

Digital Transformation of Health and Care

empowering citizens and building a healthier society



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and Technology (DG CONNECT)***

Directorate H Digital Society, Trust &
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Future = Data-driven Health & Care



MIT Technology Review
BUSINESS REPORT

Data-Driven Health Care

New technologies promise a flood of molecular, environmental, and behavioral patient information. Will all that data make medicine better?



CONTENTS

The Big Question

More Phones, Fewer Doctors

IBM Aims to Make Medical Expertise a Commodity

23andMe Tries to Woo the FDA

Mobile Health Monitoring Devices

Mobile Health's Growing Pains

Plus: CB's Crash, Data in Action at Mayo, Pharma's new transparency, and more

The Big Question

Can Technology Fix Medicine?

Medical data is a hot spot for venture investing and product innovation. The goal: better care.

● After decades as a technological laggard, medicine has entered its data age. Mobile technologies, sensors, genome sequencing, and advances in analytic software now make it possible to capture vast amounts of information about our individual makeup and the environment around us. The sum of this information could transform medicine, turning a field aimed at treating the average patient into one that's customized to each person and shifting more control and responsibility from doctors to patients.

The question is: can big data make health care better?

"There is a lot of data being gathered. That's not enough," says Ed Martin, interim director of the Information Services Unit at the University of California, San Francisco, School of Medicine. "It's really about coming up with applications that make data actionable." →

The ultimate dream is that **every family doctor** will be able to **access artificial intelligences** and **super-computing** as a service at his desktop, very much like he accesses cloud services like email or electronic prescriptions today.

Roberto Viola
Director-General DG Connect,
European Commission

#DA18eu
#DigitalHealth

<https://himssinsights.eu/>, 29.6.2018

The Economist
FEBRUARY 24th-29th 2018

Theresa May: dead woman standing still
Ponzi schemes in China
Higher education, lower returns
Pity the pangolin

Doctor You

How data will transform health care



Commission Communication COM (2018) 233

Putting people at the centre
of **health and care**

Enabling secure access to health data across the EU

Data sharing for better research and personalised healthcare

Empowering patients with digital tools

#DigitalSingleMarket
#DigitalHealth



*Digital transformation of
health and care
in the Digital Single
Market
empowering citizens and
building a healthier
society*

Digital Health and Care



TRANSFORMATION OF HEALTH AND CARE IN THE DIGITAL SINGLE MARKET - Harnessing the potential of data to empower citizens and build a healthier society

European health challenges

- ⊗ Ageing population and chronic diseases putting pressure on health budgets
- ⊗ Unequal quality and access to healthcare services
- ⊗ Shortage of health professionals

Potential of digital applications and data to improve health

- ⊗ Efficient and integrated healthcare systems
- ⊗ Personalised health research, diagnosis and treatment
- ⊗ Prevention and citizen-centred health services

What EU citizens expect...

90% agree

To access their own health data
(requiring interoperable and quality health data)

80% agree

To share their health data
(if privacy and security are ensured)

80% agree

To provide feedback on quality
of treatments

Support European Commission:

1

Secure access and exchange of health data

Ambition:

Citizens can securely access and share (e.g. with doctors or pharmacies) their health data anywhere in the EU.

Actions:

- eHealth Digital Service Infrastructure will deliver initial cross-border services (patient summaries and ePrescriptions) and cooperation between participating countries will be strengthened.
- Proposals to extend scope of eHealth cross-border services to additional cases, e.g. full electronic health records.
- Recommended exchange format for interoperability of existing electronic health records in Europe.



2

Health data pooled for research and personalised medicine

Ambition:

Shared health resources (data, infrastructure, expertise...) allowing targeted and faster research, diagnosis and treatment.

Actions:

- Voluntary collaboration mechanisms for health research and clinical practice (starting with "one million genomes by 2022" target).
- Specifications for secure access and exchange of health data.
- Pilot actions on rare diseases, infectious diseases and impact data.



3

Digital tools and data for citizen empowerment and person-centred healthcare

Ambition:

Citizens can monitor their health, adapt their lifestyle and interact with their doctors and carers (receiving and providing feedback).

