WLAN Management Summary – February, 2003

Only a short time ago, broadband local loop technologies have been joined by WLAN realising wireless high-speed internet access at selected sites for semi-mobile users.

WLANs developed from an internal network technology to a mass market application

Originally, WLANs were used in internal (e.g. corporate) networks. But recently, public WLANs have been largely commercialised, starting with some 15,000 users worldwide in 2001. Analysts predict 20+ mn WLAN users in 2006, generating a turnover of € 3 bn for WLAN operators, i.e. WLAN might conquer ≤10% of the total mobile data (2.5G, 3G, ...) market share. In Western Europe, about 90,000 hotspots are to be equipped with WLAN in the next five years, with the market volume expected to grow to € 1.8 bn by 2007, with 7.7 mn users.

WLAN competitively or complementarily joins other local loop broadband technologies

First public WLANs were deployed in gastronomy sites, but the focus has been shifted to places attracting business customers, e.g. airports. Yet the market still has to bring up solid business models: too many players are currently competing, the "run" goes for securing a high number of locations.

Hotspots mostly materialised in the gastronomy sector but shift to sites more frequented by business customers

The long-term sustainability of the business model has to be secured instead of the first mover advantage. In some cases, targeted sites have not matched the key customer, e.g. luxury hotels or coffee chains. In fact, corporate customers have to be addressed, their sales forces (especially travelling along airports, highways and railways) guaranteeing a critical mass for standardised broadband products.

WLAN services being restricted to selected areas will become profitable only with corporate customers being addressed

Telecom expertise has to be integrated into the WLAN offer to meet the customer's expectations. Venues may heavily influence the WLAN business model. Service provisioning (not being a core business) is left to one or (more often) several external operator regarding customer care or monitoring.

First market feedback shows that venues outsource service provisioning but wish to control the infrastructure

With valuable business customers being addressed, major players examined the value of WLAN, especially mobile operators (e.g. Vodafone or T-Mobile) which are eager on raising their ARPU through new mobile data services, still playing a minor part in mobile communication today. WLAN promises to push mobile data usage, targeting traffic that is mostly carried on fixed networks. Therefore, fixed operators must be aware of the potential threat from WLAN operators, as well as their own opportunities to provide customers with wireless access.

WLAN sites have to be carefully selected: the value of locations count, not the number

WLAN is cheap to deploy and perfectly complementary to other wireless technologies, e.g. Bluetooth or UMTS. Thus, solutions will come up to allow roaming, depending on the user's location resp. the application used. Hence, it seems inevitable that WLAN will reach a critical but very specific mass in the medium term.

Not only mobile operators discovered the WLAN market, but also ISPs, MNOs, ...

But the question remains whether WLAN will be able to become a real mass market broadband offer covering whole cities, which is being aimed at in Zamora/ Spain (WSN/ Afitel), Adelaide/ Australia (m.net) or Denver/ USA (Ricochet).

Established telcos crowd out pure WLAN start-ups

Even major telcos usually cannot cover the entire WLAN value chain, but join syndicates to share competencies and costs

One key issue is the bundled marketing push of WLAN players which will bring adequate offers to key clients

The WLAN expertise gathered in the past will lead to serious business starting in 2003/ 2004

WLAN: a new technology conquering the mobile business customer market

For a long time, WLAN (Wireless Local Area Network) technology was mainly used for corporate LANs or governmental institutions such as universities. But due to this technology's inherent advantages a much broader market is about to be approached.

a) WLAN hardware developers work on improving the technology more and more

- the first WLAN standard 802.11b reaches a transfer rate of **11 Mbps** in the 2.4 MHz frequency range
- a second generation (802.11a) reaches **54 Mbps** (in the 5 MHz frequency band, already allowed in different countries, e.g. Germany), up to **162 Mbps** have been demonstrated (e.g. by Agere)
- other manufacturers (e.g. Vivato) work on extending the range of WLANs from currently about 100 m **up to 500 m**

➔ due to high bandwidth but limited range, WLAN can perfectly approach attractive niche markets and has a leverage effect on complementary mobile technologies

b) many different players push WLAN deployment worldwide

- the market sees a **growing demand for WLAN access in public "hot spots"** (airports, hotels, lounges, congress centers, rail stations, motorway service areas, ...), especially for travelling business customers
- first **commercial WLAN networks launched** in the USA, Japan, Scandinavia, or Germany, with many more countries to follow in the short term
- **new players (WISPs)** focus on WLAN to approach high-potential niche markets as first movers
- large telcos (e.g. Telia, more recently France Télécom with its comprehensive offer plans) view WLAN as a means of complementing their portfolio
- mobile operators (e.g. T-Mobile) use WLAN to test mobile applications and to **prepare the market for UMTS** and/ or they consider it worthwhile being integrated in their mobile data portfolio
- organisations (e.g. mobileaccess) and strong partnerships work on realising **roaming agreements as a leverage effect**

