# E-health: Opportunities and Challenges across Europe

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list



Measure?

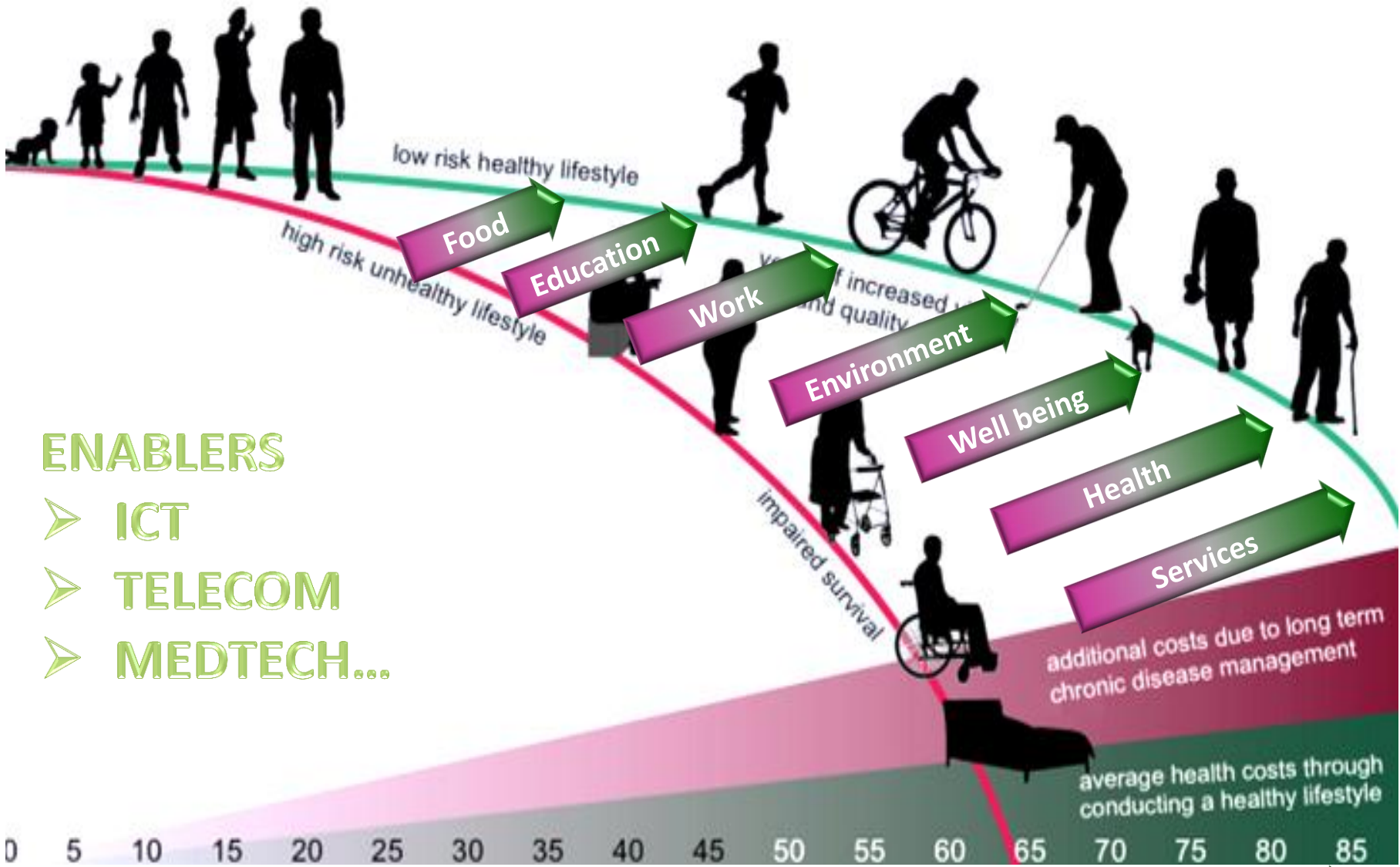Secured & reliable Information?

Standards & interoperability?

Knowledge access?

How to informed decision (s)?

Business models?

# HEALTH LANDSCAPE IN EUROPE

low risk healthy lifestyle

high risk unhealthy lifestyle

Food

Education

Work

Environment

Well being

Health

Services

impaired survival

additional costs due to long term chronic disease management

average health costs through conducting a healthy lifestyle

**ENABLERS**
- **ICT**
- **TELECOM**
- **MEDTECH...**

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85

INSTITUT CARNOT CEA LIST

SILVER ECONOMY

# THE HEALTH ECONOMY

## GLOBAL CONTEXT

- **Increased competition**

- **Economic downturn**

- **Demographic change**

- **Heterogeneity of politics across Europe, USA at all levels: national, regional (reimbursement, market access for e.g. health, mobility…)**

- **Silver economy demand**

  - **Baby boomers demand innovative services and products**

  - **Number of years of retirement varies across countries and gender.* (OECD sources)**

    - **In UK average time 19.1 year for men vs. 21.1 for women**

    - **In France average time 22.6 for men vs. 27.4 for women**

*OECD sources*

➤ **Population ageing dynamic is variable across countries in Europe and the rest of the world**
  - o **By 2030 Finland is projected to have 26% of its population over 65 years of age**
  - o **While UK will reach this ratio by 2051!**

➤ **Main associated challenges**
  - o **Public healthcare**
  - o **Pension funding**
  - o **Labour shortages**

➤ **Opportunities**
  - o **Baby boomer generation may revolutionize "the previous old attitude" being more demanding and imaginative as consumer for both products and services (*e.g.* E-products, high tech…)**
  - o **Healthier population , higher education level of future retirees => higher quality services**

