

# Geospatial info-mobility service by real-time data-integration and generalisation



*Finnish Geodetic Institute, University of Hanover,  
Federal Agency for Cartography and Geodesy, National Survey and Cadastre- Denmark,  
National Land Survey of Sweden, National Land Survey of Finland*

# Market Analysis of Mobile Map Services

Pasi Pekkinen

Navinova Ltd.

[gimodig.fgi.fi](http://gimodig.fgi.fi)

[www.navinova.com](http://www.navinova.com)

# Navinova Ltd.



Navinova Ltd.

*...pinpoint the mobile future!*

Coordinator of  
Finnish R&D programme  
Personal Navigation  
NAVI 2000-2002  
[www.navi-ohjelma.fi](http://www.navi-ohjelma.fi)



Personal Navigation

# Mobile topographic data market

- Is there such a market?
- What are the preconditions?
- What is the current status?
- How to go forward?
- What to expect - and when?

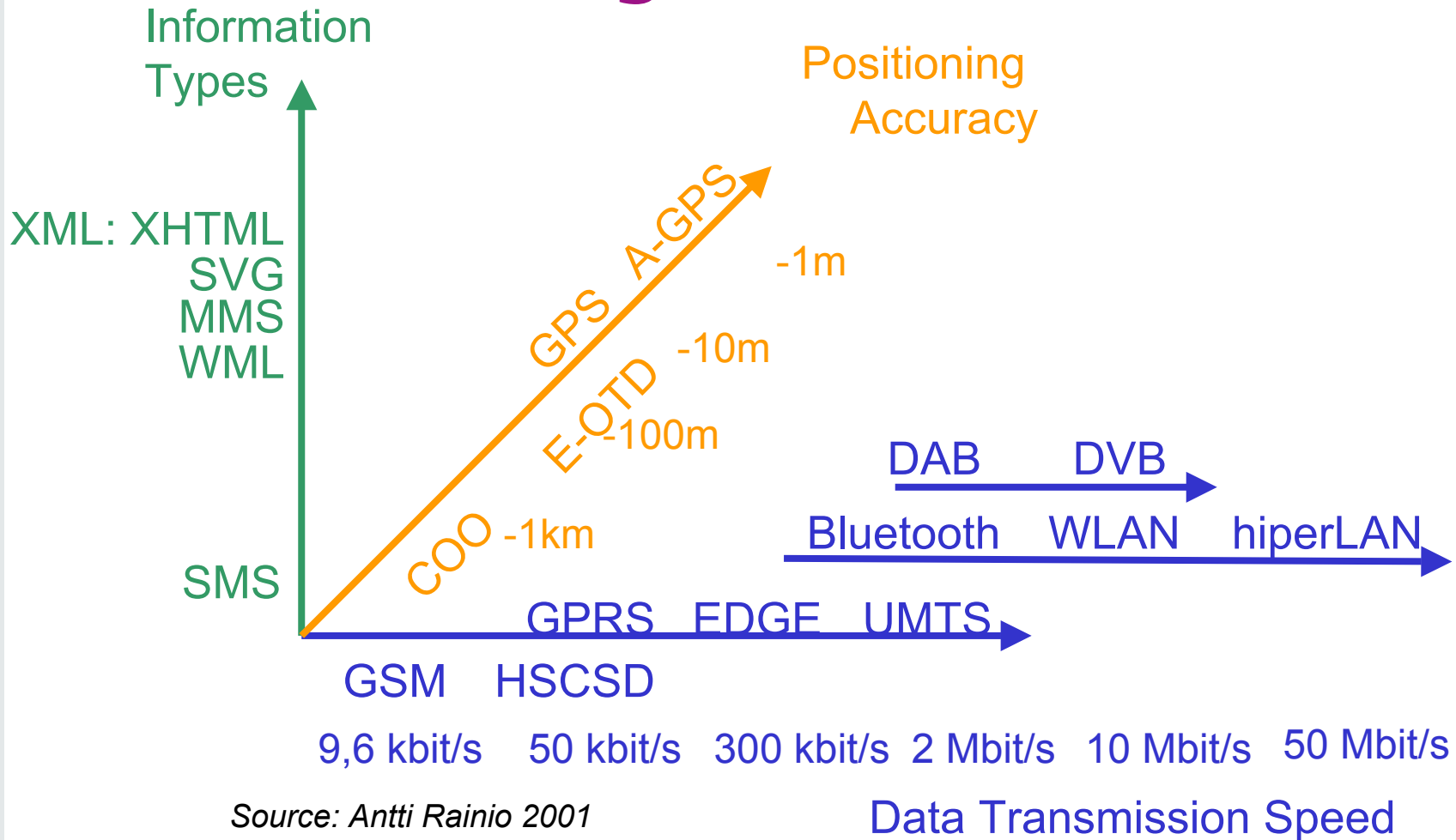
# Preconditions

- Technical requirements
  - Processing capabilities
  - Memory
  - Efficient delivery mechanisms
  - Suitable platforms i.e. end user terminals
- Business requirements
  - Working business models
  - Partnerships and working value networks
- ... and suitable content

