



ISHTAR Project

Business Models & Socio-Legal Aspects of LBS
Joint ISHTAR/LIAISON Workshop
28-29 September, 2006 - Athens



Presentation Contents

- Socio-legal Aspects of LBS
- LBS Business Models
- LBS Forum

LBS Penetration Drivers

Income

- First approximation for average citizen's capacity to buy location-based services
- Indicator: Gross National Income (GNI)
- Categories (source: World Bank, 2004 World Development Indicators):
 - High Income Economies: $\text{GNI} \geq \$56,000$
 - Upper Middle Income Economies: $\$56,000 \leq \text{GNI} \leq \$37,000$
 - Lower Middle Income Economies: $\$3000 \leq \text{GNI} \leq \750
 - Lower Income Economies: $\text{GNI} \leq \$750$

LBS Penetration Drivers

- Human Development
 - GNI does not indicate goods, services or distribution of equitable income
 - Human Development Index (HMI)
 - 3 Basic Dimensions of Human Development (sources: United Nations development report, 2004)
 - Life Expectancy
 - Adult Literacy Rate
 - Standard of Living (measure by GDP)
 - Categories:
 - High Human Development
 - Medium Human Development
 - Low Human Development

LBS Penetration Drivers

- Technological Affinity
 - Technological Achievement Index (TAI) defined by UN Human Development Office
 - 4 Dimensions of Technological Capacity:
 - Creation of Technology
 - Diffusion of Recent Innovations
 - Diffusion of Old Innovations
 - Human Skills
 - Categories
 - Leaders
 - Potential Leaders
 - Dynamic Adopters
 - Marginalised Countries

LBS Penetration Drivers

Urbanisation

- Concentration of people in urban areas
- High density of population lowers cost of providing services
- World Population Prospect – actual and forecast urbanisation level of each country (Dept of Economic and Social Affairs, Population Division - UN Secretariat)

Ethical Issues

- Control** - Issues arise mainly in workplace
 - Personal data collected and/or stored should:
 - Not be processed to control behaviour or monitor work progress of individual workers
 - Be subject to workers' consent
 - Be used exclusively for the purpose of the service
 - Not be kept longer than is required of the service
 - Not be made available to third parties
 - Be protected from misuse
 - Continuous monitoring should be permitted if necessary for health, safety, security or protection of the worker



Ethical Issues

Trust

- Perceived reliability of the technology and service provider
- Reliance on the service in planned usage situations
- User confidence that he/she can keep the service under control and that personal data will not be misused

Privacy

- Privacy attributes should be defined by user
 - Codeword/password
 - Privacy Exception List – determines which services may have access to position information of subscriber's terminal
 - Service Type Privacy
 - Privacy Override Indicator (emergency services, lawful interception, etc.)

