

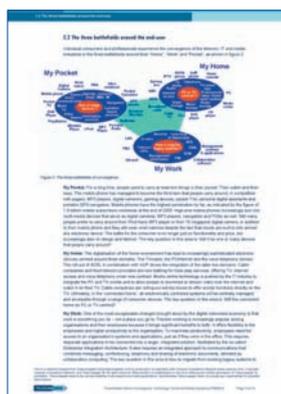
# Fixed Mobile Internet Convergence: Technology Trends and Market Dynamics

New report from Telecompaper, by Guus Jansen en Ed Achterberg

## Forthcoming VoIP Wi-Fi hype will shake telecom industry to its foundations

■ After a difficult period of consolidation following the burst of the bubble around the year 2000 the telecom industry has emerged to find that a number of technologies from the IT world have arrived on the scene that both threaten “business as usual” and open the door for new opportunities.

■ The “Fixed Mobile Internet Convergence: Technology Trends and Market Dynamics” report, published by Telecompaper, provides a detailed and in-depth analysis of the dramatic impact of FMIC on both market structure and user behaviour. Making the right choices and developing an adequate strategy on fixed mobile internet convergence will determine the future success of existing and new players in the telecom, IT and media industry including incumbents, fixed-line operators, mobile (virtual) network operators, VoIP providers, wireless service providers, internet service providers and internet service specialists such as MSN, Yahoo, Google and Ebay.



## Distinction between fixed and mobile services will blur

■ The rapid penetration of Wireless Broadband Access (WBA) technologies, the migration of traditional telecom networks to internet technology and the availability of affordable and functional Wi-Fi and dual mode Wi-Fi/mobile phones will boost VoIP over broadband internet, and ultimately blur the distinction between fixed and mobile services since both become wireless and IP based.

## Barrier prevent mass market uptake on the short term

■ Significant technical and commercial barriers prevent mass market adoption on the short term. The market for VoIP and fixed mobile converged services will move from the current phase, characterised as “VoIP Push”, into “VoIP Wi-Fi hype” over the next 18 months. After that, FMIC will become a reality from 2008 onwards, when the early majority starts adopting truly converged services. FMIC is one of the key developments within the converging telecom, IT and media industries and will arouse strong competition between many players of widely different backgrounds in the merged “infocom” market.

## Key implications for players are:

- Local incumbents have an excellent starting position but also stand to lose the most;
- Mobile operators run the risk of losing substantial share of their in-building and metropolitan area minutes but have many opportunities to turn this threat into opportunities;
- Fixed-line and Carrier (Pre)Select operators have strong negative exposure to fixed-to-mobile and PSTN-to-VoIP substitution, but have opportunities to develop in mobility;
- Internet Service Providers (ISPs), cable operators and Mobile Virtual Network Operators (MVNOs) have an opportunity to team-up and deliver converged fixed, mobile and internet access services;
- Wireless ISPs and VoIP service providers have a natural fit to resell each other services;
- Internet service specialists such as Microsoft MSN, Yahoo!, and Google are well positioned to provide integrated services over both fixed and mobile networks.
- Office software providers, among which Microsoft and Oracle, are integrating SIP based collaborative computing capabilities with their existing office productivity, content management and business process support tools;
- A new breed of VoIP/Wireless Service Enablers (VWSEs) will extend the MVNO/MVNE model from mobile to converged VoIP and mobile services.

## Skype Out?

■ The winners will be those service providers that match the capabilities of new technologies with the specific needs of selected market segments. Skype has successfully formed an industry by itself, but is in a catch22 position. It is unlikely to maintain its VoIP leadership position in the long term if it does not migrate to SIP and may become just another VoIP player when it does.

## Broadband penetration is on the rise in every country.

■ By the end of 2005, an estimated 203 million households use broadband worldwide, up from about 10 million in 2000. In combination with short range wireless technologies like Wi Fi and Bluetooth, which are now commonly built-in in laptops and PDAs and increasingly in mobile phones as well, broadband internet provides the “pipe” through which a range of services can be offered. Voice telephony over the internet, denoted as Voice over IP (VoIP), has received the most attention as the challenger to traditional telephony services and is often used to denote a broader class of versatile services running on IP based networks, rather than pure voice alone. Such services include messaging, presence, video conferencing, IPTV and various personalisation and control capabilities.

