

Presentation to EUSJA

Strategic Intelligence Monitor: Personal Health Systems (SIMPHS)

Seville, 20 January 2011



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Health and Social Care in EU Member States

The role of ICT in the provision of Health services

Personal Health Systems: market and innovation dynamics

The potential

- **Public Health expenditure and Long Term Care:**
 - 5.7% and 1.1% (6, 8%) of GDP today (~800 bln Euro);
 - Grows at a pace of 4% a year (faster than EU economic growth);
 - may double (12.8%) by 2050 (~1600 bln Euro if no action taken)
- **Public Budget Recession for EU**
 - Public Deficits rising (7% on average) and MS Debt levels (>80% of GDP)
- **Health is Wealth**
 - Health capital contributes to productivity and growth

OECD Health Data 2009

- **Health sector employs 9.3% of EU total workforce:**
 - more than >15 Million people
 - compared to ~13.0 M employed in retail, EU COM(2010)2020
 - compared to ~13.3 M employed in business services
- **Ageing of the EU Population**
 - Old-Age dependency ratio from 0.25 to 0.33 (2020) to 0.5 (2050)
 - Tax payers and employment impacts (pension system sustainability)
 - 46% of older workers (55-64 yo) compared to 62% in US/JP (on average)

**Major
Impact**



**Shortages of Health Care
Professionals and LTC workers**

Health and Social Care in EU Member States

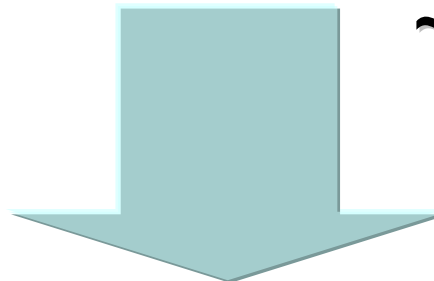
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The potential

EU 27 health Expenditure
~ €1000 billion*

ICT market value
~ €668 billion***



eHealth Market
€14,2 billion**

< 2% of total expenditure

eHealth potential to rise to 5%
(in the next 5-10 years)

