

# 2<sup>nd</sup> Technical Meeting preparing the Round Table on the electronics industry with Commissioner Oettinger (ENF Nov. 24, 2016)

## Session 3: Capitalizing – Health

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# Trends in healthcare

# The global health care challenges

More than **1/3 of people** will be diagnosed with cancer in their lifetime

**500+ million people** suffer from respiratory diseases

**400 million** people worldwide have diabetes

An estimated **1 billion adults** with hypertension

Especially due to rise of chronic diseases: **5%** of population accounts for **50%** of healthcare spend



# New approaches are needed to address the global health care challenges

Transforming from

To

By

**Episodic**

**Continuous**

Orchestrating comprehensive, 24/7 care with focus on the chronically ill

**Fragmented**

**Connected**

Connecting patients and care givers, utilizing integrated workflows

**Response**

**Prevention**

Moving from treating illness to maintaining population wellness

**Volume**

**Value**

Optimizing resources for better health outcomes across populations

Through **information technology** based services and solutions

# Trends and opportunities in health tech market



  
**Consumers** increasingly engaged in their health

  
Shift to **value-based healthcare** will reduce waste, increase access and improve outcomes

  
Care shifting to **lower cost settings** and homes



**Connectivity and digital** shifting value from devices to **software and services**



**'Industrialization' of care**  
Enabling providers to deliver lower-cost care and better outcomes

**Personalization of care**  
Driving convergence of professional healthcare and consumer health

# European healthcare ecosystem: COCIR

Main trade association for medical technology & Healthcare IT with own SRA



## Industry Sectors covered by COCIR



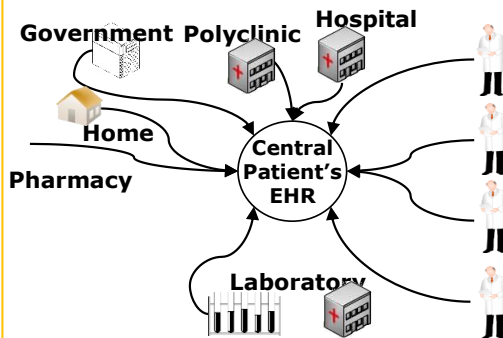
COCIR is a non-profit trade association, founded in 1959 and having offices in Brussels and China, representing the medical technology industry in Europe



COCIR covers 4 key industry sectors:

- Medical Imaging
- Radiotherapy
- Health ICT
- Electromedical

Our Industry leads in state-of-art advanced technology and provides **integrated solutions** covering the complete care cycle



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## Key Figures on Medical Technologies

Based upon manufacturer prices the European medical technology market is estimated to make up 31% of the world market. It is the second largest medical technology market after the US ( $\pm 40\%$ )



> 575,000 employees



- Medical technologies
- ICT & Imaging
- IVDs

> 80% SMEs



*Europe has a positive medical technology trade\* balance of €14 billion (2014). This is less than in 2013 (€15.2 billion), but still represents a twofold increase since 2006. In comparison, US medical technology trade surplus is at €5 billion. Compared to 2012, the main European medtech trade partners remain the same: the US, China and Japan.*

