



IDIH

INTERNATIONAL COLLABORATION
DIGITAL TRANSFORMATION
HEALTHY AGEING

IDIH WEEK 2022

A 4 days online event dedicated to researchers, innovators, care providers and users associations dealing with Digital Health for Active and Healthy Ageing (AHA).

Information, Networking&Matchmaking, and Co-creation sessions among all the key-stakeholders of digital solutions for AHA in Europe, Canada, China, Japan, South Korea and USA.



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Join the IDIH Week 2022 | March 21 – March 24



<https://health-innovation-community-platform.b2match.io/>

Asian slot: 9.00 – 11.00 CET / 16.00 – 18.00 CST / 17.00 – 19.00 JST & KST
 American slot: 15.00 – 17.00 CET / 9.00 – 11.00 EST / 6.00 – 8.00 PST

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY
Asian slots	Hour 1	INFO DAY	PITCH DAY 1	Japan Regional Workshop
	Hour 2			
American slots	Hour 3	US Regional Workshop (17.00 – 19.00 CET / 11.00 – 13.00 EST / 8.00 – 10.00 PST)	2 nd PLC Meeting (Reserved to Policy Makers)	PITCH DAY 2
	Hour 4			
	March 21	March 22	March 23	March 24



- INFO DAY (March 21, 9.00 - 11.00 CET)**
 This Info Day is dedicated to the IDIH findings and products, as well as to IDIH progress towards sustainability. It will also *highlights* current opportunities for international cooperation in the field of Digital Health for Active and Healthy Ageing.
- US REGIONAL WORKSHOP (March 21, 17.00 - 19.00 CET)**
 This workshop is dedicated to the US landscape of R&I around Digital Health for AHA. It will focus on how COVID has impacted independent and connected living of the older persons with the perspective of start-ups, investors, and the patients themselves. A session will be dedicated to Q&A with the audience.
- PARTNERING DAYS (March 22, 9.00 – 11.00 CET / March 23, 15.00 – 17.00 CET)**
 Partnering Days will be dedicated to the presentation – through a short pitch – of ongoing projects (for results dissemination/exploitation purposes), new project ideas and expertise offers/requests by the organizations working in the field of Digital Health for AHA. Sessions are planned for March 22, 9.00 – 11.00 CET and March 23, 15.00 – 17.00 CET and will be respectively dedicated to Asian and American audience. Do you wish to pitch your project idea or expertise? **Apply HERE!** Use [this template](#) to send your Flash Presentation to idih@apre.it by March 14.
- JAPAN REGIONAL WORKSHOPS (March 23, 9.00 - 11.00 CET)**
 A panel-discussion (in Japanese with English subtitles) will be held with the participation of the Ministry of Internal Affairs and Communication, in charge of HORIZON 2020 in Japan, and some key-players in the R&I landscape in Japan. A session will be dedicated to Q&A with the audience.
- INNOVATION DAY (March 24, 9.00 – 11.00 CET & 15.00 – 17.00 CET)**
 Starting from the findings of IDIH Experts – gathered in the [IDIH Digital Health Transformation Forum](#) – this event will be the occasion to address Digital Health for Active and Healthy Ageing focusing on the three areas suggested by the IDIH Experts for enhancing international cooperation in the field: *Data Governance, Digital Inclusion, Interoperability-by-design*. Thanks to the participation of the [eVita project](#) and the [North American Chapter International Society for Gerontechnology](#), 2 Panel Discussions will further explore these areas highlighting tech challenges and opportunities offered by collaborative research at international level. Co-creation sessions will follow among the panelists, as well as the audience through ad hoc tools for live interactions.



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IDIH WEEK 2022

Innovation Day (March 24, 9.00 – 11.00 CET)

Join the Q&A with Slido:

Join at
slido.com
#IDIH



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CONCEPT | Starting from the findings of IDIH Experts – gathered in the [IDIH Digital Health Transformation Forum](#) – this event will be the occasion to address Digital Health for Active and Healthy Ageing focusing on the three areas suggested by the IDIH Experts for enhancing international cooperation in the field: *Data Governance, Digital Inclusion, Interoperability-by-design*. Thanks to the participation of the [e-Vita project](#), a Panel Discussion, also based on the case studies offered by this EU-Japan collaboration, will further explore these areas highlighting tech challenges and opportunities offered by collaborative research at international level. A co-creation session will follow among the panellists, as well as the audience through ad hoc tools for live interactions.

AGENDA	
9.00 - 9.10	Welcome and introduction <i>Kristin Dallinger, IDIH Coordinator</i>
9.10 - 9.20	Data Governance: the outcomes of the IDIH Experts Forum in the field of Digital Health for Active and Healthy Ageing <i>APRE & ATC</i>
9.20 - 9.30	Governance from the end-users' perspective: State of the art and first design for an understandable interface for older adults <ul style="list-style-type: none"> ▪ <i>Dr. Jasmin Lehmann, Senior Researcher Social Sciences and Ethics at University of Siegen</i> ▪ <i>Dr. Rainer Wieching, Divisional Director Health and Prevention at University of Siegen in Germany and e-VITA EU project coordinator</i>
9.30 - 9.40	Digital Inclusion: the outcomes of the IDIH Experts Forum in the field of Digital Health for Active and Healthy Ageing <i>APRE & ATC</i>
9.40 - 9.50	Digital Inclusion: a case study from the e-VITA project <ul style="list-style-type: none"> ▪ <i>Roberta Bevilacqua, Researcher and Psychologist at INRCA, National Institute on Health and Science Aging, member of e-VITA project</i>
9.50 - 10.00	Interoperability-by-design: the outcomes of the IDIH Experts Forum in the field of Digital Health for Active and Healthy Ageing <i>APRE & ATC</i>
10.00 – 10.10	Standardization of data and systems: addressing security and privacy of cross border data <ul style="list-style-type: none"> ▪ <i>Sara Casaccia, Assistant Professor, Università Politecnica delle Marche</i>
10.10 - 11.00	Co-creation session: improving IDIH outcomes based on the living labs experiences of e-Vita project
11.00	Closure

Link to access the meeting: click [here](#)



Findings of the IDIH Experts Forum

INTRODUCTION & METHODOLOGY

- **Full Title:** International Digital Health Cooperation for Preventive, Integrated, Independent and Inclusive Living
- **Start Date:** 1st May 2019
- **Aim:** Promote and increase international collaboration to advance digital health in the EU and key Strategic Partner Countries to support active and healthy ageing (AHA) through innovation




AIM | Promote and increase international collaboration to advance digital health in the EU and key Strategic Partner Countries to support active and healthy ageing (AHA) through innovation



▶ **IDIH serves as a CATALYST for the INTERNATIONAL DIALOGUE in DIGITAL HEALTH for AHA**

IDIH's EXPECTED IMPACT



Increased awareness of relevant research and innovation initiatives by stakeholders.

Improved competitiveness of European industry by opening up to international innovation possibilities and gaining access to future markets.



More networking between European and international stakeholders interested in international cooperation in the field.

Increased international cooperation in ICT research and innovation for AHA through a roadmap of priority areas and potential funding schemes.



