



## **AROMA IST-4-027567**

**D08**

*Economic evaluation of legacy IST-EVEREST RRM/CRRM algorithms and solutions*

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### **Abstract:**

This deliverable describes the potential economic advantages of using some of the RRM/CRRM algorithms and solutions already identified within the legacy IST-EVEREST project and assessed only from the technical point of view. The economical analysis is carried out taking into account selected scenarios, also providing specific business cases based on potential market demands.

**Keyword list: CAPEX,OPEX, Techno-economic issues, Microcells versus WLAN in 3G systems**

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## **EXECUTIVE SUMMARY**

This deliverable aims to evaluate the potential economic advantages of using some of the RRM/CRRM algorithms and solutions already identified within the legacy IST-EVEREST project and assessed only from the technical point of view.

In particular, the document analyses in which conditions it is profitable to deploy UMTS micro-cells or WLAN hot-spots in a pre-existent UMTS radio access network in order to support a supposed traffic increase, describing the potential economic advantages of using these two alternative technologies within a heterogeneous mobile network. After a general description of the UTRAN micro-cells and WLAN usage within heterogeneous mobile network (section 2), a model for estimating the total radio access network cost with respect to the politics that can be chosen for the usage of different radio access technologies (RAT) is proposed in section 3. In this section the proposed model is applied to the case of a micro-cell deployment, whereas an equivalent study is carried out in section 4 for the case of WLAN deployment. In both cases, starting from the evaluation of the number of new site needed to cope with the traffic increment, that is, from a dimensioning model, the CAPEX and OPEX valorisation models are obtained and compared with the case of considering only a macrocell deployment. The study considers different traffic mix, and the scenario assumed could be considered representative of a generic dense-urban area. The obtained results for both technologies are compared and relevant conclusions are stated.

In addition to that, the general cost model for heterogeneous radio access networks to be used in the AROMA project for the techno-economic evaluation of the proposed AROMA radio resource management algorithms is also presented in Section 5. Finally, some general conclusions and the potential impact of this work in the context of the AROMA project is addressed in section 6.

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