From CSCW to new workstations: the *itsme* project

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Outline

The scenario
CSCW research
The metaphor of ‘stories and venues’
The *itsme* approach
  Research
  Development
  Communication
Conclusion, Q&A
The scenario
1984: during the Superbowl

Apple launches the Macintosh

A new personal computer with a graphical user interface based on the desktop metaphor

It delivers the ideas developed at Xerox PARC by Alan Kay (and colleagues) to a large public, at a reasonable price
The desktop metaphor

Based on similarity with **physical** environment

**Familiar** tools and operations

Reflecting some **specific** work practices
From the ‘90s on

All personal computers adopt the desktop metaphor

There is a dramatic growth of the size of internal and external (fixed and removable) memories of personal computers

The email becomes a universal medium

The Web, invented by Tim Berners-Lee, evolves far beyond some of the PC limits (e.g., social computing)
Problems of the desktop metaphor

Very dependent on the culture (of the designers) (Olsen and Korfhage 1994)

Implies a physical organization of elements that is tightly coupled to the logical organization, and vice versa

Requires memorizing where a lot of stuff is (Ravasio et al. 2004)

Depends on hierarchical file system

OK for a limited number of items, if each item is meant to be available in a single place (and not in different contexts), as long as the user is able and willing to keep things sorted
Additional problems with the user interface (Ravasio et al. 2004)

Concerning **the interface**: the desktop metaphor should help novice users but it does not, the screen plane is regularly misused and overcrowded, skilled users are irritated by similarities between the screen plane and the file system’s interface, and the user interface is too intrusive.

Concerning **the underlying system**: the separation between files, email and bookmarks is inconvenient, temporary material (short term notes) are not supported, resources cannot be linked even if they belong together, classification and gaining overview implies additional effort.
Three main problems with PCs

The personal computer has been unable to cope with the evolution of the Cyberspace:

- **information overload** *(from keys to gigas; more and bigger objects)*
- **dispersion of information** *(in the file system, attachment folder, e-mail, browser)*
- **backwardness of the PC file system** with respect to the Web *(no tags, hyperlinks, and structure)*
Today

On-line computing is not yet ubiquitous
The PC lacks some capabilities, compared to the Web
Different users have different needs and desires

Who has control?
How to possibly solve these issues

Refer to better metaphors (also non-physical)

Get rid of hierarchies (when they are not needed)

Learn from the Web (e.g., folksonomies)

Put the user, and not the workplace, at the center of the world

There is a lot of (forgotten?) research literature from which we can learn how to do it
CSCW research: basis for innovation
The early CSCW debates

CSCW community formed in the mid ‘80s

The early years of CSCW were extraordinary for the number of new ideas that were presented to its conferences and for the passion animating the discussions raised by them
Language-action perspective

Inextricable binds linking together words and actions, conversations and interactions

The concepts of ‘conversation for action’ and of ‘commitment for future action’ has deeply influenced our research for over twenty years (e.g., De Cindio et al., 1986; De Michelis and Grasso, 1994)
Suchman (vs. Winograd)

Situated action perspective

Very nature of human practice, its being situated in space and time and within the experiences people share during their life

Sharp dispute with Winograd and Flores (Suchman, 1987b, 1994; Winograd, 1995), but we think they offer complementary views (De Michelis, 1995)
Coordination theory with the idea of \textit{centers}

Projects as networks of inter-related centers

Better having a personal system than one shared by all the participants to a cooperative process
Dourish

Concepts of place and of embodied interaction
Malone et al.

Semi-structured messages

Even text objects like messages contain a structure where you can find some information that can be used to trigger agents and/or commands

Coordination Theory
Our idea, *itsme* vision:
Stories and Venues
A new workstation

Helping to avoid the dispersion of information
Embodying what we know about knowledge work
Designed for those people who “think what they do holds value”
Based on a new metaphor: ‘stories and venues’
Avoiding the dispersion of information

A new front-end where:

Related objects, messages, urls, people contact details, information sources, and tools appear together

All objects are characterized by tags and links

A ‘back-end’ enabling Linux to support it
The lessons of ethnographic research on work

What human beings do is embedded in their relations with other people: actions and interactions.

