



PRO.M.I.S.

PROgramma Mattone Internazionale Salute

Promuove la Sanità delle Regioni in Europa e nel Mondo
altresì l'Europa e il Mondo nei Sistemi Sanitari delle Regioni
italiane, nel quadro di una collaborazione sinergica con il
sistema Paese.

Analisi critica delle proposte progettuali di successo nell'area medica e biomedica per capirne i punti di forza

Piano di Formazione Nazionale online del Programma Mattone Internazionale Salute
10 Novembre 2020



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RSCN

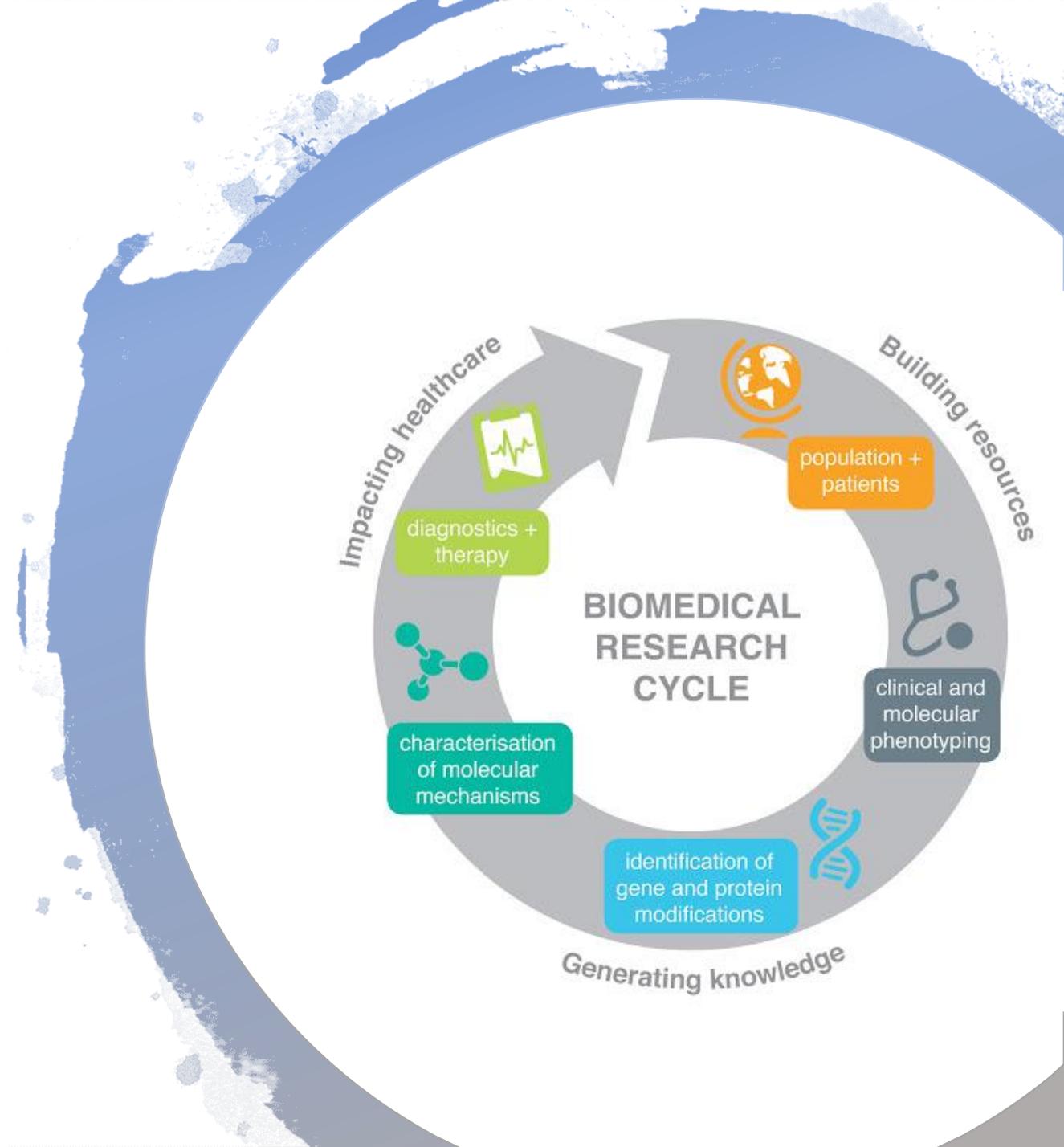


Biomedical research: research on biomedical sciences and experimental medicine

Medical research: to increase knowledge on human health, improve prevention and treatment of disease

Broad number of fields: biology, chemistry, pharmacology, toxicology etc

Goal of developing new medicines or medical procedures or improving the application of those already available





- About **US\$160 billion** is spent every year on biomedical research.
- Estimates: 85% of research is **wasteful or inefficient** (The Lancet: [https://doi.org/10.1016/S0140-6736\(09\)60329-9](https://doi.org/10.1016/S0140-6736(09)60329-9)), with deficiencies in four main areas:
 - Is the research question relevant for clinicians or patients?
 - Are design and methods appropriate?
 - Is the full report accessible?
 - Is it unbiased and clinically meaningful?

Purpose

The Lancet, [https://doi.org/10.1016/S0140-6736\(13\)60149-X](https://doi.org/10.1016/S0140-6736(13)60149-X)

- Funders have often adopted long-drawn-out bureaucratic processes for their grant giving
- rarely ask for a systematic assessment of the need for the proposed research.
- Full costing is often demanded at first submission with enormous waste of time and resources. Funders operate within political frameworks that emphasise short-term successes and outcomes.
- Decisions are dependent on opaque peers' and experts' assessments within each field and take many months.
- Pharmaceutical companies and industry-sponsored research seek a maximum profitable return on their investment.
- Academic institutions, which are more and more expected to operate like businesses, think about the economic benefit and the commercial potential of research, or about their performance in a research assessment exercise (measured largely by the surrogate of publications).

Measures of merit



- The Nature Index 2020 Annual Tables highlight the institutions and countries that dominated high quality research in the natural sciences in 2019 as tracked by Nature Index.
- This supplement features not only the Nature Index Global Top 50 institutions across all sectors, but also the Top 25 Rising Stars – the institutions that had the strongest growth in output since 2015.
- The rankings are based on an institution’s or country’s share of articles published in the 82 prestigious scientific journals selected by an independent panel of experts and tracked by the Nature Index database.

Nature index

2018	Country/territory	Share 2017	Share 2018	Count 2018	Change in Adjusted Share 2017-2018 ²
1	United States of America (USA)	19858.41	20357.17	28329	-3.6%
2	China	9224.27	11372.26	15589	15.9%
3	Germany	4425.41	4585.05	8776	-2.6%
4	United Kingdom (UK)	3672.09	3750.3	7636	-4.0%
5	Japan	3088.05	3082.69	4918	-6.1%
6	France	2233.8	2200.83	4896	-7.4%
7	Canada	1565.4	1620.19	3307	-2.7%
8	Switzerland	1351.46	1422.71	3246	-1.0%
9	South Korea	1292.86	1349.94	2285	-1.8%
10	Australia	1097.22	1254.34	2820	7.5%
11	Spain	1104.08	1167.23	2728	-0.6%
12	Italy	1035.9	1064.63	2666	-3.4%
13	India	958.84	962.13	1513	-5.7%
14	Netherlands	915.53	933.76	2301	-4.1%
15	Sweden	605.28	634.35	1714	-1.5%
16	Israel	587.71	617.86	1228	-1.1%
17	Singapore	597.88	606.42	1201	-4.6%
18	Russia	408.99	482.33	1447	10.9%
19	Belgium	404.78	421.43	1184	-2.1%
20	Denmark	361.22	407.95	1146	6.2%
21	Taiwan	424.31	393.18	948	-12.9%
22	Austria	375.53	364	1087	-8.9%

The 2019 tables are based on Nature Index data from 1 January 2018 to 31 December 2018.

1 July 2019 - 30 June 2020

Subject/journal group: All

The table to the right includes counts of all research outputs for Italy published between 1 July 2019 - 30 June 2020 which are tracked by the Nature Index.

Hover over the donut graph to view the FC output for each subject. Below, the same research outputs are grouped by subject. Click on the subject to drill-down into a list of articles organized by journal, and then by title.

Note: Articles may be assigned to more than one subject area.