**HOME TELEHEALTH**

- Less mainstream than telecare at present when compared to basic first generation telecare
- Overall the US and Japan appear to show most development, with the **US Veterans Health Administration's extensive home telehealth services for older clients being the most noteworthy example**
- **Large scale trial activity in Europe running**

**DOMOTICS**

- Broad spectrum of technologies and applications covered e.g. augmentative communication devices, environmental control systems, fully integrated smart home…
- The use of technologies for independent living varies considerably across countries (Nordic countries generally seen as being more advanced in this regard)

*Source: **IT & Ageing – European Study on Users, Markets and Technologies. 2010***
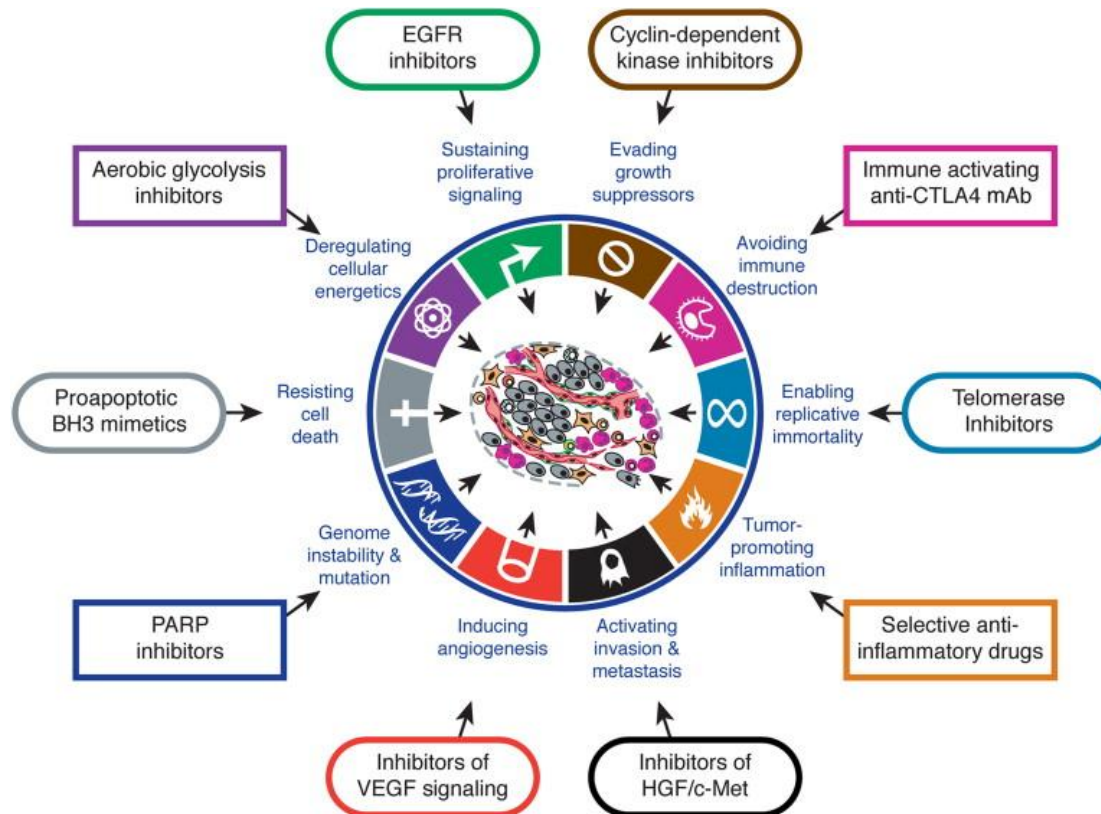
# NEEDS



