Bridging the standardization gap

Optimizing the interface to standardization in a research project‘s work plan

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COPRAS Conference, Brussels January 17th, 2007

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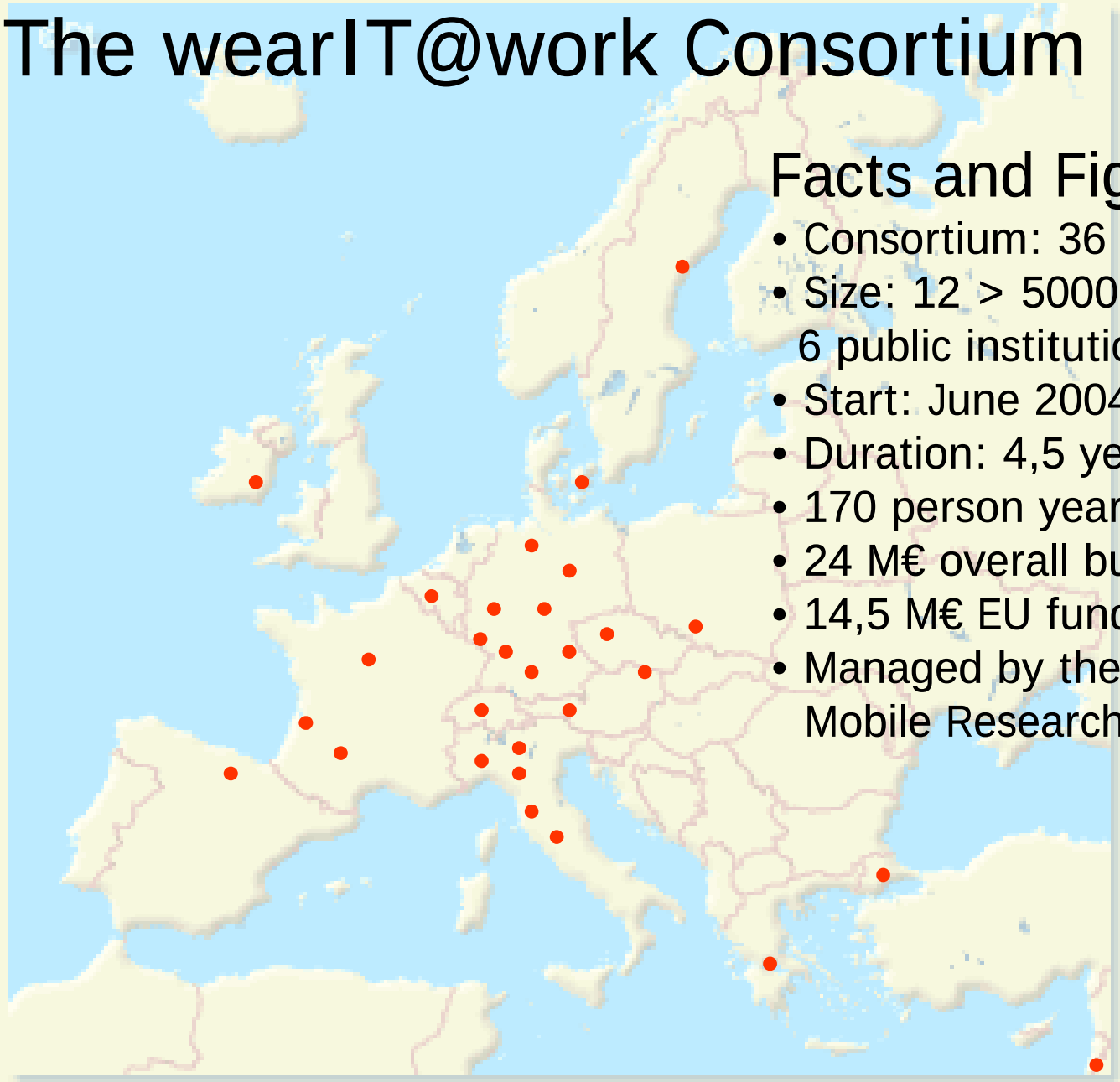
The wearIT@work Consortium