Subject	Count	Share
 Physical Sciences	1317	510.32
 Life Sciences	759	234.46
 Earth & Environmental Sciences	317	114.49
 Chemistry	589	287.32

Count	Share
2722	1053.32

Outputs by subject (FC)



Top 10 institutions from Italy

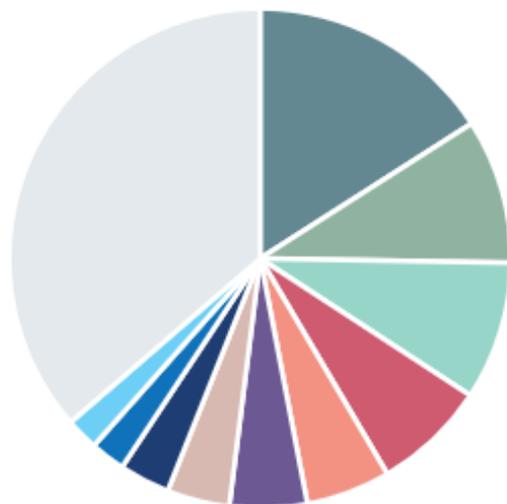
Institution	Count	Share
1. National Institute for Nuclear Physics (INFN)	689	141.09
2. National Research Council (CNR)	470	92.89
3. University of Padova (UNIPD)	326	46.58
4. Italian Institute of Technology (IIT)	176	42.72
5. Scientific Institute for Research, Hospitalization and Healthcare (IRCCS)	233	40.76
6. Sapienza University of Rome	337	40.64
7. University of Florence (UNIFI)	198	35.62
8. University of Bologna (UNIBO)	288	30.07
9. National Institute for Astrophysics (INAF)	136	29.64
10. University of Naples Federico II (UNINA)	265	29.07

1 July 2019 - 30 June 2020

View the connected world of international research collaboration. Visualize collaborations by subject or region.

Collaborations between countries ▶

Percentage of collaboration by Share



Hover over the graph to view the percentage of collaboration.

Top 10 collaborators by Share

■ Italy

Italy

1. **United States of America (USA)** (586.43)



2. **Germany** (344.31)



3. **United Kingdom (UK)** (329.28)



4. **France** (269.39)



5. **Spain** (200.21)



6. **Switzerland** (183.55)



7. **China** (148.76)



8. **Netherlands** (120.24)



9. **Russia** (82.69)



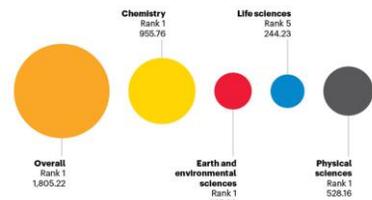
10. **Japan** (77.16)



Show of Strength- top 10

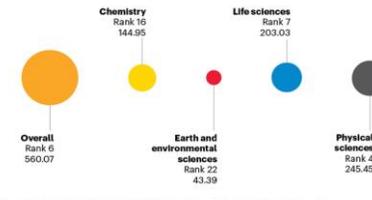
These institutions lead in natural-sciences research in journals tracked by the Index

1. CHINESE ACADEMY OF SCIENCES



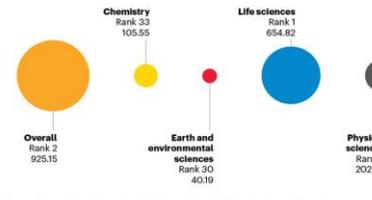
Source: Nature Index; Data analysis: Catherine Cheung; Infographic: Tanner Maxwell

6. MASSACHUSETTS INSTITUTE OF TECHNOLOGY



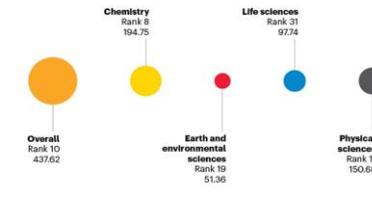
Source: Nature Index; Data analysis: Catherine Cheung; Infographic: Tanner Maxwell

2. HARVARD UNIVERSITY



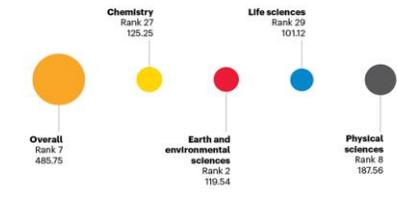
Source: Nature Index; Data analysis: Catherine Cheung; Infographic: Tanner Maxwell

10. PEKING UNIVERSITY



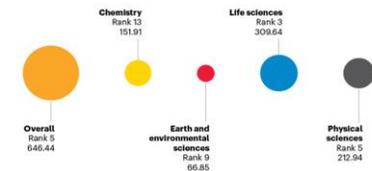
Source: Nature Index; Data analysis: Catherine Cheung; Infographic: Tanner Maxwell

7. HELMHOLTZ ASSOCIATION OF GERMAN RESEARCH CENTRES



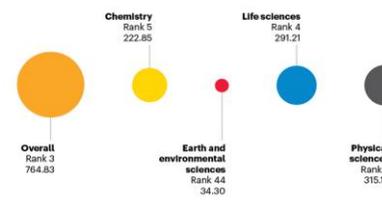
Source: Nature Index; Data analysis: Catherine Cheung; Infographic: Tanner Maxwell

5. STANFORD UNIVERSITY



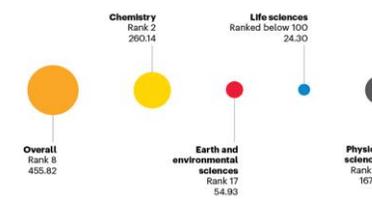
Source: Nature Index; Data analysis: Catherine Cheung; Infographic: Tanner Maxwell

3. MAX PLANCK SOCIETY



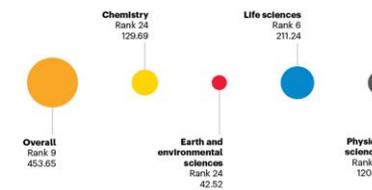
Source: Nature Index; Data analysis: Catherine Cheung; Infographic: Tanner Maxwell

8. UNIVERSITY OF SCIENCE AND TECHNOLOGY OF CHINA



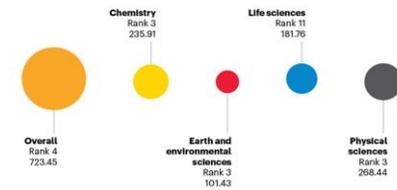
Source: Nature Index; Data analysis: Catherine Cheung; Infographic: Tanner Maxwell

9. UNIVERSITY OF OXFORD



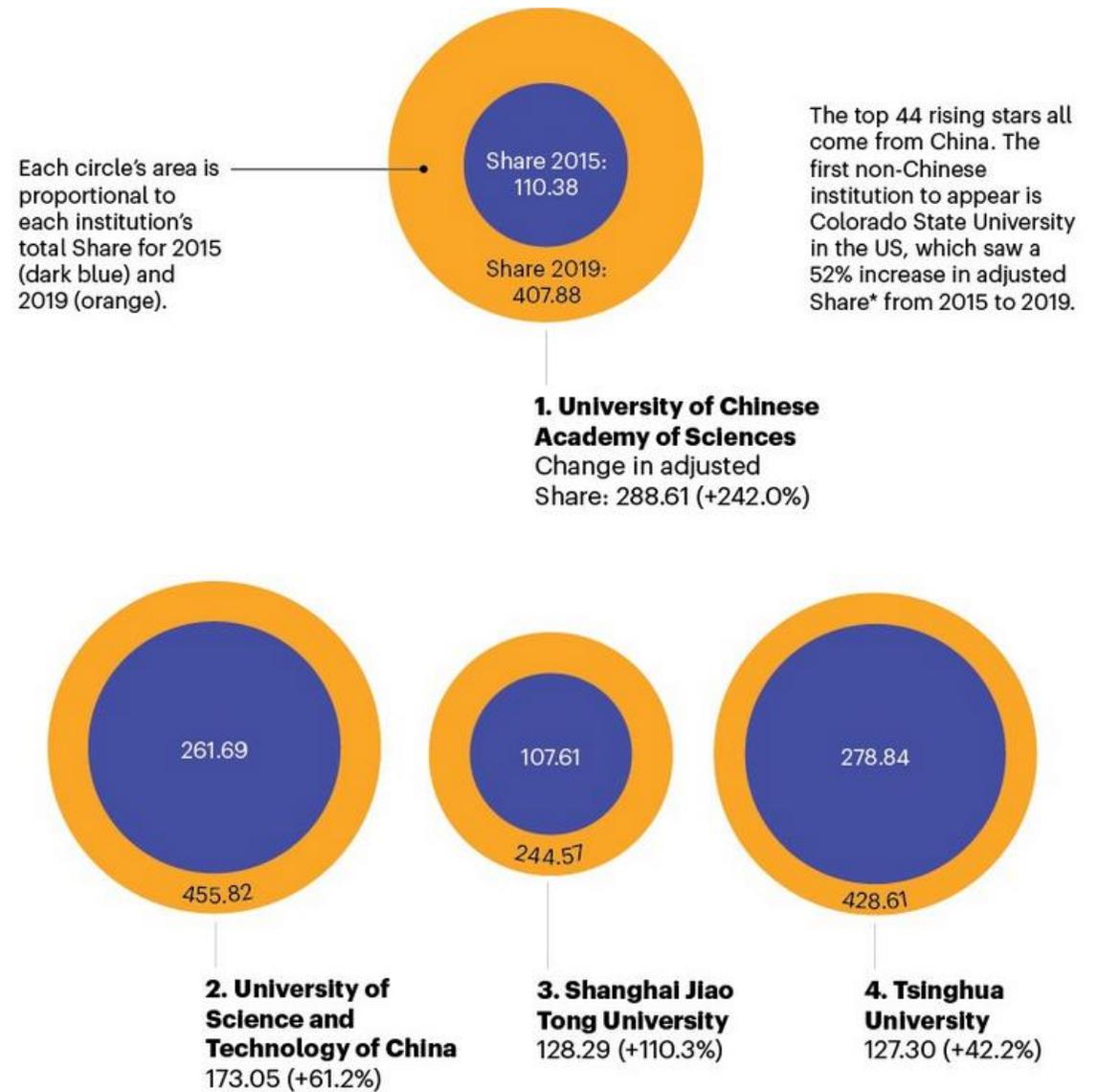
Source: Nature Index; Data analysis: Catherine Cheung; Infographic: Tanner Maxwell

