

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

BAN – Body Area Network

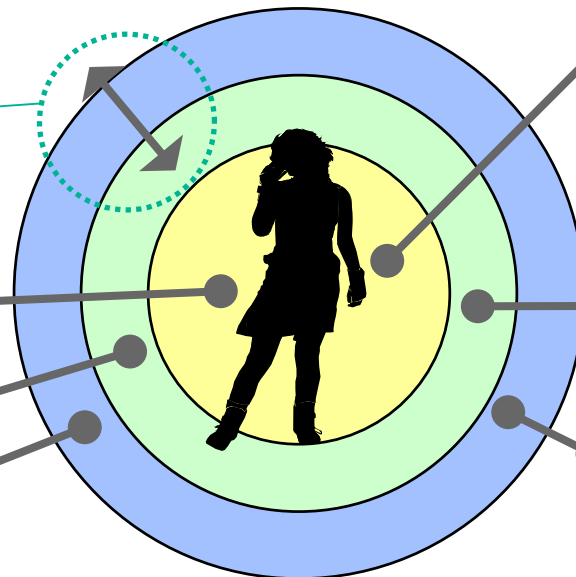
- Bluetooth, RFID, sensors, ...

PAN – Personal Area Network

- Bluetooth, WLAN, ...

WAN – Wide Area Network

- 3G, B3G, WLAN, *DSL, ...



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

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

Poland

BLStream

Czech Repub.

UNIS

Italy

NEOS

Hewlett-Packard
Siemens
Telecom Italia

Milan-based SME
Focus on
Application
development

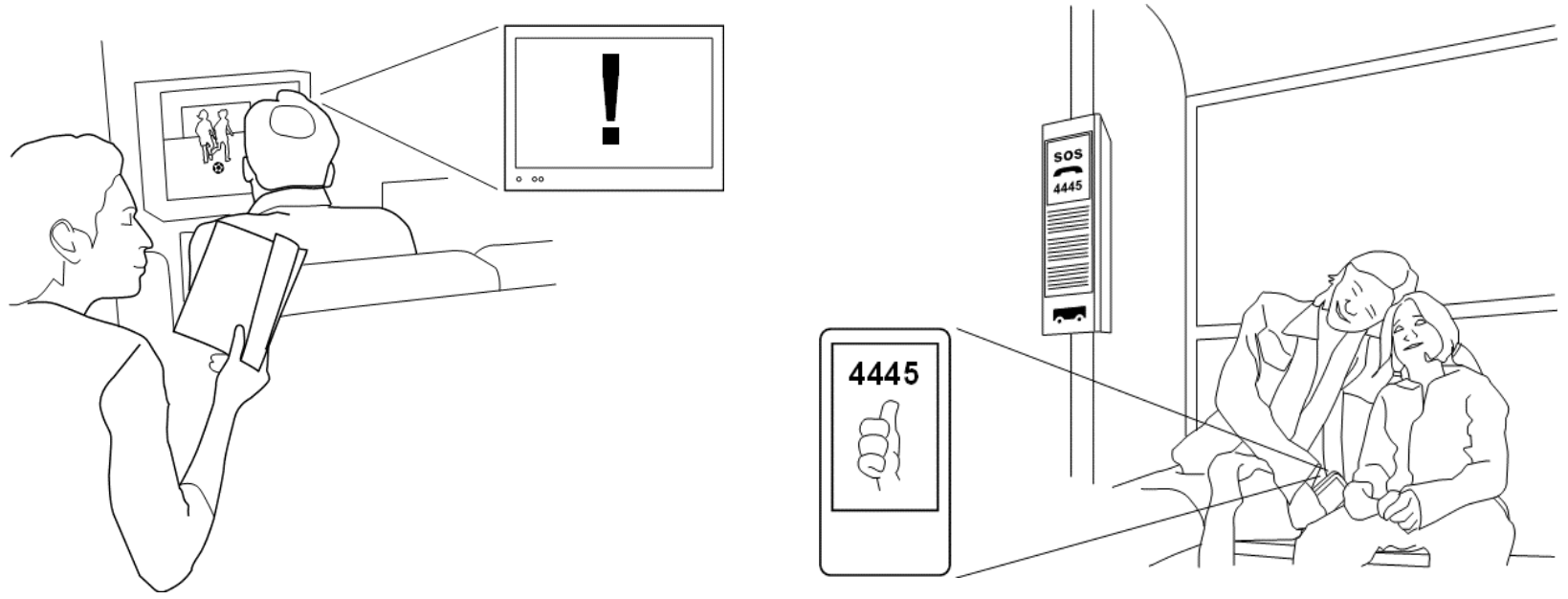
France

Alcatel, Motorola

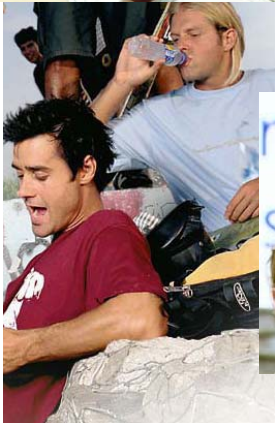
United Kingdom

Motorola
University of Surrey
NEC Europe (site: Germany)