EU Legislations

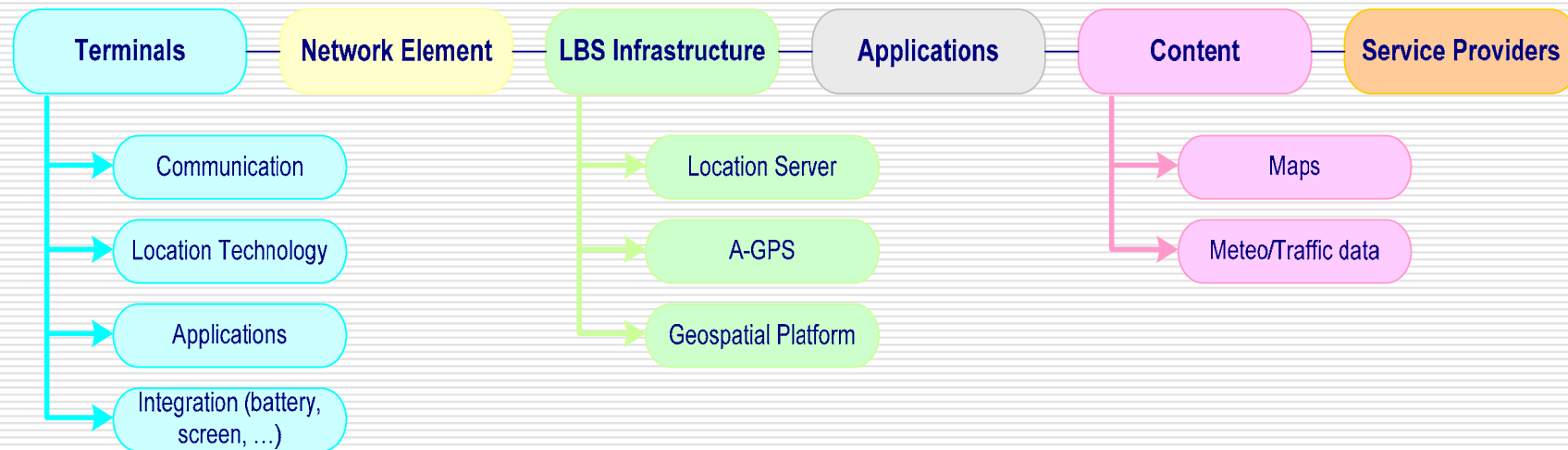
- ❑ Data Protection Directive 95/46/EC
- ❑ Data Protection in the Telecommunications Sector Directive 97/66/EC
- ❑ Processing of Personal Data and Protection of Privacy in Electronic Communications Directive 2002/55/EC
- ❑ Processing of personal data has to comply with legal rules resulting from the national transpositions of the EU-Directives



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LBS Added-Value Chain



Terminals

Features

- Communication Capabilities
- Location Technologies (Handset-based – includes GPS receiver)
- Applications
- Hardware (screen size, battery life, etc.)

Actors

- Handset Vendors/Manufacturers
- Technology Vendors

Network Element

Features

- Communication
- Location Technologies (Networks-based
 - Cell ID, triangulation, etc.)

Actors

- Mobile Network Operators



LBS Infrastructure

Features

- Location Server
- Geospatial Platform

Actors

- Location Platform Vendors
- Geospatial Platform Vendors



Content/Services

Features

GIS Content

- Maps

- Points of Interest

- Directory/Information services

- Shopping

Actors

- Content/Service Providers, Distributors, Aggregators

LBS Business Models

- Network Operator-Centric Model
 - Subscriber is in agreement with network operator to provide:
 - Telecommunication services
 - Value-added services (offered by any of the actors in the value-chain)
 - Network Operator responsible for:
 - Service & Content Aggregation
 - Collecting Charging Information
 - Providing a Single Bill

LBS Business Models

- Service/Content Provider-Centric Model
 - Service/Content Provider comes into agreement with network provider for delivery of content
 - Subscriber charged directly by service/content provider
 - Revenue sharing between network operator and services provider based on commercial agreements

LBS Business Models

- Service/Content Aggregator-Centric Model
 - Service/Content Aggregator is responsible for providing subscribers with services and access to content/services
 - Subscriber contracts with service/content aggregator and network provider
 - Service/Content Aggregator defines prices, collects charging information and charges subscriber for transport part as well
 - Revenue sharing between network operator and service/content aggregator based on commercial agreements

LBS Revenue-Sharing Streams



User Fees

Charging of subscribers for the content they access

- Per Usage
- Subscription

Shopping – products within vicinity of subscriber sold over the mobile Internet (e.g. restaurants, cinema tickets, etc.)