4. FRENCH NATIONAL CENTRE FOR SCIENTIFIC RESEARCH

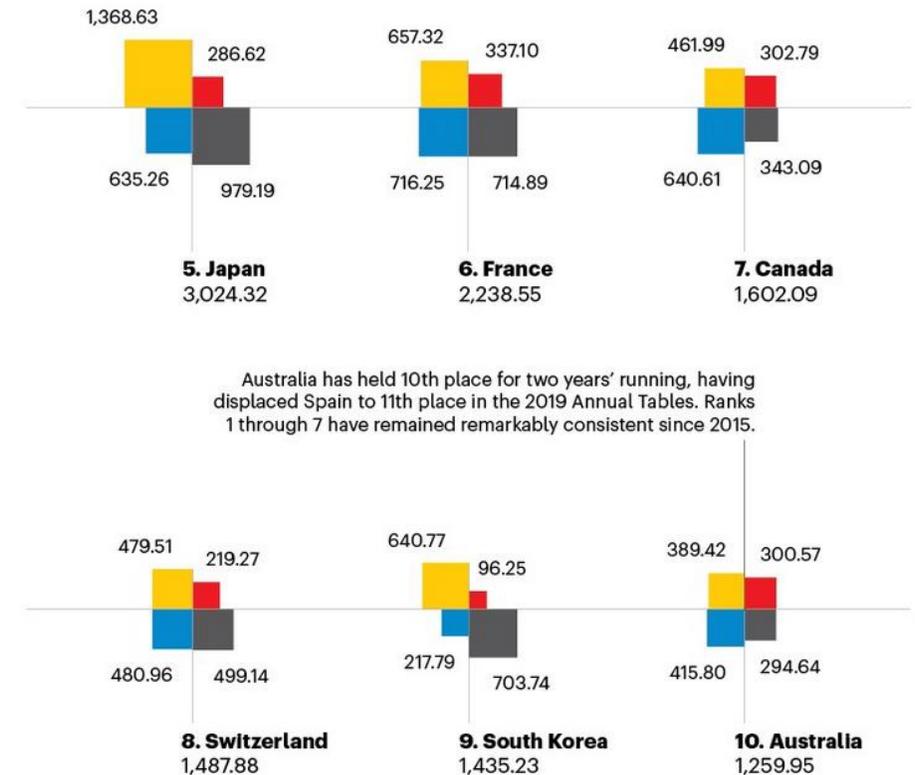
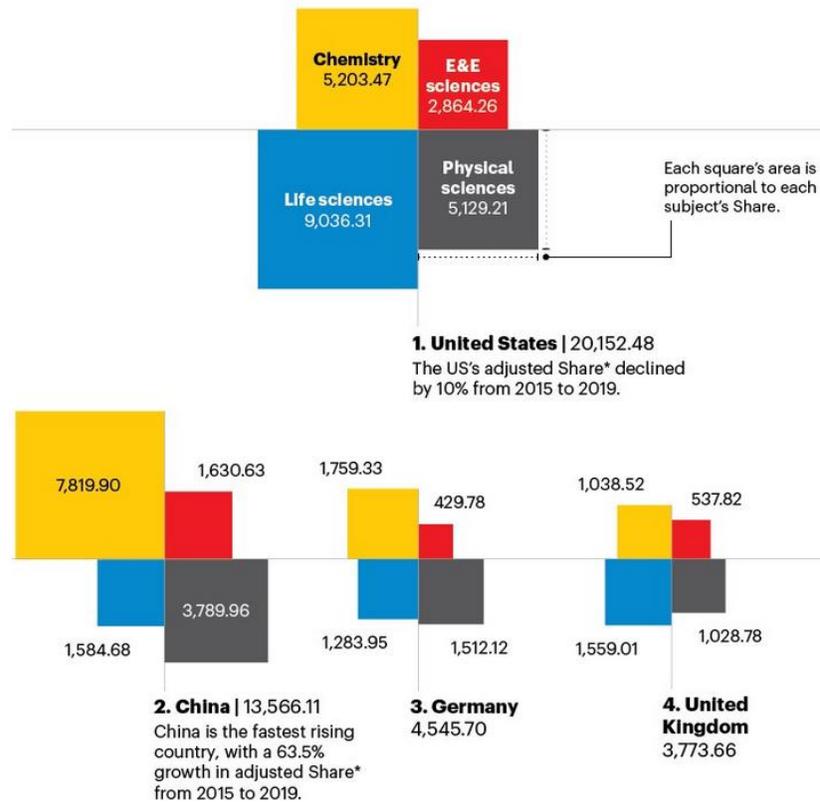


Source: Nature Index; Data analysis: Catherine Cheung; Infographic: Tanner Maxwell

Fastest movers since 2015



Ten countries with high-performing hubs of natural-sciences research



Health & Medical Research Impact Assessment Framework



- HMR weighs on government investment, hence the level of evidence required to substantiate on-going support against competing budget priorities has risen.
- Rising healthcare demands amid constrained health budgets provides an imperative for research to generate improvements in health outcomes with the same or less public expenditure
- Governments increasingly expect benefits for the wider economy to be realised via the commercialisation of research into medical services, pharmaceuticals and medical devices
- It is necessary for HMR to challenge the unproductive research practices that hamper translation and health impact

- *Health Res Policy Syst. 2017, Deeming et al*
- *Restoring Public Finances, 2012 Update. Paris: OECD Publishing; 2012*

Methodological frameworks for research impact

Major impact categories:

- **Primary research-related impact**

 - Research and innovation outcomes.*

 - Dissemination and knowledge transfer*

 - Capacity building, training, and leadership*

 - Academic collaborations, research networks, and data sharing*

- **Influence on policy making**

 - Type and nature of policy impact*

 - Level of policy impact*

 - Policy networks*

- **Health and health systems impact**

 - Quality of care and service delivery*

 - Evidence-based practice*

 - Improved information and health information management*

 - Cost containment and cost-effectiveness*

 - Resource allocation*

 - Health workforce*

- **Health-related and societal impact**

 - Health knowledge, attitudes, and behaviours*

 - Improved equity, inclusion, or cohesion and human rights*

 - Health literacy*

- **Broader economic impacts**

Improve yield from basic research

- The transparency of processes by which funders prioritise important uncertainties should be increased, making clear how they take account of the needs of potential users of research.
- Investment in additional research should always be preceded by systematic assessment of existing evidence.
- Sources of information about research that is in progress should be strengthened and developed and used by researchers.
- Research funders have primary responsibility for reductions in waste resulting from decisions about what research to do.



One of the missing pieces: economics

- **Health economic studies:** beneficial in the capacity for the evidence, often founded upon experimental research, to translate new health interventions beyond economic hurdles, e.g. Pharmaceutical Benefits Advisory Committee reviews, or resource constraints, e.g. budget sustainability of policy changes or service programmes. Prospective cost-effectiveness analyses may help
- **Health needs/service assessment**
 - In a broader sense, health economic assessment is interpreted as a method to identify areas of health needs or health service assessment, where targeted research could potentially translate to significant impacts.
- **Commercial market evaluation**
 - Economic assessment is interpreted to be commercial market evaluation. These evaluations examine the potential market size, competitors, regulatory hurdles, intellectual property issues and revenue sources, such as public or private health insurance, in advance of decisions to invest in additional research.
- **Macroeconomic assessment of HMR**
 - The view was presented that sector-wide economic analyses of the benefits from medical and health research were unreliable, but provided useful material for advocacy purposes.

The logo features a large, light blue circular brushstroke on the left side. Inside the circle, the text 'European Commission' is on the left, a vertical bar is in the center, and 'CORDIS' is on the right. Below 'CORDIS', the text 'EU research re' is partially visible.