## Session Initiation Protocol (SIP) is at the heart of the paradigm shift

■ The Session Initiation Protocol (SIP) is at the heart of the paradigm shift taking place in the communication industry because it has become the dominant protocol to set-up peer-to-peer multi-media sessions over the internet. SIP represents a disruptive technology. It enables the replacement of centrally controlled intelligent networks based on proprietary technology by “stupid” bit-pipes and distributed intelligence at the edge of the network, running on standard computer hardware. These changes in technology have subsequently opened up the possibility for new business models, new competitors and, last but not least, a richer end-user experience.

**Fixed Mobile Internet Convergence - the trend to deliver the same communication services to end-users over both wired and wireless IP based networks and through any intelligent terminal device - represents the next big challenge and will shake the telecom business to its foundations.**

## Report Key objectives

- To provide a comprehensive overview of the key technology trends and the market dynamics in the converging telecom, IT and media industries;
- To analysis the strategic value of SIP based communication services and their potential impact on market structure and user behavior;
- To specify the key drivers of market growth, implementation challenges and uncertainties for FMIC;
- To forecast the market development phases for FMIC;
- To evaluate the technical, strategic and commercial aspects of the open SIP based architecture promoted by the Internet community against the IMS and UMA solutions proposed by the traditional telecom world;
- To assess the major battle field between 3G mobile and Wireless Broadband Access (WBA) technologies and the impact of VoIP over WiFi for in-building and metropolitan mobile minutes;
- To review the strategic options for the different type of service providers and to provide recommendations for each of them;

- To outline the specific opportunities for FMIC services for different market segments;
- To use the Dutch market as a specific example to quantify the changes in the communications market.

## Who should read the report

- Mobile and fixed-line network operators;
- Mobile virtual network operators and mobile service providers;
- Carrier (pre)select operators;
- Cable operators;
- (Wireless-) internet service providers;
- Network and terminal equipment vendors;
- Internet service specialists and portals;
- Office and collaborative computing software providers;
- Banks and investment firms.
- Telecom regulators

## About the Authors

### Ed Achterberg

■ Ed Achterberg has been working in the telecom industry since 1995, and assisted numerous new telecom operators on inter-operability issues like interconnection, numbering, number portability, and EU and national telecom legislation. In 2000 he founded Telecompaper. Ed Achterberg has a Master of Science degree in Electro-engineering from Delft University. He started his career at Philips Netherlands.

### Telecompaper

■ Telecompaper is a well respected, independent research and publishing company focused on the telecommunications industry. Founded in 2000, Telecompaper now employs 15 editors and analysts at its headquarters in Houten, the Netherlands, and also employs correspondents in various countries who track their local telecom industry. Telecompaper provides international customers with newswires, reports, research support, and advisory services. Telecompaper tracks the worldwide telecommunications market and publishes need-to-know information. Telecompaper provides information on all aspects of the communications sector as well as timely, apposite research briefs. Our customers today include international telecom operators, investors, regulators, other government agencies and consultancies

### Guus Jansen

■ Guus Jansen founded the Caneval network in 2000 and acted as CEO in various ventures. Prior to Caneval, Guus Jansen was director of Marketing & Business Development and director of Strategy, Planning & Development at Telfort. Before that, he was senior management consultant at Monitor Company with various client engagements in the telecom industry. Guus Jansen holds a Master and PhD in Physics from Delft University, both cum laude, and started his career as researcher at the IBM General Technology Division in New York and the Shell Research Center in Amsterdam.

### Caneval Ventures

■ Caneval Ventures is a business development and investment firm specialized in starting, managing and growing new companies. It leverages a network of independent professionals with an extensive track record in high-tech industries. Teams are formed on a project by project basis to assess the market opportunity, develop the business case, arrange financing and to carry out marketing, sales and day-to-day operations. The involvement continues until a sustainable, profitable operation has been achieved. Caneval actively monitors the developments in the ICT and media industry in order to assess emerging business opportunities and occasionally provides industry reports and presentations on request.