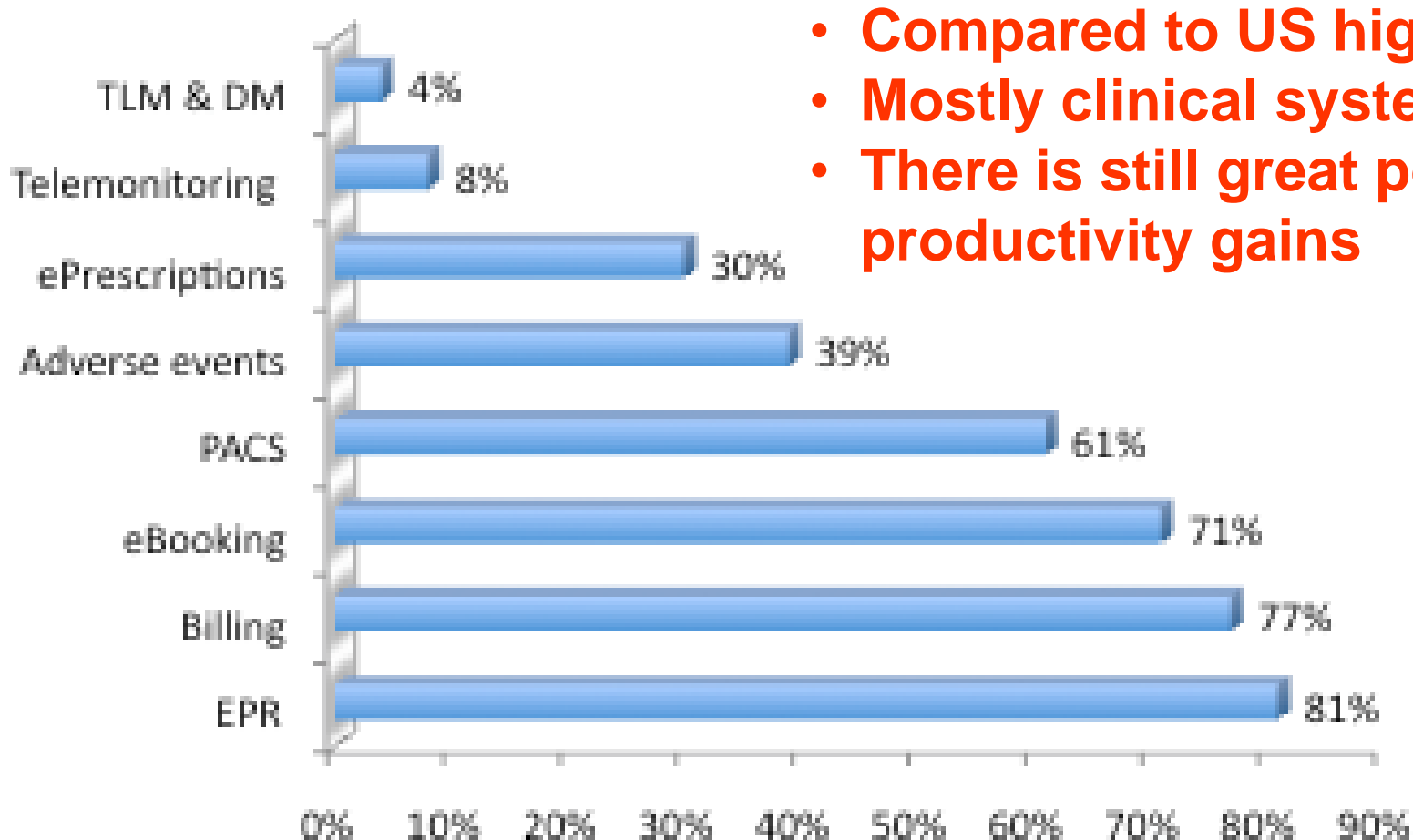
Compare to: Government 4%

Financial sector 13%

* Deloitte&Touche - HINE report 2008

** RAND/Capgemini Report 2009

*** EITO 2007



- Compared to US high deployment
- Mostly clinical systems
- There is still great potential for productivity gains

N= 907 hospitals in EU27 (questionnaire to CIO**)

EPR= Electronic Patient Record; PACS= Picture Archiving and Communication Systems; DM = Disease Management

TLM = Telemonitoring

** Study to be published in 2011

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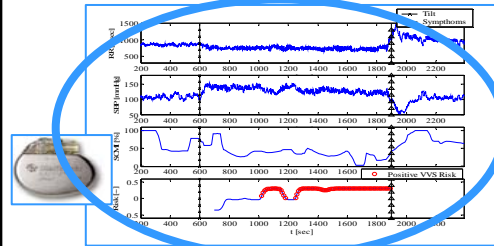
The potential

