



SCUOLA ACHILLE ARDIGÒ DEL COMUNE DI BOLOGNA
SUL WELFARE DI COMUNITÀ E SUI DIRITTI DEI CITTADINI

ESPERIENZE E MODELLI DI CONTINUITÀ E DI INTEGRAZIONE
NELL'ASSISTENZA DOMICILIARE AL PAZIENTE FRAGILE

L'innovazione tecnologica al servizio del paziente e della famiglia

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Comune di Bologna

ISTITUZIONE **X** L'INCLUSIONE
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L'INNOVAZIONE TECNOLOGICA AL SERVIZIO DEL PAZIENTE E DELLA FAMIGLIA

- **FATTI**
- **ESPERIENZE**
- **RIFLESSIONI**



FATTI

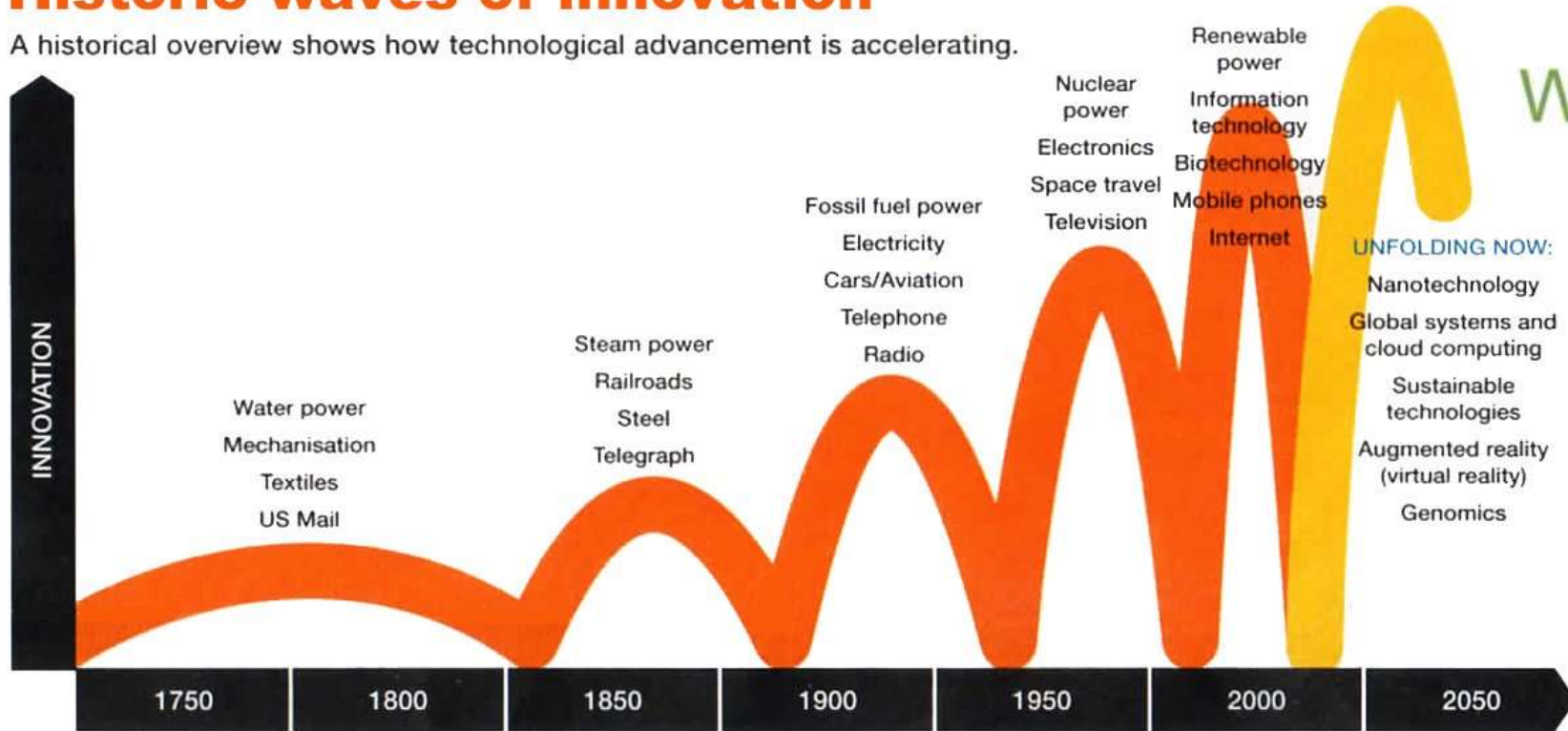


Technologies and innovation



Historic waves of innovation

A historical overview shows how technological advancement is accelerating.