IDIH PRODUCTS AND SERVICES (I)

1 IDIH Factsheets

Overview of the **digital health research and innovation landscape** in Strategic Partner Countries (CAN, CN, JP, KR, USA):

- Priorities within digital health and AHA
- Challenges,
- Relevant key programmes
- Key players in the field
- Strengths and weaknesses

Overview of **international collaboration** and

- Success stories in digital Health bw EU and Strategic Partner Countries

2 IDIH Guidebooks

Updates on opportunities for researchers and innovators

- from IDIH Strategic Partner Countries under EU Funding
- from the EU under the American, Canadian, Chinese, Japanese and South Korean Funding Programmes

<https://idih-global.eu/outcomes/>

Access the factsheets:

• [Factsheet Canada](#)



• [Factsheet China](#)



• [Factsheet Japan](#)



• [Factsheet South Korea](#)



• [Factsheet USA](#)



IDIH PRODUCTS AND SERVICES (II)

3 IDIH Helpdesk

idih-global.eu/idih-helpdesk

Ad-hoc advice to RTI stakeholders from the EU and the Strategic Partner Countries on Funding Programmes and Calls that offer opportunities for international cooperation in the field of Digital Health and AHA

4 IDIH Long-term Matchmaking Platform

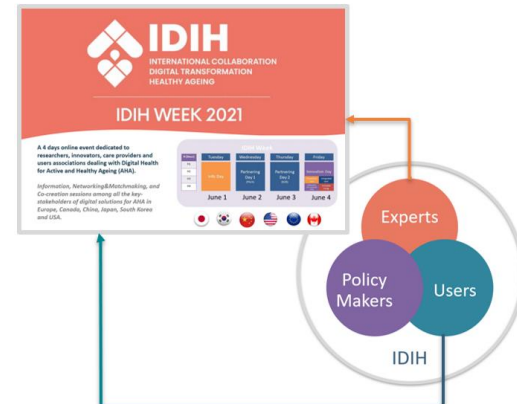
Networking among all key-stakeholders of digital solutions for AHA

Register at: <https://idih-week-2021.b2match.io/>

- Create your online profile specifying your Area of Activity and/or expertise request/offer in the Marketplace + Schedule B2B-meetings with your potential international partners until Dec 31, 2021.

5 IDIH Week 2021 & 2022

- 4 days online event dedicated to researchers, innovators, care providers and user associations dealing with Digital Health for AHA.
- Information, Networking & Matchmaking, Co-creation sessions
- Materials available at: <https://idih-week-2021.b2match.io/page-4061>



IDIH PRODUCTS AND SERVICES (III)

6 IDIH Podcast

- **The Future of Ageing Actively and Happily** is the podcast of the EU Project IDIH - International Digital Health Cooperation for Preventive, Integrated, Independent and Inclusive Living.
- Each episode focuses on one of these **topics**, and a strategic **region** of the world: Europe, China, Canada, Japan, South Korea, and USA.
- Available on 6 platforms

TIMING

PODCAST 1: March 2021 (Intro HE)

PODCAST 2: July 2021

PODCAST 3: October 2021

PODCAST 4: December 2021

PODCAST 5: January 2021

PODCAST 6: March 2022

Duration: max. 25 minutes

WHERE TO LISTEN



6 IDIH Magazine

- IDIH MAG FORMAT: a full PDF version
- IDIH MAG FORMAT: a reduced HTML version
- You can just draft your article promoting *events, initiatives and R&I projects at national/international level or experts/stakeholders from your organization/network, dealing with Digital Health for Active and Healthy Ageing*



6 sections:



Findings from the IDIH Experts Forum [HOW]:

- 4 Experts Groups
- 4 Strategic Topics
- 3 Experts Groups Workshops
- IDIH Week 2021
- IDIH Webinars
- IDIH PLC - Programme Level Cooperation (6 Funding Agencies)
- Consultation with the IDIH Users Consultation Group (UCG):



GERONTECHNOLOGY

Digital Health Transformation Forum

- Expected to become a long-lasting mechanism for international dialogue on exploitation of synergies, promising avenues, and open issues in digital health.
- Shall develop a Roadmap with concrete measures for enhancing collaboration in priority areas.

IDIH Expert Groups

Activities

- Collaborative actions
- Exchange in areas and topics of collaboration in digital health domains
- Ensure mutual learning and knowledge exchange between countries and regions

Experts

- Four Expert Groups (one per strategic topic)
- Experts coming from research, technology, industry, advocacy groups, etc.
- Experts were selected via application process

Four Strategic Topics

	Preventive care	Integrated care	Independent and connected living	Inclusive living
	<p>Focus: Early diagnosis and detection</p> <p>Active and healthy aging begins with a prolonged health regimen. Tech enabled solutions that engage users in health and wellness techniques will allow active and meaningful senior lifestyles.</p>	<p>Focus: Using new technologies to redesign, coordinate and integrate health and social services and place citizens, patients and seniors at the centre of health systems.</p> <p>Technology in the integrated care domain is intended to provide support at the point of care, anytime and anywhere.</p>	<p>Focus: Tele monitoring via smart home and living technologies</p> <p>Connected living is made possible through smart sensors and buildings, mHealth solutions, mobility aids, secure data, robotics, and e health</p>	<p>Focus: Helping the elderly to feel socially more connected</p> <p>Healthy environments equal healthy individuals. In the aging population, a component of healthy living is inclusivity, promoting positive social engagement, and ensuring a rewarding social aspect to age</p>
Facilitators				
EU	Giovanni Saggio <i>University of Rome Tor Vergata</i>	Ville Salasapuro <i>Mediconsult Oy</i>	Matteo Antonio Melideo <i>Engineering Ingegneria Informatica SpA</i>	Dr Matthew Lariviere <i>University of Sheffield</i>
USA	Steven Charlap <i>CEO of GeneYes</i>	Isabel Van De Keere <i>Immersive Rehab</i>	George Demiris <i>University of Pennsylvania</i>	Dr Mandy Salomon <i>Mentia Inc.</i>
Canada	Yves Joannette <i>Université de Montréal</i>	Christopher Gorton <i>Medsoils</i>	Robyn Tamblyn <i>McGill University Health Centre</i>	Dr Habib Chaudhury <i>Simon Fraser University</i>
China	Yiqiang Chen <i>Chinese National Institute of Science and Technology</i>	Kendall Ho <i>University of British Columbia</i>	Guilan Kong <i>Peking University</i>	Dr. AJ Chen <i>West China Hospital</i>
South Korea	Hye-jin Kim <i>Baekseok University</i>	Yanchun Zhang <i>Victoria University</i>	Kyoung Lee <i>Texas A&M University</i>	Dr Roland Wilson <i>George Mason University</i>
Japan	Dr Takao Tashiro <i>The Open University of Japan</i>	Jisoo Lee <i>HealSage consulting</i>	Dr Hirohisa Hirukawa <i>NovusCare</i>	Dr Satoko Hotta <i>Keio University</i>
Experts		Ms Kanoko Oishi <i>Mediva</i>		

IDIH (wider) Community

- IDIH | Long-term matchmaking platform
- Open Community at: <https://idih-week-2021.b2match.io/>
- **+390 international stakeholders of Digital Health for Active and Healthy Ageing (32 %Universities, 30% Companies, 9% R&D Institutions)**

Towards IDIH Week 2022!

Join the IDIH long-term matchmaking platform!

Networking&Matchmaking among all the key-stakeholders of digital solutions for Active and Healthy Ageing (AHA) in Europe, Canada, China, Japan, South Korea and USA.