European
Commission

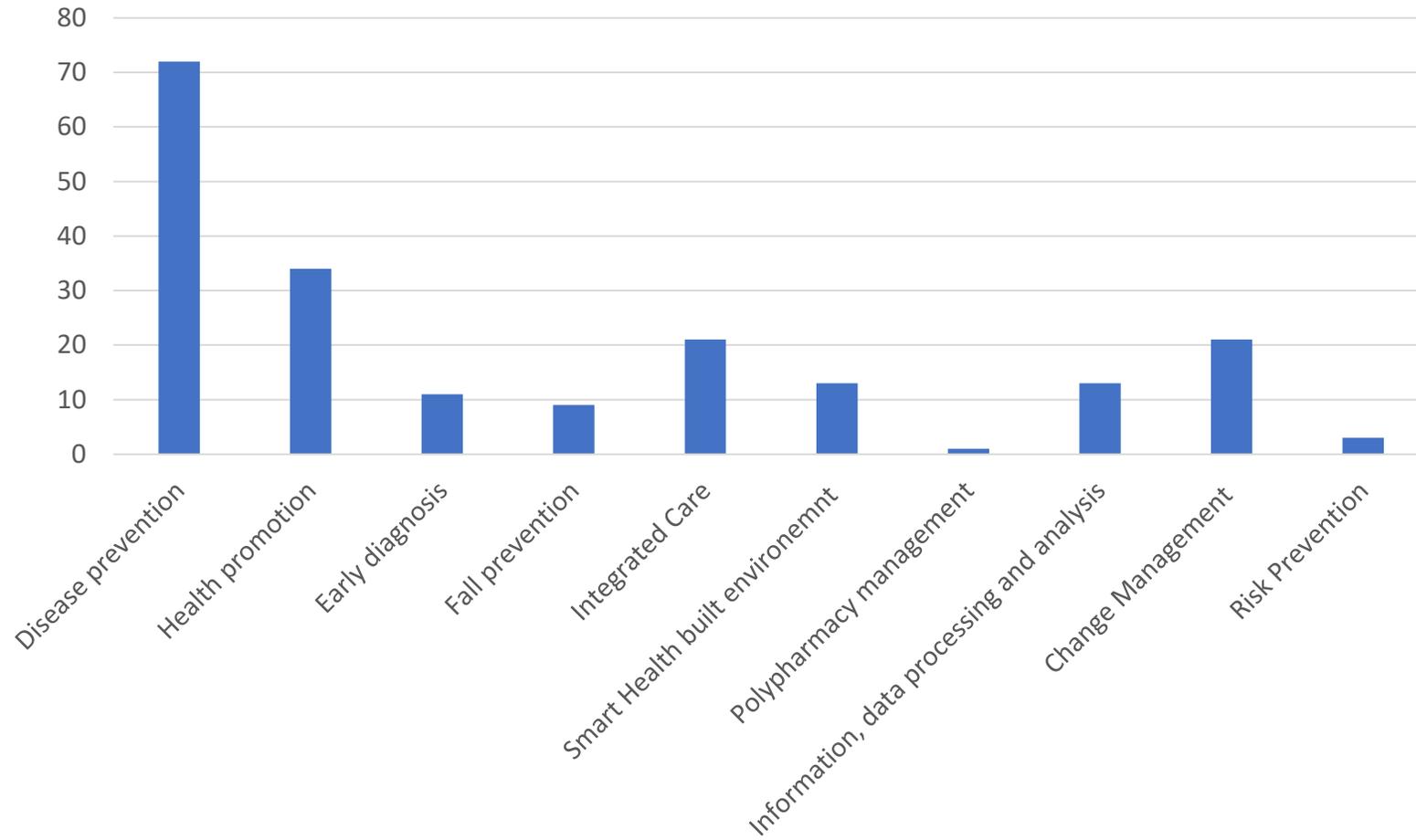
CORDIS

EU research re

Structured public repository
with all project information
held by the European
Commission

- The Community Research and Development Information Service (CORDIS) is the European Commission's primary source of results from the projects funded by the EU's framework programmes for research and innovation (FP1 to Horizon 2020).
- Our mission is to bring research results to professionals in the field to foster open science, create innovative products and services and stimulate growth across Europe.

Projects by thematic areas in Cordis repository



Focusing on integrated care

Integrated care

[PROJECT INTEGRATE Benchmarking Integrated Care for better Management of Chronic and Age-related Conditions in Europe](#)

[RADIO Robots in assisted living environments: Unobtrusive, efficient, reliable and modular solutions for independent ageing](#)

[ProACT Integrated Technology Ecosystem for ProACTIVE Patient Centred Care](#)

[CONNECARE Personalised Connected Care for Complex Chronic Patients](#)

[CARESSES Culture Aware Robots and Environmental Sensor Systems for Elderly Support](#)

[ENRICHME Enabling Robot and assisted living environment for Independent Care and Health Monitoring of the Elderly](#)

[ROADMAP Real world Outcomes across the AD spectrum for better care: Multimodal data Access Platform - Sofia ref.: 116020](#)

[ASCLEPIOS Advanced Secure Cloud Encrypted Platform for Internationally Orchestrated Solutions in Healthcare](#)

[REACH2020 Responsive Engagement of the Elderly promoting Activity and Customized Healthcare](#)

[IN LIFE INdependent Living support Functions for the Elderly](#)

[FrailSafe Sensing and predictive treatment of frailty and associated co-morbidities using advanced personalized patient models and advanced interventions](#)

[PreventIT Early risk detection and prevention in ageing people by self-administered ICT-supported assessment and a behavioural change intervention delivered by use of smartphones and smartwatches](#)

[EU-WISE Self-care Support for People with Long Term Conditions, Diabetes and Heart Disease: A Whole System Approach](#)

[Mobile-Age Mobile Age](#)

[PRECeDI Personalized PREvention of Chronic Diseases](#)

[ALFRED ALFRED - Personal Interactive Assistant for Independent Living and Active Ageing](#)

[DOREMI Decrease of cOgnitive decline, malnutRition and sedEntariness by elderly empowerment in lifestyle Management and social Inclusion](#)

[PULSE Participatory Urban Living for Sustainable Environments](#)

[EHDEN European Health Data and Evidence Network](#)

[GABLE GAMification for a BETter Life](#)

[LIFEPATH Lifecourse biological pathways underlying social differences in healthy ageing](#)

Focusing on innovative approaches to integrated care

Learning from integrated eCare practice and promoting deployment in European regions

Fact Sheet

Reporting

News & Multimedia

Other documents

-  Beyond silos D1.1
-  INTERIM REPORT ON DISSEMINATION ACTIVITIES
-  Joint final conference with CareWell
-  D6.3 v1.0 BeyondSilos Final outcome
-  D6 1 v1 0 BS Evaluation framework
-  Organisational & Service process models
-  Beyond silos D8.2
-  Final dissemination report
-  D5.2 REPORT ON PILOT OPERATION

Project Information

BeyondSilos

Grant agreement ID: 621069

[Project website](#)

Status

Closed project

Start date

1 February 2014

End date

28 February 2017

Funded under CIP

Overall budget
€ 5 471 998

EU contribution
€ 2 735 997

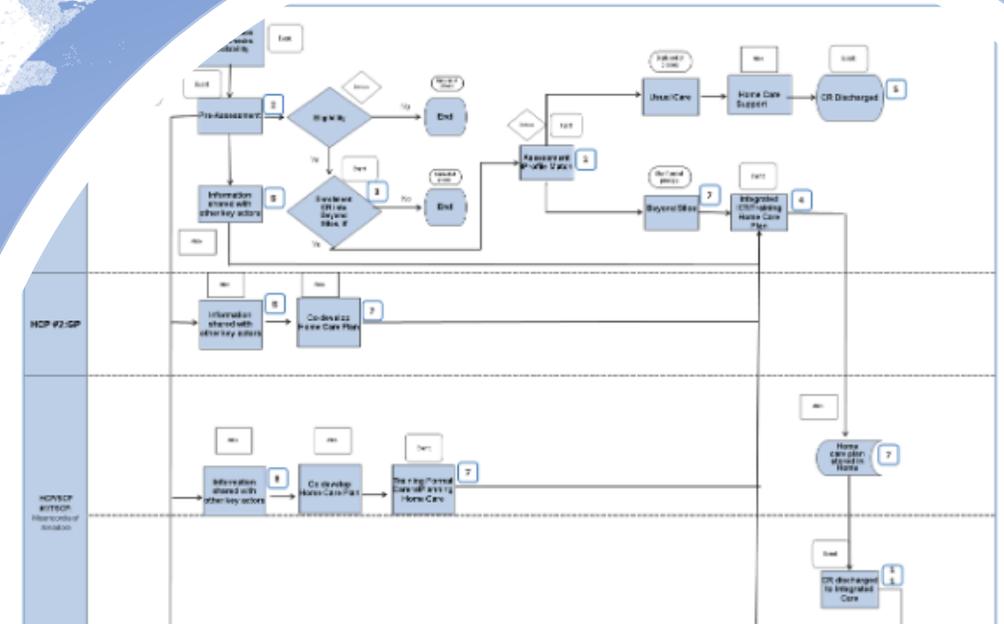


- Beyond Silos enables delivery of integrated care to older Europeans to support them to live independently within the community by providing the ICT tools necessary to join up care pathways across organisations, in particular between social and health service providers