Actions:

- Facilitate supply of innovative digital-based solutions for health, also by SMEs, with common principles and certification.
- Support demand uptake of innovative digital-based solutions for health, notably by healthcare authorities and providers, with exchange of practices and technical assistance.
- Mobilise more efficiently public funding for innovative digital-based solutions for health, including EU funding.



IMPACT OF EU ACTION

BENEFITS FOR CITIZENS



3

Digital tools and data for citizen empowerment and person-centred healthcare



Ambition:

Citizens can monitor their health, adapt their lifestyle and interact with their doctors and carers (receiving and providing feedback).



Supporting innovation and uptake of digital solutions beyond 2020



Commission's budget proposal for 2021 - 2027



A BUDGET ALIGNED TO POLITICAL PRIORITIES Simplification, transparency and flexibility

In billion euro, current prices



I. SINGLE MARKET, INNOVATION AND DIGITAL €187.4

- 1 Research and Innovation
- 2 European Strategic Investments
- 3 Single Market
- 4 Space



II. COHESION AND VALUES €442.4

- 5 Regional Development and Cohesion
- 6 Economic and Monetary Union
- 7 Investing in People,
Social Cohesion and Values



III. NATURAL RESOURCES AND ENVIRONMENT €378.9

- 8 Agriculture and Maritime Policy
- 9 Environment and Climate Action



IV. MIGRATION AND BORDER MANAGEMENT €34.9

- 10 Migration
- 11 Border Management



V. SECURITY AND DEFENCE €27.5

- 12 Security
- 13 Defence
- 14 Crisis Response



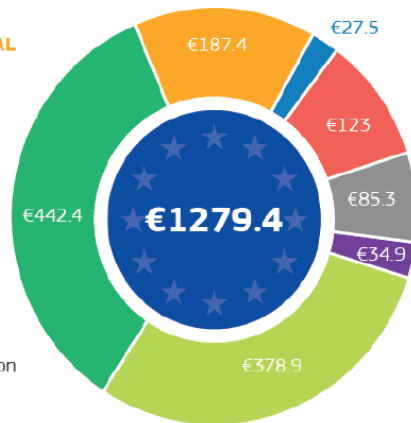
VI. NEIGHBOURHOOD AND THE WORLD €123

- 15 External Action
- 16 Pre-Accession Assistance



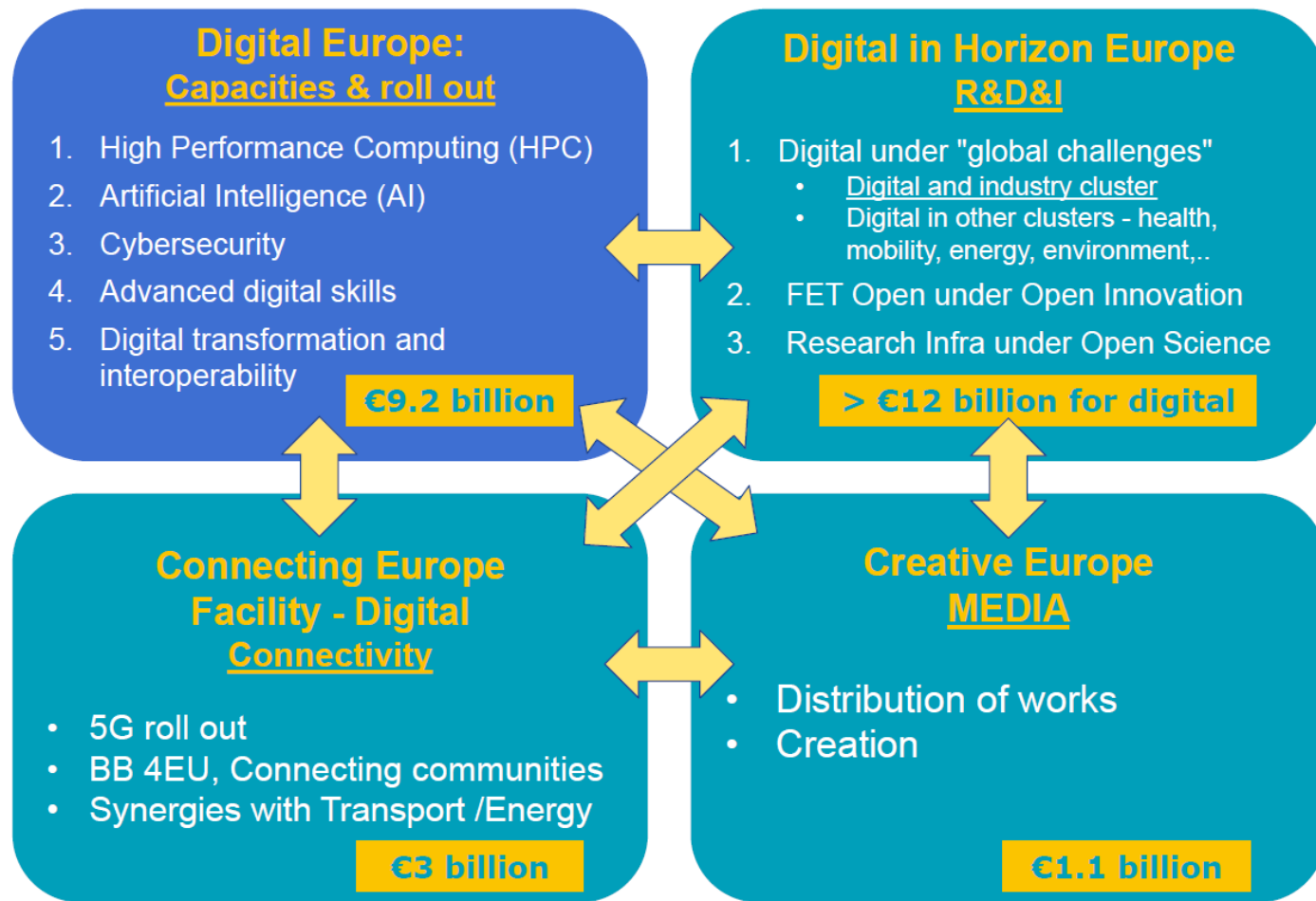
VII. EUROPEAN PUBLIC ADMINISTRATION €85.3

- 17 European Public Administration



Source: European Commission

DIGITAL IN THE NEXT MFF: OVERVIEW



Horizon Europe: evolution not revolution

Specific objectives of the Programme