Data acquisition



Sensors for
multi-parametric
monitoring

Data processing & analysis



Medical
expertise

Intelligent
analysis

Support to diagnosis
decision & treatment

Health / call
Centre

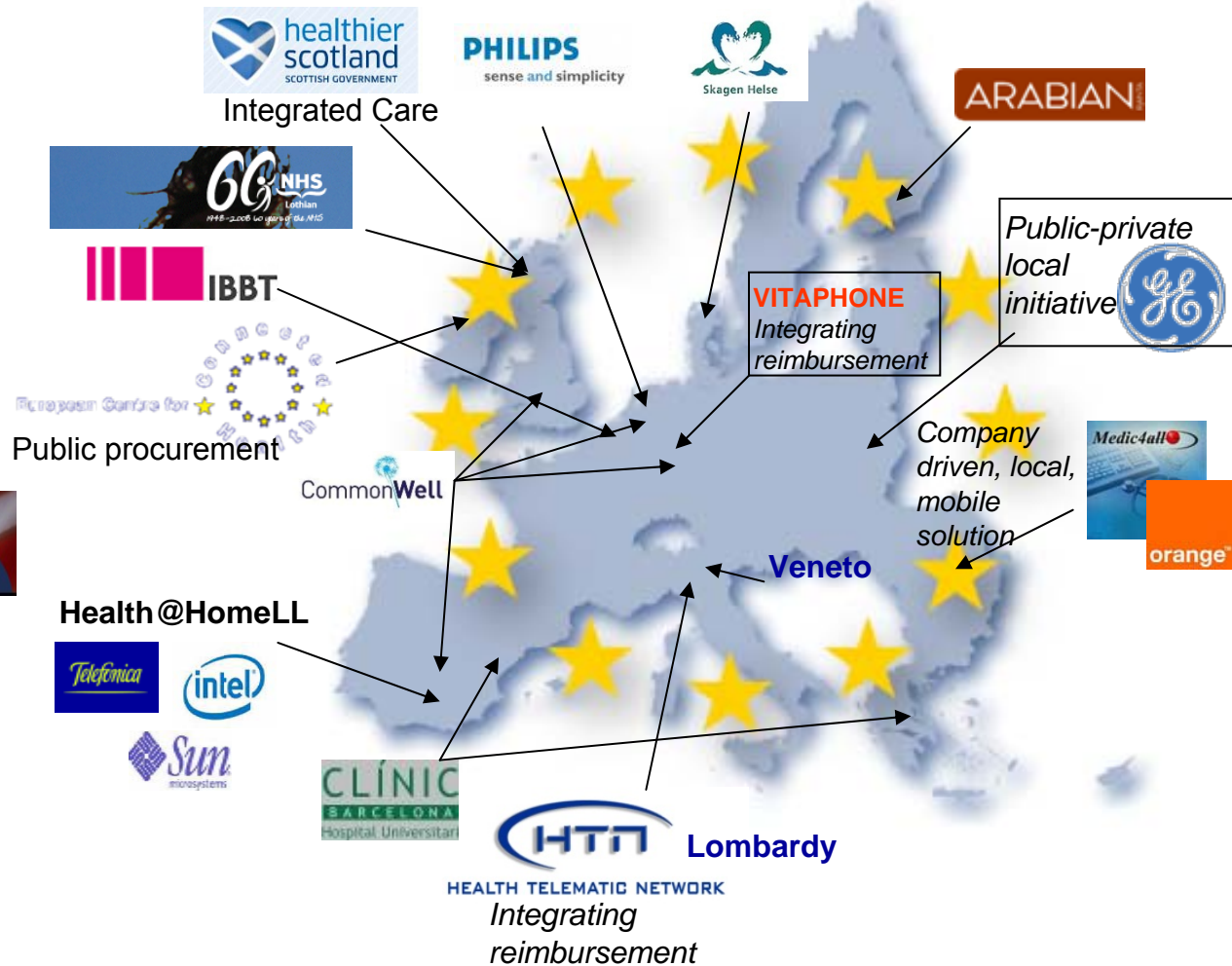


Hospital

Treatment,
Rehabilitation

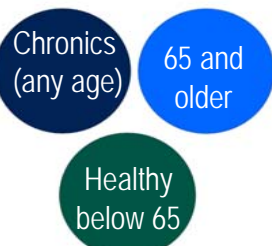
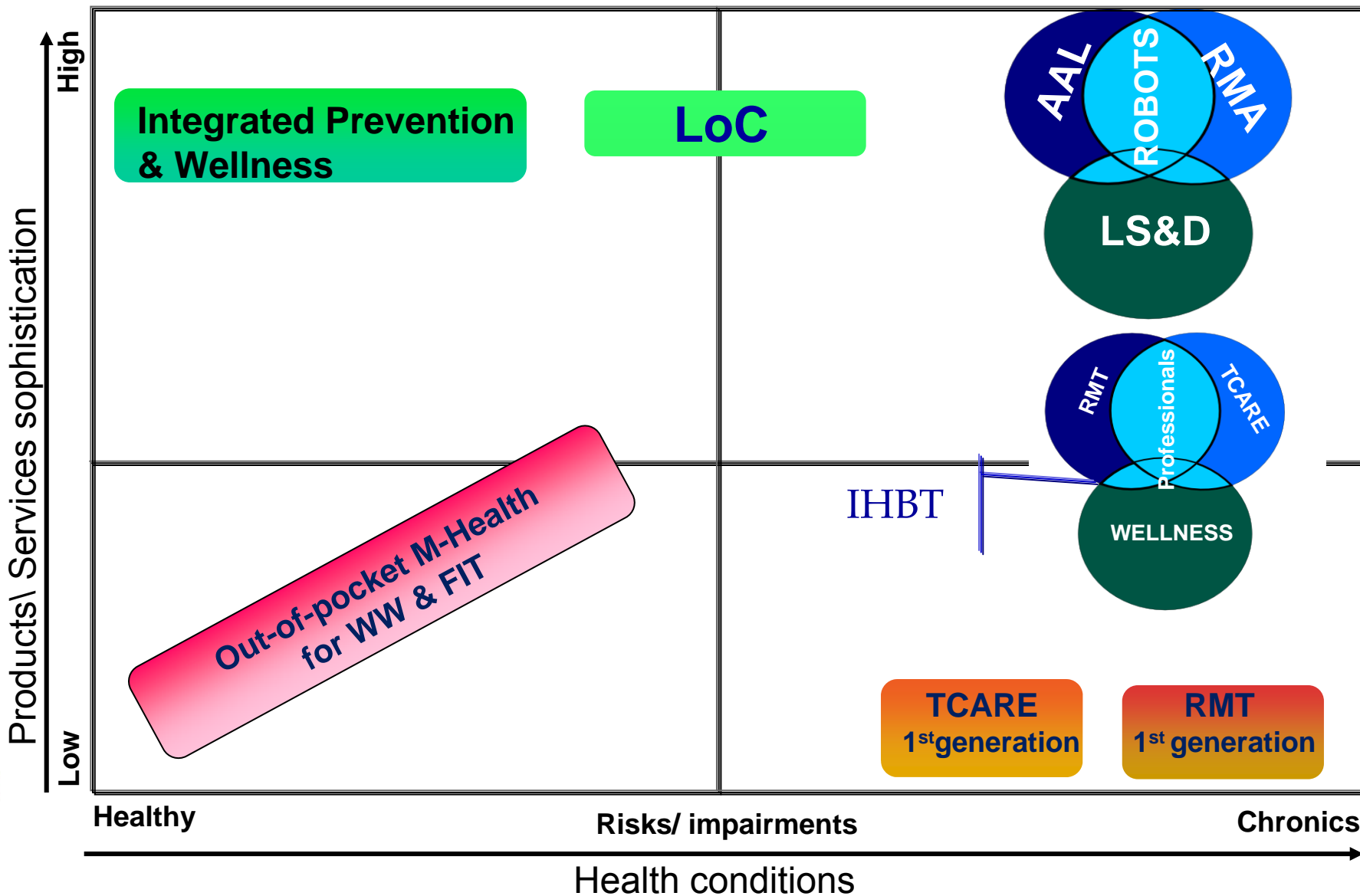
Data communication and feedback