ADAPTED FROM WAVES OF INNOVATION MODEL, *THE NATURAL ADVANTAGE OF NATIONS*, K. HARGROVES AND M. SMITH, (2005)

Disruptive



When?

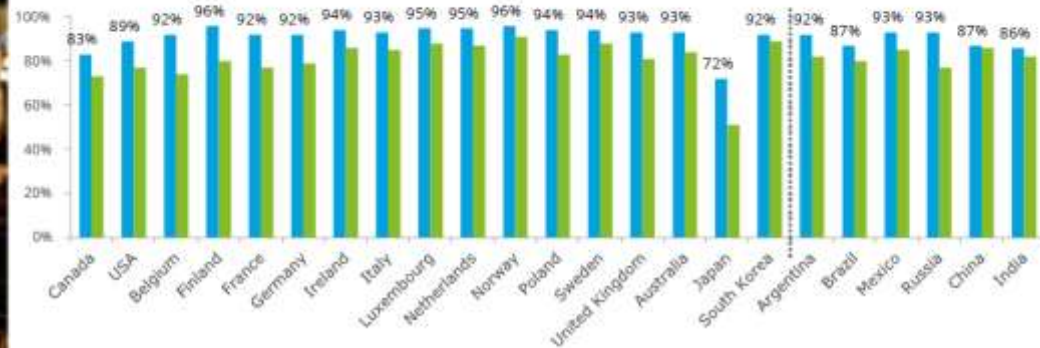
nbcnews -



Smartphone ownership



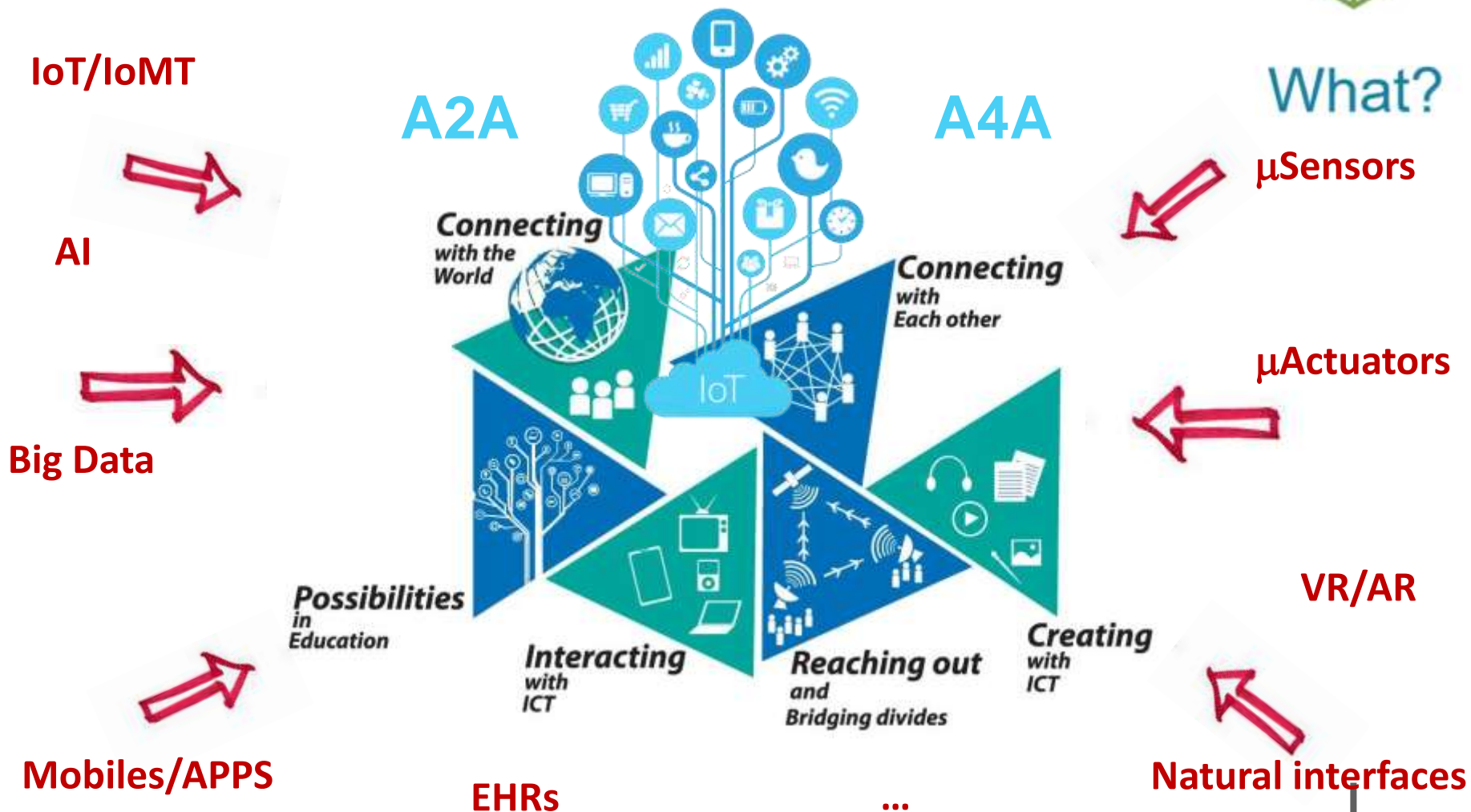
	Developed	Developing
Any mobile phone	91%	90%
Smartphone	80%	82%