*Hanahan & Weinberg. Cell. 2011.*

**CONSENSUS ON THE NEEDS**

**NEEDS => END USER AS A PATIENT, THE FAMILY, HEALTH PROFESSIONAL, MD's**
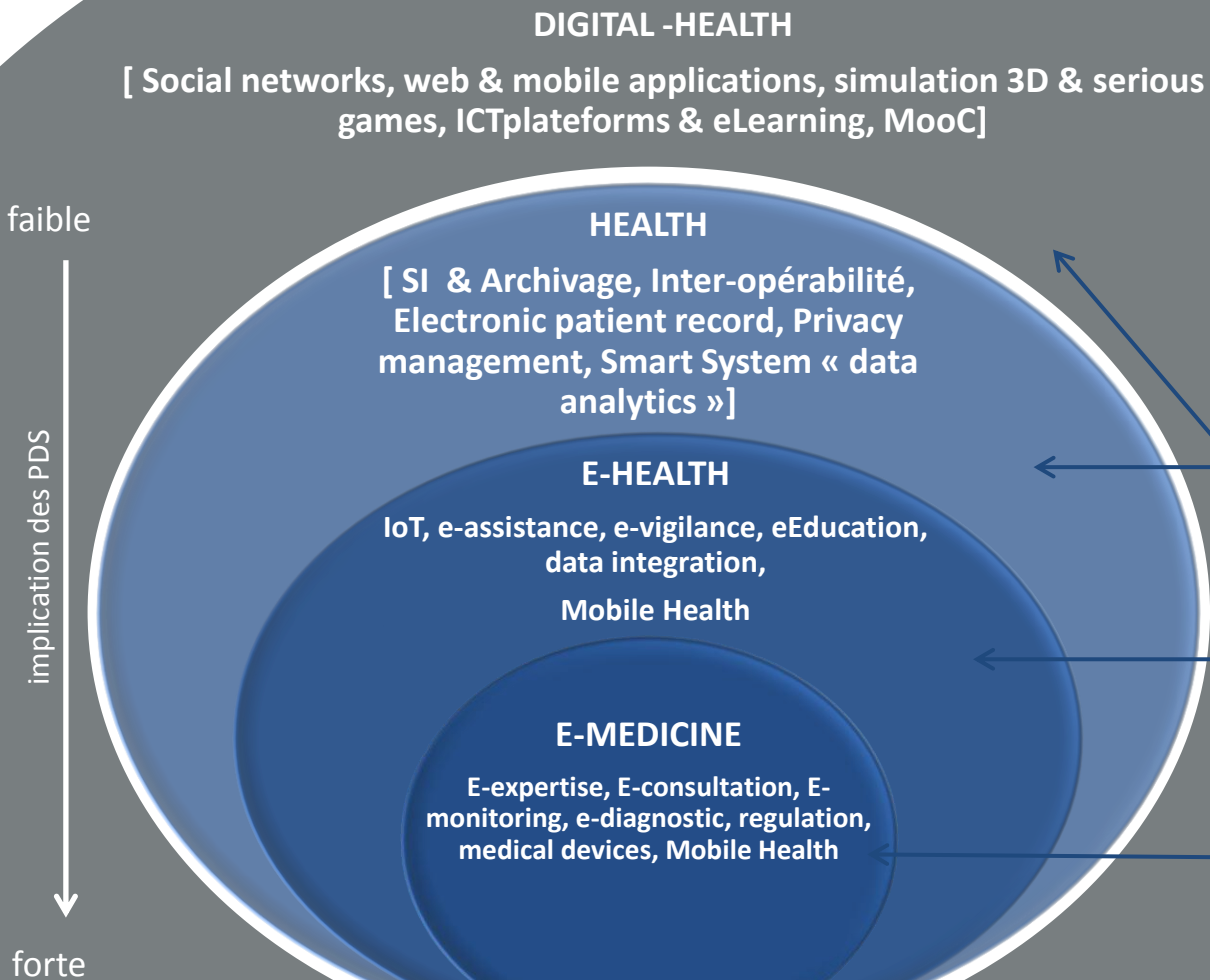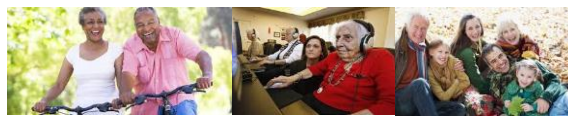
**BUT COMPLEX PATH TO MARKET**

**STRONG HETEROGENEITY OF HEALTH ECOSYETEMS**
- **CULTURES / HEALTH SYSTEMS/REIMBURSMENTS/REGULATORY…**
- **MARKET ACCESS….**

**COMPLEXITY OF THE TECHNOLOGICAL SOLUTIONS**
- **VALIDATION**
- **TRANSDISCIPLINARITY (DIFFERENT INDUSTRIAL SECTORS…)**
- **ACCEPTABILITY & USAGE**

# THE HEALTH MARKET INCLUDES DIGITAL APPLICATIONS, TELEHEALTH, TELEMEDICINE - THE NEEDS
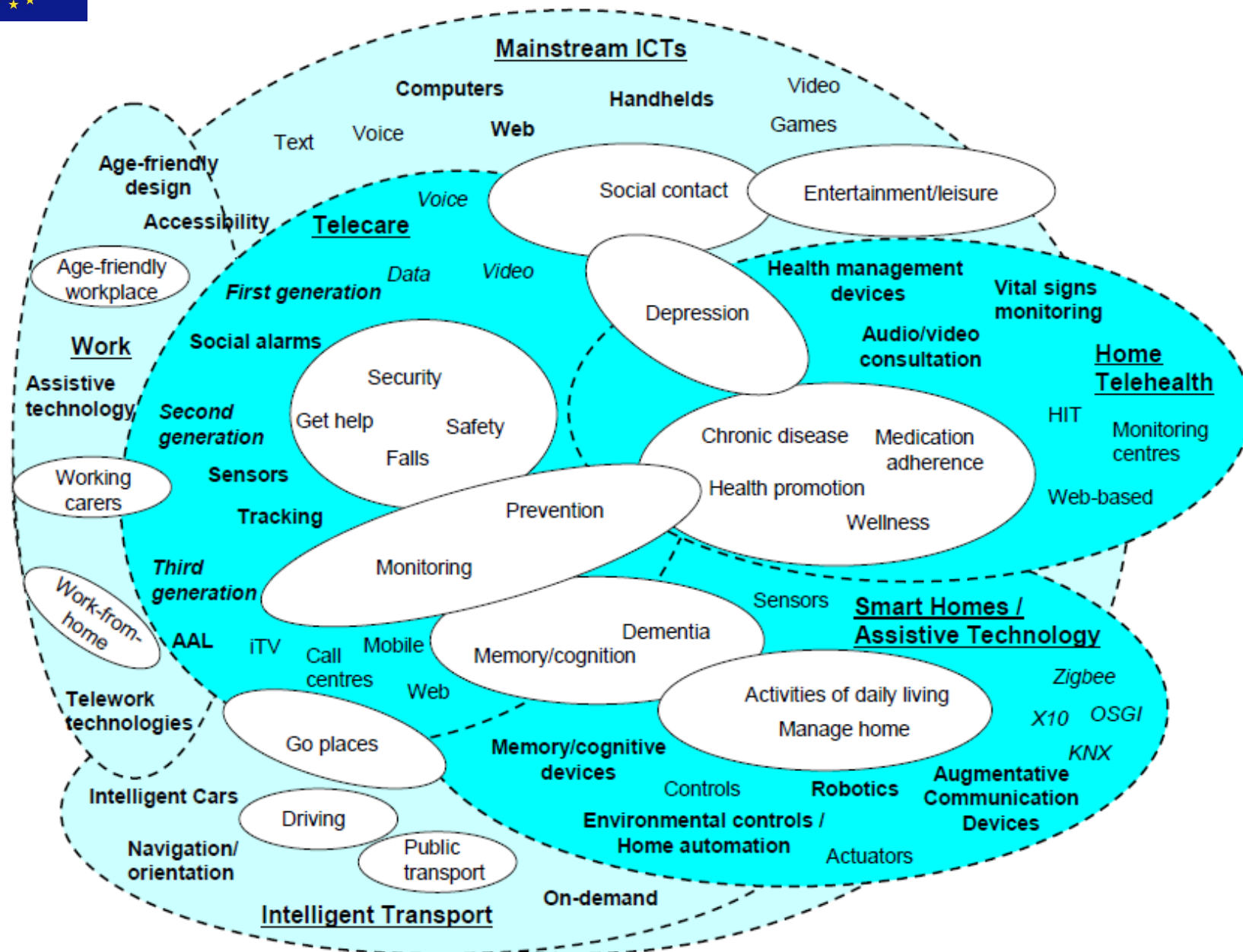