This platform is part of the project **IDIH - International Digital Health Cooperation for Preventive, Integrated, Independent and Inclusive Living** and works as a Community of Experts where registered participants can exchange and match their interests and expertises in the field, starting building new exciting partnerships!

If you are already registered, you can keep schedule and have meetings with your potential international partners whenever you like until December 31, 2023.

If you are not registered yet, you can do it here, then – after creating your online (always editable) profile - you will be enabled to browse the **Participants Catalogue** and the **Marketplace**, and request/accept meetings that can be realized via the platform until December 31, 2023.

How to schedule and have a meeting? It's easy! Visit the page B2B | How it works, you will find step-by-step instructions.

[!] **FURTHER GUIDANCE ON HOW TO HAVE B2Bs**. Check **these instructions** that may help you to access the video conference call directly in the b2match platform.

[!] **UPCOMING**

IDIH Week 2022 will be held on March 2022: to know more and register, please visit the dedicated section.

Contacts

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APRE

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IDIH

Register now

Open until 31 December 2023

ORGANISED BY



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 826092.

RESOURCES

Guidance on how to have a b2b Partnering Day_Flash Presentation_template ppt.pptx
IDIH Week 2022_Programme.jpg

MEETINGS

Participants	328
Meetings	100

PARTICIPANTS

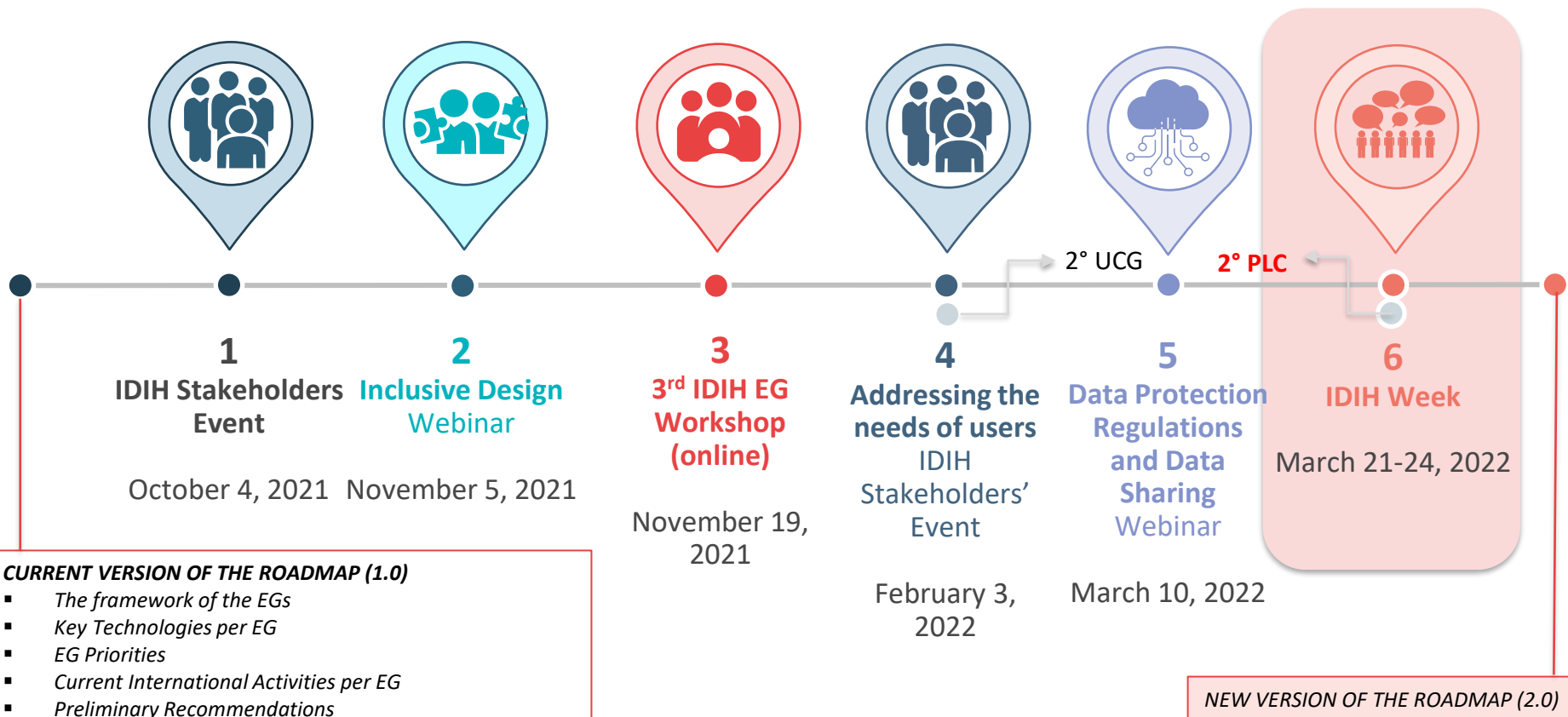
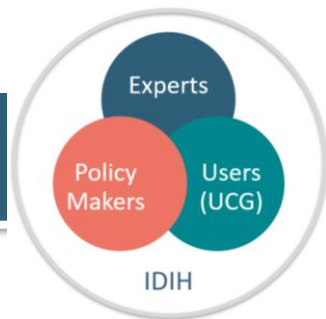
Company	116
University	126
R&D Institution	38
Association/Agency	31
Authority/Government	15
Other	47
Care Provider	18
Total	391

<https://health-innovation-community-platform.b2match.io/>

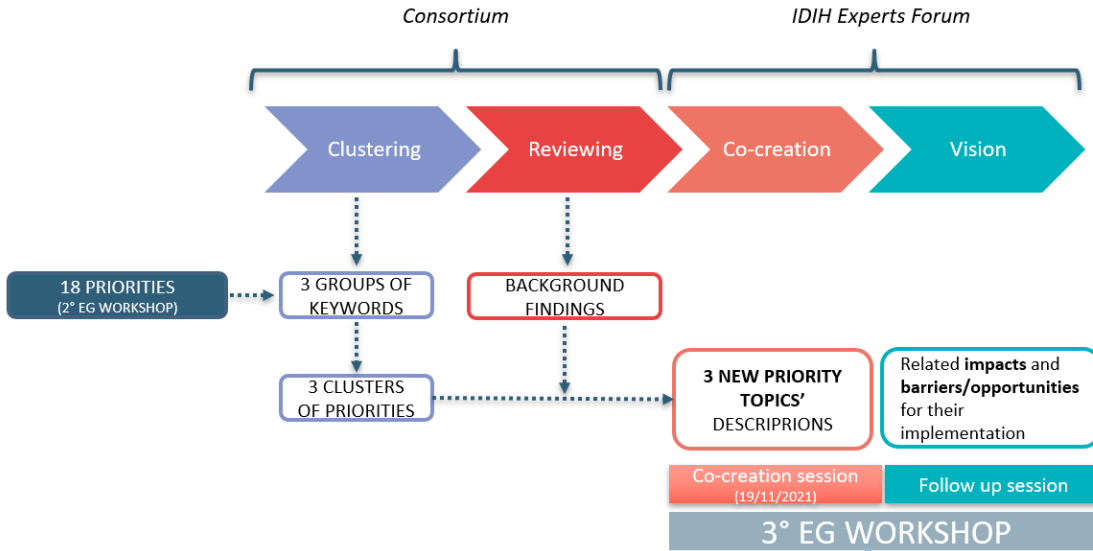


TOWARDS A ROADMAP FOR INTERNATIONAL COOPERATION IN DIGITAL HEALTH FOR AHA

An expert-driven approach and a user-centred perspective to favour evidence-based policies and an international policy dialogue



3° Experts Groups (EGs) Workshop



DATA GOVERNANCE

To foster a **shared understanding of the determinants of healthy ageing** through new/existing multi-modal and **forward/backward longitudinal studies** and **Big Data analytics** based on the use of multiple data sources (such as patient reported data, patient validated data in EHRs, biometrics and biological data), validated with and by patients through **personalised-medicine approaches** and according with a **shared international validation framework** which also addresses cybersecurity aspects.