NBC News/Instagram



Multifaceted



Ubiquitous



Where?

Bedroom
Smart beds interact with the house's 3D and virtual reality system, bringing in the view you need.

Bathroom
Guests will be able to give you virtual reality tours of your real estate, make for virtual purchases such as online courses.

Roof
Flats are heated by solar water panels and cooled by heat exchangers to avoid being hot or cold.

Bedroom
Online tools will assist beds in regulate your temperature and monitor your health. Eco-friendly will be more economical - online weather will be used to provide a tailored display of weather forecast on Facebook, i.e.

Kitchen
Smart ovens identify what you have put in the fridge to make accordingly, keeping coffee cups warm and cooking with AI algorithms will allow us to create meals we never thought of and create personal diets.

Living Room
All appliances connected through mobile connecting system. The television system makes it for music, images and opportunities to constantly evolving but to user 3D experience.

Garage
Consists of extensive low level resources software which is linked to virtual database for which is able to drive itself.

Office
See through electronics, sensors, touch panels and mobile displays allow 3D data capture experiences. Computer screen allow you to work, virtual collaboration to create content a better place work.

Pervasive/Obtrusive



How?

Waking Up With The Internet of Things In The Year: 2040



Sensitive



How?



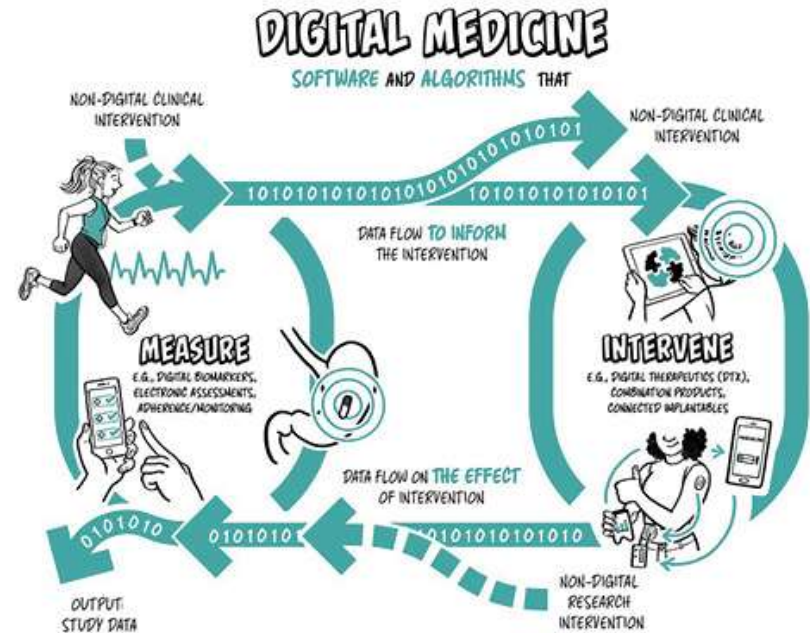


BIOMARKERS, ENDPOINTS AND OTHER TOOLS

BEST DEFINES SEVEN DIFFERENT TYPES OF BIOMARKERS
THEY CAN ALL BE MEASURED USING DIGITAL TOOLS, RESULTING IN A DIGITAL BIOMARKER



How?



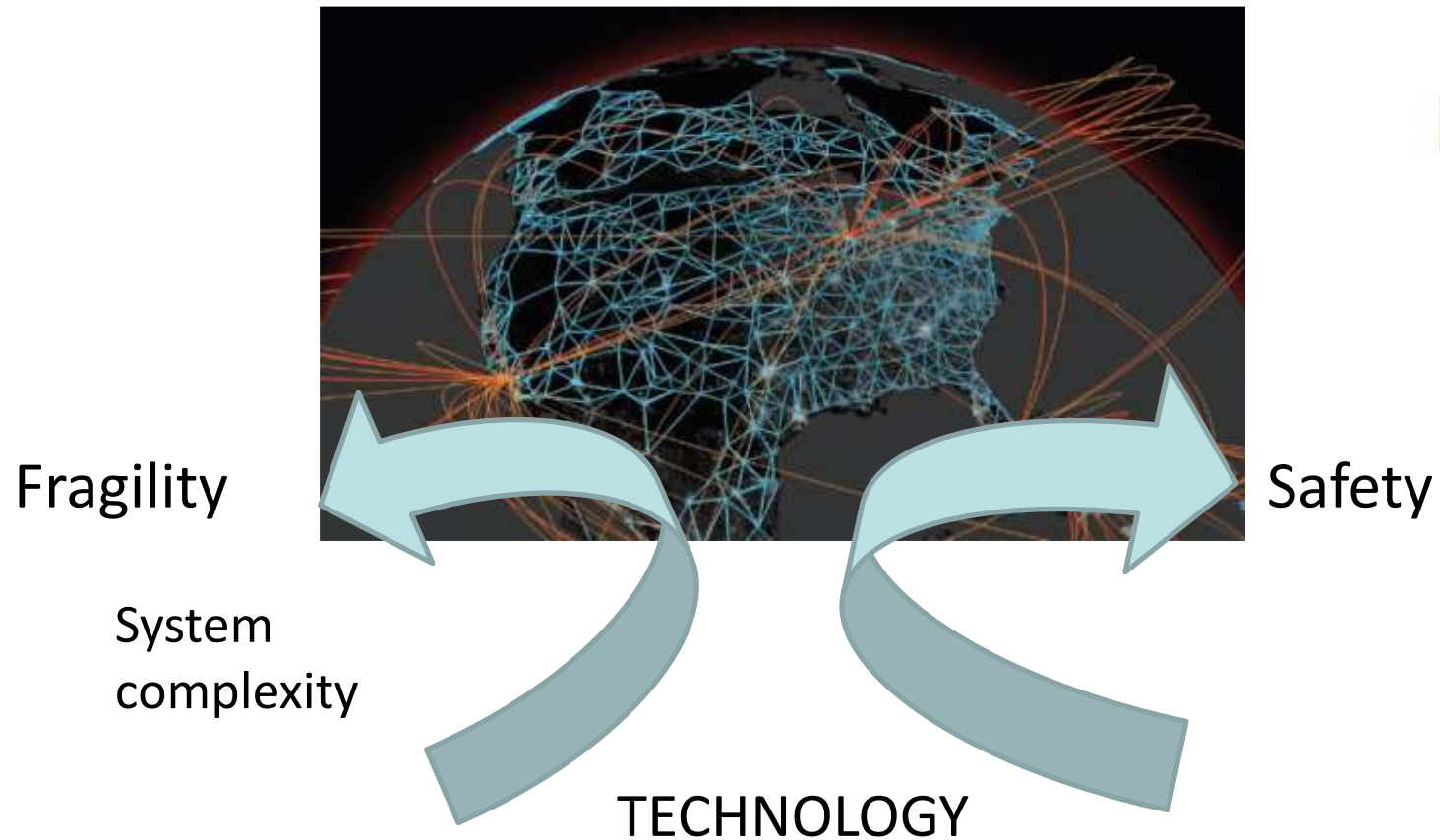
Biomarcatori Digitali: dati sulla mobilità, il sonno, lo stato cognitivo,... raccolti attraverso dispositivi indossabili

Source: Digital Medicine: A Primer on Measurement, Digit Biomark 2019

Fragile



How?