**DIGITAL -HEALTH**

[ Social networks, web & mobile applications, simulation 3D & serious games, ICTplateforms & eLearning, MooC]

**HEALTH**

[ SI & Archivage, Inter-opérabilité, Electronic patient record, Privacy management, Smart System « data analytics »]

**E-HEALTH**

IoT, e-assistance, e-vigilance, eEducation, data integration,

Mobile Health

**E-MEDICINE**

E-expertise, E-consultation, E-monitoring, e-diagnostic, regulation, medical devices, Mobile Health

faible

implication des PDS

forte

| eHealth market (France, 2012) 2,8 Milliards (€) | Annual growth | |
|---|---|---|
| | Scénario bas* | Scénario haut** |
| 2400 M *(2012)* | +4% *(2012-17)* | +10% *(2012-17)* |
| 200 – 300 M *(2012)* | +8% *(2010-15)* | +15% *(2010-15)* |
| 80 - 140 M *(2012)* | +15% *(2010-15)* | +30% *(2010-15)* |

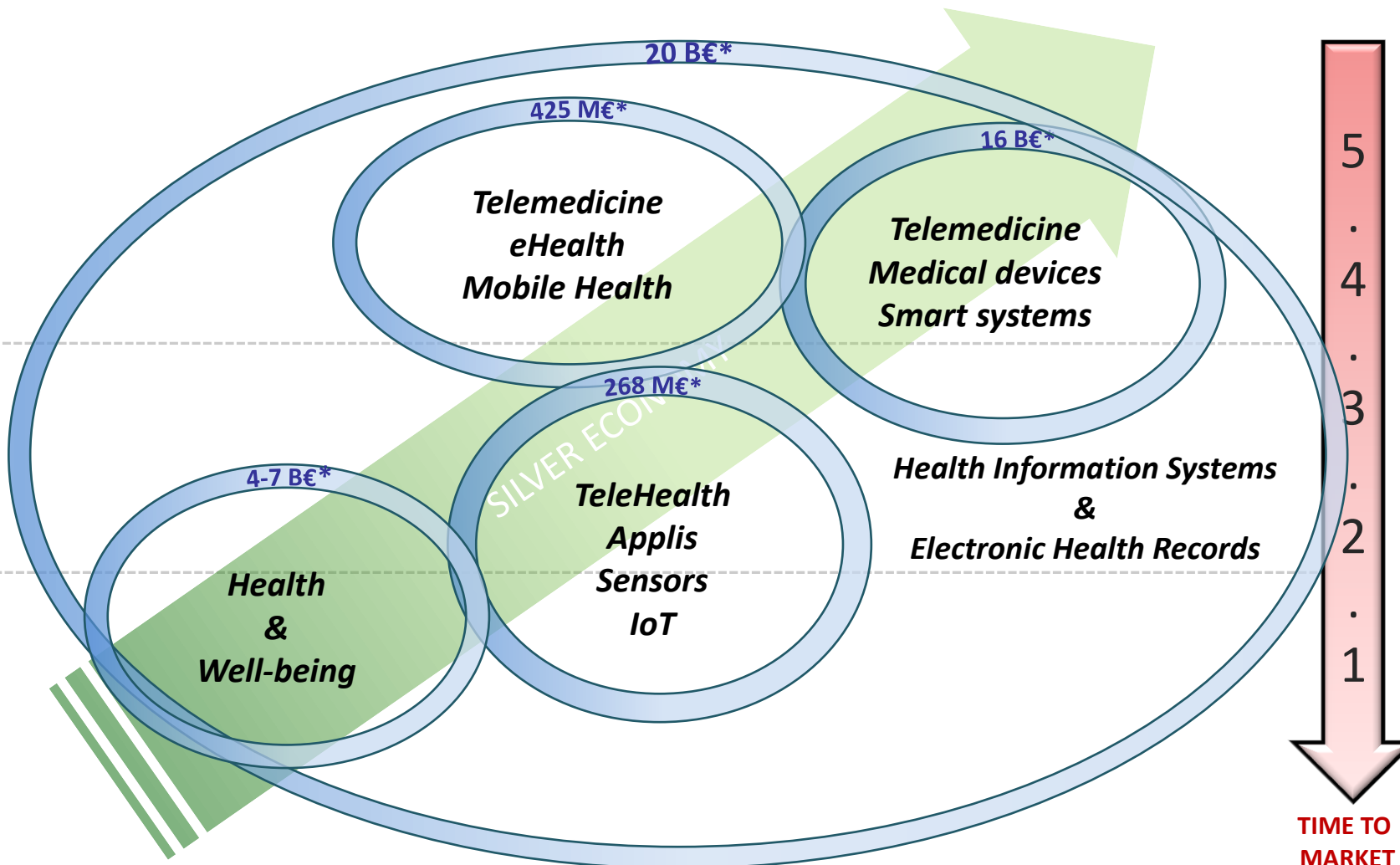(*Marché France 2012 Xerfi Reseach, Price Water-house Cooper 2013
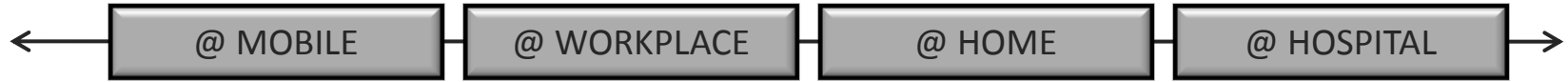
*Source: Dynamique collaborative en TIC et Santé; JM. Bourez, N. Benhabiles*