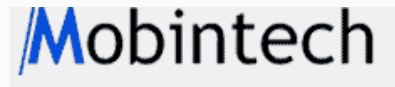


Facts and Figures

- Consortium: 36 partners/ 15 countries
- Size: 12 > 5000, 3 < 5000, 15 SME, 6 public institutions
- Start: June 2004
- Duration: 4,5 years
- 170 person years of total effort
- 24 M€ overall budget
- 14,5 M€ EU funding
- Managed by the TZI within the Mobile Research Center Bremen

The wearIT@work Consortium

(1)



IONIAN TECHNOLOGIES Ltd.

The wearIT@work Application Pilot Scenarios

- **Emergency Response (Paris Fire Brigade)**
  - Increase the safety of the firefighters, effective coordination and communication, augmentation of human senses

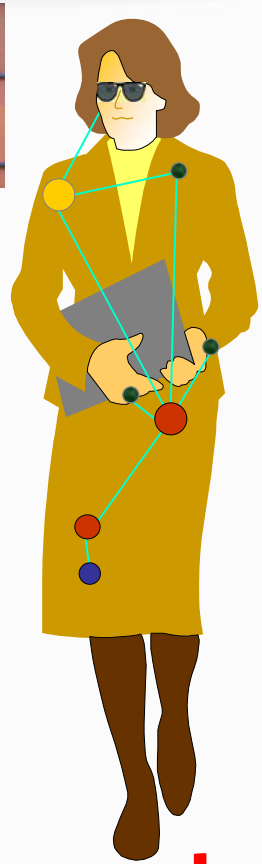
- **Production (Skoda)**
  - Permanent access to process and production information for the plant management, the service staff, and the assembly worker
  - Aggregate information; Integration of different and heterogeneous information sources

- **Maintenance (EADS)**
  - Inspection, Service and Repair
  - Smart Wearable Manuals – context sensitive, adaptive
  - Authoring, gather information during maintenance

- **Healthcare (Gespag)**
  - Coordinate the medical staff on a ward rounds
  - Access the controls of a medical device during examination
  - Present process related data to the physician

Open Wearable Computing Platform System Architecture

(1)



carry on, miniaturized appliances
-mobile phone, PDA,...

attachable peripherals
- display, keypad, GPS

embedded microsystems
-sensors,
-signal processing,
-power generation,...

wireless BAN

textile electronics interface

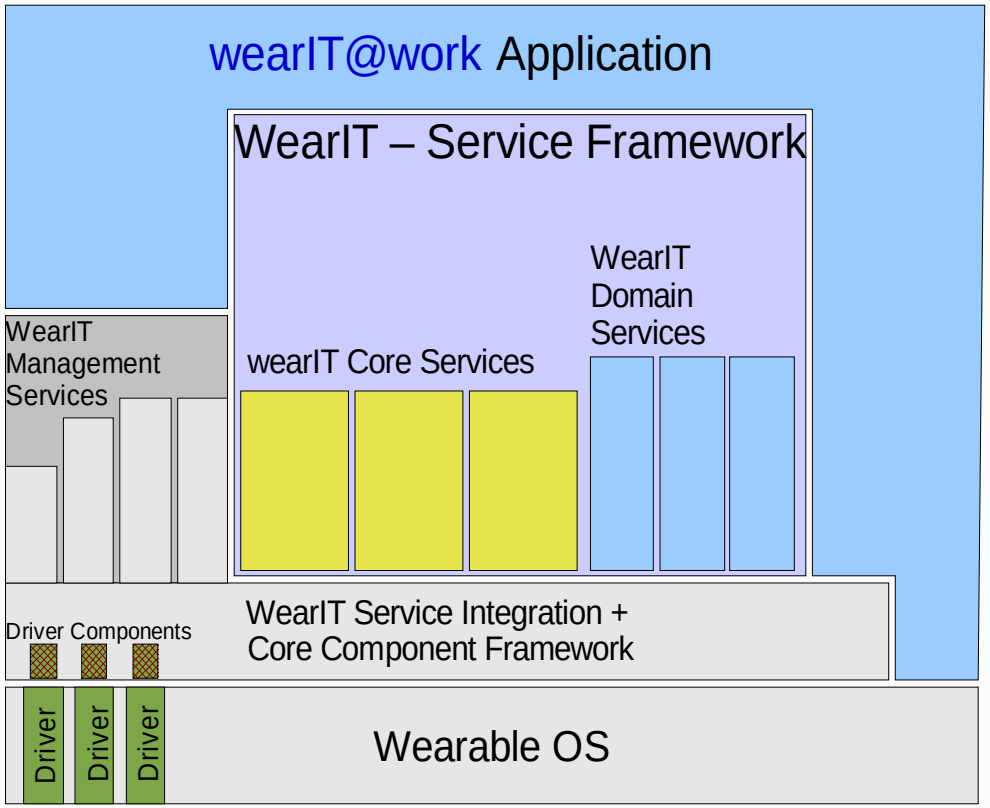
functional textiles
- data and power lines, interface to electronics
- sensing
- power generation
- electrodes

