Handheld Wireless Technology

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Main points
- Wireless market trends
- Desktop vs. Handhelds
- Handheld technology limitations
- US markets vs. International market
- Future of Wireless
- Conclusion
Wireless Market Trends

Figure 1. Forecast of US subscriber growth (Source: Yankee Group)

Wireless Market Trends

World Cellular Subscribers
December 2003

Nearly 1.4 Billion!

Source: EMC World Cellular Database, February 19, 2004
Wireless Market Trends

- 2002: US market penetration of wireless was estimated to be at 45%
- 2003: market penetration was estimated to be at 53.2%
- By 2009 market saturation is predicted to reach 80.1%
- Finland and Japan: rates of penetrations are over 80%
- Other countries are reaching a point of saturation while the US is still predicted to incur substantial growth in the near future.

Desktops vs. Handhelds

- Users goals: lookup information & manipulate information
- Desktop users: open-ended browsing
- Wireless web surfers: task-specific goals
Desktops vs. Handhelds

- Handheld limitations:
  - Screen size
  - Processing speed
  - Input/output speed
  -Scrolling capabilities

“Small-screen size reduces user effectiveness by up to 50%” [AL00].
- Handhelds: 160 x 60
- Desktop: 640 x 480
- Bluetooth: allows for communication between desktop and handhelds
Wireless limitations

- Human factors:
  - Short term memory allocation
- Scrolling factor
  - Only 10% of users will bother to scroll beyond the main screen of a site [AL00].
- Graphical “landmarks”

Wireless limitations

- Security
  - Wireless Local Area Networks (WLANs)
  - Bluetooth specifications
  - Handheld device security
  - Same threats at wired networks but more vulnerable to penetration.
- Battery life
US markets vs. International market

- Japanese market
  - check email
  - link to their home PC
  - download music
  - read newspapers
  - novels during commute
  - watch TV
  - get directions with live navigation GPS
  - record video
  - transmit video
  - scan bar-coded information
  - get e-coupons for discounts on local merchants
  - pay bills
  - play games

US markets vs. International market

- Kyocera & Opera Sofware
  - AH-K3001V, launched May 2004
  - Complete Internet Freedom
  - Small-Screen Rendering (SSR), reformats web pages to fit on small screens.
  - Supports cHTML & XHTML
US markets vs. International market
US markets vs. International market

- US: Multiple standards
  - Analog, TDMA, CDMA, GMS 1900
- Japan: single standard that is called I-mode

Future of Wireless

- Serverless data transmission (P2P)
  - Java-enabled device
  - Network connection
  - No additional infrastructure
  - Redirect processes and downloads, offloading
  - Reduces transmission times
Conclusion

- Screen size
- Battery life
- Security
- Interoperability
- Network improvements