

**IST-4-027756 WINNER II****D7.1.2*****Plan for using and disseminating knowledge*****Contractual Date of Delivery to the CEC:** 30/04/2006**Actual Date of Delivery to the CEC:** 02/05/2006**Author(s):** Ludwig Hiebinger**Participant(s):** SAG**Workpackage:** WP7**Estimated person months:** 0,5 PM**Security:** Public**Nature:** R**Version:** 1.0**Total number of pages:** 10**Abstract:**

This document describes the planned activities in WINNER II to disseminate and exploit the knowledge gained during the current project runtime. This description is not seen as final and comprehensive, in contrary, a continuous process of opportunity analysis will assure the best possible result exploitation.

**Keyword list:** dissemination, know-how**Disclaimer:**

## **Executive Summary**

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## Abbreviations

3GPP	Third Generation Partnership Project
BAN	Broadcast Area Network
BER	Bit Error Ratio
CBR	Constant Bit Rate
CIF	Common Intermediate Format
CNG	Comfort Noise Generator
DAB	Digital Audio Broadcasting
FCC	Federal Communications Commission
FTP	File Transfer Protocol
FWA	Fixed Wireless Access
GPS	Global Position Satellite
GPRS	General Packet Radio Service
GUI	Graphical User Interface
HTML	HyperText Markup Language
IP(v6)	Internet Protocol (version 6)
ISM	industrial, scientific, medical
ITU	International Telecommunications Union
LAN	Local Area Network
MMS	Multimedia Message Service
MP3	Mpeg1 layer 3
MPEG	Motion Picture Expert Group
PAN	Personal Area Network
PC	Personal Computer
P-MP	point-to-multipoint
QoS	Quality of Service
RAN	Radio Access Network
RAT	Radio Access Technology
SMS	Short Message Service
TCP	Transmission Control Protocol
UDP	User Datagram Protocol
UMTS	Universal Mobile Telecommunications System
URL	Uniform Resource Locator
UWB	Ultra Wideband
VBR	Variable Bit Rate
WINNER	Wireless World Initiative New Radio
WLAN	Wireless Local Area Network
WP	Work Package
WWI	Wireless World Initiative
WWW	World Wide Web

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## **Introduction**

This document describes the planned exploitation of the know-how created in WINNER phase II.

# **1 Exploitable knowledge and its use**

## **1.1 Standardization**

The WINNER II project is investigating and developing new radio interface concepts for systems beyond 3G. At the start of the project the research was related to the basic requirements in the ITU-R Framework Recommendation M1645 "Framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000". The developed methods on spectrum demand estimation are being contributed to the ongoing regulatory process in CEPT PT1 and ITU-R WP8F for the preparation of the World Radiocommunication Conference 2007 (WRC 2007). In addition, the developed system concept and radio interface designs will be used as input for a future standardisation process on systems beyond 3G.

Since the start of the WINNER project new developments have been considered. With respect to the newly decided 3GPP study item in December 2004 on the long term evolution (LTE) of the 3G radio interface towards higher peak data rates and lower latency WINNER II results may be used as the basis for input contributions to 3GPP where appropriate. However, the WINNER II project will not change its focus towards the 3G evolution development in 3GPP.

IEEE has established new working groups and existing working groups got more momentum. Potential contributions to this process are under consideration.

## **1.2 IPR**

The developed concepts and technical solutions will be the basis for future system development and will provide the basis for future systems to cover the different radio environments and usage scenarios. The WINNER II contractors secure their knowledge by IPR applications.

Newly developed third party access rights are difficult to investigate at an early stage due to the fact that there is an 18 months period between the granting of a patent and its publication. For the known IPRs no issues are foreseen with respect to the envisaged technical approach. In addition, major players in the area are members of the consortium.

## 2 Areas of exploitable results at a glance:

Exploitable Knowledge (description)	Exploitable product(s) or measure(s)	Sector(s) of application	Timetable for commercial use	Patents or other IPR protection	Owner & Other Partner(s) involved
New radio technology for mobile and wireless systems	Terminals Base stations Access points Relays Radio access network functions in the WINNER system	Mobile and wireless communication in indoor and outdoor scenarios	Start of pre-B3G systems such a 3G evolution: 2009  Start of B3G deployment: 2015	Assured on partner basis	Complete consortium for foreground knowledge
Spectrum usage	Frequency planning Potentially sharing methods and limitations	Mobile and wireless communication in indoor and outdoor scenarios	2015	Assured on partner basis	Complete consortium for foreground knowledge
System architecture and deployment concepts	Network planning and deployment	Mobile and wireless communication in indoor and outdoor scenarios	2015	Assured on partner basis	Complete consortium for foreground knowledge

### 2.1 New radio technology for mobile and wireless systems

The major result will be the development of new radio interface systems to support the challenging requirements for systems beyond 3G in different radio environments and deployment scenarios in a flexible and scalable manner. These systems are based on the design of the physical layer and higher layer protocols up to layer 3 for the management of radio network functions such as handover within the WINNER system. A close cooperation has been established with the Ambient Networks project for the cooperation with other RANs.

According to the work plan a subset of partners is involved in the different Workpackages, which participate in the development of the particular knowledge. However, due to the fact that the WINNER II project does not comprise sub-projects, all contractors of the consortium have access to the developed knowledge according to the EU contract and the Consortium Agreement. IPRs are ensured by that partner, which invented the technology, algorithms or concept.

The developed concepts and systems address directly technical requirements from international bodies such as ITU-R, WWRF and IEEE. Therefore, research results will be used for appropriate standardisation processes and later they are the basis for system development towards future products. Market considerations are ongoing in different bodies globally on future mobile and wireless systems under participation of the commercial partners in the WINNER II project in order to research the right and needed technology by future markets.