functioning as a single dynamically reconfigurable system

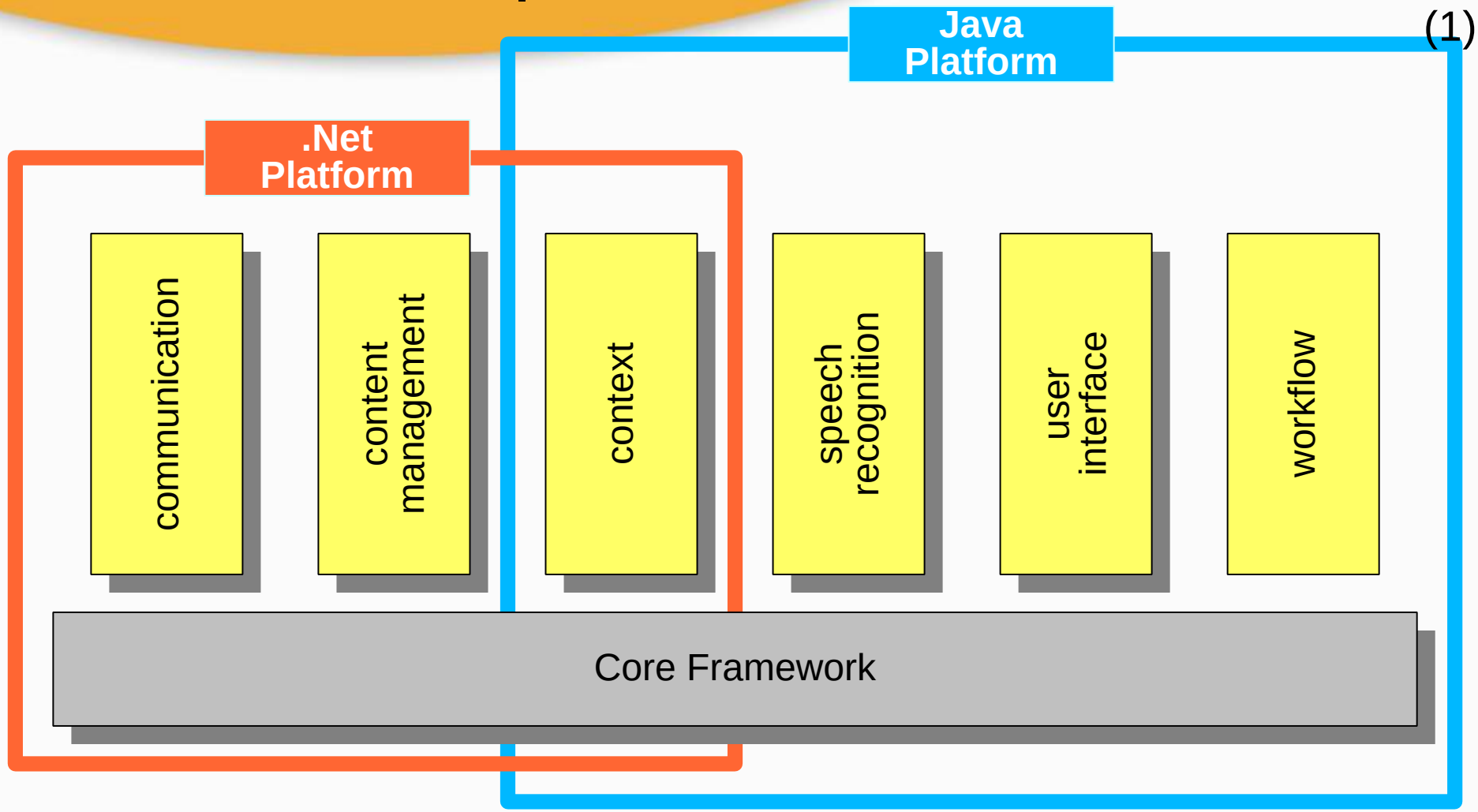
Wearable Systems for Health Care Applications: Paul Lukowicz, Tünde Kirstein, Gerhard Tröster, Methods Inf Med 3/2004

