

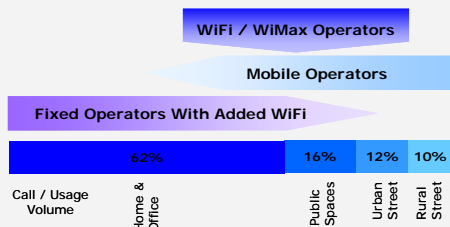
The specialist telecoms, media and technology consulting and training company



## Contact Details

Stefan Zehle, CEO  
 Coleago Consulting Ltd  
 Tel: +44 7974 356 258  
 Email: stefan.zehle@coleago.com

Figure 1 - Infrastructure Based Competition in the Access Market



Infrastructure based competition focussing in the access network is intensifying:

Some fixed operators roll-out WiFi networks to give access to their customers when away from the home or office, targeting nomadic users.

Mobile operators have introduced home zone billing and generally lower tariffs to capture traffic in homes and offices. However, the mobility premium is declining.

New operators, including city councils, provide WiFi coverage, sometime free of charge. Around 190 municipalities in the US offer already or are in the planning stage for municipal WiFi coverage.

## Fixed Mobile Substitution and Convergence

A number of trends are covered under the heading convergence and substitution, including fixed-mobile substitution, wireless services substituting for wired services, IP telephony substituting for circuit switched voice telephony, bundled offers of mobile, fixed, broadband and TV and, finally, truly converged communication and digital media services that are delivered irrespective of the means of access and allow multiple communications within one session.

### Fixed Mobile Substitution

In emerging markets mobile telephony has outpaced fixed telephony as the main means of voice telephony and the same appears to be happening with data as mobile operators invest in 3G/HSDPA and other broadband technologies. Compared to 2G, UMTS provides a capacity improvement of 2.7 times for voice and 5.5 times for data. Fully loaded network cost for UMTS are 60% lower than for 2G and up to 70% for HSDPA vs. EDGE. This drives down voice prices and allows mobile operators to capture an increasing share of traffic. In emerging markets the real focus is on access rather than mobility and substitution can be understood as wireless substituting for wired services. The recent flurry of WiMax service initiatives in emerging markets illustrates this trend. In this context mobility, or nomadic use, is more of a service feature.

Even in developed market mobile voice calling is starting to outpace fixed voice calling and an increasing number of households and small businesses are mobile only. Different strategies have been employed by mobile operators, including ever larger bundles and home zone tariffs. Mobile seems to have gone full circle: In March 2007, Ireland allowed mobile operators to offer geographic numbers which offer calling at prices similar to fixed line calls. Mobile operators seek to re-enforce the trend for customers to abandon fixed telephony services by also offering broadband services. In this context unbundled DSL or naked DSL is an attractive option. In turn some fixed operators such as BT in the UK, Telecom Italia and France Telecom have started to offer mobile services based on WiFi.

### Convergence

Convergence is often nothing more than bundling of services as operators move from triple to quadruple play, bundling mobile, fixed voice, broadband and TV services. Bundling has been around for some time and aside from discounts and possibly fewer bills offer little new to consumers and businesses. However, IP based services, such as Skype, offer users a converged experience, where in the same session a voice or video call takes place, documents can be "pushed across the desk", and sketches can be drawn. Another example are cable TV operators who embed internet features such as chat in their programmes, thus allowing people to interact

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while watching TV.

The move towards a world where all services are based on IP technology has started. In an all IP network service control is mainly handled by IMS (SIP signalling) and packet transport is the mode of all network traffic. Many IP-based access technologies are supported, including GSM, UMTS, WiFi, WiMax and DSL. Eventually the use of IMS, which is called multimedia domain (MMD) in the 3GPP2/CDMA standards, will be ubiquitous. IMS provides operators with the capability to launch new services as multiple services are combined in one session, introduce soft-switches and reduce operating costs.

Location independent or "nomadic" means of communication provided by Skype-like operators blurs the distinction between fixed and mobile. Most mobile calls and data sessions are not made while moving but while stationary and most are made within buildings. While nomadic communication meets most needs, users will continue attach a high premium to ubiquitous coverage that can only be provided by mobile operators. Mainstream mobile operators have started to take advantage of the opportunities offered by Skype-like services. In February 2007, the GSM/UMTS operator Mobilkom of Austria launched its own Skype-like service fully integrated with its mobile service. An incoming calls rings simultaneously on the mobil phone and, if the user is logged in, on the PC.

### Digital Media Integration and Convergence

The world of entertainment is part of the convergence story. Digital Media Integration includes IPTV mobile TV and enhanced TV services with integrated communications features such as chat in linear programmes and content on demand including pay-per-view, VOD, push and VOD.

*The world of entertainment is part of the convergence story.*

The internet is increasingly replacing the TV a means of entertainment and information source. In addition telephony operators started to roll-out IP TV. With the advent of EV-DO and HSDPA mobile operators are also aggressively entering the entertainment and information space. In contrast to PC or TV based communication, mobile operators exert a high degree of control over user behaviour because they control the phone's screen. This could be a much more powerful factor than the Electronic Program Guide provided by TV operators.

The introduction of advertising financed mobile services such as Blyk's service, effectively converges media and telecoms business models. Free to air TV is still the most widely used TV business model, but different forms of pay TV are gaining in importance while some telecoms operators are moving towards a free-to-air model.