Support the creation and diffusion of high-quality knowledge

Strengthen the impact of R&I in supporting EU policies

Foster all forms of innovation and strengthen market deployment

Optimise the Programme's delivery for impact in a strengthened ERA



Pillar 1

Open Science

European Research Council

Marie Skłodowska-Curie Actions

Research Infrastructures



Pillar 2

Global Challenges and Industrial Competitiveness

Clusters

- Health
- Inclusive and Secure Society
- Digital and Industry
- Climate, Energy and Mobility
- Food and natural resources

Joint Research Centre



Pillar 3

Open Innovation

European Innovation Council

European innovation ecosystems

European Institute of Innovation and Technology

Strengthening the European Research Area

Sharing excellence

Reforming and Enhancing the European R&I system








European
Commission

Pillar 2

Global Challenges & Industrial Competitiveness:

boosting key technologies and solutions underpinning
EU policies & Sustainable Development Goals

Clusters implemented through usual calls, missions & partnerships	Budget (€ billion)
Health 	€7.7
Inclusive and Secure Societies 	€2.8
Digital and Industry 	€15
Climate, Energy and Mobility 	€15
Food and Natural Resources 	€10

Health cluster: Six main areas of intervention



Health throughout
the Life Course



Environmental and Social
Health Determinants



Non-communicable
and Rare Diseases



Infectious diseases



Tools, Technologies
and Digital Solutions
for Health and Care



Health Care Systems

Pillar 3

OPEN INNOVATION:

stimulating market-creating breakthroughs
and ecosystems conducive to innovation



European Innovation Council

- Support to innovations with breakthrough and market creating potential

**€10.5 billion, including
up to €500 million for ecosystems**

European innovation ecosystems

- Connecting with regional and national innovation actors

European Institute of Innovation and Technology (EIT)