DIGITAL INCLUSION

To favour **inclusive healthcare systems** through age-friendly technologies that address social isolation and loneliness, based on **empowerment models, inclusive co-design and enhanced digital literacy practices**, supported by international and multi/transdisciplinary research towards the adoption of the **5-As approach** (acceptability, applicability, accessibility, affordability, accuracy).

INTEROPERABILITY-BY-DESIGN

To ensure **accessibility, sharing and protection of data from different sources**, such as IoT wearables and sensors, through the development of **international standards**, and **procedures and incentives** for producers accessible for all countries based on an interoperability-by-design approach of digital solutions for preventive and integrated care, independent and inclusive living of the older persons.

Policy framework considered 1/2

Policy Makers

Therefore, as a first step towards the enhancement of international cooperation in the field of digital health for AHA, the first PLC meeting has produced a set of preliminary broadlines for cooperation around 3 main priority-areas identified by the IDIH Expert Groups:

- **EG Inclusive Living - Priority 1:** Understanding marginalization connected to ageing and promote targeted and co-created inclusive solutions (connected with "Dementia-friendly communities")
- **EG Inclusive Living - Priority 2:** Sharing tools and methodology, practices in the field of LHS (learning health systems) to reduce health disparities in ageing populations (connected with "Learning Health Systems")
- **EG Preventive Care - Priority 2:** Development of international standards and procedures for interoperable outputs of wearable (and all) technologies (connected with "Unlock the potential of data coming e.g. from wearables or sensors through AI, machine learning algorithms").

Green Paper On Ageing. Fostering solidarity and responsibility between generations

Source: <https://op.europa.eu/it/publication-detail/-/publication/d918b520-63a9-11eb-aeb5-01aa75ed71a1/language-en>

Introduction

The purpose of this green paper is to launch a broad range of opportunities, in compliance with the UN 2030 Agenda, for the Decade for Healthy Ageing.

Laying the foundations

Laying the right foundations at early stages of our lives can help people overcome some of the challenges linked to ageing. This includes promoting healthy ageing and people's education throughout their lives.

Making the most of our working lives

To compensate for the shrinking working-age population, the EU needs to attract more people into the labour market (women, migrants, young people, entrepreneurs), enable longer working lives and improve productivity.

New opportunities and challenges in retirement

Thanks to healthier lifestyles and medical progress, most retirees continue to make a significant contribution to society and economy through intergenerational solidarity (volunteering). This also requires to protect them from old age poverty and ensure sustainable pension systems.



Meeting the growing needs of an ageing population

Health promotion and disease prevention, in the form of healthy lifestyles can help limit or postpone illness or disability. A comprehensive policy response may involve investing in **quality services, infrastructure and community-based service.**



WHO Decade of Healthy Ageing

Getting ready for the Decade of Healthy Ageing 2021-2030

Sources: <https://www.who.int/publications/i/item/9789240023307> ; https://cdn.who.int/media/docs/default-source/decade-of-healthy-ageing/final-decade-proposal/decade-proposal-final-apr2020-en.pdf?sfvrsn=b4b75ebc_25&download=true

The United Nations Decade of Healthy Ageing 2020-2030 addresses **four areas** for action at multiple levels and in multiple sectors in order to promote health, prevent disease, maintain intrinsic capacity and enable functional ability.

Decade Action Areas

- **Age-friendly environments**
Physical, social and economic environments are important determinants of healthy ageing
- **Integrated Care**
Old people require access to good quality and essential services
- **Combating Ageism**
The narrative around age negatively impacts on old adults and their well-being
- **Long-term Care**
Long-term-care systems enable old people to live a consistent life

Decade Enablers

- **Voice and engagement**
Give voice and actively engage older people is crucial to give them visibility
- **IConnecting stakeholders**
Multi-stakeholder approach leverages new knowledges and resources
- **Leadership and capacity building**
Governance has to design specific policies and foster capacity-building systems
- **Strengthening research, data and innovation**
Research can drive national policies and actions

As healthy ageing is influenced by multiple factors, strong collaboration for transformative change requires the building of systems with several stakeholders.

A 10-years Plan for a Decade of Healthy Ageing 2020–2030 has been already defined to coordinate concerted, catalytic, sustained collaboration.

Policy framework considered 2/2

BRIEFING NOTE FOR THE EXPERTS IN THE 3RD EG WORKSHOP

Where are we now? Global st

Combining geographical... investigate the interaction and the in

Many countries already use national... for old people. However, the lack of **invisibility**. Governments need to inv

What improvements could we

The baseline assessment includes tw

- indicators of progress at nation
- indicators of outcome and im

Despite an increased worldwide com... to be accelerated and **new indicators** proceeding through an improvement

How could we improve by 203

Research on healthy ageing should no... to link the **social, biological, econom** that, new studies and the in

The emerging trend to **transform di** optimizing functional ability persona



Opportunities for International Cooperation on Digital Health

Source: <https://www.ceps.eu/ceps-publications/opportunities-for-international-cooperation-on-digital-health/>

CEPS Researchers Nadina Iacob and Felice Simonelli produced a policy brief (**Opportunities for International Cooperation on Digital Health**) as a part of **'Task Force 4 – Digital Transformation'**, organised by The Think20 (T20), the official engagement group of the G20. The group serves as the 'Ideas bank' of the G20 and aims to provide research-based policy recommendations to G20 leaders. This policy brief was finalised as part of T20 Italy, in advance of Italy's hosting of the annual G20 summit from 30-31 October 2021.

The Covid-19 pandemic has brought to the forefront the role of **sharing quality data in a timely manner** to inform crisis management, public health and research. **The value of data is enhanced when countries cooperate and facilitate cross-border data flows.**

Policymakers should harness the value of health data and engage in a **global discussion** that strives for **common, cross-border and effective digital health solutions to improve health outcomes for all**. In this context, policymakers should focus on:

1. **Establishing technical and legal building blocks:**

BRIEFING NOTE FOR THE EXPERTS IN THE 3RD EG WORKSHOP

- a. Harmonising rules for health data protection.
 - b. Fostering cooperation for living and dynamic standards
 - c. Updating existing liability rules
2. **Gaining end public/users' trust:**
 - a. Increasing accountability and transparency
 - b. Creating a "privacy label"
 - c. Developing clear and transparent rules for data access
 - d. Improving data quality
 - e. Equipping patients and professionals with the right set of skills
 3. **Fostering research, innovation and competition:**
 - a. Enhancing interoperability
 - b. Enabling data portability
 - c. Ensuring fair access to health data
 - d. Developing a framework for the secondary use of health data

These three key steps could facilitate data sharing for better health outcomes and enable research and novel data-driven solutions for healthcare and well-being.