WP2: Organisational models and service process models

D2.1 ORGANISATIONAL & SERVICE PROCESS MODELS

Figure 1: ICP-acute service process model in Amadora

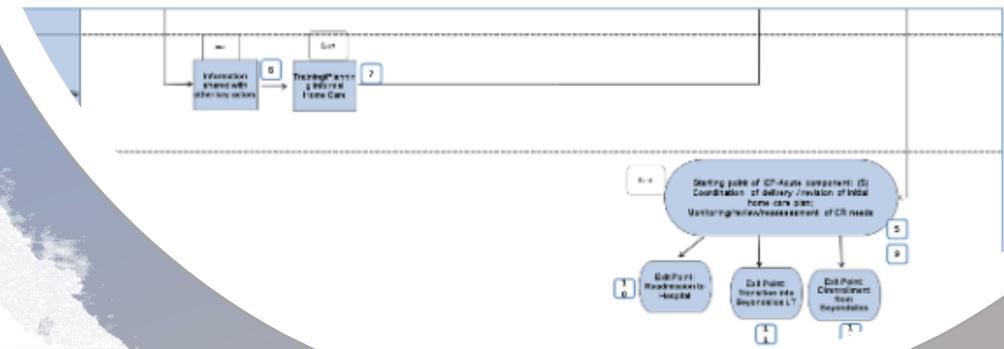


Public

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v1.0 / 28th November 2014

D2.1 Organisational & Service process models



WP6 Pilot evaluation

D6.1 EVALUATION FRAMEWORK

		M/V	Preferred collection method	Timing of measurement	Reason
measures					
	Individual level	Number	M	Administrative databases, EHR	Baseline / end
					Total number of hospitalisations is 1) easy to establish (was there a contact or not), and 2) it is available in all sites
					Total days hospitalised is 1) easy to establish, and 2) it is available in all sites
					Total number of ED visits is 1) easy to establish (was there a contact or not), and 2) it is available in all sites
					Total number of re-hospitalisations is 1) easy to establish (was there a contact or not), and 2) it is available in all sites
	Individual level	Number	M		
					Total number of face to face contacts (planned and unplanned) is 1) easy to establish (was there a contact or not), and 2) it is available in all sites
t / carer	Individual level	Number	V	Administrative databases, EHR	Baseline / end
					Unplanned contacts is chosen because it is 1) easy to establish (was there an unplanned contact or not), and 2) it reflects the aim of the interventions in clinical terms, but also social issues, organisational and economic aspects.
					At each site, the exact meaning and operationalisation of this outcome measure needs to be defined.

M/V	Preferred collection method	Timing of measurement	Reason
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Focusing on innovative approaches to integrated care



Multi-level integration for patients with complex needs

Fact Sheet **Reporting** News & Multimedia

Other documents

-  [D1.6 v1.0 CareWell Public Final Report](#)
-  [Joint Conference with BeyondSilos](#)
-  [CareWell prototype test report](#)
-  [D7.2 INTERIM PROCESS EVALUATION REPORT - GUIDELINES v.1](#)
-  [First report on dissemination and exploitation activities_Annex 1](#)
-  [D7.2 INTERIM PROCESS EVALUATION REPORT v.2](#)
-  [First report on dissemination and exploitation activities](#)
-  [D7.2 INTERIM PROCESS EVALUATION REPORT](#)
-  [D1.7 Ethics and Data Protection Framework](#)
-  [Use cases for CareWell integrated care models and pathways](#)
-  [Pilot Level Service Specification for CareWell Services](#)
-  [Evaluation Framework](#)
-  [Requirements for CareWell integrated care models and pathways](#)

Project Information

CAREWELL

Grant agreement ID: 620983

[Project website](#)

Status

Closed project

Start date

1 February 2014

End date

28 February 2017

Funded under

CIP

Overall budget

€ 5 852 005

EU contribution

€ 2 926 000



Coordinated by

ASOCIACIÓN INSTITUTO DE INVESTIGACIÓN EN SERVICIOS DE SALUD-KRONIKGUNE

- Preparing large scale deployment of targeted services to support active and healthy ageing ¿ Wide deployment of integrated care CareWell will enable the delivery of integrated healthcare to frail elderly patients in a pilot setting through comprehensive multidisciplinary integrated care programmes where the role of ICTs can foster the coordination and patient centered delivery care.