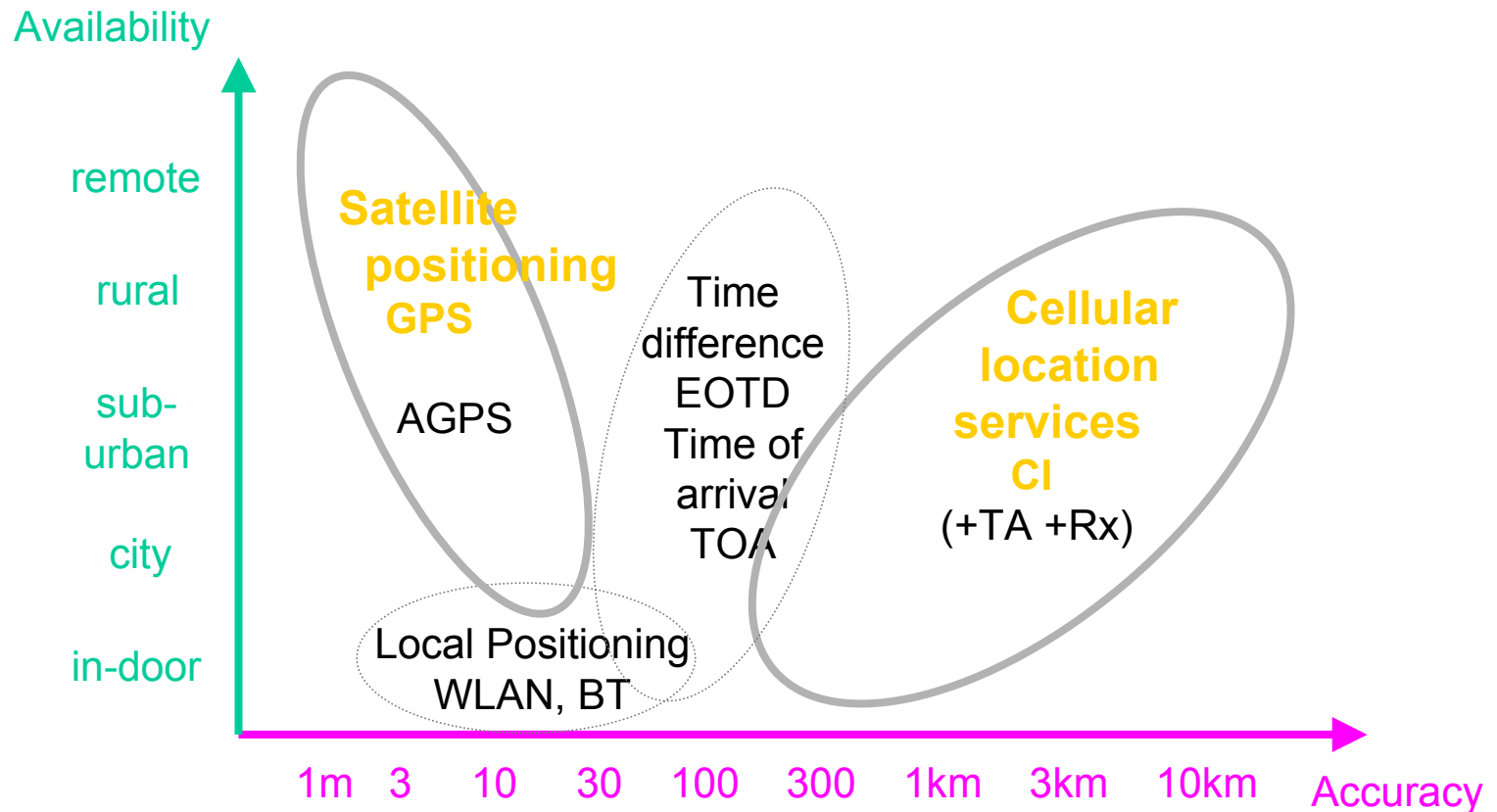
# Current status

- Infrastructure is nearly there
- Standardisation is under work
- Suitable terminals are being launched
- Partnerships are being formed
- Lessons have been learned

# Evolving dimensions



# Mobile location services



Derived from: Jari Syrjärinne, *Studies of Modern Techniques for Personal Positioning*

# PDA and GPS "snap on"

- Nexian HandyGPS Pro (Handspring Visor)
- EMTAC CRUX II / BTGPS (Bluetooth), CF GPS Card
- GeoDiscovery Geode (Handspring Visor)
- Magellan GPS Companion (Palm m500, Visor)
- Navman GPS (Palm III, V, VII, m500, m125)
- Navman GPS Expansion Sleeve (Compaq iPaq)
- Pharos Pocket GPS
- Pretec GPS