European Scaling-up Strategy in Active and Healthy Ageing

Source: <https://1library.net/document/yn60el0q-european-scaling-up-strategy-active-and-healthy-ageing.html>

A high number of good examples in the field of active and healthy ageing have been mapped through Europe by the **European Innovation Partnership on Active and Healthy Ageing** (EIP on AHA) during three years (2012 – 2014). A comprehensive strategy (**European Scaling-up Strategy in Active and Healthy Ageing**) is needed to scale-up the most innovative features to other European contexts which could benefit from the experience of the most advanced ones. The EIP on AHA has developed a document (**European Scaling-up Strategy in Active and Healthy Ageing**) proposing a 5-step framework for developing an individual scaling up strategy.

Health and care services in Europe are undergoing changes to adapt systems to a growing demand caused by ageing and the expansion of chronic diseases. This restructuring, which combines health and social care resources, **involves the developing and testing of innovative solutions** and eventually **the large-scale implementation of the most successful practices.**




The multitude of good examples developed throughout the EU has led to a realisation that a **comprehensive scaling-up strategy is needed at European level.** The **European Innovation Partnership on Active and Healthy Ageing** ("EIP AHA" or "Partnership") which brings together key stakeholders in this policy area, and supports the good practices and References Sites developed by its partners, can act as a catalyst to foster scaling-up across regions and countries.

Five steps for setting up an effective European scaling up strategy:

- Step 1 - Building a database of good practices (**What?**)
- Step 2 - Assessment of viability of good practices for scaling up (**What?**)
- Step 3 - Classification of good practices for replication (**What?**)



IDIH Webinar: Inclusive Design of Digital Solution for AHA [Results]

PRIORITIES	VISIONS	BARRIERS
<ul style="list-style-type: none">• Digital solutions have to consider digital divide among senior population• Digital solutions have to consider different social, gender and cultural determinants of health• Long-term care should be addressed at systemic level• User involvement should start at the beginning of design process 	<ul style="list-style-type: none">• Seniors are becoming increasingly techno-sophic• The individuals should be at the centre of technology design• Digital solutions can address social exclusion• Technology should enable or facilitate new ways to meaningfulness• Technology should be accessible, affordable, appropriate, attractive, acceptable, alternative, flexible 	<ul style="list-style-type: none">• High cost of digital solutions' customisation• Technology does not have to overcompensate real or imagined physical or social losses• New technology brings a high risk of privacy violation• Free markets may prevent system or data interoperability in healthcare 

IDIH proposal for:

 **A *ROADMAP* TOWARDS THE ENHANCEMENT OF INTERNATIONAL COOPERATION IN DIGITAL HEALTH FOR AHA**





IDIH Roadmap: towards the enhancement of international cooperation in Digital Health for AHA

[WHAT] to enhance

- A common understanding of **Healthy/Active Ageing as a global challenge**, among the most remarkable success story in Humanity.
- Cooperation around 3 *areas* and, in particular **3 Priority Topics**:

DATA GOVERNANCE

To foster a **shared understanding of the determinants of healthy ageing** through new/existing multi-modal and forward/backward longitudinal studies and **Big Data analytics** based on the use of multiple data sources (such as patient reported data, patient validated data in EHRs, biometrics and biological data), validated with and by patients through **personalised-medicine approaches** and according with a **shared international validation framework** which also addresses cybersecurity aspects.

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INTEROPERABILITY-BY-DESIGN

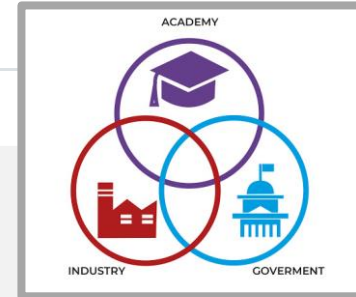
To ensure **accessibility, sharing and protection of data from different sources**, such as IoT wearables and sensors, through the development of **international standards, and procedures and incentives** for producers accessible for all countries based on an interoperability-by-design approach of digital solutions for preventive and integrated care, independent and inclusive living of the older persons.

- A shared **Vision** around the **Expected Impacts** of international cooperation in these areas.

[HOW] to enhance

- **Action Plan** for the implementation of the 3 Priority Topics at national/international level: from *policy formation* to *policy evaluation*
 - Which **key-stakeholders** to be involved and when
 - Which **barriers** to consider and possibly remove
 - Upon which **enablers** to leverage to possibly favour implementation:
 - Current **policies and funding schemes** for R&I and international cooperation
 - Cluster **organizations & partnership**



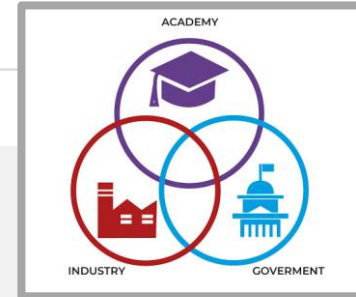


- **Cluster organisations** are defined as:
 - *member organisations gathering in their ecosystems actors from the triple helix: academic / research organisations, industry players among which notably SMEs, R&I support organisations such as accelerators or incubators, but also policy support organisations.*
- This means they are ideal **facilitators** in the R&I landscape and one of their main goals is to support their members' collaboration efforts.
- In line with the EU's strategy in this field, strongly supported by the European Commission DG GROW, **cluster organisations have a strong interest in international collaboration** and are thus, for a large majority, constantly seeking for international collaboration opportunities with relevant organisations from other countries (inside and outside of the EU). These collaboration schemes are developed for the purpose of supporting their members and above all the academic/research organisations and SME of the clusters' ecosystem.
- This is why cluster organisations can be seen as important **enablers** for international collaboration in Research, Development and Innovation (RDI), supporting also the international policy dialogue.



IDIH Roadmap: towards the enhancement of international cooperation in Digital Health for AHA

ENABLERS



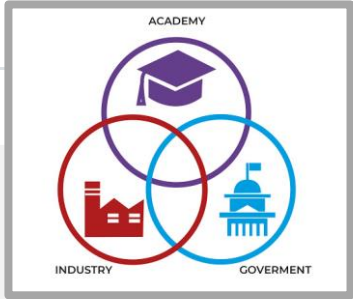
- **Cluster organisations** are defined as:
 - *member organisations gathering in their ecosystems actors from the triple helix: academic / research organisations, industry players among which notably SMEs, R&I support organisations such as accelerators or incubators, but also policy support organisations.*



- The initiatives gathering clusters **targeting the same targets markets as IDIH**:
 - 6 partnerships targeting the markets of the United States;
 - 4 of the partnerships target the markets of Japan and/or China
 - 2 of the partnerships target the markets of Canada and/or South Korea.
- Some of them are finished and some are still ongoing. It can be expected that more are to come in the next generation and clearly see the perspectives offered to IDIH with regards to the exploitation of results.
- **European Strategic Cluster Partnerships Going International** have been identified as target groups to ensure an efficient uptake of the IDIH results and targeted dissemination towards the ongoing ESCP-4is
- At the same time, we **encourage future cluster partnerships to take IDIH achievements** as a background in order to benefit from the lessons learnt and engage in international collaboration with RDI and policy actors from the Third Countries.