D1.7 Ethics and Data Protection Framework

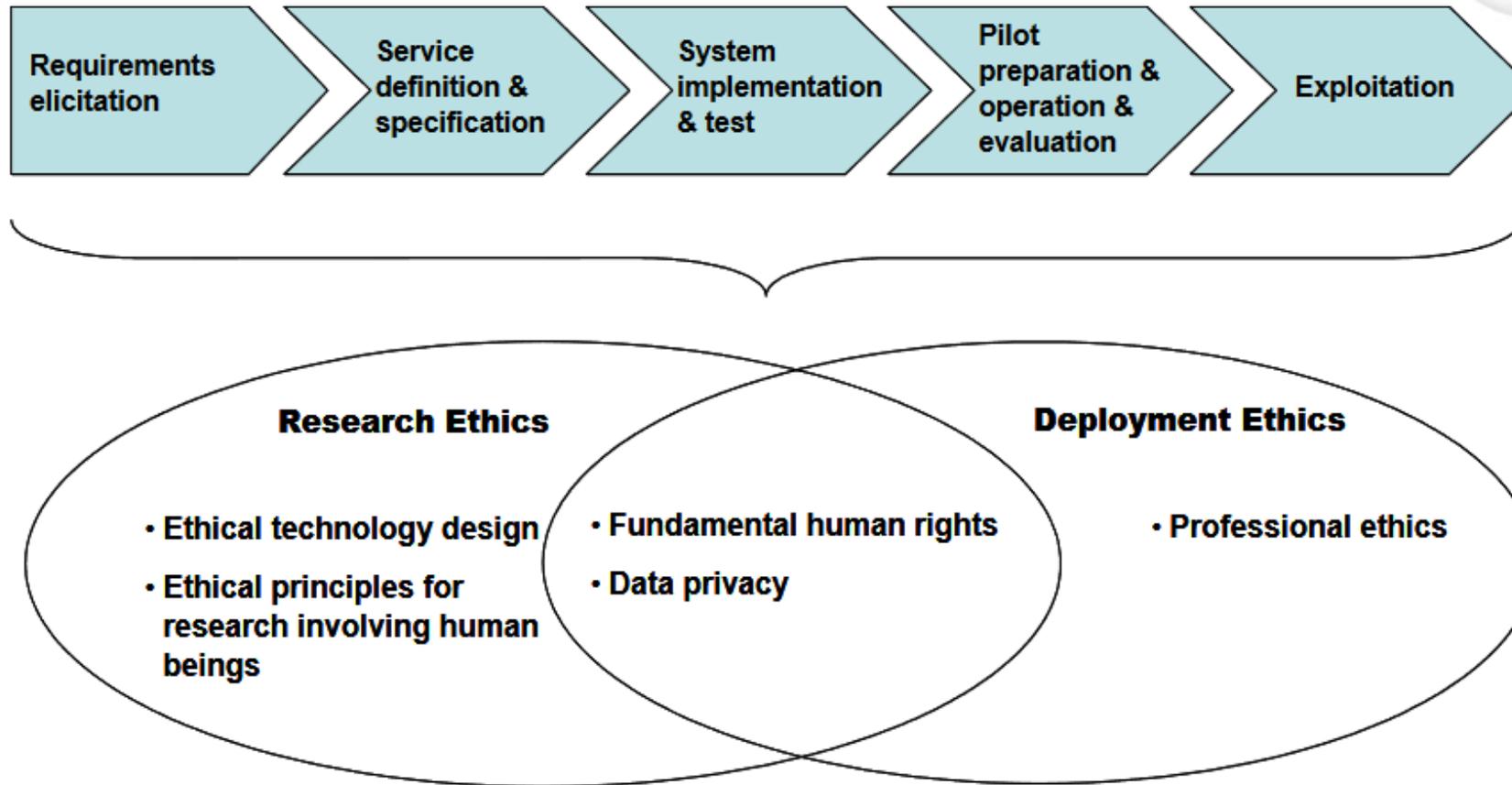


Figure 1: Ethical Perspectives of relevance to CareWell

D2.2 Use cases for integrated care models and pathways

WP2 Use Cases for CareWell services

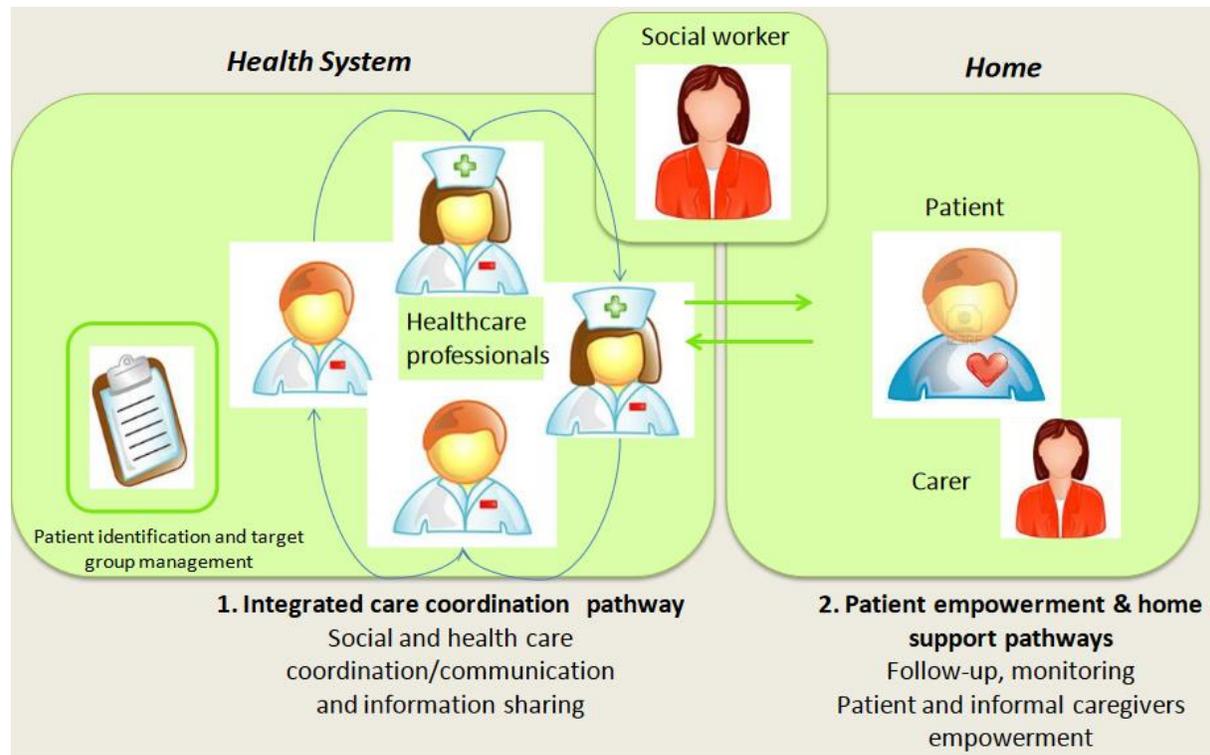
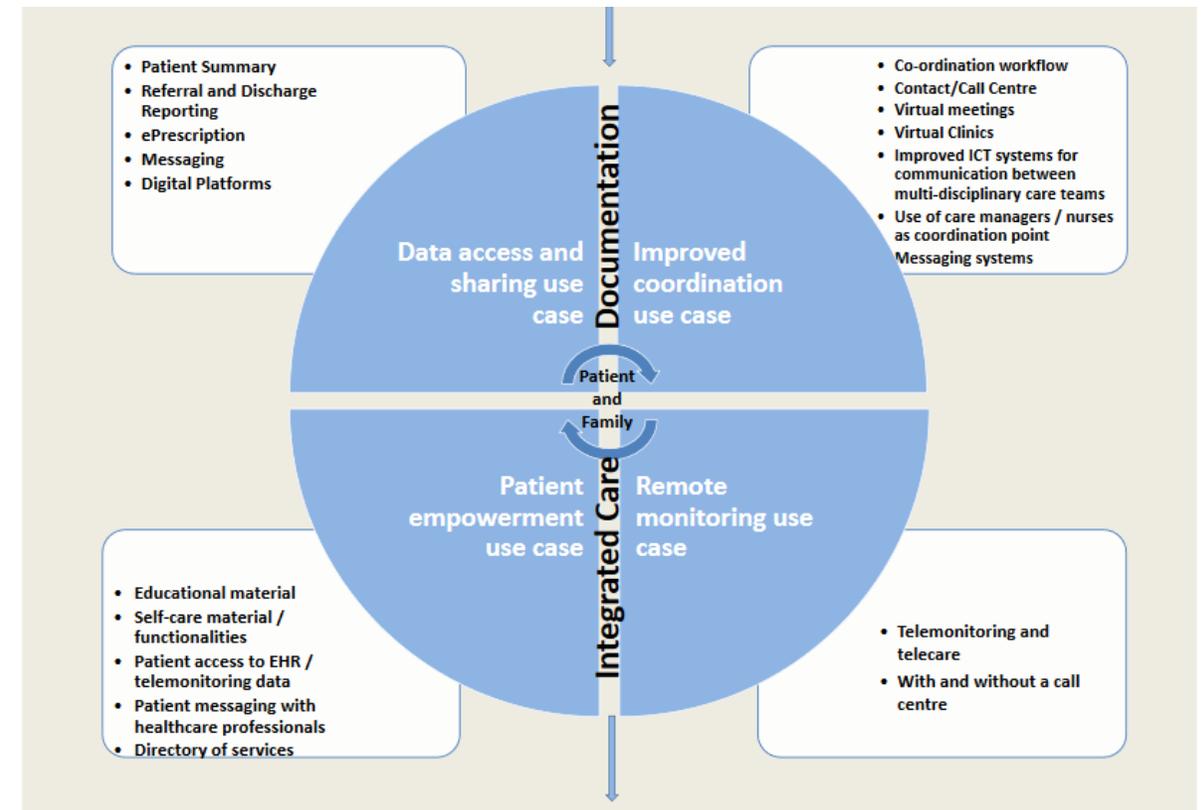
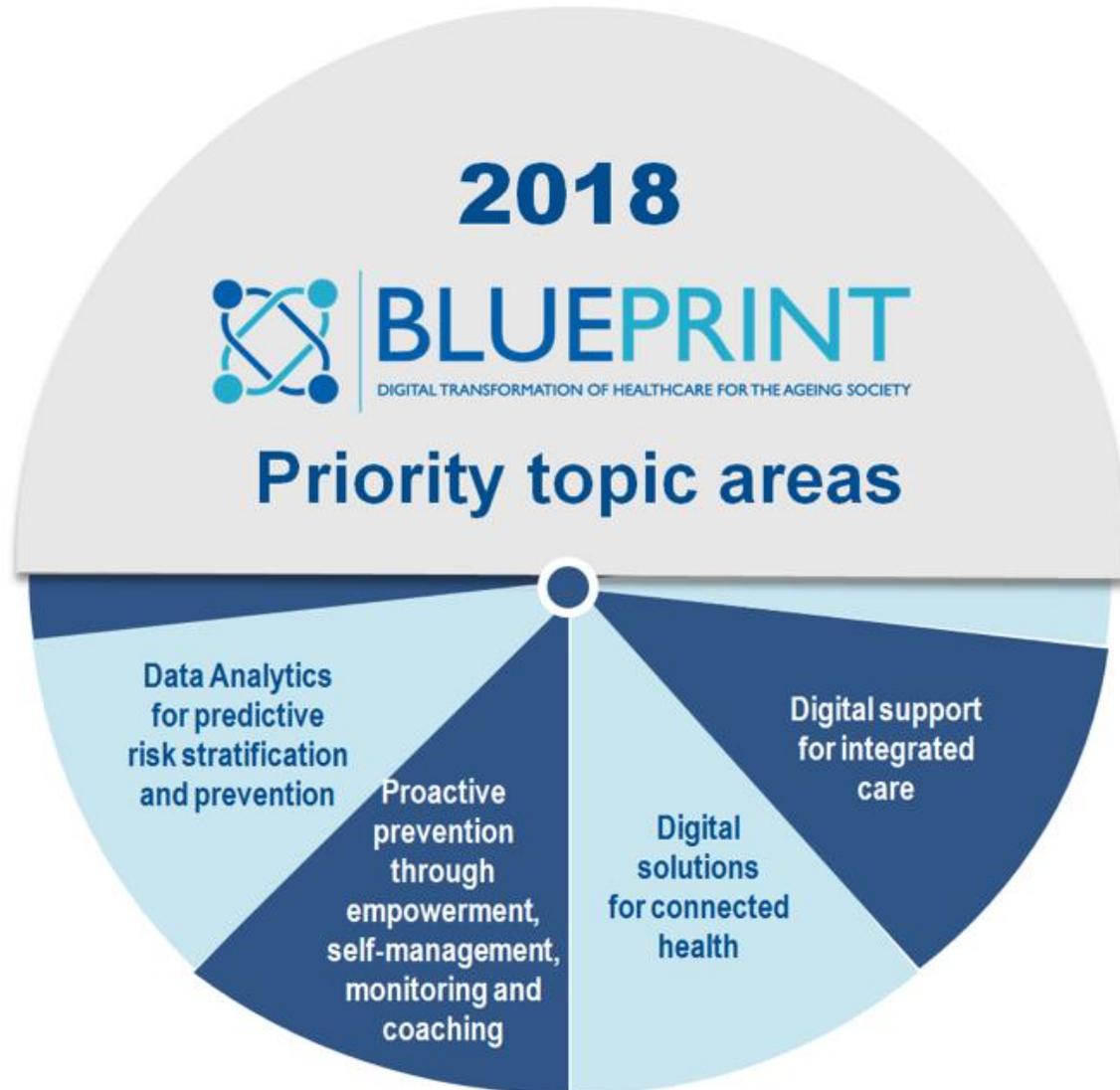


