Context as content
The MobiLife project perspective

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MobiLife is an R&D IST Integrated Project that aims at developing and validating a new generation of mobile applications and services for everyday users. The project emphasizes development of **multi-modal interfaces**, **context-awareness** functionalities with **privacy and trust support** for the emerging 3G/WLAN landscape and beyond. MobiLife follows a **UCD-User Centric Design** approach.

People shift between different roles in participating different groups, using multiple devices with different modalities over different networks.

**Communication Spheres**
- **“Self-awareness”**
  - Local (proximity) environment
  - Automatic configuration of devices and services
  - Multimodal interfaces

- **“Group-awareness”**
  - Context and presence support
  - Novel privacy and trust models

- **“World-awareness”**
  - Automatic support for seamless access to and delivery of services across different domains

**BAN – Body Area Network**
- Bluetooth, RFID, sensors, …

**PAN – Personal Area Network**
- Bluetooth, WLAN, …

**WAN – Wide Area Network**
- 3G, B3G, WLAN, *DSL, …
Call 2/Strategic Objective “Applications and services for the mobile user and worker”

Coordinator: Nokia | Start: 1.9.2004
SMEs: 5 | End: 31.12.2006
Operators: 3 | Volume: 1457 pm
Manufacturers: 8 | Countries: 9
Academia: 6 | Partners: 22

Finland
Nokia (NRC-Nokia Research Center)
Suunto, Elisa, Ericsson,
University of Helsinki
Helsinki University of Technology

Sweden
Ericsson

Germany
Fraunhofer FOKUS
University of Kassel
NTT DoCoMo Eurolabs

Netherlands
Telematica

United Kingdom
Motorola
University of Surrey
NEC Europe (site: Germany)

France
Alcatel, Motorola

Italy
NEOS
Hewlett-Packard
Siemens
Telecom Italia

Czech Repub.
BLStream

Poland
UNIS

Milan-based SME
Focus on Application development
What is Context?
cf. MobiLife Friday Scenario

- Definition [Dey and Abowd]: “Any information that can be used to characterize the situation of an entity. An entity is a person, place, or object that is considered relevant to the interaction between a user and an application, including the user and applications themselves.”
People context as content

• Your place and situation
  – “What are you doing?”
  – “Anything good here?”

• Your physical conditions
  – “How do you feel?”

• Your social relations
  – “Would you like to join us?”
“What are you doing?”

The Context Watcher

- Make it easy for an end-user to automatically record, store, and use context information
- Location
- Weather
- Activities and meetings
- Visual data
  - pictures with contextual data
- Body data
  - heart and foot sensors
- Mood, availability, safety
  - user input
“Anything good here?”
The Family Map

- Help families in dealing with practical problems while going around in a city
  - “Enhanced” 😊 baby carriage and personal mobile devices
  - Multimodal alerts, context-aware POI-Point of Interests alerts, commercial and user content
- Better places to feed a baby or change diapers
- Find routes to walk easily with the carriage
“How do you feel?”
The HeartPod

- Health and movement related information for context reasoning and sharing
- Sensor data via Bluetooth to standard mobile phones
  - Heartbeat frequency
  - ECG (electrocardiogram)
  - Acceleration, as indicator of physical activity and body position
“Would you like to join us?”

The Time Gems

- **Group activity planning within the users’ occasional and small free-time slots**
  - Activities that can be performed jointly within the available groups
  - Group management functions
    - Including ad-hoc groups
  - Visualization of privacy and trust policies
Yes, but... Where is the money?
MobiLife analysis and experts interviews

- Different business models are likely to co-exist – not a surprise if we look at the Internet
  - Subsidized products/services
  - Contextual/interactive marketing and advertising
  - Free technology-driven offers “built to sell”
  - Premium access (content, applications, services)
  - ... 

- New roles have to be covered, by new or existing actors (e.g. context providers, personalization providers, trust providers, etc.)
  - Huge technology and operational challenges – possibly a unique business-to-business chance for telecom operators as the ones in the best position to do the job
  - Value networks have to be reshaped accordingly
Modelling (new) value networks
An example from MobiLife
And what about regulators? Some new, open issues

• **Content adaptation** might violate **copyright**
  – Permission from the copyright owner could be needed to adapt content (provided that it is does not affect only data)

• **Group**-based applications challenges **trust and liability** concepts and norms
  – The vague legal nature of ad hoc communities makes difficult to define who is liable in a certain group and how trust is managed between different members of a group

• **Privacy is no more about information only**
  – Physical, decisional, dispositional and proprietary privacy are more and more relevant as well

• **Anonymization** challenges **identity management** practices (in the mobile domain)
  – Data protection law imposes strict restrictions on the exchanges of personal data; as it happened on the Internet, anonymity and pseudonimity might be essential to these applications ideas
A change of paradigm?

“To think about the most successful future services, we really need to move from a BC matrix to an ABCDEF matrix (Animal, Business, Consumer, Devices, Entities, Flora)”

(Professor interviewed in MobiLife)
Thank you very much for your attention

News and public documents on the MobiLife project website
http://www.ist-mobilife.org

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