Highly Innovative



11,000 IN 2014

R&D investments range from 8% to 12% of the revenues



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## 32 COCIR Company Members



## 15 COCIR National Trade Associations Members

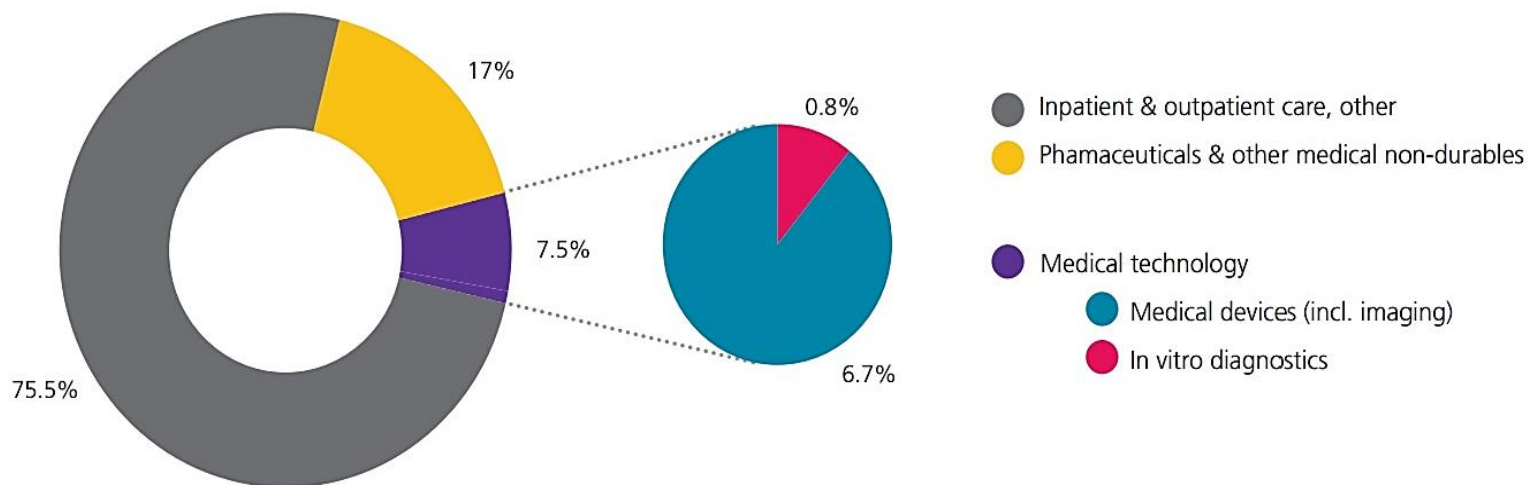


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## Health Expenditures & Medical Technologies



**In Europe, an average of 10.4% of gross domestic product is spent on healthcare**

**Of this figure, only 7.5% is attributed to medical technologies**

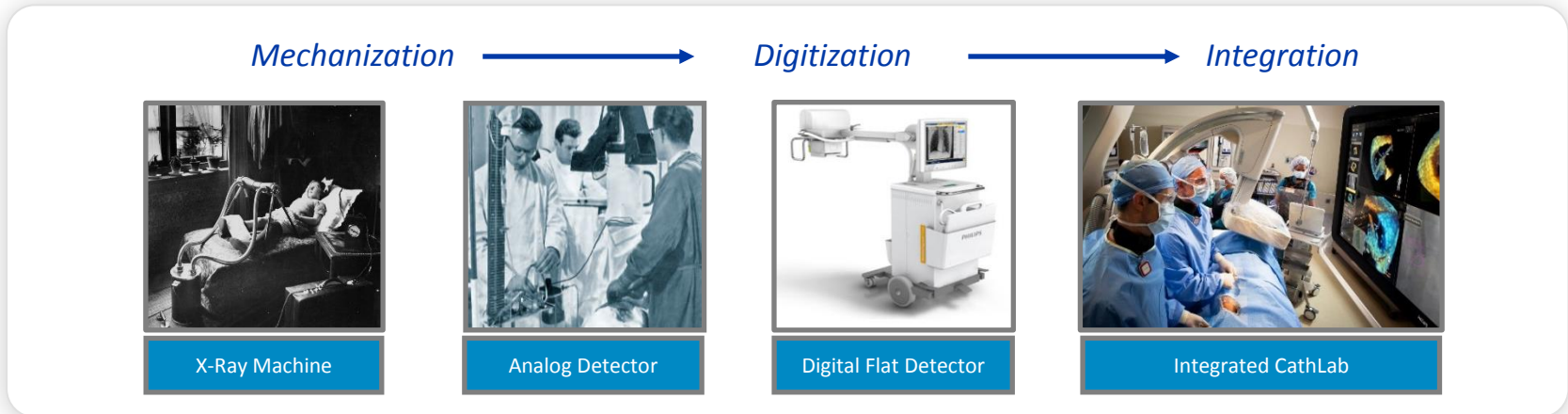
# Trends in electronic components and systems

