

Worldwide Market Analysis &
Strategic Outlook 2001-2006

Wireless Internet Platforms

Markets, Technologies and Business
Strategies

In this 3rd Edition of the successful Wireless Internet report series, a detailed analysis of mobile internet platforms provides an insight into how key technological and market drivers will shape the future of the wireless landscape.

Key features include:

- Regional analysis of market trends, developments and commercial deployments
- In-depth examination of wireless internet platforms and enabling technologies such as VoiceXML, J2ME and Location Determining Systems
- Examination of key infrastructure solutions and requirements including gateways, intelligent networks and server architectures
- Strategic appraisal of new business models, revenue streams and how they impact on the wireless internet value chain
- Detailed case studies of key players
- Comprehensive market forecasts over a 5 year forecast period from 2001 to 2006, including:
 - Wireless internet subscribers by region and technology
 - Wireless internet enabled handsets by region
 - Mobile subscribers by region and technology
 - Mobile data users by application, region and technology
 - ARPU by network technology



Views on previous
ARC Group Strategic
reports:

'This report incorporates all major aspects of the future market of wireless internet it could very well be used as a single reference book on the subject.'

LN, Sonofon

'The best mobile internet report I have ever seen. Great clear concise work that helped me understand the market.'

DJ, Ericsson

'I found the report extremely helpful not only as a great way to learn about the industry, but also as ongoing reference material.'

BM, Signalsoft



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Background and Methodology

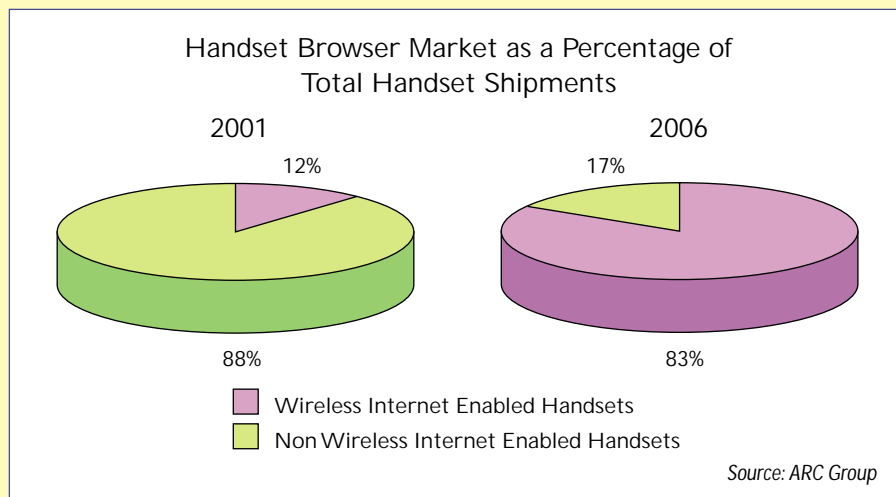
With the advent of the wireless internet the whole telecoms industry is facing a period of radical change as the transition from voice to data centric business models brings with it a host of new entrants and a dramatic restructuring of the value chain. Aside from the much vaunted success of i-mode in Japan however, the early years of wireless internet adoption have been marked by significant problems.

Network operators, content and application service providers, are working in earnest to deliver on the promise of the wireless internet. The past year has been witness to a great many casualties as financial pressures have taken their toll on the least experienced and the over exposed. Successful penetration of mobile internet services on a mass market basis is still some way off and lead players have been exercising caution, as they consider their approach and plan their next move. On a different note, the recent announcement by DoCoMo of their launch of 3G mobile systems and the growing availability of 2.5G handsets is a clear sign of the market's future potential.

Against this background, the increasing importance of data and multimedia revenue streams, as driven by the

NEW FEATURES

- Updated forecasts including handset browser shipments and number of wireless internet subscribers by technology and region
- Increased focus on end-to-end platform architectures and the impact of enabling technologies on the evolution of next generation services and business models
- Greater emphasis on short to mid-term implementation issues, challenges and opportunities



transition towards 2.5G and 3G open network architectures, is forcing network operators to expand their core competencies. This creates both opportunities and challenges for the major players in the wireless internet. In light of the increasing financial pressures upon mobile operators to recoup their 3G license investments and network build out costs, the creation of a robust business case is now even more essential than ever and has led to partnering becoming a key strategy for survival.

Thus with competition moving towards the provisioning of content and operators looking to leverage upon their ability to provide the best transport networks so as to attract the widest possible array of compelling services, the power dynamics and competitive positioning within the mobile internet value chain are in a state of flux. Likewise the trend towards open APIs, SDKs and open architectures over 3G networks means that much of the intelligence is now moving to the edge of the network. This then is the new battleground for next generation wireless services as operators look to partnerships with middleware vendors to provide the most robust platforms for the provision of exciting new wireless internet services.

ARC's third edition of the Wireless Internet report addresses the core technical and strategic factors that

continue to set challenges for the industry, and charts the changing course of the wireless internet.