Mapping of selected pilots & programmes



USA - Veterans Administration with 40.000 veterans, and 202 home care agencies offering telehealth (NAHCH study)

AAL= Ambient Assisted Living
LoC= Lab on Chip
RMA= Remote Monitoring and Actuation
LS&D= applications for adherence to drugs and lifestyle prescriptions
IHBT= Intensive Home-based Treatment
TCARE= Telecare
RMT= Remote Monitoring and Treatment
WW= Worried Well
FIT= Fitness



Industry players views

- **Lack of reimbursement**
 - No unified approach at EU level
 - Unclear business models, revenues
 - Not viable as out of pocket market
- **Buyers' fragmentation**
 - Locally based strategies
 - Institutional and market fragmentation feed each other to raise uncertainty
- **Entry "barriers"**
 - End-to-end provision by suppliers not easily accepted; need for IOP & standards
 - Not fully operational PHR/EHR linked to PHS
 - Lack of consolidated evaluation methods



Unclear business model, shaky revenues, fragmentation

HC experts and insiders views

- **Unfavourable incentives for HC profs.**
 - Neither "fee for service" nor "capitation" incentives work for RMT; "outcomes-based" reimbursement might!
- **Primary, secondary & social care**
 - Improved education for Patients/Carers.
 - NO integration between Health- & Social- Care.
 - Silos, turf wars
- **Missing policy box**
 - RMT is part of 'territorial' medicine; it competes for attention and funds with other applications.
 - In need of clear policy & political support.
- **Evidence/awareness vicious circle**
 - Need for large scale clinical evidence.



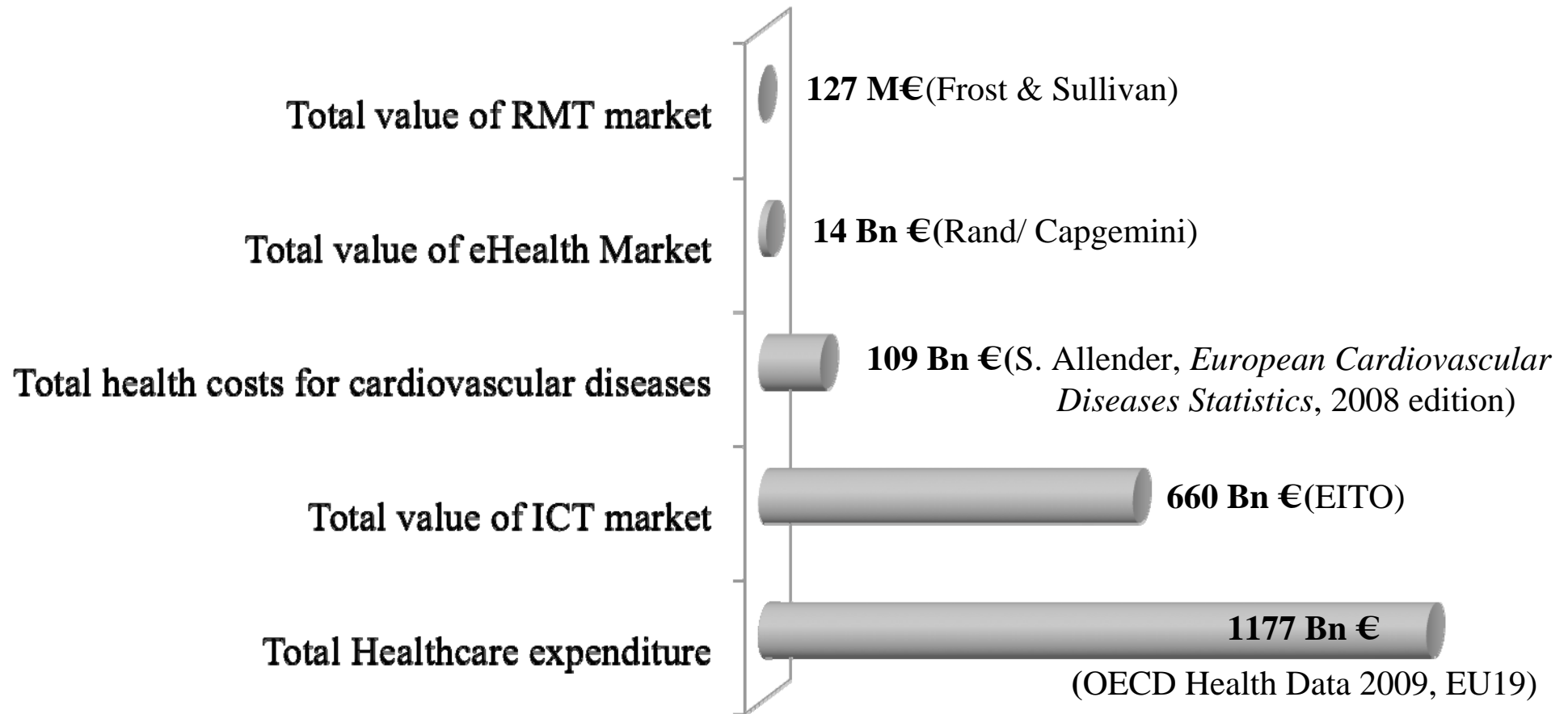
Lack of strategic vision on organisationally embedded and integrate health and social care