Action and communication are strictly intertwined.

**Any action is situated** in space, time and, often, in the story within which it has sense.

The stories a person lives are not disjoint.

Stories are **viewpoints on actions and interactions**.
The target users of *itsme*

High-value users, i.e., all those who have a great number of interactions with other people, manage loads of information, live a great number of stories at the same time, but do not have adequate support to manage the complexity of their life

- Professionals
- Managers
- Intellectuals
- Knowledge workers
A new metaphor: ‘stories and venues’

Our life interweaves a large number of different stories

Each story has its participants and objects

Each story has its venue, where you can access its participants and objects

Each person lives in several diverse interweaving venues

The new metaphor is characterized by its being plural and its reflecting situatedness of human experience
itsme: research
itsme workstation scheme (vision)
*itsme*: a workstation based on the metaphor of ‘stories and venues’

At any moment, *itsme* presents the venue of the story in which its user is acting

*itsme* users do not need to search for things: they have them at hand

*itsme* creates, maintains and updates the venues of its user

*itsme* venues can be corrected, modified and organized by its user

*itsme* is not intrusive: its behavior is purely reactive
What’s a venue in the itsme UI?
itsme interface layers
The look of a venue
Venue details

Create new message  Highlight related items  Single channel view
The home, where venues are
Limbo and transition panel

Limbo: http://en.wikipedia.org/wiki/Limbo
itsme: development
itsme: components

A new workstation, with a radically new design

An open-source ‘back-end’ supporting stories (*named Guglielmo*)

A front-end embodying the venue metaphor

A service supporting the migration of Microsoft, Apple, and Linux users to itsme

A consistent and reliable plan for further improvements of the system
itsme architecture overview
“Our” Linux

Two members of our team started **Sabayon Linux** [www.sabayon.org](http://www.sabayon.org)

Binary GNU/Linux based on Gentoo

Focused on user: simplicity, style, usability

**Entropy** package management framework

The way to easily distribute and maintain *itsme*

*itsme* front-end as an alternative UI
Front-end architecture (version 0.1)
itsme: the back-end rationale

Files can be tagged, linked and have an XML-like structure

An email system supporting conversations, with bi-directional links between messages and attachments

A browser locating its bookmarks in the file system

Navigation systems within venues

Multiple views of venues
The *itsme* back-end: Guglielmo (more about rationale)

Open source project, available as a framework (with plugin technology) to implement any other metaphor

But with design requirements initially extracted from *itsme* interaction manual

Technologically decoupled from front-end implementation
Guglielmo (architecture, version 0.1 RC3)
Development milestones

A three-year process

Two years for the development of the system beta (spring 2008 - spring 2010)

Two years for the development of the migration support system (autumn 2008 - autumn 2010)

Creating a partnership for the development of a hardware prototype to hit the market
itsme: communication, involvement, participation
itsme community website

Provide information about the project

Create a community discussing about the scenario in which we are working

Design with us and interactively evaluate what we are doing
Concept evaluation http://www.itsme.it/evaluation (since October 2008)

RESEARCHER AND TEACHER OF APPLIED PHYSICS

Work between Geneva, Perugia and Pisa.
itsme emulator (version 0.2.0, unreleased: public release scheduled for early June 2009)
itsme first interactive prototype (version 0.1 released internally Apr. 1st)
The help we need

**Three active communities**, supporting itsme from the very beginning:

- Research *(CSCW, KM, ID)*
- Open source software *(Linux community)*
- High-Tech industry *(particularly in Europe)*

Good coverage of Itsme milestones by media and research community worldwide

Support from public institutions in Italy and Europe
Next steps in communication

**Presentations** in major Universities/conferences

**Courses** at major Universities and Educational Institutions

**Collaboration with research groups** on *itsme*'s issues and related topics
Conclusion

The desktop metaphor can no longer support effectively personal computing

CSCW research provides the basis for innovation

itsme is implementing next-generation personal computing

We are an open community, in which you are welcome.
Any other question?
Thank you for your attention!

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