## Buy this report

**The report “Fixed Mobile Internet Convergence: Technology Trends and Market Dynamics “ (FMI2601) costs EUR 1,650 and can be used by 1-5 users within one organisation. If more people would like to access / read this report, a companywide licence can be bought for EUR 3,300.**

■ For more information contact us by phone + 31 30 6349690, or via e-mail [info@telecompaper.com](mailto:info@telecompaper.com)

## Table of Contents

<b>Executive summary</b> .....	<b>6</b>	Figure 6: Internet versus traditional telephony technology.....	24
<b>1. Introduction</b> .....	<b>12</b>	Figure 7: Application of the Five Forces Model to describe the	changing structure of the communication services market. 27
2. General industry trends .....	14	Figure 8: VoIP enabled service functionality. ....	29
2.1 Industry convergence .....	14	Figure 9: Strategic value of various SIP-based market proposi-	tions. ....
2.2 The three battlefields around the end-user .....	15	Figure 10: Categories of VoIP service providers in the consumer	and SoHo market. ....
2.3 Fixed mobile internet convergence .....	16	Figure 11: Pure VoIP and dual mode Wi Fi/mobile handset devel-	opment. ....
2.4 Key drivers of market growth .....	21	Figure 12: Incentives for VoIP/Wi Fi mobile substitution in buil-	dings. ....
<b>3. The disruptive impact of SIP and VoIP</b> .....	<b>23</b>	Figure 13: European hot-spots roll-out, pricing and payment	methods (Source: BroadGroup, 2004). ....
3.1 The SIP Paradigm shift .....	23	Figure 14: High-level view on the IMS architecture.....	38
3.2 Strategic value of SIP-based market propositions .....	26	Figure 15: Internet PSTN call routing.....	43
3.3 Classification of existing VoIP players .....	31	Figure 16: Alternative wireless access technologies.....	45
3.4 VoIP terminal equipment developments .....	33	Figure 17: Integration challenges in the network systems archi-	tecture for an FMIC service provider. ....
3.5 The battle for in-building and metropolitan minutes .....	34	Figure 18: Alternative approaches to the FMIC network architec-	ture.....
3.6 SIP and IMS.....	37	Figure 19: The early adopter nightmare.....	54
<b>4. VoIP and FMIC implementation challenges</b>		Figure 20: Proliferation of VoIP equipment alternatives. ....	54
<b>and development phases</b> .....	<b>42</b>	Figure 21: FMIC industry roadmap for the consumer and SME	markets. ....
4.1 Connecting the VoIP Islands.....	42	Figure 22: Characteristics of different service propositions in the	converging telecom, IT and media market. ....
4.2 Providing seamless access and roaming.....	45	Figure 23: The strategic chessboard with the core market (cur-	rent positions) and market extension options of different type
4.3 Straightening out the pending SIP implementation issues.....	49	of players in the converging ICT and media market. ....	59
4.4 Keeping it stupid simple for the end-user.....	53	Figure 24: Distribution of total revenue from fixed and mobile	telephony, broadband internet access and cable television
4.5 FMIC development phases.....	55	among the different type of players in the Dutch market. ...	60
<b>5. Generic service provider strategies</b> .....	<b>57</b>	Figure 25: Shifts in subscriptions, traffic and revenue volumes in	the Dutch telecom market over the period 2002-2005. ....
5.1 Market developments by product category .....	57	Figure 26: Historic and projected penetration of broadband inter-	net access and Wi Fi.....
5.2 Strategic positioning on the multi-product chessboard .....	58	Figure 27: Dutch fixed consumer telephony access market by	year-end 2005.....
5.3 Matching the needs of different market segments .....	64	Figure 28: Comparison of various broadband internet access	and fixed telephony alternatives in terms of bandwidth (top
<b>6. Developments in the Dutch</b>		graph) and total cost for a household with an average call	pattern (bottom graph). ....
<b>communications market</b> .....	<b>66</b>		
6.1 Shifts in access and traffic patterns .....	66		
6.2 Broadband internet access and Wi Fi penetration .....	67		
6.3 VoIP penetration .....	68		
6.4 Fixed mobile internet convergence.....	69		
<b>Appendix: Acronyms</b> .....	<b>71</b>		