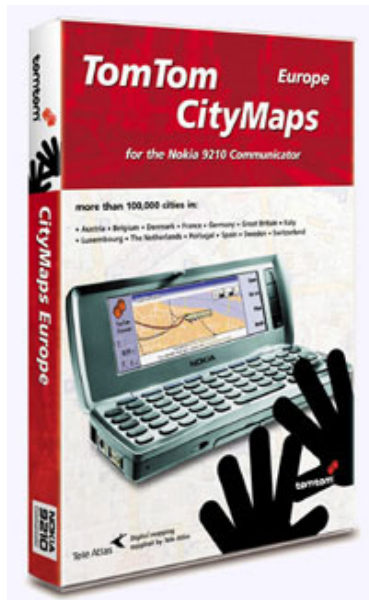
# GPS Phone

- **Benefon Track and Esc! (GSM)**
- **Garmin NavTalk GSM (GSM)**
- **Samsung SCH-N300, SPH-A400, SPH-N300... (CDMA)**
- **SonyEricsson T206 (CDMA)**
- **Motorola 820 (CDMA)**
- **Nokia 3585i (CDMA)**
- **KDDI GPS Keitai C3001H, C3002K, C5001T (Japan)**
- **KDDI GPS Keitai C3003P – with electronic compass**



# Nokia Communicator 9210

- Nokia LAM-1 GPS module (add-on)
- TomTom Citymaps
- Digia Navigator / Genimap Navigator
- Genimap AddressFinder&RouteFinder (wap)
- GISnet MapLT



**DIGIA**

**Digia Navigator**

**Genimap Navigator**



**AddressFinder  
RouteFinder**



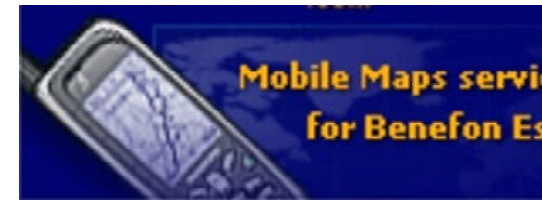
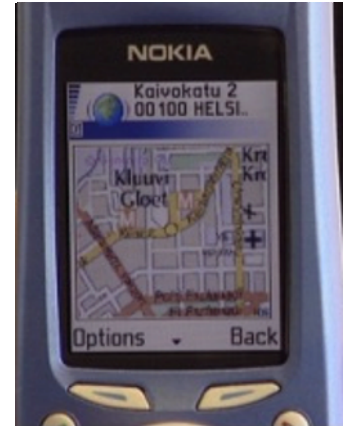
# Personal Navigation Functionality



Source: Antti Rainio 2001

# Mobile map services

- City map retrieval
  - Using address/name of place /poi or position
- Route retrieval
  - Start&end address
- Map download
  - Defined area and map type
- Ordering map data



# How to approach

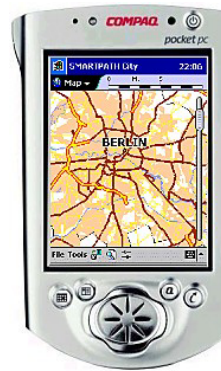
- Understand your business model
- Focus your service provision
- Apply common interfaces
- Find your partners

# Mobile map needs

- Pointing your own position
- Pointing others' positions
- Pointing objects
- Route visualization and display
- Activity planning
- Perceiving the environment
- Visualization of phenomena

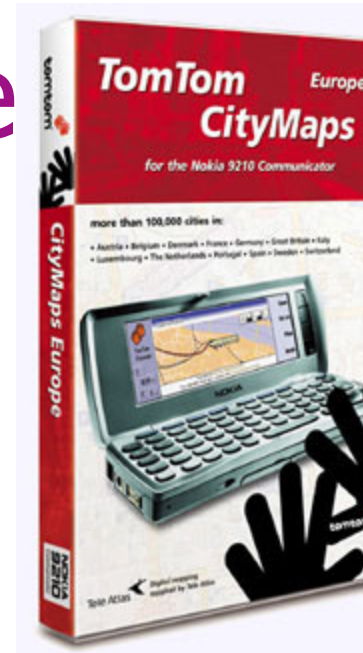
# Q1: Paper or mobile?

- Pros for paper
  - Ease of use
  - Credibility of "service"
- Pros for mobile
  - Instant wireless access
  - Support for positioning
  - Interaction possible
  - Animations possible



# Q2: Off-line or on-line

- Pros for off-line
  - On-line download expensive and time consuming
  - “Long” life span of maps
- Pros for on-line
  - Accessible anytime
  - Up-to-dateness?
  - Memory not reserved



# Q3: Raster or vector?

- Pros for raster
  - Easier handling for application
  - Graphical controllability
- Pros for vector
  - Zooming
  - Flexibility (content and presentation)
  - Routing calculations possible



# Black&White or Colours?

- Pros for B&W
  - Power consumption
  - Display prices
  - Lower demand for memory
- Pros for Colour maps
  - Expression power



# Summary - What to expect

- Majority of mobile topographic data service users remain professionals
- New niche markets in consumer segment
- Consumer uptake slow, but the market is approaching

# Navigator concept



Source: Antti Rainio 2001