Open Wearable Computing Framework

A software infrastructure that supports the construction of domain specific applications for wearable devices



Framework components



From an Integrated Project to Standardization

(2)

- The integrated European project **wearIT@work** created the Open Wearable Computing Group (OWCG)
  - E.g. big players are already involved
  - Annual conferences like
    - Mobile Europe www.mobile-europe.org
    - International Forum on Applied Wearable Computing www.ifawc.org
- OWCG will be:
  - A paradigm centered standardization and awareness body
  - Interfacing with other initiatives: e.g. IEEE, ISO, DIN, WWRF, WWI
  - Interdisciplinary – attracting the **users** and bringing together
    - Developers and integrators
    - Policy makers, associations etc.

Vision of the Open Wearable Computing Group

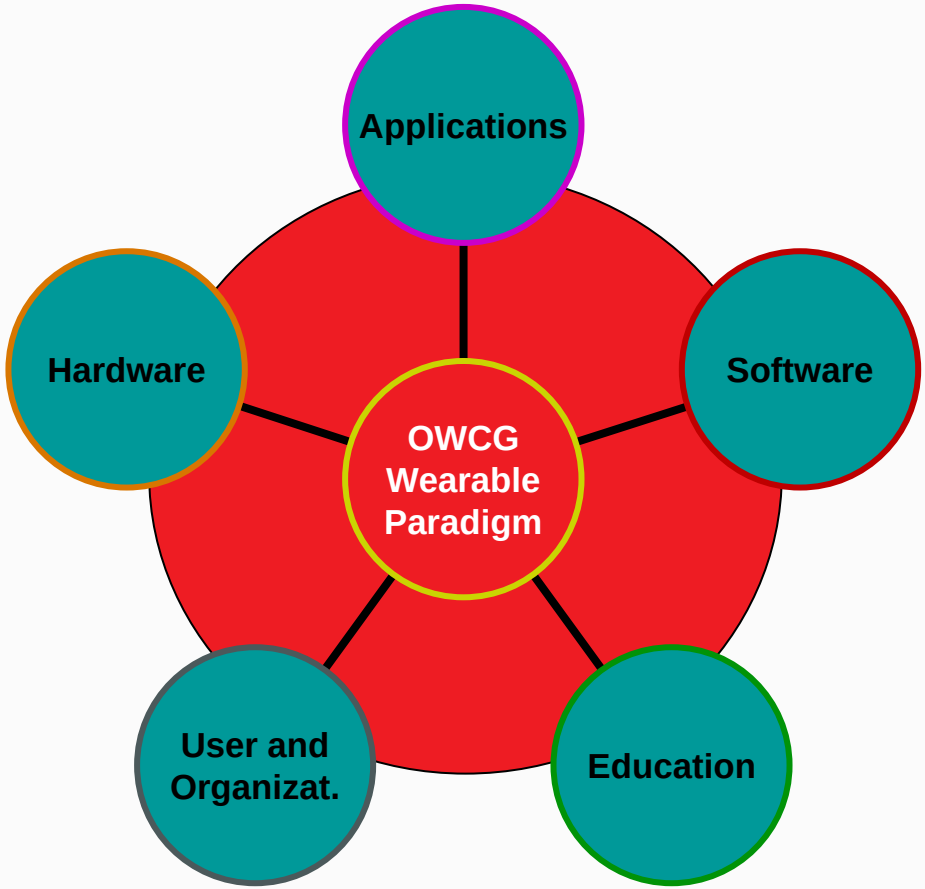
www.owcg.org

(2)