- 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

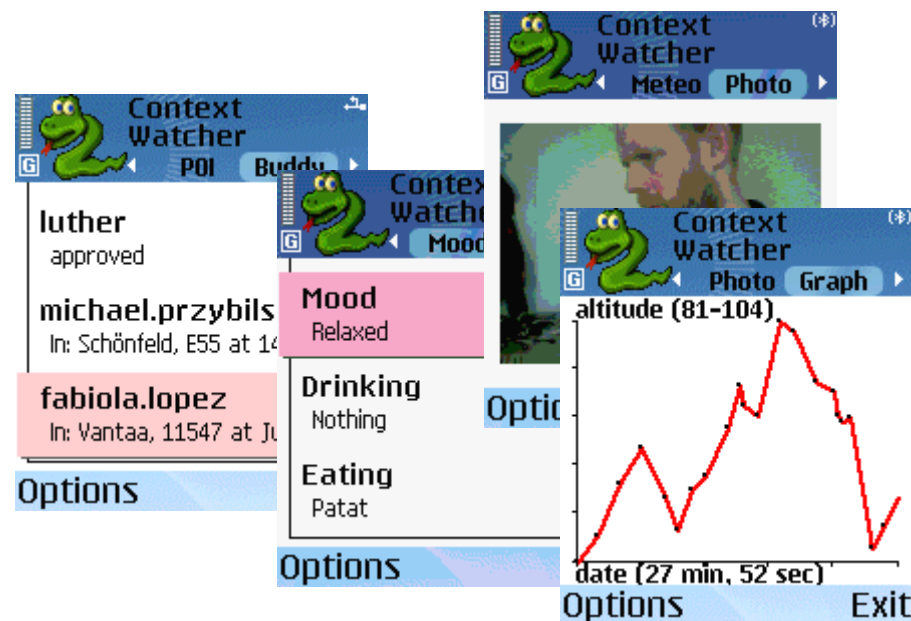


- Your place and situation
 - “*What are you doing?*”
 - “*Anything good here?*”
- Your physical conditions
 - “*How do you feel?*”
- Your social relations
 - “*Would you like to join us?*”

“What are you doing?”

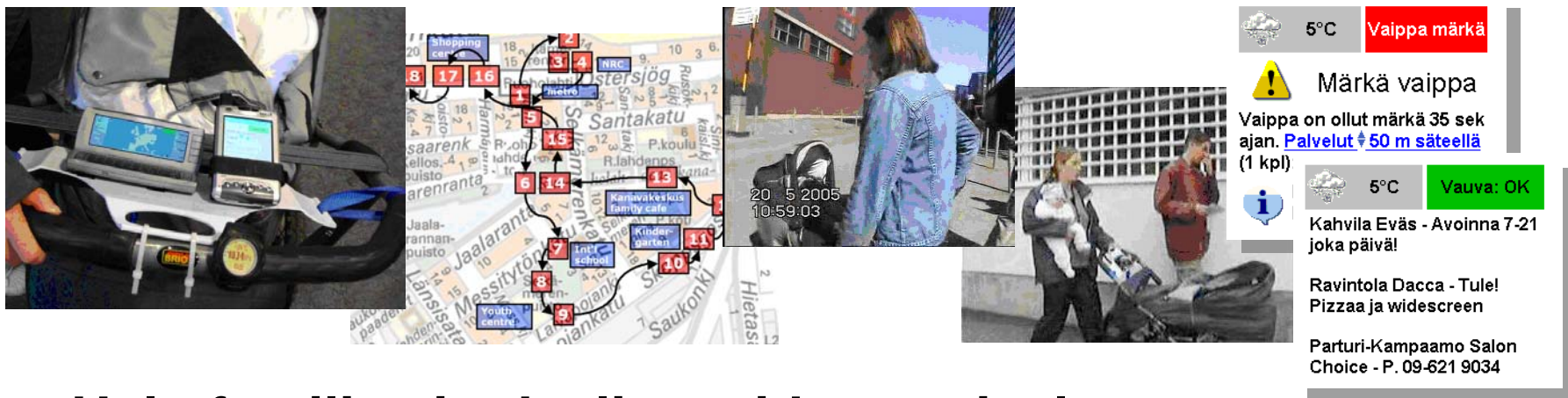
The Context Watcher

- **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

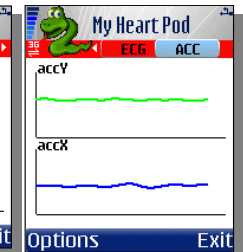
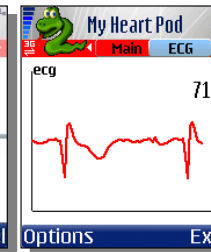
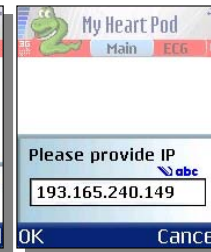
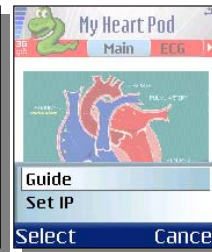
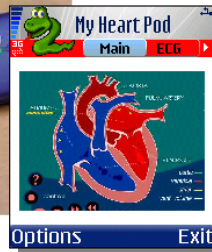