- Bringing key actors (research, education and business) together around a common goal for nurturing innovation

€3 billion

Horizon Europe: Partnerships



New approach to European Partnerships

New generation of objective-driven and more ambitious partnerships in support of agreed EU policy objectives

Key features

- Simple architecture and toolbox
- Coherent life-cycle approach
- Strategic orientation

Co-programmed

Based on Memoranda of Understanding / contractual arrangements; implemented independently by the partners and by Horizon Europe

Co-funded

Based on a joint programme agreed by partners; commitment of partners for financial and in-kind contributions & financial contribution by Horizon Europe

Institutionalised

Based on long-term dimension and need for high integration; partnerships based on Articles 185 / 187 of TFEU and the EIT-Regulation supported by Horizon Europe

Digital Europe programme – What?

Digital Europe Programme

*Reinforcing digital capacities
Ensuring their best use*

Digital transformation & Interoperability

1.3 € billion

Advanced digital skills

0.7 € billion

Cybersecurity & trust

2 € billion

High performance computing

2.7 € billion

Artificial intelligence

2.5 € billion

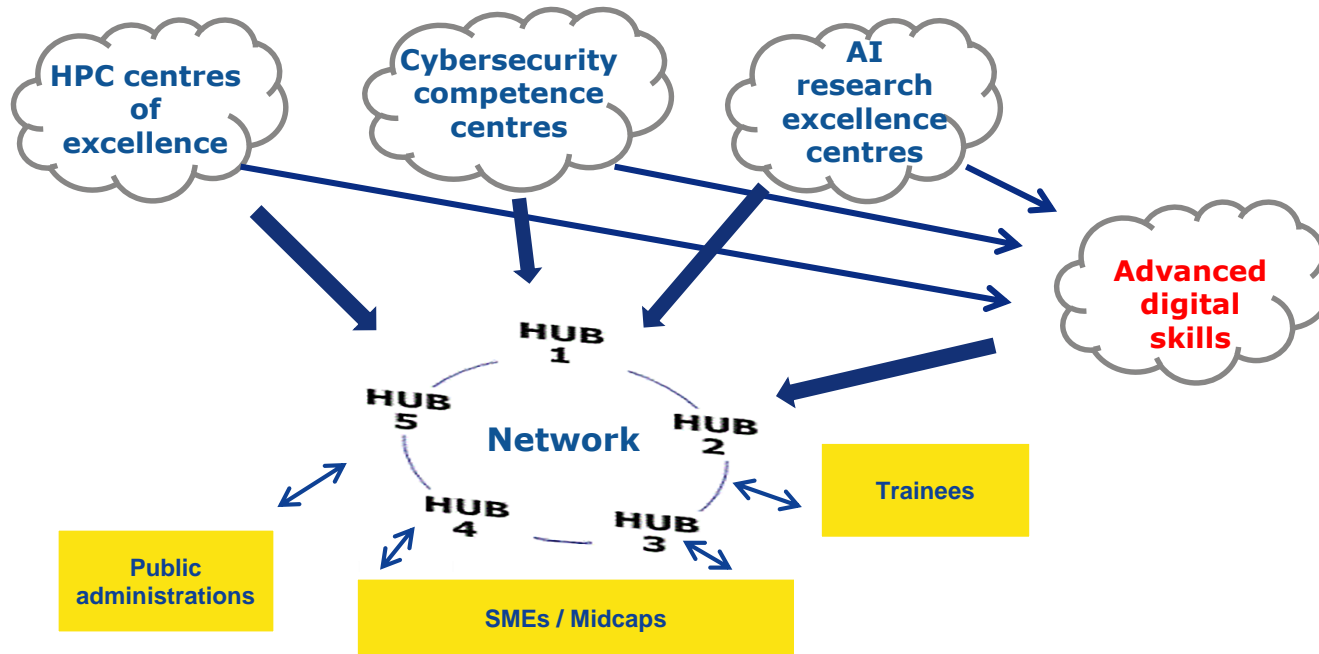
**€ 9.2 billion
in total**

#EUBudget
#DigitalEurope

Digital Innovation Hubs: Deployment and best use



Digital Innovation Hubs will diffuse digital capacities - high performance computing, artificial intelligence, cybersecurity and digital skills - across the economy enabling the digital transformation of the industry and public sector organisations