- OWCG as awareness and standardization organization
  - Monitoring ongoing standardization activities
  - Demand driven standardization
  - Facilitate the establishment of applied Wearable Computing
- OWCG motivates cooperation between different stakeholders
- Solve difficult interoperability issues in wearable computing
  - Bringing technology from lab and niche to an industrial standard
- Technologies used in wearable computing become more and more important
- Knowing and influencing standards is crucial in determining whether a technology is adopted or not

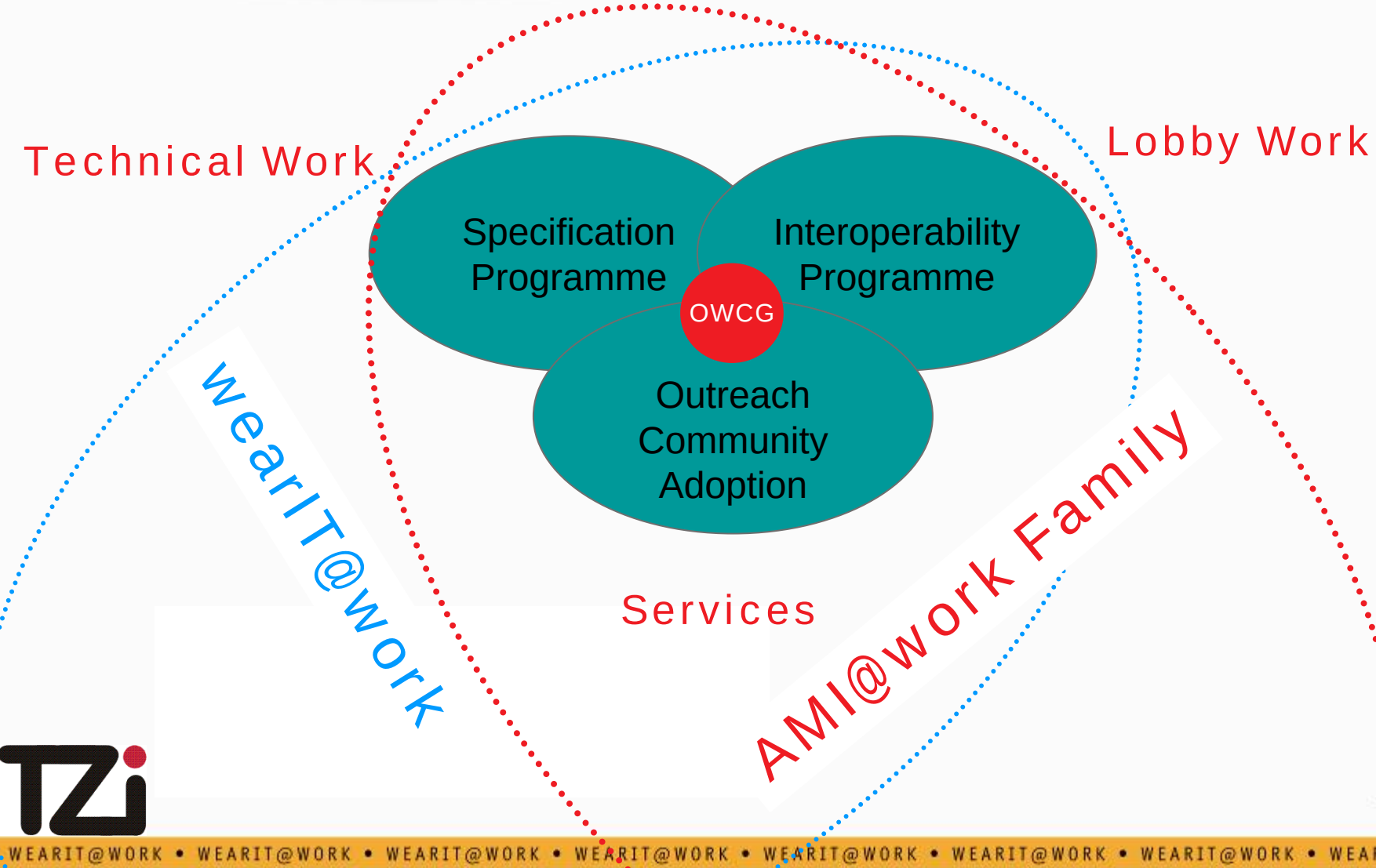
Open Wearable Computing Group Topics

(2)



Open Wearable Computing Group

Structure



OWCG: Specification Program (2)

- Structure, prepare, and perform the core standardization work
- Managed by a *Planning Committee*,
  - Initiation and guidance of the Standard Liaisons
  - Cooperates with a *Technical Committee*
- *Technical Committee*
  - Managing the *Working Groups* and the *Interoperability Program Management Team*.
- Working Groups
  - The core standardization work is done when no relevant existing standards can be identified and a need for an own standard is in accordance with the interest of the Interoperability Program

OWCG: Interoperability Program

(2)

- It is the “political” body of the OWCG and thus also the venue for sponsors and support
- initiate and monitor the work done in the Specification Program
  - Application and branch oriented
  - Part of the user centered approach motivating all activities of the OWCG.
- takes a key role in the OWCG:
  - Involve interested parties that will participate in the results of the standardization, e.g. users
  - Involve interested parties that will provide wearable computing components, systems, and solutions to customers, etc.

OWCG: Outreach and Community Adoption

- The aim of the *Outreach and Community Adoption* is to provide the members, sponsors, and the public with an optimal service
  - Fairs, Conferences and Workshops and Meetups
  - Marketing e.g.
    - OWCG-Portal, Newsletter, Journal
  - Detailed information
    - State of the Art, Roadmaps, Competence Networks etc.
  - Knowledge Transfer
    - Education, Lectures, Curricula
  - Administration

Collaboration with COPRAS