# HEALTH MARKETS

# THE SPECTRUM OF NEEDS AND TECHNOLOGIES



*Source: Final study report: ICT & Ageing: European study on Users, Markets and Technologies. European Union 2010.*

# SILVER ECONOMY AND HEALTH



**US MARKET 2012 : 20 B€***

| ← @ MOBILE | @ WORKPLACE | @ HOME | @ HOSPITAL → |

**PAYERS**

- Social security Public bodies
- Insurance Regions Enterprises
- Patient Family 'out of pocket'

**20 B€***

**425 M€***
*Telemedicine eHealth Mobile Health*

**16 B€***
*Telemedicine Medical devices Smart systems*

**268 M€***
*TeleHealth Applis Sensors IoT*

**4-7 B€***
*Health & Well-being*

*Health Information Systems & Electronic Health Records*

SILVER ECONOMY

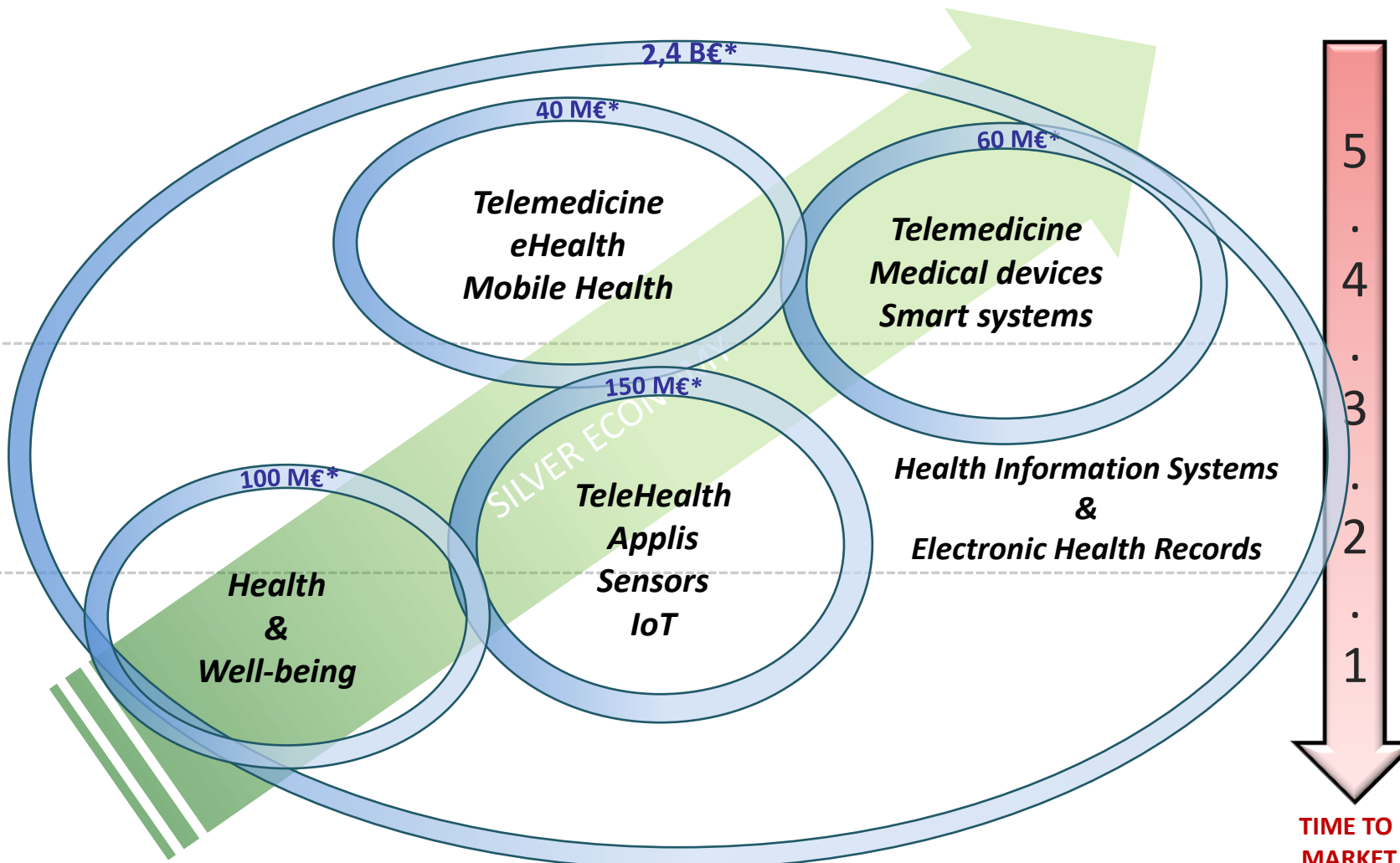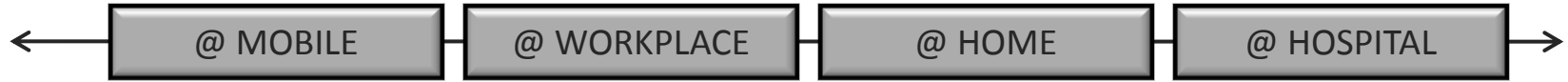**TIME TO MARKET (year)**