The WINNER II project is contributing to the international regulatory process towards the preparation of WRC 2007, where the potential identification of further frequency spectrum is on the agenda. The availability of sufficient frequency spectrum on international basis is quite important for the future deployment of more wideband radio systems.

Especially in the context of IEEE technology development are ongoing towards similar radio interface requirements. However, such systems are for the time being not prepared to be integrated in existing network infrastructures in order to cooperate with legacy systems. These developments are carefully being observed and the WINNER II projects might contribute to them or may adapt its technical direction, if this is felt to be needed.

Potential changes in the regulatory framework and role models of players in the value chain as well as an unexpected change in the user behaviour might impact the deployment of future systems. Therefore, a flexible concept with open interfaces is under investigation to address different potential constellations in the sense of a future proof approach.

The WINNER II project is part of WWI – a set of cooperating Integrated Projects in Framework Programme 6 – and has established contacts to other initiatives such as WWRF, the FuTURE project in China and company internal activities in contractor organisations. From that respect the WINNER II project is well established in the international research activities in this sector.

The application for IPRs is a continuous and ongoing process. Partner organisations take care that their developments are secured by timely IPR applications before publication of results. Mutual access rights in the consortium are handled by the EU contract and the Consortium Agreement. All documents in the project are available for all project participants on a secure and password protected BSCW server, which is organised by Eurescom.

The WINNER II project is still in the phase of concept development. Therefore, no WINNER trial system exists for the time being. In addition, the promotion of new radio interface systems during the current market take-up of 3G systems has to be handled with care due to potentially sensitive impacts on the 3G deployment. Trials and related business contacts are foreseen in later phases of the project at an appropriate time with respect to the 3G development.

The user behaviour and expectations, which is under investigation in other research projects including the WWI project MobiLife, may have an impact on technical requirements. In this area socio-economic impacts have to be considered. However, these actual research activities are not in the scope of the WINNER II project.

## **2.2 Spectrum usage**

Investigations in the area of spectrum usage are related to potential spectrum sharing methods or flexible spectrum usage. The developed radio technology will support such concepts if appropriate for the application. For that purpose algorithms will be developed to ensure sufficient Quality of Service by maintaining high spectrum efficiency.

In addition, the WINNER II project is contributing to the international regulatory process towards the preparation of WRC 2007 to support the necessary environment for the deployment of future systems.

## **2.3 System architecture and deployment concepts**

Future systems, which may support much higher peak data rates at potentially higher carrier frequency bands compared to 3G systems, have to overcome range limitations in an economic manner in order to provide sufficient coverage. For that purpose new deployment concepts beyond the classical cellular approach for outdoor environment are under development such as relay-based and multi-hop based systems. In indoor and hotspot

deployment scenarios usually range is a minor issue. Such concepts are a prerequisite for systems beyond 3G.

### 3 Dissemination of knowledge

#### 3.1 Publications

Wide and targeted dissemination and exploitation is of particular importance for WINNER II. The Project team is very active in ensuring that public awareness is raised and results of the WINNER II project become widely disseminated to targeted audiences in order to impact public and commercial decision-making as well as R&D investments. The IST industry is one of the main target groups.

Four major means are used for the dissemination of knowledge:

- WINNER II Web site for general information,
- publications in international conferences and journals,
- contributions to the international regulatory and standardisation process and
- the IST Concertation and Cluster meetings.

The following actions help to achieve this objective:

#### 3.2 WINNER II Web site:

The WINNER II Web site has two parts: a public part and a secure part for WINNER II members only. The public part ensures that anybody interested can access the publicly available results of the WINNER II project (e.g. press releases, public deliverables, etc.). The secure part is for keeping the consortium members always up-to-date. The Commission Project Officer has also access to the secure part. The address of the WINNER II Web site is: <https://www.ist-winner2.org>. Eurescom is hosting and maintaining the WINNER II Web pages.

#### 3.3 Journals

WINNER II is submitting papers to renowned scientific publications. The procedures for acceptance of papers are quite lengthy, e.g. in case of IEEE Transactions it takes up to 18 month to reach acceptance.

The following shows a list of candidate scientific journals, where research results in WINNER II could get public awareness. This list isn't seen binding neither comprehensive, as during runtime of the project changes could result from the outcome of the work as well as changes in the scientific marketplace could reflect in alternative solutions for information publishing.

IEEE Transactions	
IEEE Wireless Communication Magazine	
Eurasip Journal on Wireless Communications & Networking	
IEICE Transactions	
IEEE Communications Magazine	
Computer Networks Journal	
Journal of Communications and Networks	

### 3.4 Conferences

WINNER II is aiming for events with a high scientific standard and high visibility. The Project Management Team (PMT), from which a recommendation is given to the participants to consider submitting papers, discusses potential target conferences.

The following gives an overview from today's viewpoint, where WINNER II results could contribute best possible to conference scopes.

IST-summit	
PIMRC	
ICC	
VTC	
WWRF	
ECWT	
ECC	
WCNC	
WPMC	
EWC	
WWI-symposium	

### 3.5 Other paper-material

Further means as press release, flyers and posters will be used for getting awareness of the project. In particular cases, exhibition booths will be rented to show some exemplary demonstrations of results of the project.

### 3.6 Concertation and cluster meeting

These events are organised by the European Commission and are important means to exchange results amongst IST projects. WINNER II is continuously participating at such meetings and contributing on special issues when appropriate.

A complete list of contributions submitted by WINNER II participants and accepted for conferences, publications, standards and regulatory bodies, etc. since the beginning of the project in January 2006 will be given in the WINNER II publication Web page: <https://www.ist-winner.org/publications.htm>.