## Table of Figures

Figure 1: Convergence of telecom, IT and media industries....	14
Figure 2: The three battlefields of convergence.....	15
Figure 3: Fixed Mobile Internet Convergence.....	18
Figure 4: Voice and data access battlefields.....	19
Figure 5: Key drivers of market growth. ....	22

## Other Telecompaper reports

### KPN introduces IPTV package Mine

EUR 75.00 - Pages: 3 - 08 May 2006

■ Dutch incumbent KPN has launched a digital television package for ADSL customers, following competitor Tele2's move recently. The new TV-service from KPN is called "mine"; KPN chose this name to express a customer-centric approach. The user can decide when he or she wants to watch a TV programme or movie, and to further reflect this customer-centric idea, the service offers more than just transmission of television and radio stations by using new digital TV technologies. KPN already offers TV using Digtienne and with the introduction of Mine positions TV via Digtienne as a value for money product.

### Telecom Italia is 2nd largest broadband provider in Europe

EUR 90.00 -Pages: 3 -20 April 2006

■ The research brief 'Telecom Italia is 2nd largest broadband provider in Europe' describes the developments of the top fifteen broadband operators in Europe during the fourth quarter of 2005. During that quarter Telecom Italia became the second largest broadband services provider in Europe with 5.96 million users, trailing France Telecom with 6.43 million users. Cable network operator UPC and Turkish incumbent Turk Telekom grew the fastest during the quarter

### Cable companies lead digital TV uptake in roaring market

EUR 120.00 - Pages: 5 - 18 April 2006

■ Over 400,000 Dutch households switched to digital TV reception in 2005. This takes the digital TV market to over 1 million homes, or 15 percent of all TV households. Cable operators have been the most successful on the digital television market, growing quicker than rivals in satellite and digital terrestrial TV. By the end of the first quarter of 2006, the cable companies had converted 575,000 households from analogue to digital cable television. Further strong growth among cable operators is expected this year, led by UPC as it offers free digital decoders to all its TV subscribers, while the introduction of HDTV by cable operators later this year may also further stimulate digital sales. New entrants are also shaking up the market, with Tele2 launching IPTV in March, KPN starting IPTV in May and smaller rivals Tiscali and Wanadoo testing IPTV this year.

### Dutch Mobile Operators 2005

EUR 359.00 - Pages 36 - 22 March 2006

■ The report analyses developments in the Dutch market for mobile communication and analyses the market's performance in the fourth quarter of 2005, including a year to date analysis. The focus is on mobile network operators including KPN (including Telfort), Vodafone, T-Mobile and Orange and their activities in the Dutch mobile services market. In 2005, the Dutch mobile communication services market grew 5.6% and generates EUR 5.94 billion in services revenue, up from EUR 5.62 billion in 2004. The total mobile customer base grows to 16.88 million at the end of December 2005, up 2.0% from 16.55 million at the end of September 2005, reaching a penetration rate of 103%.

#### Telecompaper

Molen 28, 3994 DB Houten, Netherlands  
PO Box 356, 3990 GD, Houten, Netherlands  
Phone: +31 30 6349690  
Fax +31 30 6349699  
VAT-number: NL 8091.45.285.B01  
Registered in Netherlands under: 30165621  
Website: [www.telecompaper.com](http://www.telecompaper.com)  
Contact: [info@telecompaper.com](mailto:info@telecompaper.com)

#### Caneval Consultancy Network

Kleine Houtweg 26, 2612 CH, Haarlem,  
Netherlands  
Phone: +31 23 5513917  
Mobile:+31 6 26084345  
Fax: +31 23 5513877  
Registered in Netherlands under: 34122154  
Web-site: [www.caneval.com](http://www.caneval.com)  
Contact: [info@caneval.com](mailto:info@caneval.com)

#### Telecompaper UK Ltd

Registered in England under 05217076  
VAT-number: 848 0359 09

#### Bank

Rabobank 'Kromme Rijn', Houten  
Account number: 35.75.15.609  
Swift code: RABO NL 2U  
IBAN: NL 25 RABO 0357 515 609

Lloyds TSB Piccadilly Business Centre, London  
Code 30-96-64 Account number 01229946  
Swift code: LOYDGB2L, BIC: LOYDGB21085  
IBAN: GB 40 LOYD 3096 6401 2299 46