Vespignani, Nature, 2010

Neutral



How?





ESPERIENZE



1. Persona con malattia di Parkinson, al domicilio



<http://www.cupid-project.eu/>



WIRED.IT



mobile med 

Mobile and Information Technologies in Medicine and Health

**MIT
Technology
Review**

2. Anziano autosufficiente o no, al domicilio o in struttura protetta

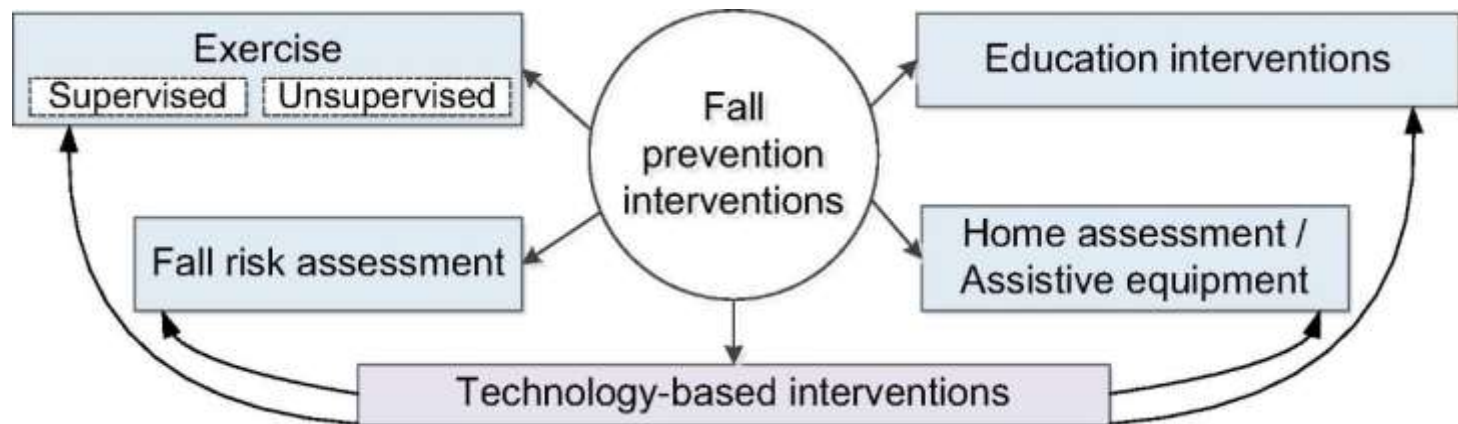


Video di presentazione del progetto Habitat

<https://youtu.be/Jv3ycLxyfow>



3. Anziano fragile, al domicilio o in struttura protetta



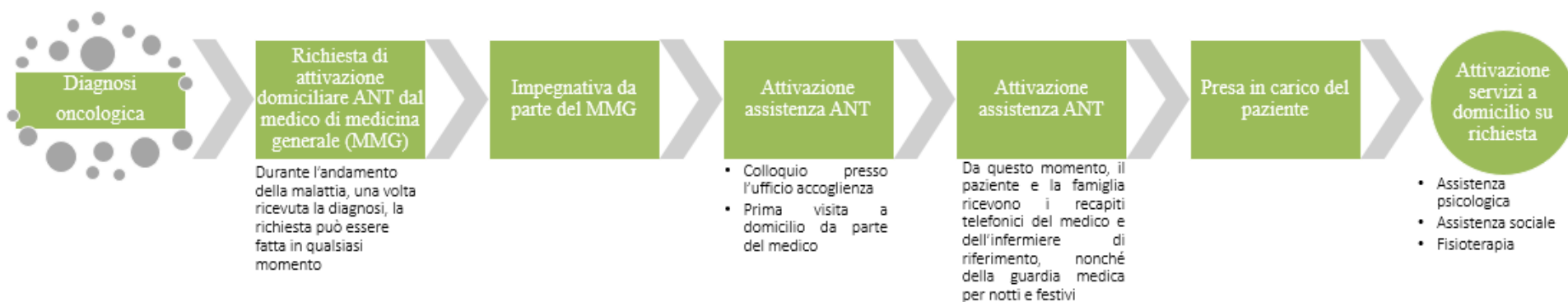
Boulton et al., Journal of Biomedical Informatics, 2016
Hamm et al., Journal of Biomedical Informatics, 2016



