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Health applications: paradigmatic application scenarios for adaptive services

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Future Internet – Novelty in applications

By creating the effect of a "virtual intermate"

»A "internet-linked" friend that replaces you acting on your behalf, acquiring knowledge, composing services, and providing assessment or decisions with a light link to you

»In the different appealing matters such as: Transport, Energy, Environments, Leisure, Tourism

And of course….

Health → someone working on your prevention, diagnoses, or treatment

Future of Internet and eHealth (I)

- Future Network Infrastructure: large scale connectivity, compatibility and ubiquity will guarantee healthcare professionals and patient access to medical information **anywhere**, enhancing **citizen mobility**.

- Internet by and for people: providing a **multilingual** environmental and more **interactive** solutions
  - Offering preventive and **proactive services**
  - Facilitating **personalized** treatment
  - Giving patients an active part in managing their healthcare

- Internet of the Things (IoT): under FI umbrella, scenarios where objects exchange information, verify identities, and process information will be possible. This fact will allow, for instance, developing **smart environment to provide a better and less invasive monitoring**.

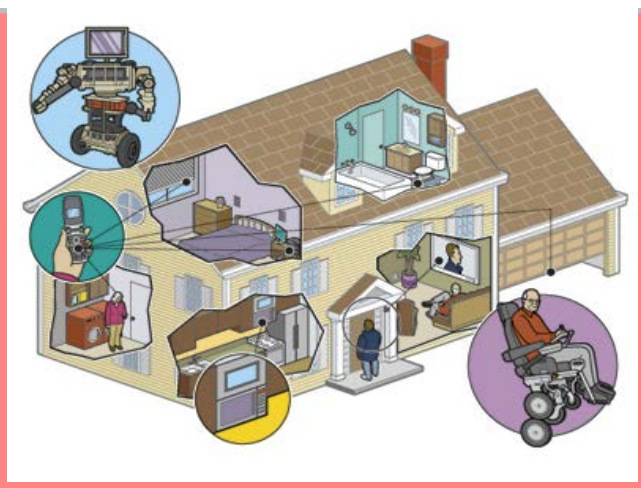
Future of Internet and eHealth (II)

- Internet of Contents and Knowledge: digital medical information is increasing every day. FI can support knowledge management, going further than information accumulation by involving **intelligent processes** (e.g. learning algorithms, semantic web), and underpinning privacy and security in health information systems.
- Internet of Services: place where data is physically located or services are executed will be invisible for the end user (healthcare professional or patient). A service will typically be a composition of **services provided by third parties**, creating dependencies that should be invisible too.

Different (connected) environments

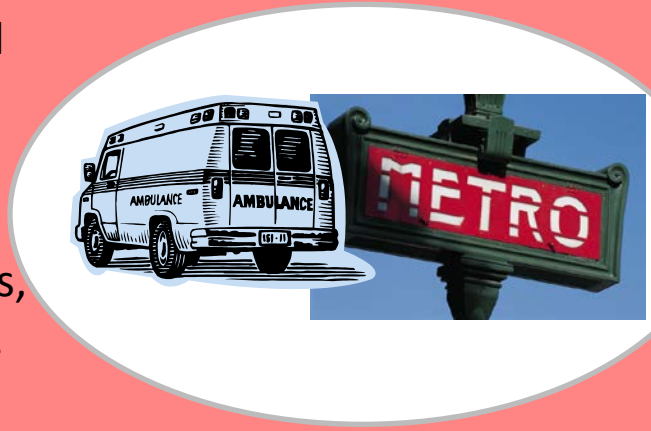
Hospital/Health centres and pharmacies: interoperability, information management, and M2M communications

Citizens: wearable and mobile devices for continuous monitoring and communication



Smart Houses: M2M communication, non-invasive monitoring, telecare

Future Internet will allow to connect all potential actors/places related to healthcare.



Other services: emergency services, public transport...

E-health: issues and enablers

FI in healthcare will allow an **empowerment of patient**, providing more participative services, **a better prevention, diagnosis and treatment**

Key Issues to overcome

- **Interoperability and standardization** of computer-based medical systems.
- Management and interoperability of Electronic Health Records (EHR)
- **Interconnection** of hospitals and medical team remotely
- Extreme **guarantee of privacy** and confidentiality of data
- **Enhanced remote care of patients** (specially for chronic diseases and elderly people)

Technical Enablers

- Interoperability of data- **Data Exchange**
- Semantic applications and Standards
- Machine to Machine communications.
  – **Better monitorization/Homecare**
- High capacity networks- **improving Telecare and m-Health**
- Open and interoperable Cloud Services- Grid computing to process great amounts of data- **DSS/VPH**

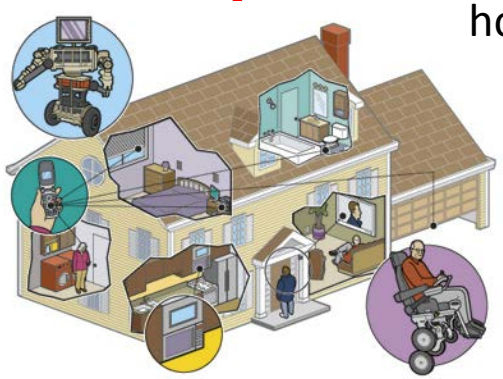
Enablers to “service” the USER

Semantic Interoperability and standards to transmit information

High Capacity & Trustworthy Networks

Cloud & Grid Computing to develop Decision Support Systems

IoT: Devices and M2M communications in houses and hospitals



Dynamic adaptation

- Health services will not necessarily happen in “traditional places” (ex. a hospital)
  - For example, monitoring and diagnosis may happen while at home, but also “on the move” → services will need to dynamically adapt to different (changing) locations and varied (user) interfaces (ex. mobile phone, laptop)
- Sources of information will change dynamically
  - From sensors at home to wearable computers → services will have to be conscious of these sources, being able to react to lack of data (when samples are not possible) and able to accept new sources
- eHealth services will be personalized and aware of the context
  - The same service will have to behave in a different way depending on who is the final user, in which situation he/she is using it, etc
- Added value will come from the combination/composition of services provided by third parties: all of them should be interoperable and dependencies will oblidge them to self-adapt to the overall service chain

Thank you











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