Figure 2: CareWell domains for integrated care



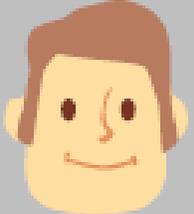
The shared vision



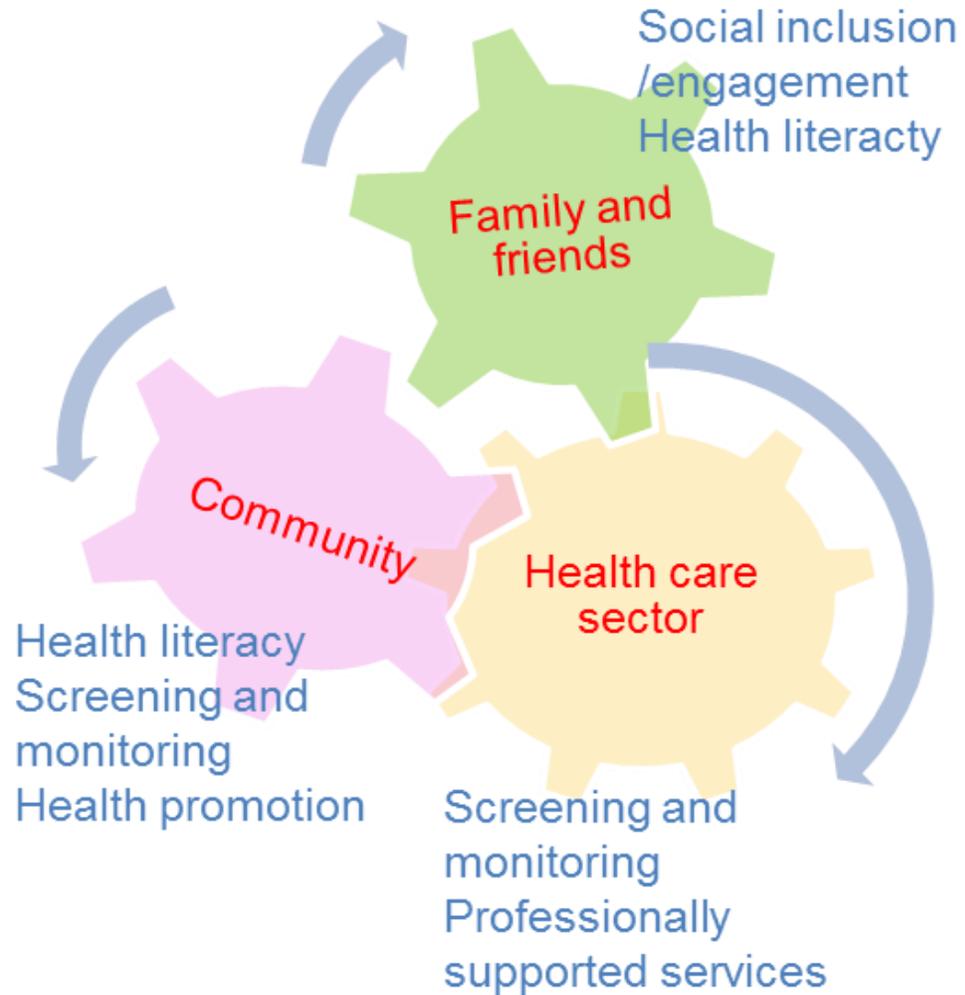
Each topic area provides a detailed picture about the situation in Europe with regard to:

- Needs addressed
- Key ICT-enabling technologies available
- Barriers and challenges to scaling up
- Potential solutions available or in development that address these challenges
- Recommendations and actions needed at different levels (EC, MS, EU regions) in order to promote innovation and achieve a triple win for Europe.

Person-centered care

Life course Needs	Children/ Young adults	Working age adults	Retired persons below 80	Persons aged 80+
Generally well/ good wellbeing	 <p>Rose, 10</p>	 <p>Leila, 51</p>	 <p>Randolph, 65</p>	 <p>Teresa, 83</p>
Chronic conditions and/or social needs	 <p>Millie, 18</p>	 <p>Nikos, 50</p>	 <p>Eleni, 73</p>	 <p>Maria, 84</p>
Complex needs	 <p>Ben, 9</p>	 <p>Antonio, 33</p>	 <p>Procolo, 79</p>	 <p>Jacqueline, 87</p>

The «Value Chain» for health



Smart Health

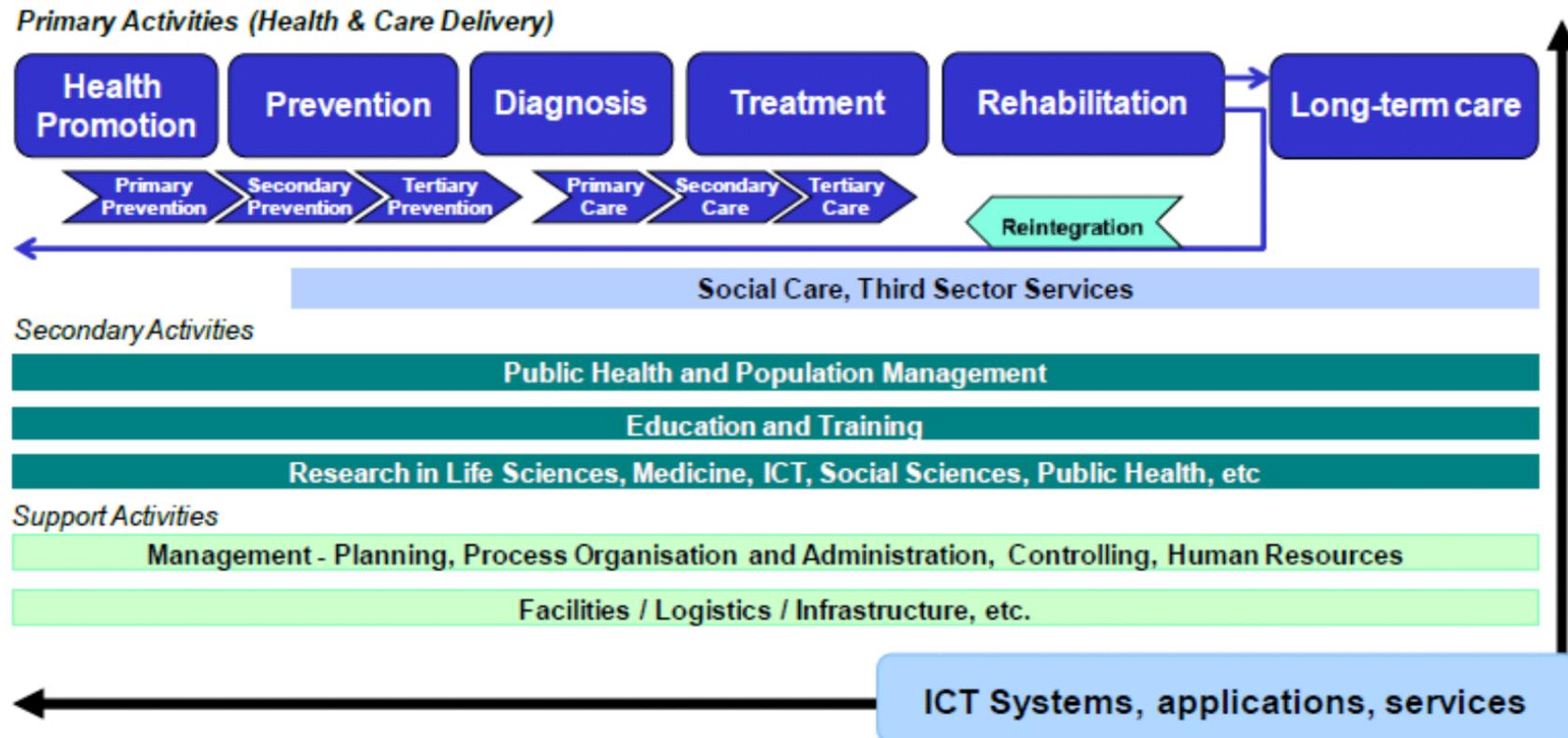
Embedding Digital Solutions

Life-long Empowerment

Health Services

Health promotion & targeted offer

Scaling up a health and care value chain



Source: © empirica, WE4AHA 2018

Figure 2. Draft of a health and care value chain



EU Health programme funded project to develop evidence-based guidance for scaling-up integrated care in Europe