<https://www.youtube.com/watch?v=cYHpQdUHz6U>

<http://farseeingresearch.eu/>

4. Paziente oncologico, al domicilio



Virtual reality technology at home to improve the quality of life of cancer patients



Obiettivo del progetto:

Il progetto si pone l'obiettivo di introdurre uno strumento tecnologico innovativo quale il visore di realtà virtuale, che permetta ai pazienti oncologici assistiti da Fondazione ANT di vivere, a casa propria ed in modo autonomo, un'esperienza che possa avere ricadute positive sullo stato dell'umore e sul dolore.

Valutare gli effetti del visore VR tramite registrazione di segnali fisiologici a lungo termine



RIFLESSIONI



The way forward

There is no question that the impact of ICT in health service delivery can be paradigm-shifting, but it is important to remember that rapid technological development provides only the hardware for this change

- ***Big Data burden***
- ***Trust***
- ***Outcome and value-based measurements***
- ***Human factors***

Reform in healthcare policy means evolution. Real revolution will come from patients who are already monitoring their health and will demand opportunities to use this data in their healthcare



*DISRUPTIVE MODELS OF HEALTHCARE FOR EUROPE,
Discussion paper, 2017*

The way forward??



Ray Kurzweil

Responsibility

20 to 25 years from now, we will have millions of blood-cell sized devices, known as [nanobots](#), inside our bodies fighting against diseases, improving our memory, and cognitive abilities. A machine will pass the [Turing test](#) by 2029, and at around 2045, "the pace of change will be so astonishingly quick that we won't be able to keep up, unless we enhance our own intelligence by merging with the intelligent machines we are creating". Humans will be a hybrid of biological and non-biological intelligence that becomes increasingly dominated by its non-biological component.

Responsibility

Responsibility



The way forward??



Yuval Harari

Technological developments have threatened the continued ability of humans to give meaning to their lives

It is possible that humankind will be replaced by a super-man, or "homo deus" (human god) endowed with supernatural abilities such as eternal life

Responsibility

Responsibility

Responsibility



The way forward??



The way forward??



Romano Guardini
(Das Ende der
Neuzeit, 1965)

*There is a tendency to believe that every increase in power means “an increase of ‘progress’ itself”, an advance in security, usefulness, welfare and vigour, as if reality, goodness and truth automatically flow from technological and economic power as such. Contemporary man has not been trained to use power well because **our immense technological development has not been accompanied by a development in human responsibility, values and conscience.***

Our freedom fades when it is handed over to the blind forces of the unconscious, of immediate needs, of self-interest, and of violence. We have superficial mechanisms, but we cannot claim to have a sound ethics, a culture and spirituality genuinely capable of setting limits and teaching clear-minded self-restraint.

The way forward??



Pope Francis
(Laudato sì, 2015)

*We have to accept that technological products **are not neutral**, for they create a framework which ends up conditioning lifestyles and shaping social possibilities along the lines dictated by the interests of certain powerful groups. **Decisions which may seem purely instrumental are in reality decisions about the kind of society we want to build.** [...]*

*The specialization which belongs to technology makes it difficult to see the larger picture. The **fragmentation of knowledge** proves helpful for concrete applications, and yet it often leads to a loss of appreciation for the whole, for the relationships between things, and for the broader horizon, which then becomes irrelevant. We have the freedom needed to limit and direct technology, we can put it at the service of **another type of progress**, one which is healthier, more human, more social, more integral. e.g. when technology is directed primarily to resolving people's concrete problems, truly helping them live with more dignity and less suffering.*



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