Key development issues addressed include:

- The market conditions and overview
- The role of enabling technologies
- Advances in wireless internet platforms
- Changing business economics, business logic and strategies
- Update of key market forecasts

The Author

Roberto Njeru is a market and technology Analyst. His role at ARC Group involves researching developments within the wireless internet area and conducting various consultancy projects. Roberto has a background in Industrial and Manufacturing science. He is trained in technology planning and implementation and has participated in several academic projects dealing in topics ranging from Enterprise and Knowledge Based Systems to Integrated Product Development and e-Business.

Roberto holds a Masters degree from Cranfield and an honours degree in Mechanical Engineering, London.

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1. Executive Summary

2. Market Overview

This section examines the overall breadth and depth of the Wireless Internet market, the trends and patterns which are defining it, the models which can be applied to understand its development and its regional size and growth characteristics worldwide.

- Background
 - Technology
 - Market
- Realisation of the Wireless Internet Value Proposition
 - Scope of the Wireless Internet
 - Key Wireless Internet Market Drivers
 - Key Trends
 - Wireless Internet Market Dynamics
 - Market Barriers and Challenges
 - Regional Breakdowns
 - Market Penetration
 - Business and Consumer Market Segments

3. Enabling Technologies

Assessing the key drivers of the mobile internet from an infrastructure, device and service perspective, this chapter addresses the key issues surrounding enabling technologies from network roadmaps through to handset evolution and roll-outs.

- GPRS for the Wireless Internet
- Emergence of Next Generation WAP
- Alternatives for Wireless Internet: i-Mode
- Handset Technology: Key Device Components
- Rich and Interactive Content: XHTML & Java
- Personalisation: Location, User profiling and Security
- Charging for Services: Billing Infrastructure

4. Wireless Internet Platforms

Given the critical role of service platforms in the provisioning of next generation applications and content, this section focuses on hardware and software developments in the field of wireless internet platforms. Case studies of leading players offer an insight into current market innovations whilst an analysis of network technologies and the move towards open architectures provides an insight into

how wireless internet platforms can be plotted against the migration to 3G technologies and services.

- Core Technologies & Services
 - Networks and Platforms: Service Elements
 - Caching; Switching; Multicasting; Content Transformation
 - Network and Service Platform Technologies
 - Middleware; Intelligent Software Agents; Intelligent Networks (active networks, JAIN, CAMEL); Gateways and Proxy Servers
 - WI Platform Functions, Capabilities and Considerations
 - Messaging; Internet Connectivity, Device Management and Download Capability; Interoperability; Application Development; Service Bundling; Security; Micro-Portal Provisioning; Transaction Management; Charging and Billing
- Vendor Solutions & Platforms
 - Wapit WAP & SMS Gateway platform: the Kannel open source architecture
 - Software Platforms (BREW)
 - Gateway & Infrastructure Platforms
 - Aggregation Platforms
 - Location Based Service Platforms
 - Voice Portal Platforms
 - M-services Programme

5. Competitive Strategies and Effective Business Models

New value added services offer great opportunities for new revenues, but also present challenges to the major players in the wireless internet: building a robust business case is now even more essential than ever, and partnering becomes a key strategic issue. This chapter looks at three main topics:

- New Business Models
 - New revenue streams
 - Role of advertising/sponsorship
 - Billing for value added services
- Emerging Market Trends
 - Implications of 3G for today's players
 - Regional differences (Europe/N America/Asia Pacific)
 - New media (interactive TV, online/mobile media)
- Strategic Issues
 - Partnering/alliances
 - Branding of services
 - The new value chain

6. Market Forecasts

Comprehensive forecasts of the mobile internet sector from devices through to subscribers are plotted against forecast demand in specific application segments. For a complete picture of how the mobile internet market is evolving, detailed forecasts of underlying trends in the fixed internet are provided whilst forecasts of the overall mobile market in terms of handsets and subscribers provide an essential reference point for wireless internet developments over the forecast period of 2001-2006.

- Wireless Internet
 - WI users by technology
 - WI users by region
 - Applications
 - Fixed and Mobile Internet Browsing Users Worldwide 2000-2005
 - Mobile Data Users by Application, 2001-2006
 - Applications Sorted by Popularity (Number of Users), 2001, 2003, 2006
 - Mobile Applications Users by Region, 2001
 - Mobile Applications Users by Region, 2006
 - Mobile Applications Revenues, 2001-2006
 - Mobile Data
 - Mobile data users by region
 - Percentage of subscribers by network and technology
 - ARPU
 - By Network technology
 - Mobile Subscribers
 - Subscribers by region
 - Network technology
 - Internet
 - Fixed internet users
 - Fixed internet penetration
 - Handsets
 - Total Handsets by region and technology
 - Wireless Handset Browsers by Region and Technology
- ## 7. Conclusions and Future Outlook
- Building on a summary of key findings, market trends and strategic analysis this section offers recommendations to players along the value chain in terms of both key commercial and technological issues.