LBS Revenue-Sharing Streams



- **Advertising** – sending of adds to subscribers which are sensitive to their location, current weather condition, time of day, etc.
Advertisers send fee to services providers for adding advertising info to content sent to subscribers in the form of:
 - Traffic-based fees
 - Flat fees
- **Marketing** – sending of notification to subscribers for items of interest when in vicinity of such
- **Revenue Sharing** – distribution of revenues between the various actors

Lack of LBS take-off in Europe



- Fear of being tracked
- High price of services
- Not much interest in existing services (except for navigation)
- Lack of cooperation between companies in LBS technologies
- Large LBS value chain – making cooperation amongst players complicated
- Lack of handover between out-door and in-door positioning technologies

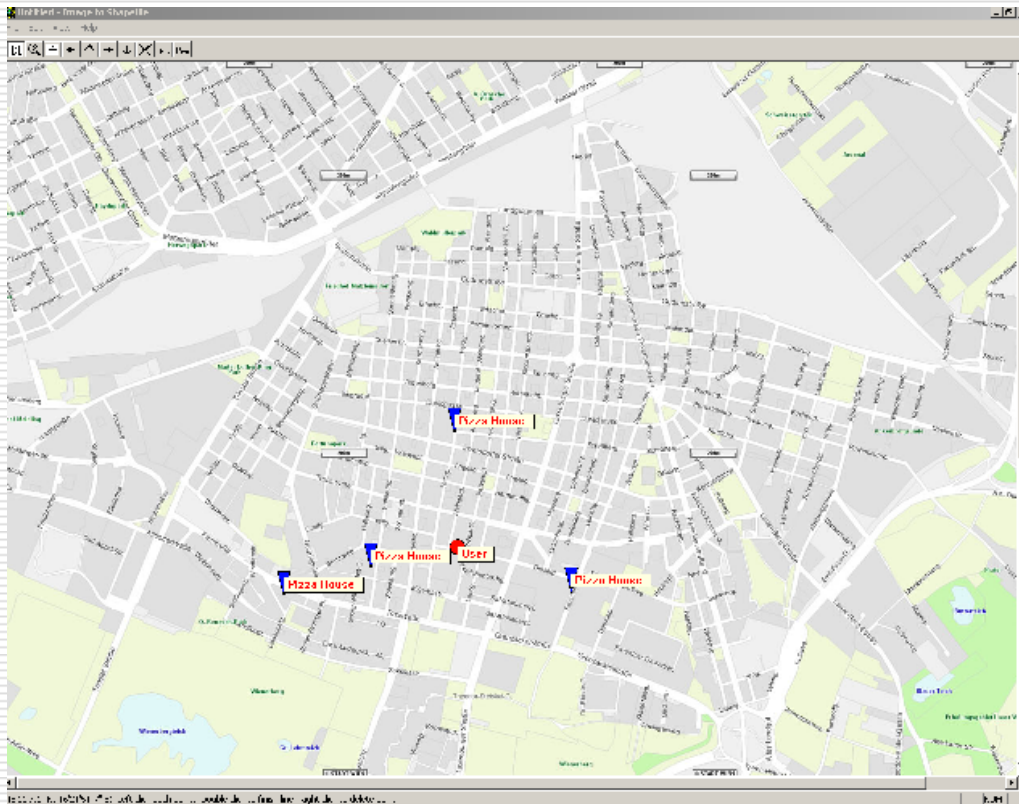
(source: "Positioning Location Based Services for Take-Off" article)

Integration/Success of LBS



- ❑ Existing IN Services are profitable for Operators
- ❑ Need to integrate LBS with these for successful adoption of LBS
- ❑ Example: IST Project Mobile-IN
 - Harmonised Services over Heterogeneous Mobile, IN and WLAN Infrastructures

Example Application - My favourite Pizza





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LBS Forum

- ❑ Users' Group to enable people from all aspects of LBS to come together and discuss (among other things) LBS!
- ❑ Currently, there is a need for LBS awareness actions
- ❑ Forum: place where these actions can be performed

LBS Forum - Purpose

- Disseminate LBS-related information and create awareness:
 - Demonstrations of practical results of LBS
 - Presentations
 - Workshops (bi-annually)
 - Spreading new ideas

Roles

- Board: consisting of representatives from each player in the value chain
- Members of the LBS Forum nurture from:
 - Regularly updated information on new developments in the LBS Arena
 - Special Access to Demonstrations
 - Close networking between LBS Key Players



QUESTIONS?