5 · 4 · 3 · 2 · 1

**ENABLERS: Universities, end users and professional associations, academics**

*Source: *Xerfi Research 2012; Medicen 2014*

# SILVER ECONOMY AND HEALTH

**FRENCH MARKET 2012 : 2,4 B€***

| ← @ MOBILE | @ WORKPLACE | @ HOME | @ HOSPITAL → |
|---|---|---|---|

**Social security Public bodies**

**Insurance Regions Enterprises**

**Patient Family 'out of pocket'**

**PAYERS**

**2,4 B€***

**40 M€***

*Telemedicine eHealth Mobile Health*

**60 M€***

*Telemedicine Medical devices Smart systems*

**150 M€***

SILVER ECONOMY

*TeleHealth Applis Sensors IoT*

**100 M€***

*Health & Well-being*

*Health Information Systems & Electronic Health Records*

5 · 4 · 3 · 2 · 1

**TIME TO MARKET (year)**

**ENABLERS: Universities, end users and professional associations, academics**

*Source: *Xerfi Research 2012; Medicen 2014*

## Different business models, different sections of laws

- **First generation telecare**: more mature market in ICTs and ageing concerns social alarms. Estimated levels of take-up vary considerably : <1% to >15% of older people

- **Second generation of telecare** : involving additional sensors to enhance basic social alarm services more advanced in UK

- **Third generation of telecare** : active monitoring, data gathering, lifestyle analysis, implementation/ smart data through pilots trials – few examples of services can be identified

*Source: **IT & Ageing – European Study on Users, Markets and Technologies. 2010***
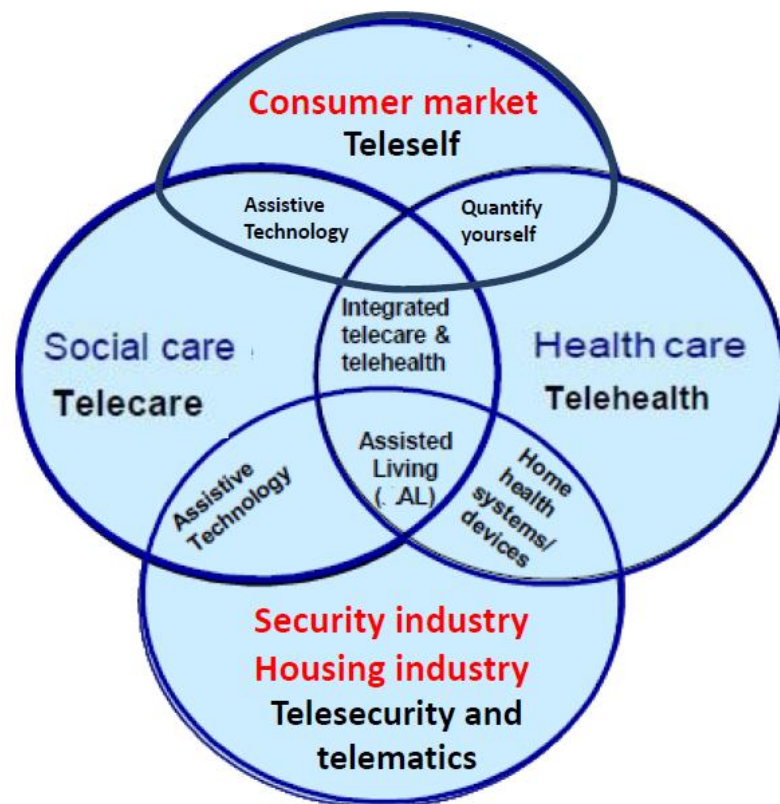
# MARKET FACILITATOR AND BARRIERS

- **UNCERTAINTY** about the role and relative **value** for ICT-based solutions in meeting the needs for older people: How to build trust and interest?

- **EMERGENCE** of evaluation results with studies showing positive outcomes from telecare and other ICT-based interventions to support older people BUT considerable variability across countries and within a country across various socio-cultural environments.

- **LACK OF** significant demonstrated **business or economic cases** is perceived as an important limiting factor: *e.g.* for telecare the complexity and differences of the relationships between the conception of the social care services, its deployment, how it is funded/reimbursed and the responsibility issues.

- **ETHICAL PERSPECTIVES** linking and balancing the **Value and business cases:** i) Macro ethical values: techno-push and/or search for cost savings vs. necessity and human value of the service provided. ii) Micro ethical issues linked to a particular aspect of the technologies *(e.g.* surveillance in the home, lifestyle monitoring...)*

**BEING INTUITIVE, SIMPLE, SECURE (PRIVACY,CYBERSECURITY...), INTEROPERABLE ACCEPTANCE OF END USERS – CULTURAL AND REGIONAL DIFFERENCES OPPORTUNITIES WITH BABY BOOMERS**

*Source: IT & Ageing – European Study on Users, Markets and Technologies. 2010*

- **REIMBURSMENT AND INCENTIVE SYSTEMS**: general features of social care systems often limit eligibility for publicly provided or funded services, including telecare. Getting innovations such as ICT-based products and services onto the lists of publicly funded care services / products has proven to be difficult and slow in many countries

- **FRAGMENTATION OF SYSTEMS AND SERVICES:** lack of integration between the different systems health, social and housing

- **REGULATORY REGIMES:** pose barriers of exploitations . In general  in EU the regulatory situation is typically not well developed from the point of view of the specific characteristics of telecare and home telehealth services. Concerns about liability and risk for homecare technologies and services  (home telehealth)