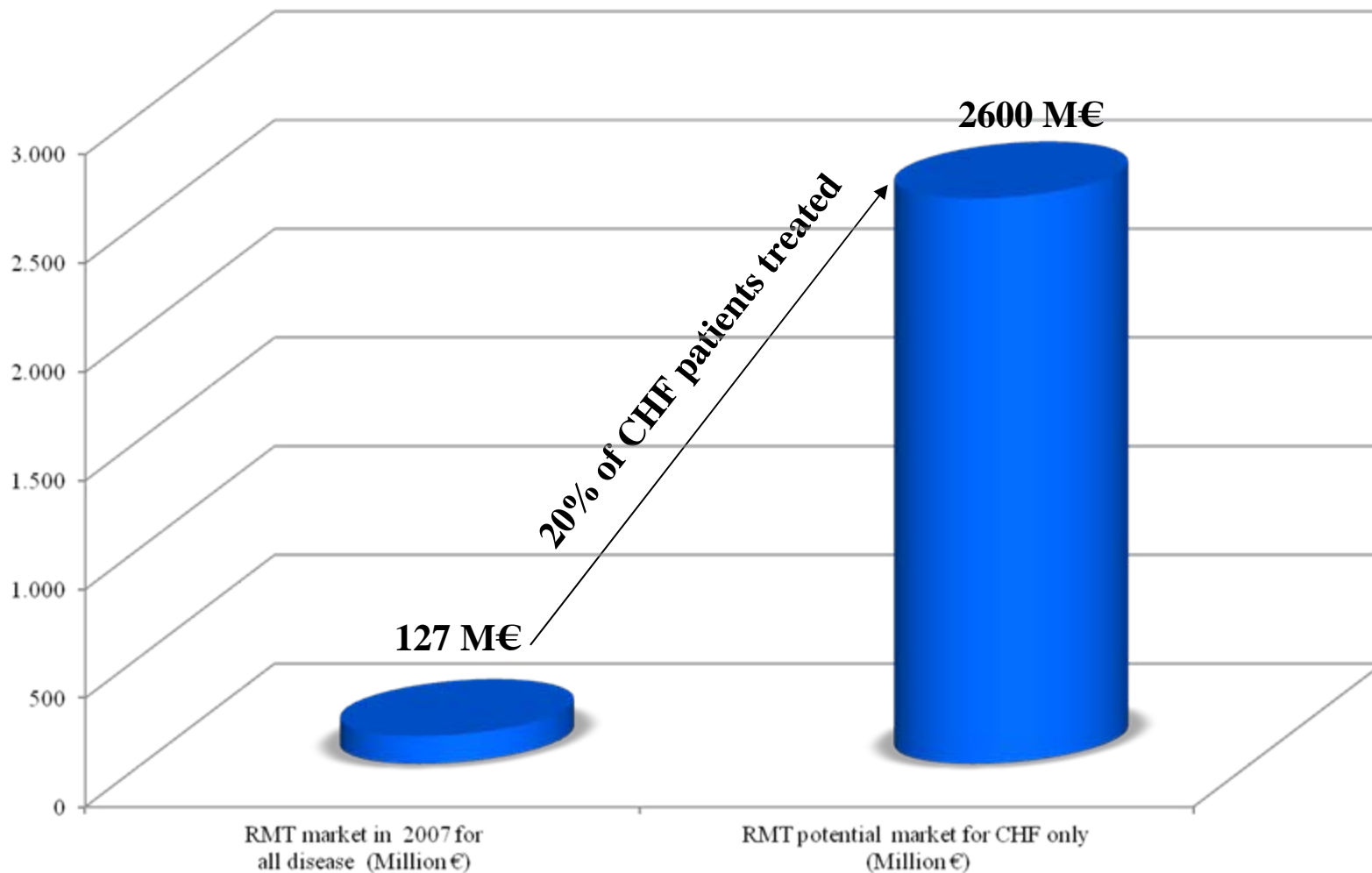
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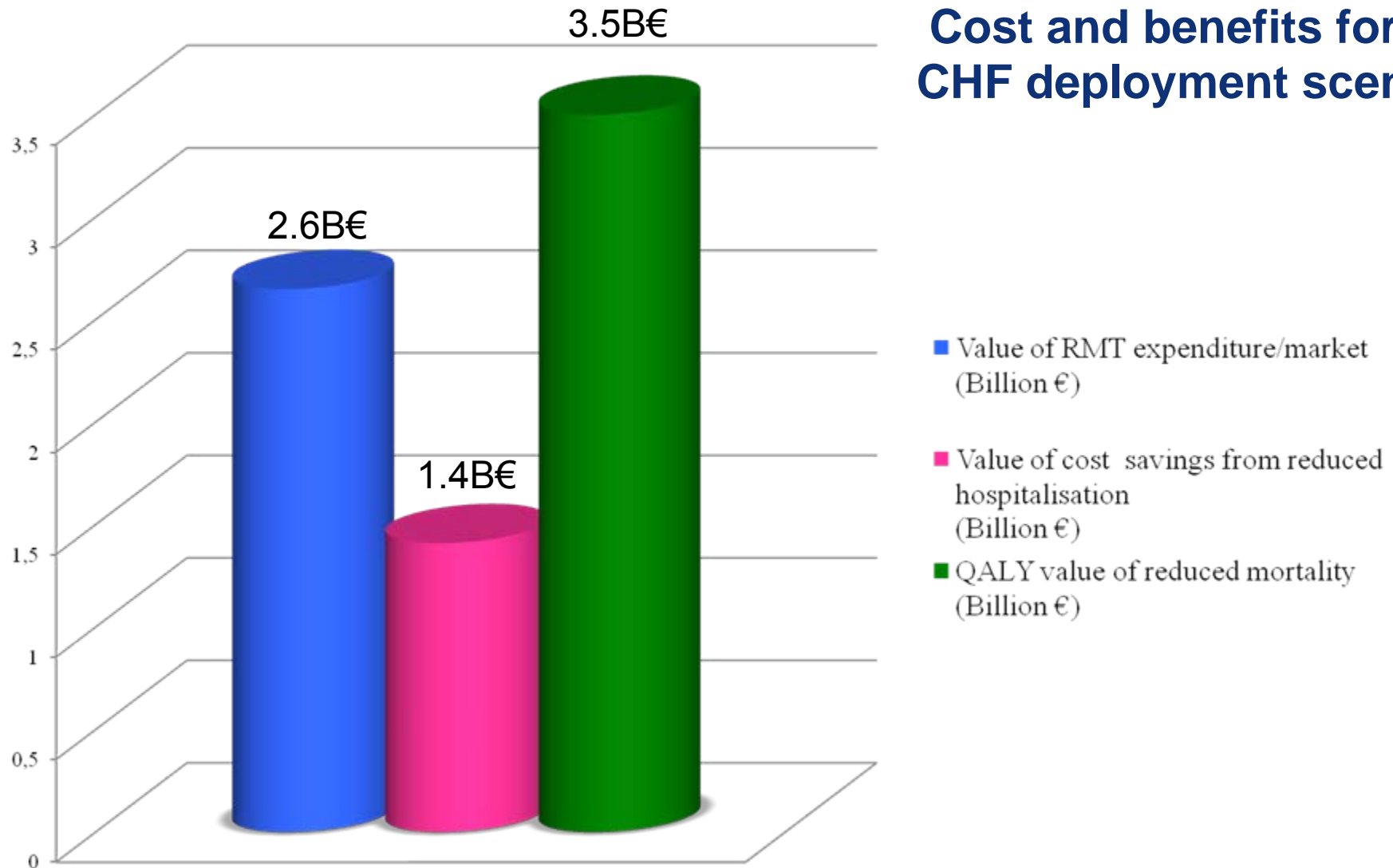
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The potential





