

IT Applications at your fingertips

Building the smarter systems to give a better experience to users
the challenge ahead

1 The Vision

Whenever economical crisis will come to an end, we shall face a different world where many things will have changed. It is difficult to anticipate the new regulations and to guess how enterprises and public services will look like.

We can however try to prefigure how the technology will shape this new world; with 4 billions of mobile phones, 2 billions of Internet users, several hundred millions of us actively participating in social networks within communities or in open collaboration at work, it is clear that our experience as a user will profoundly evolve getting more connected with others and with smarter systems.

The generation y (less than 30 years old), irrespective of where they are born, has already been there - ahead of the rest of mankind - by actively getting fun with electronic games, using SMS and Twitter for their social life and belonging to Hyves, Facebook or Myspace. This generation has not opted for these changes; they have matured making full use of these technologies and cannot envision living in a world without it.

Inter connection between individuals has been made possible because of the technology, but probably for the first time, it will impact significantly both our private life and our working environment at the same time. Belonging to communities with people having similar interests or collaborating with co-workers beyond the traditional hierarchical line will radically change our experience and bring a collective dimension to most of our behaviour and decisions. Communities will influence our decision pattern which will rely more and more upon the opinion of "friends" to such an extent that preformatted marketing messages will soon be seen as out of date. In the working environment, collective intelligence will be more and more promoted by enterprises and public services which will automate the routinized and regulated processes, while giving maximum flexibility and encouragement to the use of ICT to create ad hoc working groups. Making decisions at work without getting the best available expertise will not be seen as acceptable.

For the private and working environment, ICT will be an unprecedented tool to memorize both the social graph which describes the relationships between individuals in a community and the process agreed by the organization to get the best efficiency for collaboration and decision making.

Beyond the change of paradigm, resulting from inter connection with others, users will benefit from the connection with smarter systems.

Access by everyone to everyone through mobile devices will radically change our user experience. In the way to communicate with the surrounding world, users will expect the "system" to recognize which kind of device they use, which kind of connection is available and where they are located, even up to the point that the required data or function is automatically 'guessed'. This "context aware computing" will take for granted everything which is known by the "system" resulting in one very personal decision to be made by the user: between ease of use and privacy, what counts more for him or her? With the context known by the system, user can have easily access to the right enriched services and to friends and co-workers available around.

User interfaces and Location will be the most visible change in user experience. Multi-touch screen, location within meters, gesture awareness and voice recognition will bring ICT as a natural tool to an extent that can be appreciated only by watching kids playing with videogames.

In this emerging picture of Ubiquitous Information & Communication Technology, no one except the ICT professionals is interested in the machinery beyond the curtain. Professionals need to be prepared for massive shifts in the provisioning, invoicing and delivery models: now giving access to these context sensitive services everywhere without charging for the infrastructure but only for the service which is rendered and in a way which can be measured by the user.

This means a radical move from the current delivery model to alternative ones sometimes called "cloud computing" or "software as a service" nowadays. As well, these services can only be delivered through incredibly complex systems: they have to be controlled by monitoring systems which in turn will guarantee a high level of services despite inevitable failures in the infrastructure.

"Building the smarter systems to give a better experience to users" is the challenge ahead of us.

2 Exploring the vision

The challenges are documented according to references given between parentheses

Alternative Delivery Model (#1) is reflecting the current trend also called cloud computing and Software as a Service. It focuses on delivery of the functionality and not the underlying tooling.

The ubiquitous delivery will facilitate the emergence of context aware applications (#2) which can be used via ambient smart objects either in working or in private environment with ability to know the user location, to know his device type, network capability, method of access, state of mind and, and personal or business preferences as well as having the intelligence to combine inputs into pre-programmed responses..

User Interface in the mean time will gradually take advantage of multi-touch screens, motion capture feature and enhanced graphics using consumer electronics advances in Infotainment and Gaming (#3). In addition to location, Applications will benefit of the knowledge of the Social Networks to which the user belongs; either for the purpose of Collaboration (#4) at work or for grouping in a Community (#5) of interest. The social network will be a major disruption in the way ubiquitous ICT experiences will be perceived.

In the collaboration context, Business Process Management (#6) will facilitate lean business processes that can be translated in executable business logics. A specific class of application in collaboration mode will be Decision Support (#7) which will enable business groups to take collective decisions.

Simplicity and efficiency at user level will have, as a counterpart, an increase complexity of the overall application landscape organized by Business Processes; use of Simulation tools will help both to anticipate possible bottlenecks and to facilitate user adoption of business processes.

Control Command Systems (#8) will be required to overall monitor the complex connections, information flow and systems involved. Automated responses will have to guarantee the required level of services and security. Reporting will allow for compliancy and auditability.

The 8 challenges can be categorized into two dimensions:

- Delivery model (Cloud Computing, SaaS,...)
- Nature of IT applications(Context aware computing using location, user interface, process combined with Collaboration/Community social networks)

The fact that these disruptions will impact both the application itself and the way of delivering/distributing it, will drastically transform the entire IT ecosystem.

The only way to survive through this tsunami, will be by controlling the complete chain, from the design of the product, to its distribution, in order to address the market with an adaptive offering free from external dependencies.

Four key building blocks have tentatively been identified to bind the service areas to a holistic view of interconnected services: process model, social graph, user interface and location; mastering them, ahead of competition, will be a key success factor to implement our vision.

Process Model are describing the sequence of tasks to be performed in order to implement a business process or to handle an event occurring in the context

Social Graph is the data model of person to person relationships as captured to represent the social network

User Interface is the combined hardware and software engine which allows user to control and command the appliances giving access to the applications and systems

Location will be characterized by geolocalization of user but also by the capabilities of the network at that location and the capability of the user's appliance