(3)

- Participation in COPRAS Kick-off WS in 2005
- Joint meeting with W3C organized with the support of COPRAS in September 2005
- Joint workshop COPRAS wearIT@work in December 2005
- Analysis of relevant standards in the software domain
- Identification of responsible (industrial) partners in the consortium for the different domains

Relevant Standards

- Multimedia standards
- Service standards
- Mobile standards
- Security standards
- Design and working standards
- Communication standards
- Multimodality

Results so far

- In most of the areas the work is not sufficiently advanced to consider interfacing with standards organizations after 2 years project duration
- However, work is ongoing in several IETF working groups, which may also end up in specifications being submitted to ISO.
- Further, there might have been some possibilities in the JCP, but ...
- Context from sensors was identified as a mayor issue beyond LBS (Sensor Model Language)

Conclusions 1

- With wearIT@work we bring wearable computing to real life industrial applications
  - Key issues beside user acceptance: context recognition and the human wearable computer interface
- With our end-users we set standards as well for the Open Wearable Computing Platform as for the Open Wearable Computing Framework
  - We develop a platform for consultants, system- and application integrators

Conclusions 2

(4)

- We are not standardising yet but have the platform of member organisations to standardise when appropriate
- There is an optimum time in the development lifecycle for standardisation
  - Too early and potential technological benefits are lost,
  - Too late and there are insufficient cooperating community members for a market
- With the Open Wearable Computing Group we have a forum to share experiences in the development of wearable computing applications and the definition of standards bridging the standardization gap

Thank you for your attention

Bridging the gap ;-)

For further information please contact:

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www.wearitatwork.com – Project homepage
www.owcg.org – Open Wearable Computing Group

www.ifawc.org – 4th International Forum for Applied Wearable Computing
Tel Aviv March 12th/13th, 2007