Cost and benefits for the CHF deployment scenario



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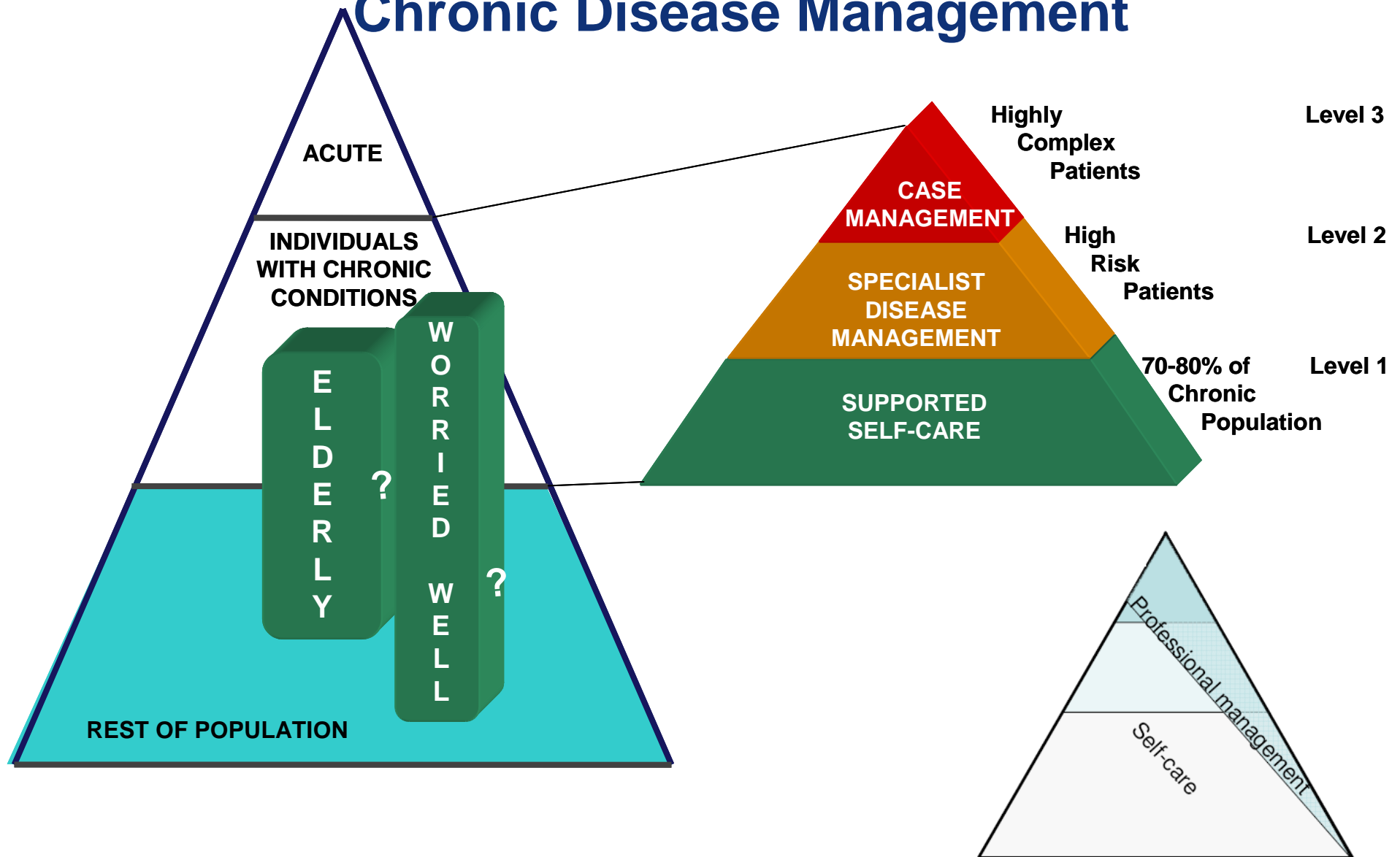
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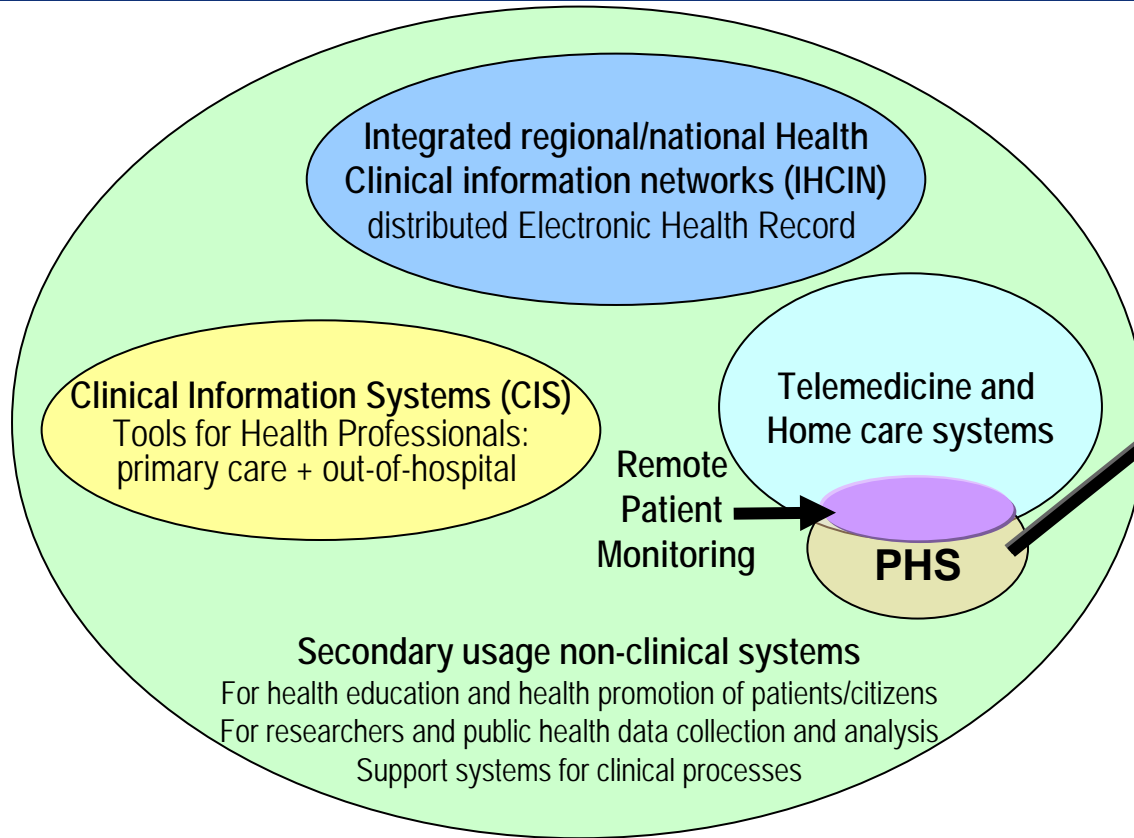
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Additional background material

