

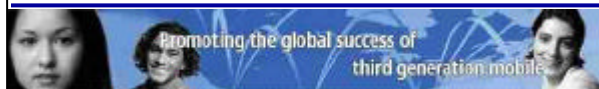


# UMTS/IMT-2000 vs. WLAN Competitive or complementary?

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ITU-BDT Sub-Regional Seminar on IMT -2000 for CEE and Baltic States, Ljubljana 1-3 December 2003

## UMTS: The benefits to operators



### Network Optimisation

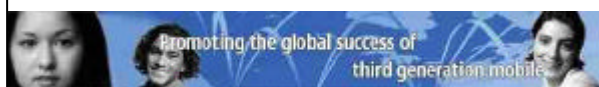
- UMTS builds on investments in GSM providing a network optimisation opportunity for operators. Operators can retain legacy 2G core network, IT and service platforms; can also re-use existing sites and implement site sharing

### Cheaper Additional Capacity

- UMTS gives operators additional capacity compared with 2G to support more subscribers (especially in urban centres) as well as greater speeds and ability to support new multimedia services including video...
- UMTS allows operators to add additional network capacity at a cost up to 8 times lower than providing incremental 2G capacity. This gives operators the opportunity to reduce the proportion of investments in relation to total turnover

### Medium to Long-term Increase in Revenues

- UMTS may not in itself significantly increase ARPU in the short term, but it will provide an opportunity for operators to strengthen their free cash flows
- UMTS will generate new revenues in the medium/long term when all actors (clients, operators, service providers, media/content developers....) have assimilated this new technology



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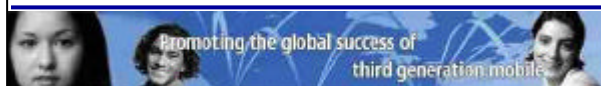
## The UMTS Proposition



**UMTS: Designed as a complete, end-to-end mobile SYSTEM**



- UMTS offers cost efficient, WIDE AREA network coverage
- UMTS is universally standardised via 3GPP, using licensed radio spectrum, globally harmonised in common bands (paired and unpaired)
- UMTS offers user bit rates up to 384 kbps in high mobility situations / 2 Mbps stationary, with a roadmap to >10 Mbps for low mobility/indoor use
- UMTS supports a rich choice of services and applications optimised for fully mobile environments
- UMTS supports international roaming, with a wide range of handheld terminals
- UMTS offers integrated charging and billing functions
- UMTS offers integral security



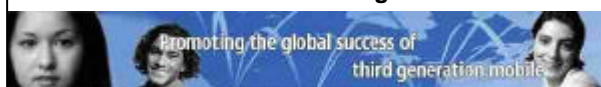
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## The WLAN Proposition



**WLAN = Low mobility, high speed wireless access to public and private networks**

- WLAN serves as a wire-free access to existing data networks (intranet, extranet, LAN) with limited mobility (~100m) around "hot spots"
- WLAN offers theoretical access speeds of 11 Mbps >>> 54 Mbps (average expected 5.5>>>30 Mbps) shared between users: actual user data rates reduce with increasing distance from access point
- Currently uses license exempt radio spectrum shared with other applications and users
- WLAN currently optimised for IT industry models – bridge/hub network infrastructure, laptop PC/PDA clients and embedded OS (Win XP) support – rather than dedicated mobile devices
- Choice of affordable WLAN hardware – including PC cards, routers etc – available from a wide range of vendors



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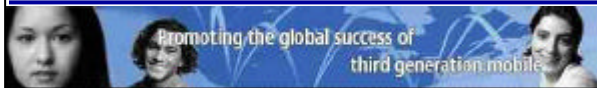
## WLAN: complementary to UMTS



### WLAN gives “hot spot” coverage; UMTS gives full mobility

- UMTS offers benefits of wide area coverage, full mobility, integral security, roaming, full integration with charging/billing systems
- WLAN is a useful technology for high-speed Internet access for low mobility & stationary users (especially corporate / enterprise)
- WLAN coverage of a major city (e.g. Paris, London) may require typically approx 100:1 as many access points compared with number of UMTS base stations for equivalent coverage
- WLAN also requires substantial investment in backhaul capacity
- Concerns regarding WLAN performance when hot spot capacity is shared by a large number of simultaneous users

**WLAN complements rather than competes with the overall UMTS market proposition for operators**

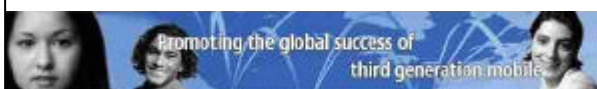


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## The issues for 3G mobile operators



- Can WLAN be integrated easily with operators' current charging and billing models?
- WLAN standardisation is still evolving: compare with UMTS standardisation roadmap (e.g. WLAN/UMTS interworking included in 3GPP Release 6)
- Will outstanding concerns regarding WLAN security be addressed in a timely manner?
- Can voice (i.e. VoIP...) be integrated into a WLAN offering?
- Will end-users feel comfortable with using WLAN in preference to the familiarity of mobile telephony?
- Are Quality of Service, radio interference and other issues sufficiently well addressed to support a mass market for media-rich services and applications that will characterise tomorrow's mobile data market?



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# Conclusions



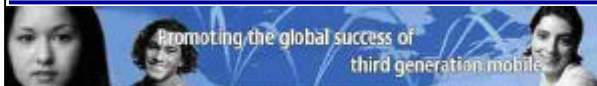
UMTS offers advantages over a large network of interconnected WLAN hot spots in terms of...

- deployment and operational costs
- area coverage
- overall suitability

...for delivering TRUE 3G mobile services and applications

**HOWEVER...**

Many mobile operators are examining WLAN as a part of their service portfolio, enabling them to add additional capacity for high speed Internet access in dense urban areas



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# For further information...



## Relative Assessment of UMTS TDD and WLAN technologies

UMTS Forum Report 28, March 2003

- Market survey covering industry activities and views on TDD - provides a high-level overview of UMTS TDD technology, including traffic capacity. Provides a comparison of UMTS TDD and WLAN technology from a deployment scenario perspective.

## WLAN Spectrum Report

UMTS Forum Report 25, updated May 2003

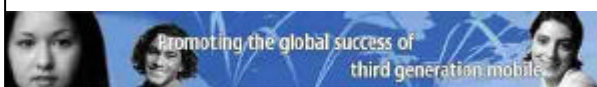
- Provides information relating to the current availability of frequency bands for the implementation of WLANs, including license-exemption status and technical conditions applicable to WLAN devices using these bands.

## Impact & Opportunity: Public Wireless LANs and 3G Business Revenues

UMTS Forum Report 22, July 2002

- Explores the perceived impact of WLAN on projected UMTS/3G business revenues. Concludes that UMTS and WLAN are complementary technologies

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