Aim: to effectively support care authorities in progressing the transformation of their health and care systems and to provide sustainable models for integrated care which will facilitate identification of good practice and scaling-up. This will be achieved through the delivery of an evidence based integrated care support programme



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Programma Mattone Internazionale Salute



Work package number ⁹	WP6	Lead beneficiary ¹⁰	2 - ProMIS
Work package title	VIGOUR scaling-up phase activities		
Start month	18	End month	36

Scale-up of Technology-based solutions

Prescription adherence

Medication reminder devices

Caregivers support

Discussion fora

Social media

Memory training

Telemonitoring

Newspapers/online libraries

Connected care

Geolocation

Home safety tools

Specific serious games

Carer alerts



Table 1 - Conceptual care integration layers

Integration Types	Integration Levels	Integration Forms
<ul style="list-style-type: none"> • <i>Linkage</i> allows individuals with mild to moderate care needs to be cared for in systems that serve the whole population without requiring any special arrangements. • <i>Coordination</i> requires that explicit structures be put in place to coordinate care across different care sectors. While coordination is a more structured form of integration than linkage, it still operates through separate structures of current systems. • <i>Full integration</i> creates new programs or entities where resources from multiple systems are pooled. 	<ul style="list-style-type: none"> • <i>Organizational integration</i> refers to the coordination and management of activities among care provider agencies or individuals. • <i>System integration</i> includes activities such as strategic planning, financing, and purchasing systems, program eligibility and service coverage, within a geographical area or across a country or region. 	<ul style="list-style-type: none"> • <i>Vertical integration</i> refers to the delivery of care across service areas within a single organization structure. • <i>Horizontal integration</i> refers to improved coordination of care across multi-organizational settings.

Source: Own compilation adapted from McAdam (2008)¹⁸



- Self assessment
- SWOT analysis
- Implementation Plan
- Twinnings



EU4Health programme for a healthier and safer Union

#EUBudget #EU4Health

EU4Health è la risposta dell'UE al COVID-19, che ha avuto un forte impatto sul personale medico e sanitario, sui pazienti e sui sistemi sanitari in Europa.

Investendo **9,4 miliardi di euro**, e diventando così il più grande programma per la salute di sempre in termini di risorse finanziarie, **EU4Health fornirà finanziamenti ai paesi dell'UE, alle organizzazioni sanitarie e alle ONG.**

Le domande di finanziamenti potranno essere presentate nel
2021.

Tackling cross-border health threats



Ensure prevention, preparedness, surveillance and response to cross-border health threats



Build emergency reserves of medicines, medical devices and other health supplies



Establish a Union health emergency team to provide expert advice and technical assistance in case of a health crisis



Coordinate emergency health care capacity



Making medicines available and affordable



Make medicines, medical devices and other critical health supplies available and affordable for patients and health systems



Advocate prudent and efficient use of medicines such as antimicrobials



Support innovative medical products and greener manufacturing



Strengthening health systems



Improve accessibility, efficiency and resilience of health systems



Reduce inequalities in accessing health care



Tackle non-communicable diseases such as cancer by improving diagnosis, prevention and care



Exchange of best practices on health promotion and disease prevention



Scale up networking through the European Reference Networks and extend it to infectious and non-communicable diseases



Support global cooperation on health challenges to improve health, reduce inequalities and increase protection against global health threats



RESEARCH OPPORTUNITY

THE CHALLENGES

European
Commission

- increasingly challenging demographic context threatening the sustainability of health systems
- fragile economic recovery limiting the resources available for investment in healthcare
- increase of health inequalities between/within Member States
- increase in chronic diseases prevalence
- pandemics and emerging cross-border health threats
- rapid development of health technologies

Health and
Consumers



PARTICIPATION



Build on previous results



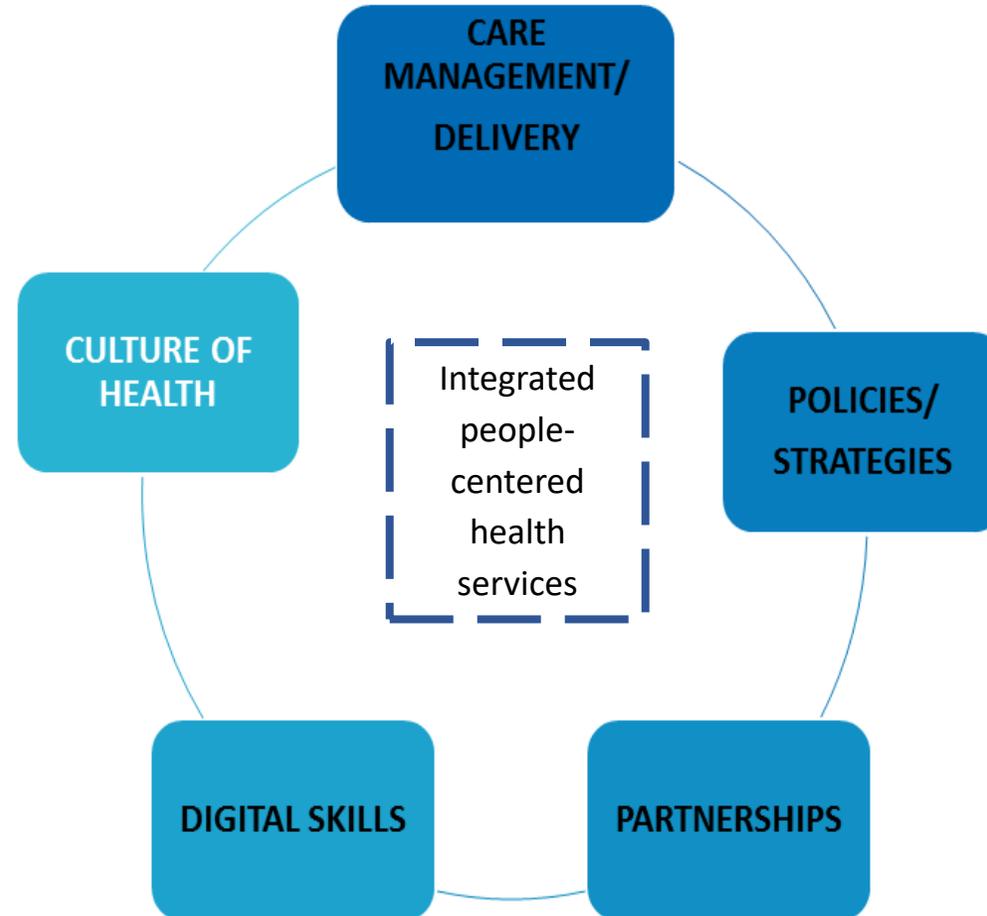


Balancing opportunities with capacity

- Carefully choose topic based on strengths
- Identify DRIVING team
- Build consortium with complementary partners to address weaknesses
- Address threats: for ex. avoidable competition, lack of political support
- Bundle fundings (FSE, FESR, Horizon Europe, rescEU, Digital EU etc)

The collaborative approach

- Promote the exchange of regional good practices that can impact at national/European level
- Support collaboration between European networks/partnerships to share strategies, policies, knowledge and tools
- Locate a single keyword to process shared tools to work within organizational innovation



1 NO POVERTY



2 ZERO HUNGER



3 GOOD HEALTH AND WELL-BEING



4 QUALITY EDUCATION



5 GENDER EQUALITY



6 CLEAN WATER AND SANITATION



7 AFFORDABLE AND CLEAN ENERGY



8 DECENT WORK AND ECONOMIC GROWTH



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



10 REDUCED INEQUALITIES



11 SUSTAINABLE CITIES AND COMMUNITIES



THE GLOBAL GOALS
For Sustainable Development

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



14 LIFE BELOW WATER



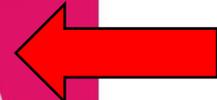
15 LIFE ON LAND



16 PEACE AND JUSTICE STRONG INSTITUTIONS



17 PARTNERSHIPS FOR THE GOALS





V

- Strengthen
- Breaking-
- Supportin
- Fostering
- Aligning it