- **RESISTANCE TO CHANGE AND LACK OF CAPACITY TO INNOVATE**: professional resistance to changes

*Source: **IT & Ageing – European Study on Users, Markets and Technologies. 2010***

- **COMPREHENSIVE PROMOTIONAL PROGRAMMES** (European: KIC, National (*e.g.* Silver economy projects in France), Regional  "Autonomadom", Cities in Sweden, Region in Denmark…)

- **CONDUCIVE REIMBURSMENT:** The approach to reimbursement of smart home technologies, assistive technologies and telecare in The Netherlands is a useful example of how the typical fragmentation in this area can be overcome. The 'domotics' programme provides a new, integrated funding stream for a wide range of ICT-based  products and services to support older people in supportive housing (NL is taking a leading position in this area)

- **EXTENSIVE MAINSTREAM**: The implementation of home telehealth by the Veterans Administration in the US is probably the leading example of mainstreaming in this field today. More than 30,000 (mostly elderly) patients are currently served by the CCHT program.

- **PROMOTING 'WELFARE TECHNOLOGY" INNOVATION:** Finland was  one of the first to address this, for example, through the iWell and FinnWell programmes, and significant market successes can be pointed to (*e.g.* the "care watch"). In Denmark, a major public investment in 'welfare technology' is now being implemented.