IDIH Roadmap: towards the enhancement of international cooperation in Digital Health for AHA

ENABLERS



Cluster organisations are defined as:

- member organisations gathering in their ecosystems actors from the triple helix: academic / research organisations, industry players among which notably SMEs, R&I support organisations such as accelerators or incubators, but also policy support organisations.



ENRICH
GLOBAL
TAKING EUROPEAN
INNOVATION GLOBAL

Health Innovation Thematic Group: International Collaboration for Health Innovation

#Health #InternationalCooperation #Policies #Research&Innovation
#Digitalization #Ageing #Stakeholders Engagement

📌 Aim:

- Facilitate international cooperation and policy dialogue on global health issues by harnessing the networking potential and critical mass of ENRICH Global members and their projects.

📌 Activities:



International Experts Forum for Health Innovation
establishment and management: this will be done by leveraging on the [IDIH Community of experts](#) +300 stakeholders. Activities and events engaging the Forum (1 Forum event per year, online) will be planned through a Bi-annual Plan.

- Target groups: Researchers, Care providers, Users/Patients Associations, Health Tech providers, etc.



**Evidence-based policy making will be also favoured through the participation in the workshop of the R&I experts from the [International Experts Forum for Health Innovation](#).*

International Policy Dialogue Workshops: (1 per year, online)
to discuss about global Health challenges and compare Health policies, in a mutual learning and exchange environment that will also encourage eventual joint funding initiatives, to enhance international cooperation in specific sectors of Health*.

- Target groups: Policy makers and funding agencies in the Health/R&I field



Coordinated by: APRE
Agenzia per la Promozione delle Scienze Europee

Co-lead by: GAC GROUP

Members: DLR-PT ENRICH
EUROPEAN NETWORK OF DIGITAL HEALTH EXPERTS FROM EUROPE, LATIN AMERICA & THE CARIBBEAN

IDIH proposal for:

 ***PRIORITY TOPICS FOR INTERNATIONAL
COOPERATION IN DIGITAL HEALTH FOR AHA***



Common Priority 1 – Data Governance

To foster a shared understanding of the **determinants of healthy ageing** through new/existing multi-modal and **forward/backward longitudinal studies** and **Big Data analytics** based on the use of **multiple data sources** (such as patient reported data, patient validated data in EHRs, biometrics and biological data), validated with and by patients through **personalised-medicine approaches** and according with a shared **international validation framework** which also addresses **cybersecurity** aspects.



Expected Impacts of Common Priority 1

- **Smoother and faster implementation by tech providers** of more sophisticated digital solutions and services that meet the future demand of data handling and allow a timely intervention on older persons and/or their care givers.
- **Improved self-management and quality of life of the older persons** through enhanced quality of more personalized, accessible and participated health care services.
- **Reduced workload and burnout risk for formal and informal carers.**
- Improved **communication** between patients and caregivers.
- **Improved planning and evaluation of health care services** based on the optimization of available data better informing decision making.
- **Reduced economic burden** of health care systems.
- Older persons and all citizens getting more familiar with sharing personal health data and allow **services integration**
- **Improved research outcomes** based on more accessible and accurate data
- **Enabled data driven and interoperable solutions** for different fields and applications.
- **Societal recognition of the importance of health determinants** throughout the life course.
- Improved **security** of health information systems.



Potential *Barriers* for Common Priority 1

- **Lack of digital health literacy** [Level of likelihood: low]
- **Conservative tendencies of health care industry** where verification and application processes are tight and strict, making political, economic and social change slower [Level of likelihood: low]
- **Lack of organizational resources of Health Systems** to meaningfully engage/empower patients in the process and address change management challenges. [Level of likelihood: medium]
- **Lack of a harmonized regulatory framework for data integration and interoperability** that would facilitate data transfer and exchange, mainly due to a scattered decision making throughout the management levels of public affairs [Level of likelihood: high]
- **Non-availability of health data and EHRs** [Level of likelihood: high]



Dr. Jasmin Lehmann, Senior Researcher Social Sciences and Ethics at University of Siegen

Dr. Rainer Wieching, Divisional Director Health and Prevention at University of Siegen in Germany and e-VITA EU project coordinator

 **GOVERNANCE FROM THE END-USERS'
PERSPECTIVE: STATE OF THE ART AND FIRST
DESIGN FOR AN UNDERSTANDABLE INTERFACE
FOR OLDER ADULTS**

Common Priority 2 – Digital Inclusion

*To favour inclusive healthcare systems through **age-friendly technologies** that address social isolation and loneliness, based on **empowerment** models, **inclusive co-design** and enhanced **digital literacy** practices, supported by international and **multi/transdisciplinary research** towards the adoption of the **5-As approach** (acceptability, applicability, accessibility, affordability, accuracy).*



Expected Impacts of Common Priority 2

- **Reduced social isolation and loneliness** of older citizens
- Ensure **equitable access** to public services for older citizens regardless of their background
- **Increased digital literacy** of older citizens
- Improved healthcare system engagement for older persons
- **Improved offer of personalized care services**
- Expanded co-operation and knowledge sharing with EU and partner countries, also for **adaptation and replication** of successful models and tools **internationally**
- More inclusive strategies adopted for the engagement of older people in programmes of digital literacy for AHA



Potential *barriers* of Common Priority 2

- **Digital technology is still too expensive** for some older citizens to purchase. The high costs of digital solutions implementation may be the cause and should be addressed. [Level of likelihood: high]
- Not all citizens have **equitable access to digitally enabled infrastructure** (e.g. secure broadband, mobile data). [Level of likelihood: medium]
- Some older citizens may be concerned that **digital inclusion may disrupt 'non-digital' forms of inclusion** and social relationships. [Level of likelihood: medium]
- **Differences in health care systems and models across countries** may represent a level of complexity to be addressed by international and multi/transdisciplinary research. It is necessary to consider national, as well as individual, differences for the verification and standardization of research results¹⁵. [Level of likelihood: high]



Roberta Bevilacqua, Researcher and Psychologist at INRCA, National Institute on Health and Science Aging, member of e-VITA project

 **DIGITAL INCLUSION: A CASE STUDY FROM THE E-VITA PROJECT**

Common Priority 3 – Interoperability by design



To ensure **accessibility, sharing and protection of data** from different sources, such as IoT wearables and sensors through the **development of international standards**, and procedures and incentives for producers accessible for all countries based on an **interoperability-by-design** approach of **digital solutions for preventive and integrated care, independent and inclusive living of the older persons.**

Expected Impacts of Common Priority 3

- Facilitated access to tools with proven and validated program design from other countries and **enhanced collaboration on datasets**.
- **Enhanced evidence-based policy making** through knowledge exchange at international level, towards **standardization of key findings** and common approaches in the field.
- **Increased target groups participation** through **international** cooperation for better research outcomes and a **meaningful impact on societies**.
- Better outcomes in interoperability (at international level and among devices) will positively affect **Integrated Care** at country level.



