

Personal Navigation Markets in Europe

**Pre-Study
April 2002**

1. Statistics and Analysis

- The European perspective: the focus of location-based services in Europe is commercial
- Which markets will generate the most location-based traffic?
- A-GPS sales - when will they begin and will mobile operators adopt the technology?

Statistics and Analysis: Conclusions

- The big markets in 2007 will be:
 - Germany, the UK, France, Italy, and Spain
- Smaller markets showing a high level of development:
 - Switzerland, and Austria
 - Switzerland has offered LBS services since December 1999
- A-GPS sales - beginning in 2004 and doubling by 2007 to 6.3m handsets

2. Mobile Operators

- Mobile operators in Western and Eastern Europe analysed
- LBS offering of each assessed: names and types of services
- How sophisticated are the LBS offerings of each operator
 - i.e. How many different service categories do they offer?

Mobile Operators: 9 LBS Categories

- Local Information
- Navigation
- Mobile Communities
- Gaming
- Commerce
- Security
- Resource management
- Emergency services
- Local billing

Mobile Operators: Levels of Development

- Covering 3 LBS categories:
 - Deutsche Telekom, E-Plus, Radiolinja, Swisscom, Telia, and Vodaphone
- Covering 4 LBS categories
 - Orange:
 - Local information, Navigation, Gaming and Emergency Services
- By the end of 2002, about 40 mobile operators will be offering LBS

3. Content and Service Providers

- Content is classified in the following way:
 - Mobile Communities
 - City Guides
 - Directories
 - Games
 - Travel
 - Map Data

Content and Service Providers: Conclusions

- LBS services can be differentiated with content, but is it really “king”?
- Up-to-date content does not necessarily make a winning application
- Content-free applications like “friend finder” ones may prove to be killer applications

4. GPS Receivers, Add-ons for GSM Phones and PDAs

- Is GPS technology about to become widespread and commonplace?
- What companies manufacture GPS receivers?
- What GPS packages are available for the full variety of devices?
 - GPS receivers, mobile phones with GPS functionality, and PDA/GPS combinations

GPS Receivers etc:

Conclusions

- Widespread adoption of GPS imminent
 - For mobile phones, PDAs, even watches
- Interesting developments
 - Garmin NavTalk II (Q2)
 - SiRF and Motorola: iDEN GPS phones
 - Sony Ericsson: T206 (in emergencies)
 - Nokia Communicator with GPS (Q2)
- Operators - should they skip E-OTD?

5. Location Technology Developers

- What is the evolutionary path for positioning technology?
 - Cell-ID > E-OTD > GPS / A-GPS?
- GPS handset-based solutions demanding serious attention from operators
- What is the forecast for middleware and application platforms?

Location Technology

Developers: Conclusions

- Implementing GPS technology straight after the Cell-ID stage may be the best option for operators
 - This would make E-OTD technology redundant, but:
 - Wait-and-see policy for many operators
- Bright future for middleware and applications platforms

6. Vehicle Navigation

- A diverse range of technologies is on the market:
 - System integrators
 - After-market installations
 - Navigation with GSM phones
 - PDAs with GPS add-ons
- What technologies are likely to be successful for navigation purposes and why?

Vehicle Navigation: Conclusions

- Car buyers are unwilling to pay for expensive hardware and services
- After-market installations combining navigation and in-car entertainment may be more successful
- Navigation with standard GSM phones is unlikely to be accurate enough
- PDAs with GPS add-ons are the clear winner

7. Fleet Management and Tracking

- In the B2B sector, how are fleet management applications doing?
- Location-based companies offer:
 - Applications (software)
 - Solutions (hardware and software)
- A look at the growing interest in tracking applications

Fleet Management and Tracking: Conclusions

- Fleet management applications are finding success
 - Trucking organisations have the infrastructure to support them
- Interest in tracking applications is taking off in Europe - pets, people, and objects
 - Security is not just an American issue
 - Success will depend on marketing

8. Indoor Positioning

- A-GPS, E-OTD and TDOA methods fail to address:
 - accurate positioning indoors
 - 3-D positioning (e.g. in a multi-storey building)
- What technologies are being developed to provide 1-3 metre accuracy indoors?
- Which companies are involved?

Indoor Positioning: Conclusions

- Seven new technologies:
 - Bluetooth, Digital TV, Indoor GPS, Infra-red, RFID (radio frequency identification), Ultrasonic positioning and WLAN
- The newest technology is Digital TV positioning (US-based Rosum)
 - Can be applied in Europe too
- Too early to predict a winner

9. European Research Activities

- What projects are being implemented at the European level?
- 3 main areas:
 - Positioning infrastructure
 - Transport and Tourism
 - Info-mobility

European Research

Activities: Conclusions

- Two infrastructure projects warranting more attention:
 - CGALIES
 - Pan-European location-based 112 service
 - Final report (Jan 2002) not binding
 - GALILEO
 - Aims to provide every European with positioning data
 - 3 levels of service (degrees of accuracy)