- **Help families in dealing with practical problems while going around in a city**
 - “Enhanced” 😊 baby carriage and personal mobile devices
 - Multimodal alerts, context-aware POI-Point of Interests alerts, commercial and user content
- Better places to feed a baby or change diapers
- Find routes to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



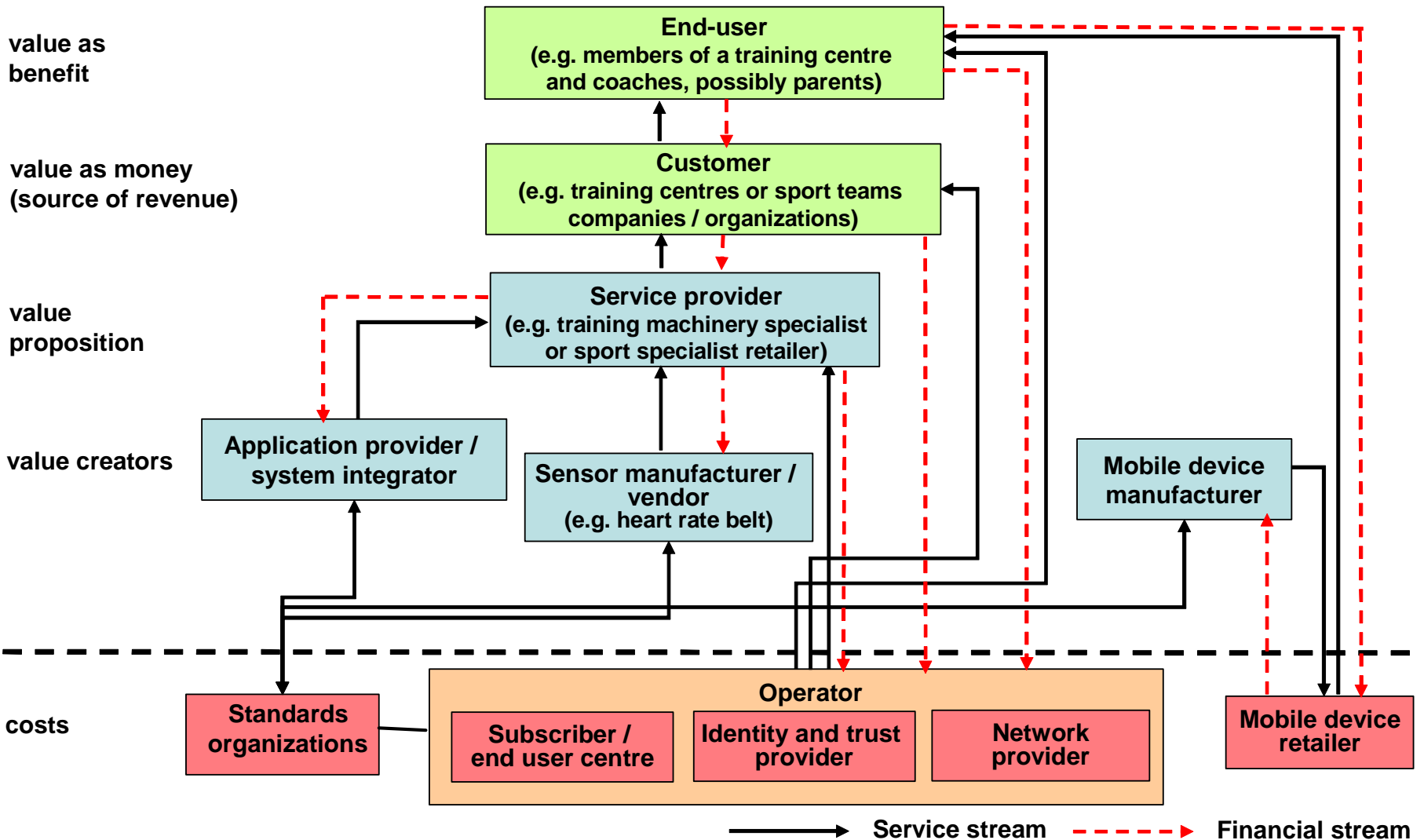
Yes, but... Where is the money?

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 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 pseudonymity 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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