

# The Wireless IP project

## Impact, future research challenges

### Our main message

Next generation wireless access should

- be based on OFDM
- be adaptive to fast variations of channels and packet flows
- use multiple antennas in an integrated way
- be co-optimized with higher layers.

### 3G Long-Term Evolution

Major research effort by industry to introduce adaptive OFDM-based radio access in present 3G and GSM spectrum.

Timeframe: 2009

### Direct impact on european 4G reseach

The IST WINNER project (EU FP6) is part of the Wireless World Initiative.



Led by Siemens, with 38 partners, it is the main focus of 4G system research in Europe.

- Timeframe 2004-2009
- New spectrum in 2007?
- Results to influence new radio deployment ca 2012-2014.

The Wireless IP reseach group is the second largest academic partner in WINNER.

It has a lead role in developing the system concept.

The WIP concept and research results will be a cornerstone of the first WINNER system concept (end of 2005).

WINNER does not develop new fundamental technologies. It is essential to continue to have national programs for that purpose.

### FUTURE RESEARCH CHALLENGES

Need for improving economy and efficiency of wireless access:

**Integrate adaptivity at all timescale (fast adaptation, slow resource re-allocation and interference control)**

Enable simultaneous

- low deployment cost (self-organizing system)
- high spectral efficiency

Today, we cannot achieve both simultaneously.

**Methods for efficient spectrum sharing between operators and other actors.**

Targets : Wide-area, metropolitan deployment and short range systems. Systems that use multihop nodes (MHN).