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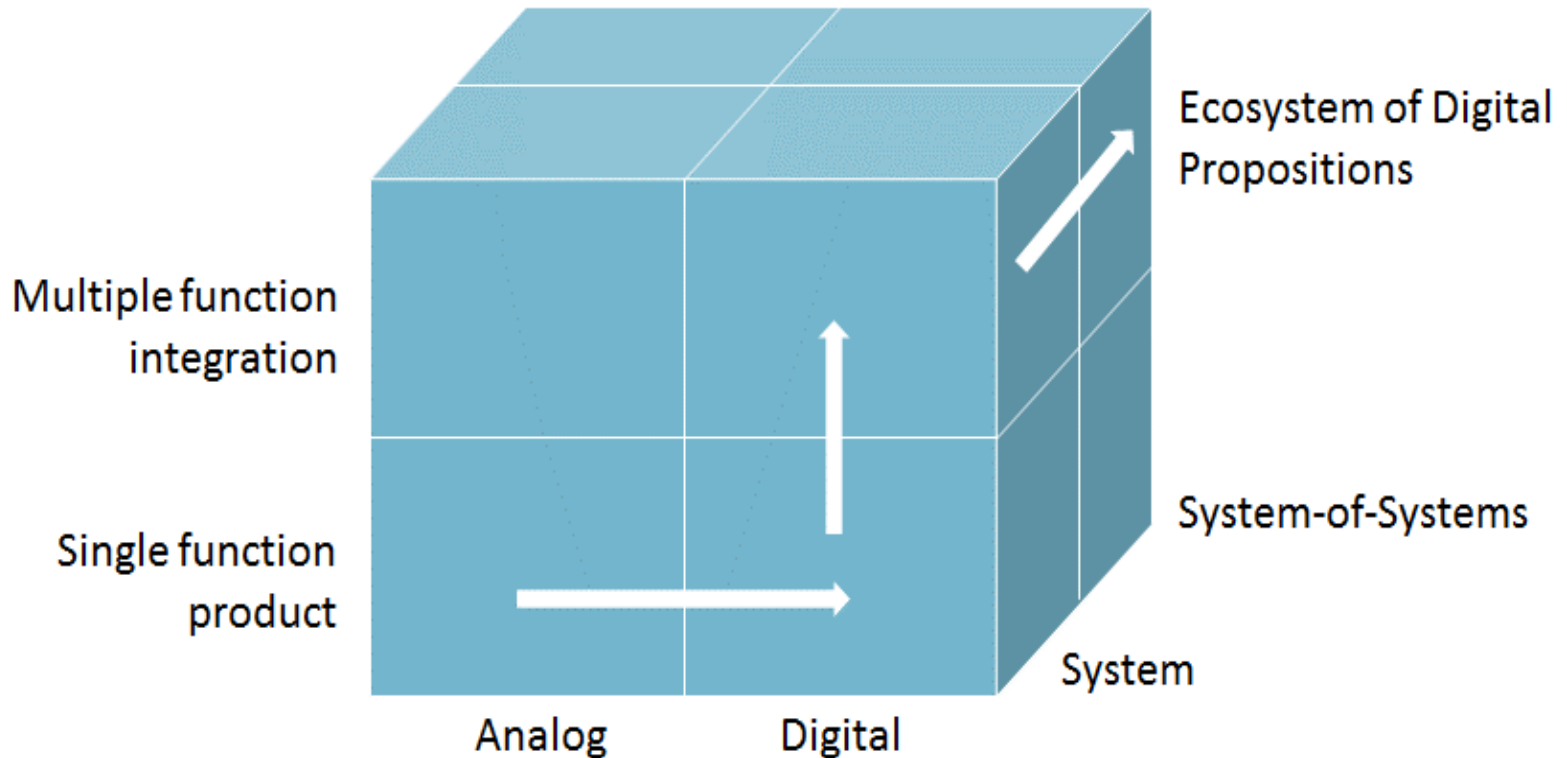
- Digitization
- Smart system integration
- High performance computing
- Public-private partnership ecosystem