Chronic Disease Management





- New markets/New jobs
- Increased output efficiency
- More people included
- Active workers' life prolonged

Secondary Usage Non-Clinical Systems:	71.6%
Clinical Information Systems:	22.5%
Health Information networks:	5.0%
Telemedicine and homecare services:	0.9%
of which:	
Remote Monitoring and Treatment:	0.6%

"Accelerating the development of the eHealth market in Europe",
EC eHealth Taskforce report 2007: Lead Market Initiative,
Luxembourg: Office for Official Publications of the EU, 2007 p. 10
http://ec.europa.eu/information_society/activities/health/docs/publications/mi-report-final-2007dec.pdf

- Currently very basic first generation sensors are deployed;
- Ongoing research needed to improve wearable smart sensors and textiles, implantable sensors, and on-board data processing capacity of sensors;
- Integrated, intelligent (auto-adaptive/self-calibrating), non-invasive and personalised PHS in future research.

PHS is combination of:

- Data processing
- Sensors
- Interacting and interfacing
- Point of Care (Lab-on-Chip)



**INFUSION OF
BIOMEDICINE INTO
TECHNOLOGY**

PHS

PHS personalised and fully accepted by healthcare professionals when they will integrate evidence and knowledge from clinical practice and biomedical research

Source: C. Codagnone, Reconstructing the Whole: Present and Future of Personal Health Systems

(http://ec.europa.eu/information_society/newsroom/cf/itemlongdetail.cfm?item_id=5555)

- **RMT proven outcomes**

- Clinical outcomes: robust evidence
- Cost-effectiveness: inconclusive?
- CHF:
 - Re-hospitalisation due to CHF reduced
 - All cause re-hospitalisation not?

- **US VHA study:**

- Diabetes: 20.4% utilisation decrease;
- CHF: 25.9% utilisation decrease
- COPD: 20.7% utilisation decrease

- **Other Studies:**

- RCT for HBT in Italy (↓ hospitalisation readmission, ↓ mortality)
- Similar outcomes with diabetes/ COPD in other studies

Reducing diabetic death

11,000 deaths caused by complication ensuing from diabetes could be reduced in the six Member States through the combined applications of EMR and disease management

Source: EU Swedish Presidency, (2009) ***eHealth for a Healthier Europe!*** , p. 34

Reduce hospitalisation

Application of telemedicine and home health monitoring could avoid 5.6 million admissions to hospitals for chronically ill patients in the six Member States

Source: EU Swedish Presidency, (2009) ***eHealth for a Healthier Europe!*** , p. 36

Diseases	Prevalence	Aggregate Direct Costs
Diabetes (IDF Diabetes Atlas, plus several sources)	<ul style="list-style-type: none"> • 6.6% of total population 	<ul style="list-style-type: none"> • about € 90 bln per year
COPD (Several sources)	<ul style="list-style-type: none"> • Range from 4% to 11% • 2 million DALY lost yearly 	<ul style="list-style-type: none"> • About 50 bln per year
CVD in general (S. Allender, ed. 2008)	<ul style="list-style-type: none"> • 12 million DALYs lost yearly 	<ul style="list-style-type: none"> • € 109 bln per year
CHF (several sources, OECD 2009 Health Data)	<ul style="list-style-type: none"> • Between 1% and 3% of general population • 10% among the very elderly 	<ul style="list-style-type: none"> • 23 bln per year

Set to almost double by 2020