

SURFACE

Self Configurable Air Interface



<http://www.ist-surface.org>



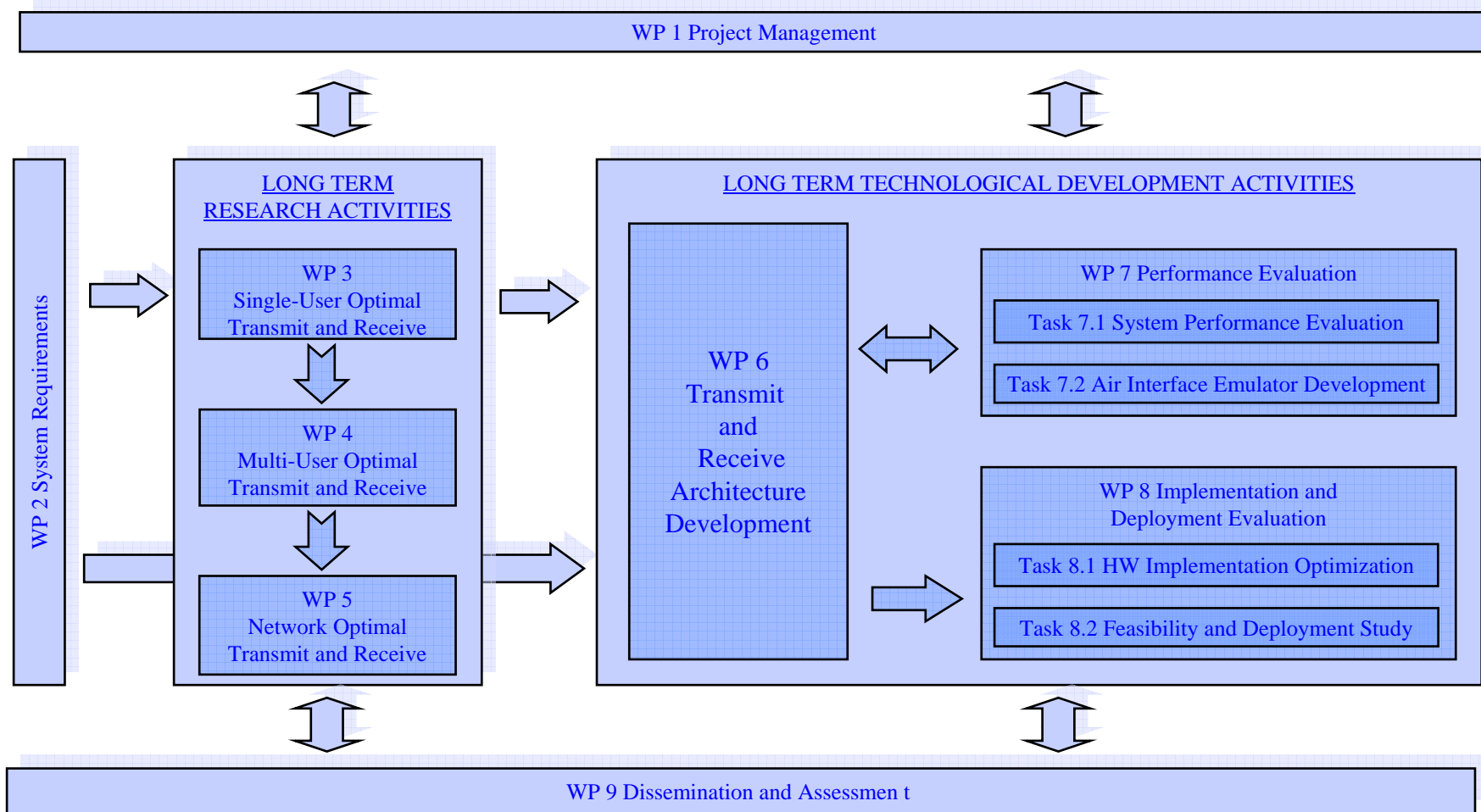
The SURFACE vision

To develop and exploit the latest advances in *Communication and Information Theory* in the field of air-interface self configuration ...

...applying concepts like *Trace-orthogonal Cyclotomic Space-Time Coding, Dirty Paper Coding, Nested Lattice Coding, Cognitive Radio...*

...and including a proof of concept in *3.9G* and *4G* systems.

The SURFACE Road Map



SURFACE Key Issues

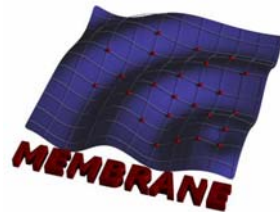
- Strategies for channel state information estimation, prediction and distribution.
- Air interface self configuration for a MIMO uplink (multiple-access) and downlink (broadcast) channels for arbitrary channel state information knowledge.
- Optimization at network level including Advanced RRM.
- Air Interface emulator showing the impact on the end-to-end QoS.
- Hardware Optimization and Complexity Evaluation of the proposed solutions anticipating hardware implementation.

Cooperation with other projects

- Cooperation topics have been identified with the following projects. A common partner has been appointed as liaison:



➤ Channel modelling, 4G air-interface specification, benchmarking and performance evaluation.



➤ Air-interface reconfigurability and RRM.



➤ MIMO optimisation, Multiple Access schemes and RRM.



Participation in Clusters

- SURFACE participation is foreseen in the following clusters:

“Spectrum and Resource Management”

“Broadband Air interface”