# OPPORTUNITIES

**SERVICES AND PRODUCTS**

**WELL BEING**
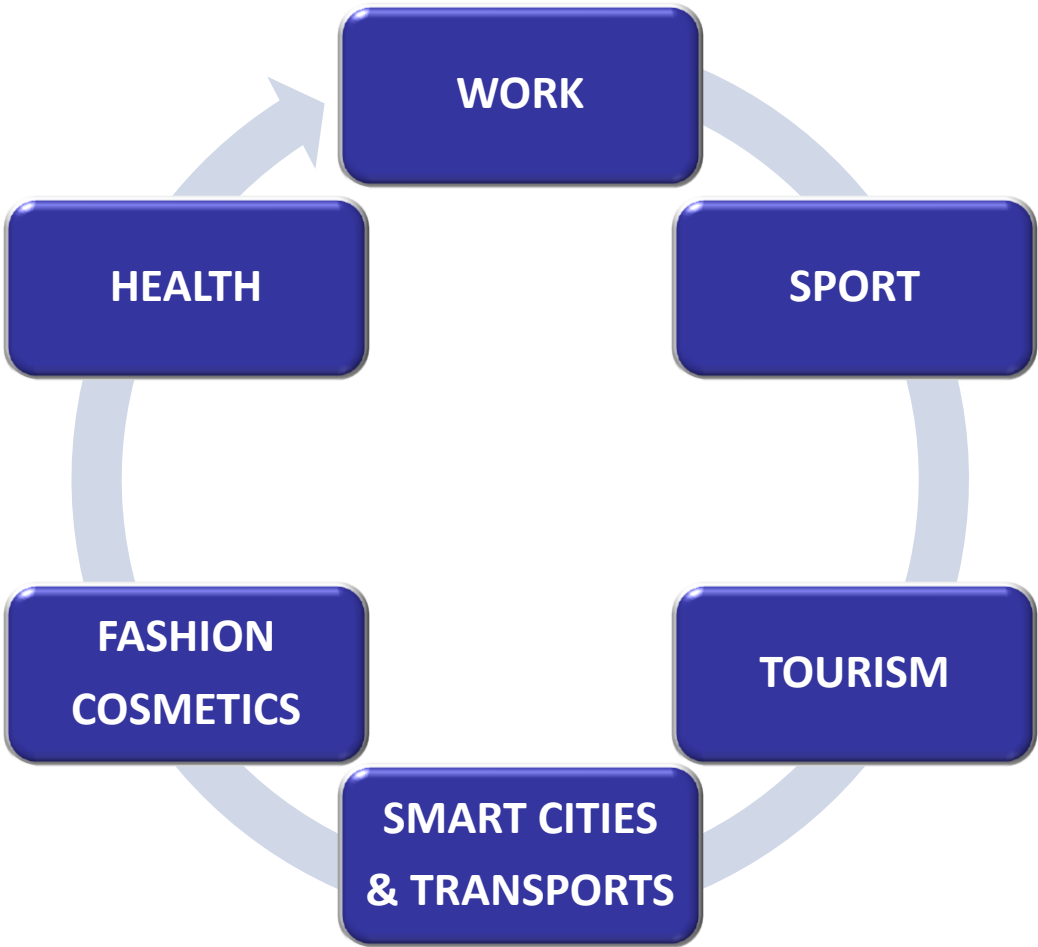   **IOT, fashion, nutrition, sport & leisure, insurance…**

**HEALTH**
   **Prevention, diagnostics, chronic disease management**

**INFRASTRUCTURE**
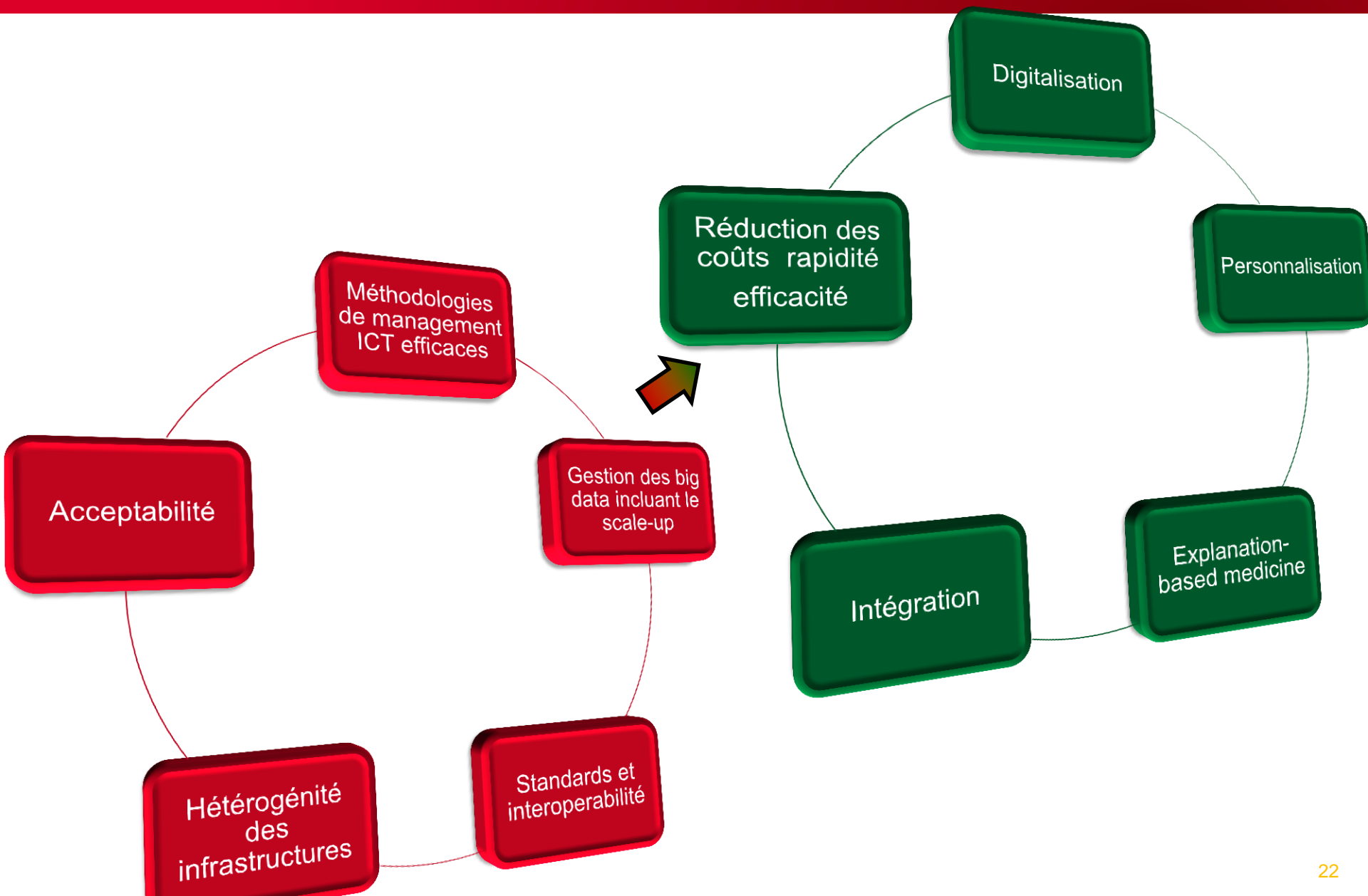   **ICT, telecom, transport, construction**

**TRENDS: INDIVIDUALISATION OF PRODUCTS AND SERVICES**

# SILVERCONOMY, A WIDE RANGE OF OPPORTUNITIES AND ACTORS



**TECHNOLOGIES OPPORTUNITIES: BIG DATA, SMART DATA, SENSORS (DEVICES, including medical), INTERNET OF THINGS, ROBOTICS (R4H), SERIOUS GAME**
**ISSUES: CYBERSECURITY, ETHICS/PRIVACY, INTEROPERABILITY, STANDARDS, SCALE-UP**

## EUROPEAN PERSPECTIVES (Euro Health consumer index main conclusions)

- At least today no single EU perspective on e-health

- Each country has its own policy and culture

- Northern countries seems to have more in common than others (e.g. widespread use of electronic health records, telemedicine and prescription)

- Some regions in Spain and Italy provide telemedicine consultations with specialists

- In France telemedicine is now "legal" with emerging on-line platforms

- In UK, the national health service is considering social media for healthcare professional to improve communication

## SOME KEY EUROPEAN INITIATIVES

- H2020 –PHC, IMI2, PPP Big data…

- EIT HEALTH

- Flagship ITFoM (virtual patient – demonstrator in oncology)

- BBMRI (*Biobanking and Biomolecular Resources Research Infrastructure*), ECRIN (*European Clinical Research Infrastructures Network)*….

# New Healthcare landscape,
## *Euro Health Consumer index, 2012*

The power gap between the profession and consumers/patients is closing. For the first time, second opinions and medical records are tools of empowerment and shared decision-making in a majority of countries.

Quality information about care providers has developed from a unique phenomenon to a not unusual platform of choice.

Reliable pharmaceutical websites for lay-persons have spread to most European countries, undermining the Big Brother attitude that information about medicines from manufacturers is a dangerous thing.

European healthcare is far from equal (highly developed northern countries, and a large group of underperformers (for reasons of economy, culture and politics)

Some countries are preparing for the integration of EU helathcare, and/or to deal with the profound transition of the aging of Europe

THE TOTAL WEALTH OF THE 65+ AGE GROUP IS HIGHER THAN €
3000B, REPRESENTING A HUGE MARKET FOR TARGETED
PRODUCTS AND SERVICES.

THE HEALTH AND SOCIAL CARE MARKETS ARE THEMSELVES
WORTH MULTIPLE BILLIONS. THERE IS THUS A NEED TO
IDENTIFY AND SHOWCASE SUCCESSFUL CASES
DEMONSTRATING EFFECTIVENESS, ALSO LOOKING AT THEIR
DEPLOYMENT.