Potential *barriers* of Common Priority 3

- **Differences in Data Security policies and regulations** remain an issue for international research and innovation. It is important to include a preliminary study phase on this field and consider to favour a policy dialogue at international level, supporting and accompanying the R&I actions proposed. [Level of likelihood: high]
- If Data Interoperability and some international standards already exist, huge **implementation challenges** are still affecting research outcomes and this is often due to the **lack of interoperable health data made available by the health care services** according with specific government policies. [Level of likelihood: medium]



Sara Casaccia, Assistant Professor, Department of industrial Engineering and Mathematical Sciences (DIISM), Università Politecnica delle Marche

 **STANDARDIZATION OF DATA AND SYSTEMS:
ADDRESSING SECURITY AND PRIVACY OF CROSS
BORDER DATA**



EU-JAPAN VIRTUAL COACH FOR SMART AGEING

Data Governance with Older Adults A case study from the e-VITA project

**Jasmin Lehmann & Rainer Wieching
University Siegen, Germany**

Data Governance - Definition



- In recent years, the importance of data for companies has increased rapidly
- Digital business models reinforce the need to understand and make targeted use of data
- Data governance is therefore becoming increasingly important, as it creates the necessary structures to manage data as a resource
- There is no clear definition for the term data governance

"Data governance is the structured embedding of the practices (procedures and methods) of data management in the structural and procedural organization of a company" (Bollweg 2021)

Data protection - Legal regulations in the European Union



- New legal requirements contribute to increasing attention given to data and its proper use and application in business
- Since the introduction of the European General Data Protection Regulation (2018), there is a notable risk for companies in the incorrect use of data
- EU continues to drive data protection strategy:
 - *Data Governance Act*
 - *Digital Services Act*
 - *Digital Markets Act*

Private individuals and data governance



- The term data governance is mostly used in economic contexts
- There is always an individual (human) behind every single piece of personal information
- In the digitizing society, it is important that individuals gain awareness and understanding of data collection and use processes → more transparency must be achieved
- **Individuals – like older adults – can also practice data governance**
- The group of older people need special – more intensive – support herewith due to their rather low affinity for technology

Privacy dashboards – state of the art



- There are several tools designed to increase transparency with respect to data flow for users
- Transparency-enhancing-tools (TETs)
- One type of TETs are privacy dashboards
 - Privacy dashboards are designed to provide an overview of the data provided and also to enable control over the data*
 - There does not exist a privacy dashboard specifically for older people

* Examples of privacy dashboards are "*GenomSynlig*" and "*PrivacyInsight*"

Development of the e-VITA AHA privacy dashboard



- Within the e-VITA project an AHA privacy dashboard will be developed
- The used software is CaPe
- In an iterative participative design process, a first interface design has already been developed
- Six seniors were involved in the participative design process
- Participatory design sessions (3 cycles) were conducted with the participating seniors
- Based on the feedback of the seniors, a new prototype version of the interface was developed in each case

Final Dashboard Prototype Screen



User Self-Service Dashboard ✉ 1

My Data Consents

Project	Description	Status	Details
Project <input type="text" value="ex. Health"/>	<input type="text" value="ex. Health"/>		
e-VITA	The aim is to develop a virtual partner that enables seniors to age healthily and remain independent for as long as possible.	<input checked="" type="checkbox"/>	^

e-VITA [to e-VITA Website](#)

CaPe- Plattform

Processing purpose: Development of a new technical application for data management

Your Status: active since 10.02.2022

Project duration: February 2021 - February 2024

Time required: ca. 1 hour per month

Data	Required	Consent
E-Mail	✓	✓
Age		<input checked="" type="checkbox"/>
Technical competence questionnaire i		<input checked="" type="checkbox"/>
Interview Ehrenämter i		<input checked="" type="checkbox"/>
Social behaviour interview New data category		<input type="checkbox"/>

Details

Purpose of processing: Research
Legal basis: Consent
Policy statement: [↗](#)
Storage: Controller-Server (server of the university)
Beneficiary: University of Siegen
Final notice of termination: via [web-Form](#) [↗](#)

Datenverantwortlicher

Responsible for the project: Dr. Rainer Wieching
Organisation: University of Siegen
Website: www.uni-siegen.de
Address: Kohlbettstr. 15, 57072 Siegen
Contact person: Till Test
E-Mail: till.test@uni-siegen.de

Nutrition Chatbot

my-AHA	Various technical devices from medisana are designed to enable seniors to measure their health values and detect possible problems at an early stage.	<input checked="" type="checkbox"/>	✓
GINA	Various robots are being tested to find possible applications in care and for autonomously living senior citizens.	<input checked="" type="checkbox"/>	✓

CaPe- Plattform

Processing purpose: Development of a new technical application for data management

Your Status: active since 10.02.2022

Project duration: February 2021 - February 2024

Time required: ca. 1 hour per month

Data	Required	Consent
E-Mail	✓	✓
Age		<input checked="" type="checkbox"/>
Technical competence questionnaire i		<input checked="" type="checkbox"/>
Interview honorary posts i		<input checked="" type="checkbox"/>

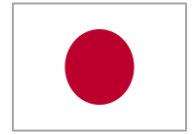
Details

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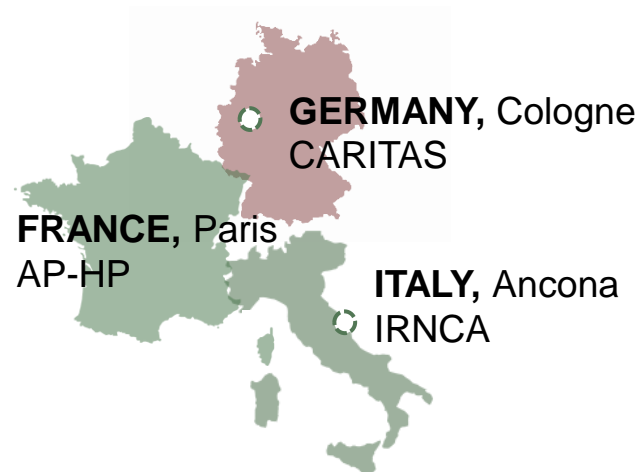
Data controller

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Organisation: University of Siegen
Website: www.uni-siegen.de
Address: Kohlbettstr. 15, 57072 Siegen
Contact person: Till Test
E-Mail: till.test@uni-siegen.de

Summary and Outlook



- Within the e-VITA project the AHA privacy dashboard for older adults will be tested in an international feasibility study (wave 1) in 4 countries:
- Thereafter a re-design phase will be implemented by the learnings of wave 1, and a final demonstrator will be developed for a larger proof of concept study with 180 participants



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Digital Inclusion: a case study from the e-VITA project

Roberta Bevilacqua

IRCCS INRCA National Institute of Health and Science on Ageing








This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 826092.

How can we ensure digital inclusion for older adults?

“Ensuring digital inclusion for older adults means overcoming five key barriers: access, installation, knowledge, design, and trust.

Providing high-speed, low-cost internet and devices, along with installation and support, is foundational for addressing connectedness. Consumers need **digital literacy programs** and **updated information** on relevant technology. The technology itself must be **inclusively designed for everyone**, while considering the **unique needs of older adults**”

				
Design and User Experience	Awareness and Interest	Cost and Acquisition	Installation and Adoption	Trust and Privacy
Is it easy to use?	Why should I be interested in this technology?	Can I afford it?	How do I integrate it into my life?	Are my personal data secure?
Was it designed for people like me?	What new products exist?	How do I buy it?	Who can help me if I run into problems?	Are there any known privacy or identify theft issues?
Did they conduct UX testing with people like me?	Should I care?	How do I select the right product?	How difficult is it to set up?	What personal data does it collect?