Broad roll-out of digital advances



CONNECTING EUROPE AND ACCELERATING INNOVATION THROUGH COLLABORATION

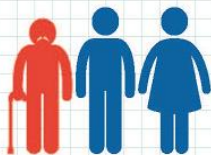
Ageing well in the Digital World

Joining forces



The Silver Economy

Europe is **ageing**.



By **2060**
one in three Europeans
will be **over 65**.

Demographic change comes with
great opportunities.

By 2025 the **Silver Economy**
is expected to contribute
over €5.7 trillion
to Europe's economy



Active ageing in good health allows us to



Travel



Work for more years



Learn new things



Prepare our homes
for **living independently**
for the many years to come



EIP ON AHA

EUROPEAN INNOVATION PARTNERSHIP
on Active and Healthy Ageing



2016 EIP on AHA Call Results:

- Over 850 Commitments submitted to support the 6 Action Groups activities
- 78 Reference Site Applications from 22 countries to scale up innovation for active and healthy ageing

Together we can create a
**Digital Single Market for the
Ageing Society!**



Together for a Stronger Partnership 2016-2018

ec.europa.eu/eip/ageing

#ActiveAgeing



#InvestEUresearch

Horizon 2020 Work Programme for Research & Innovation 2018–2020

'Health, demographic change and
wellbeing' challenge in H2020

Open and forthcoming Calls

Research and
Innovation

Health Research in Horizon 2020



H2020 - Open calls 2019



- *SC1-DTH-05-2019: Large scale implementation of digital innovation for health and care in an ageing society*
- *SC1-DTH-09-2019: Scaling up the univocal Identification of Medicinal Products*
- *SC1-DTH-11-2019: Large Scale pilots of personalised & outcome based integrated care*



H2020 - Open calls 2019



- *SC1-DTH-01-2019: Big data and Artificial Intelligence for monitoring health status and quality of life after the cancer treatment*
- *SC1-HCC-02-2019: Support for the large scale uptake of open service platforms in the Active and Healthy Ageing domain*



H2020 - Open calls 2019



Contact: CNECT-H3-H2020-TOPICS@ec.europa.eu

- Submission Deadline: **24 April 2019 17:00** (Brussels time)
- *Further Reading:*
 - **Horizon 2020 Work Programme 2018-2020 Health, demographic change and wellbeing and General Annexes of the Main Work Programme 2018-2020 (legally binding document):**
http://ec.europa.eu/research/participants/portal/desktop/en/funding/reference_docs.html
 - **EU SC1 Projects (finished and ongoing):**
<https://ec.europa.eu/digital-single-market/en/content/benefiting-personalised-care>



Horizon Prize in Social Innovation to improve the mobility of older people

European
Commission

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#SocialinnovEU

Horizon Prize

IMPROVED MOBILITY
FOR OLDER PEOPLE

We expect to have 88 million elderly EU citizens by 2030. With this prize, we hope to tackle one of the most pressing challenges of our ageing society: **mobility**.

Commissioner for Science, Research and Innovation
Carlos Moedas

European Commission

*Budget: €2 million, funded under Horizon 2020. **Deadline: 28 February 2019.**
The prize will be awarded in the second quarter of 2019.*



Thank you!

@eHealth_EU
@DSMeu

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- eHealth: <https://ec.europa.eu/digital-single-market/en/policies/ehealth>
- R&D&I: <http://ec.europa.eu/horizon-europe>
- EU future budget: http://ec.europa.eu/budget/mff/index_en.cfm
- Digital Programme: http://europa.eu/rapid/press-release_IP-18-4043_en.htm