# Digitization in healthcare

From mechanization to digital propositions



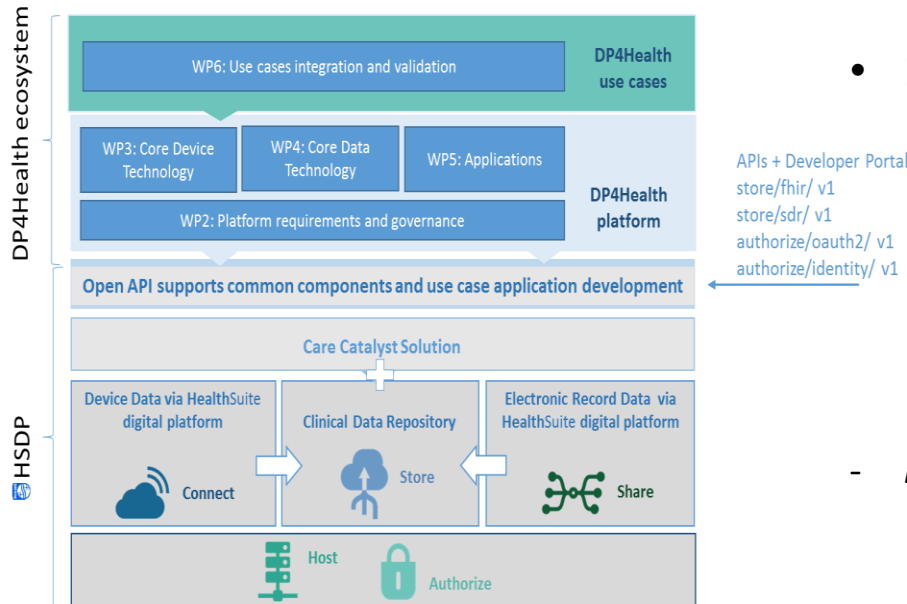
# Towards an ecosystem of digital propositions



# Digital platform for health

- **Ambition:**

- Build and explore a Digital Platform for Health (DP4Health)
- Build demonstrators that act as Living Labs around the Digital Platform for Health
- Build a developer community around the digital health ecosystem
- Open new health and wellbeing market opportunities for European companies
- Ensure European leadership in creating the future of Digital Healthcare



- **Ecosystem: players in the health value chain**
  - Academic Medical Centers/Universities
  - Data analytics specialists
  - (Cloud) IT Service providers
  - Device manufacturers (components)
  - Application builders
  - Public health authorities
  - Insurance companies
  - Patients and patient organizations
- *ECSEL DP4Health consortium is a subset (FPP submitted)*

# Smart System Integration

Today's smart catheters  
are analog devices

- Require many wires
  - Manual assembly
  - Low yield fabrication
  - Ad hoc interfaces, point solutions
  - Low reliability
- } high cost



Next generation of  
smart - catheters will have  
digitization at the tip

- High speed serial interfaces
  - Rational fabrication
  - Robust data transport
  - Standard interfaces and protocols
- } cost reduction!

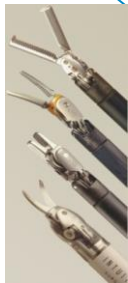


# High Performance Computing

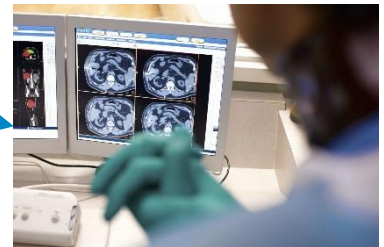
Sensors



Diagnostic equipment




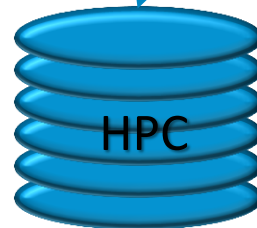
Interventional equipment




Low power:

- reduce heat dissipation
- ensure power for long durations

→ Complex image enhancements



Imarvi



High Profile

Interventional & diagnostic equipment

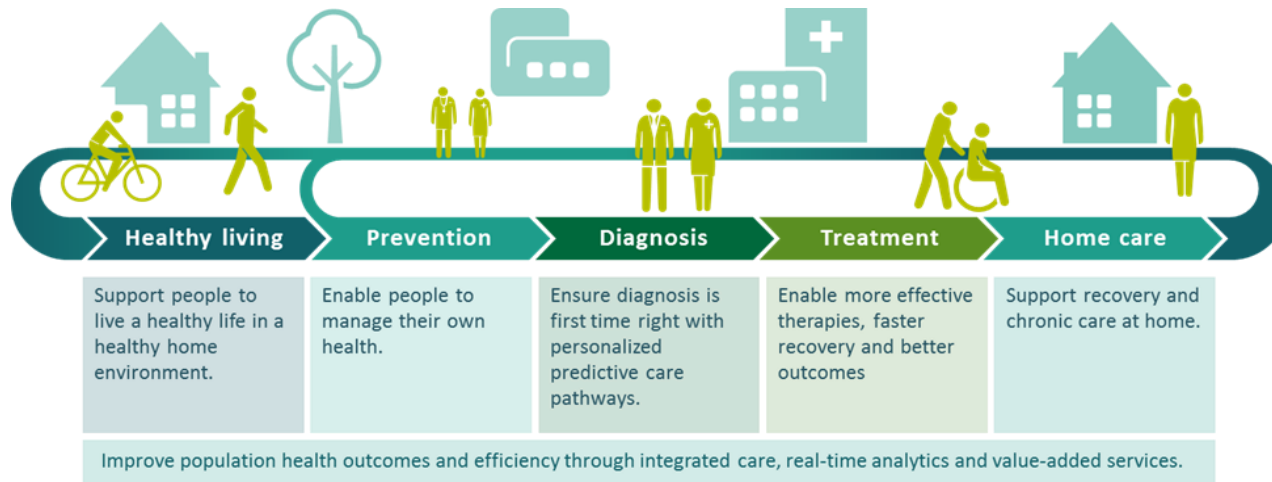
Fast network

Real-time and Low latency response

# Healthcare in ECSEL MASRIA

# Addressing the challenges in healthcare

- ECSEL MASRIA contains 3 Grand Challenges:
  - Grand Challenge 1: Home Healthcare
  - Grand Challenge 2: Hospital Healthcare
  - Grand Challenge 3: Heuristic Healthcare
- These grand challenges are shown in figure which visualizes the health continuum



# Objectives from ECSEL MASRIA 2017

- **Objective 1:** Transform from now to 2025 healthcare from state of the art to standardized care in order that existing medical devices and medical supplies become more and more applicable outside the hospitals. The transformation should result in gradual migration to a more controlled uniform and efficient delivery of care for the population, the decrease of cost and quality differential between care providers, patient management not only local at the medical doctors and in hospital but largely spread.
- **Objective 2:** Creation of an open digital health platform ecosystem, enabling cost effective development and validation of healthcare appliances and applications. The platform will provide an open environment, enabling a wide range of collaboration opportunities and easy market access for new applications. The platform is open for new appliances and applications by providing API's (Application Programming Interfaces), while taking safety, security and privacy into account.
- **Objective 3:** Creation of mobile healthcare systems based on micro-/nano-electronics, to increase sustainability and efficiency of health systems and support the improvement of quality of life for patients, in particular of elderly people with chronic disease. In the end, dedicated sensor systems have the potential to significantly reduce number of casualty and unscheduled hospitalizations. Patients should be more self-empowered to manage their disease by their own.
- **Objective 4:** Medical equipment and devices are evolving fast, especially in the changeover from open surgery to closed (minimal invasive) surgery. Innovation in imaging (e.g.: functional imaging, higher resolutions), multi-model imaging (e.g. HIFU) and image guided intervention will open up complete new treatments, workflows and markets.

# Targeted impact: an ambitious agenda

- For patients:
  - safer and more secure access to healthcare information
  - better personalized prevention, diagnoses and treatment
  - improved quality of life
- For healthcare professionals:
  - improving decision support
  - unlocking totally new clinical applications
- The impact on European industry:
  - create leadership in new digital market
  - opening up a new world of cloud based collaborative care; and increasing efficiency of health prevention, diagnoses and treatment
- Benefits for the European society:
  - contributing to the reduction of growth of healthcare cost
  - raise people's healthy life years
  - improved quality of life and productivity of work force
- Benefits for health care payers:
  - reduction of cost
  - lean approach to health care provision
  - improved quality of treatment

# Key messages

# Key Messages

- The European medical technology industry is highly innovative and clearly addresses important societal challenges
- Digitization will have a major impact on the healthcare industry and will thus also impact Europe's economy and society
- Digitization, smart (system) integration and high performance computing are the main technological themes for the medical industry
- Public-private partnerships are an important asset in Europe to advance collaboration and ensure quick market uptake

# References

- ECSEL MASRIA:
  - <https://ec.europa.eu/digital-single-market/en/news/ecsel-multistrategic-research-and-innovation-agenda-2015>
- AENEAS SRA
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  - [http://www.aeneas-office.eu/web/downloads/strategic-docs/partc\\_vms\\_2013\\_final.pdf](http://www.aeneas-office.eu/web/downloads/strategic-docs/partc_vms_2013_final.pdf)
- ITEA Roadmap:
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