- The benefits of applying radio environmental information in resource management will also be studied through prototype implementations

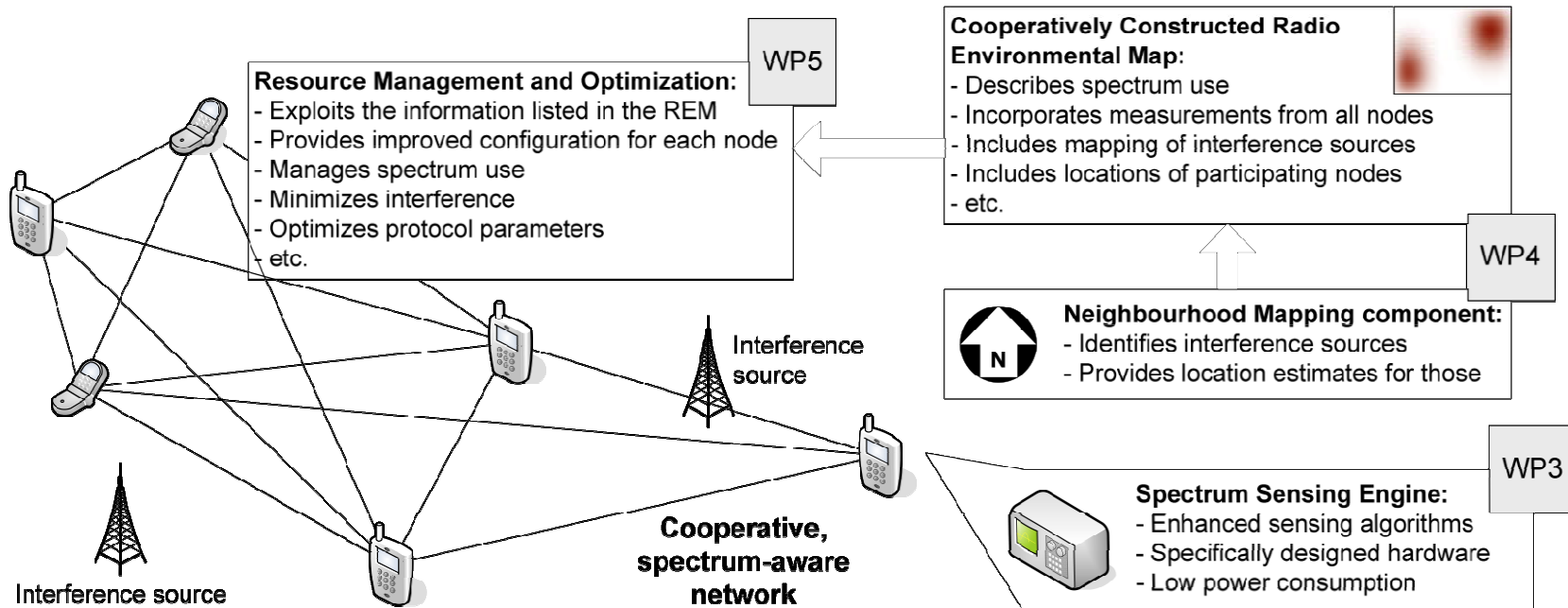


Key Issues (II)

- The REM work will be strongly tied to cognitive radio resource management both for primary and secondary systems
- New spectrum sensing algorithms and hardware will also be developed and prototyped
- Project will also carry out extensive spectrum use measurements and will make the data sets gathered publicly available through a dedicated web portal



Project Structure and Work Items



Project Consortium

- In total ten partners work in the project, based on nine different countries
- The consortium represents a strong collaboration between academia and industry, consisting of top groups in the field
- The partners also have strong contacts to standardization groups including ongoing work towards DSA and cognitive radio standardisation



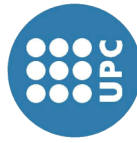
Expected Impact

- The project aims at enhancing competitiveness of European industry in the areas of wireless devices, networks and new applications
 - Industry-driven scenario work will play key role in this
- Developed radio environment map tools and methodologies will be published, including results obtained from extensive spectrum use measurements
- Project will also actively contribute to standardisation in the emerging technology area of cognitive radios
 - SCC41/P1900 and ETSI specifically targeted



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