➔ numerous market players speed their activities (and thus WLAN deployment) to secure the most attractive hot spots

c) promising market prospects

- **several thousands of hotspots** currently become WLAN enabled all over the world, with their number growing exponentially
- the number of hotspots is expected to grow to several hundreds of thousands worldwide, expected to account for **about 10 % of the total future revenues for mobile data services**
- WLAN enables to leverage other business models (e.g. eHome) as a **complementary technology** to others, thus paving the way to a true broadband coverage

➔ many companies hurry to deploy WLAN to secure market shares, spreading this technology considerably faster than others in the past

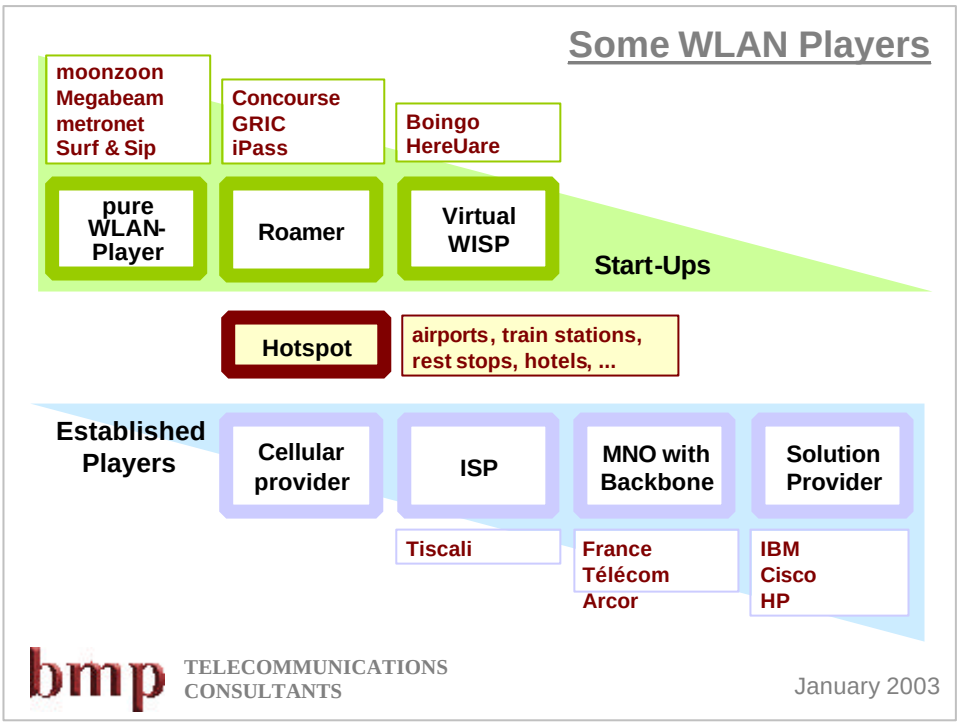
WLAN is being progressively supported by a huge quantity of companies. The number of launched business models is almost as large. Market analysis shows that WLAN perfectly complements other wireless technologies (UMTS, Bluetooth, ...) and is an adequate platform for offering value added services such as VPN.

WLAN is viewed as connecting especially travelling professionals to the internet, and its potential is expected to grow to several hundreds of thousands hotspots worldwide. However, it still has to be examined whether there is a market opportunity for WLAN to seamlessly cover whole cities in order to become a real mass market broadband platform and/ or to realise public services for municipalities (traffic control, WiFi Cam surveillance, ...).

Each of the following links provides a global longlist of WLAN players:

http://www.brainheart.com/wisp-opportunity/wisp_list.asp

http://www.marketingsociety.de/research/wisp_guide_1102.pdf



About bmp Telecommunications Consultants:

bmp TC is a strategic consultancy in the field of telecommunications with the focus on broadband technologies such as DSL, CATV, WLAN, satellite, WLL, mobile communications, or Powerline Communications. Regarding WLAN, bmp TC is concerned with defining viable business models for WLAN services at public hotspots such as airports or rail stations throughout Europe, especially addressing business customers. In addition to mere internet access, bmp TC also examines a future proof WLAN migration path towards add-on services such as automatic motorcar metering.

WLAN references include **BT Ignite** which is supported by bmp TC regarding its WLAN strategy on the European continent. Another example is **Tank & Rast** (owning some 400 motorway service areas in Germany) which bmp TC recently started to support in order to prepare a national WLAN roll-out in Germany. Further activities have been conducted for players in France with municipalities such as the **CR Aquitaine and others.**

bmp TELECOMMUNICATIONS CONSULTANTS GmbH
Achillesstrasse 17 • D – 40545 Duesseldorf • GERMANY
Tel.: +49 211-577973-0 Fax.: +49 211-577973-11
Email: info@bmp-tc.com www.bmp-tc.com

For further information please contact:
Mr. Bodo von Bassewitz
Tel.: +49 211-577973-21 Email: bbassewitz@bmp-tc.com