Alison Bryant

*Senior Vice-President, Research & Debra Whitman, EVP
and Chief Public Policy Officer, AARP*

Source: World Economic Forum: <https://www.weforum.org/agenda/2021>

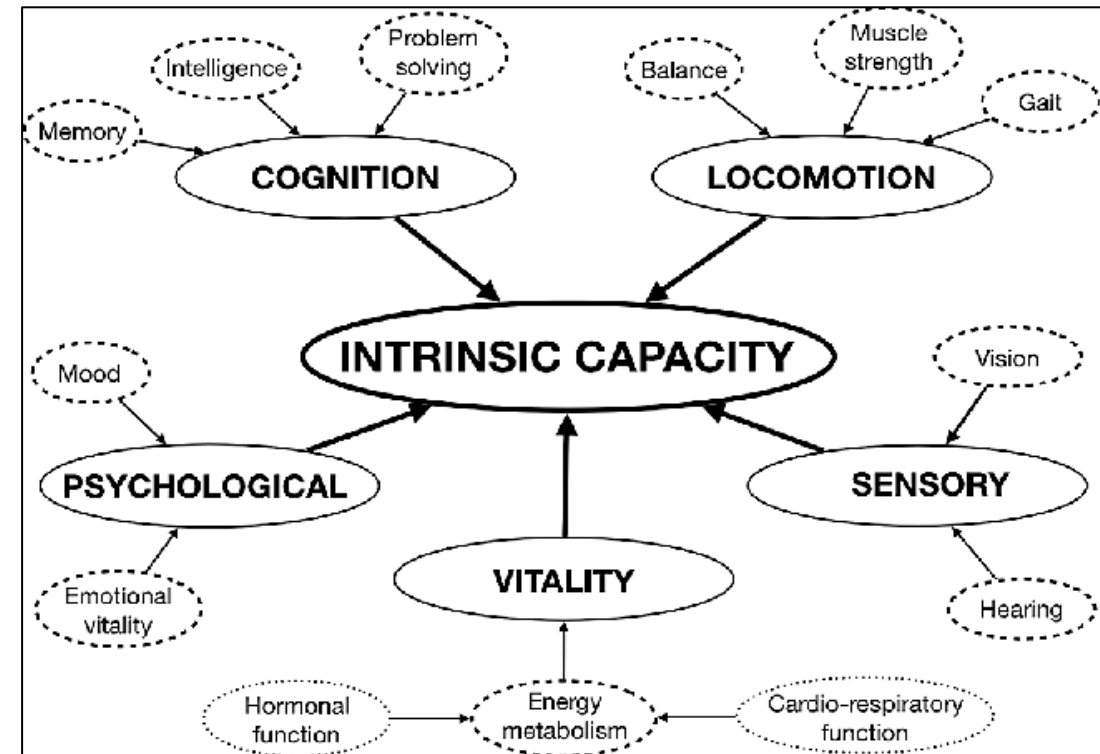
Positive approach to understand ageing

- Functional ability is determined by intrinsic capacity, the composite of all the physical and mental capacities of an individual, the environment and the interactions between the two.
- The potential to substantially modify the way in which clinical practice is currently conducted, shifting from disease-centered toward function-centered paradigms

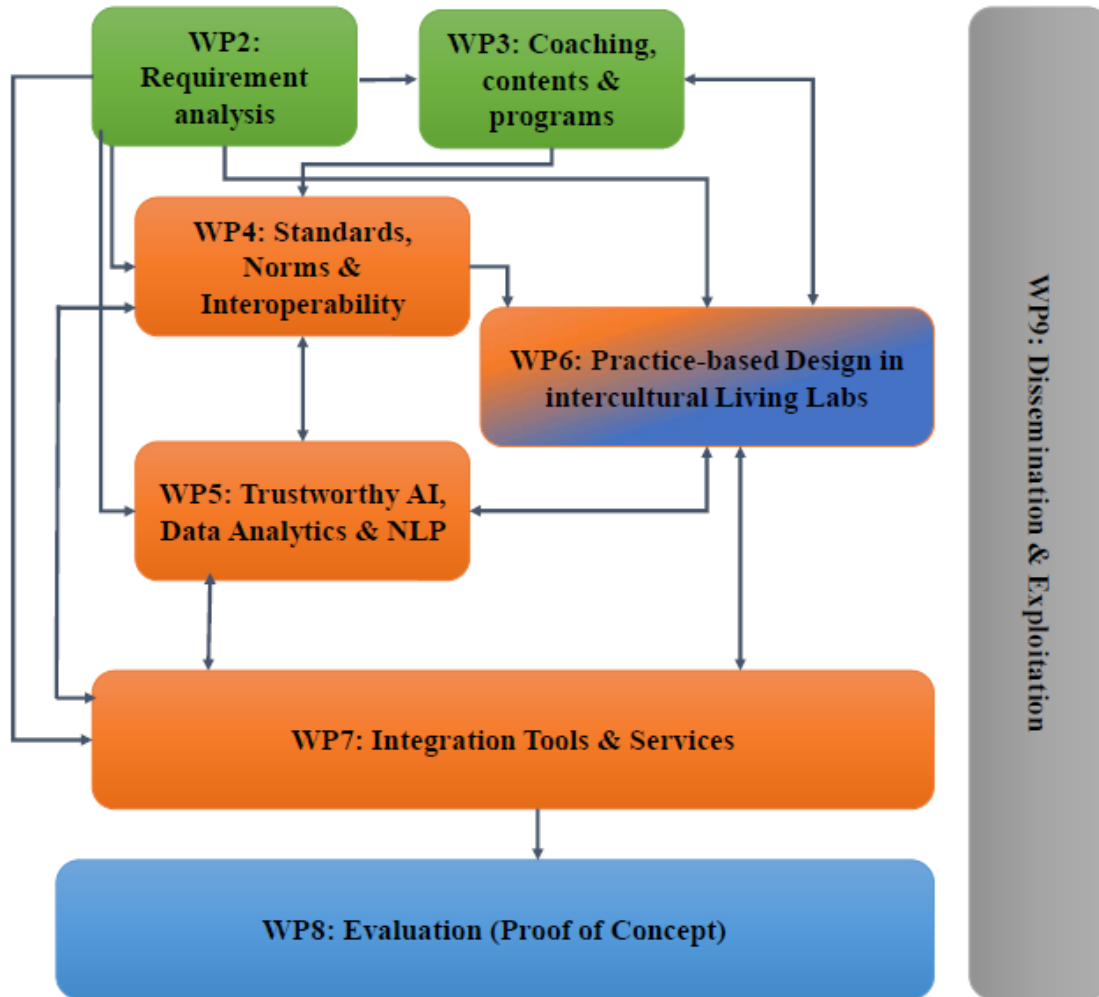
Review

Evidence for the Domains Supporting the Construct of Intrinsic Capacity

Matteo Cesari, MD, PhD,^{1,4} Islene Araujo de Carvalho, MD, MPH,⁵
Jotheeswaran Amuthavalli Thiyagarajan, MSc, PhD,⁵ Cyrus Cooper, MD, FMedSci,⁶
Finbarr C. Martin, MD, MSc,⁷ Jean-Yves Reginster, MD, PhD,⁸ Bruno Vellas, MD, PhD,^{1,2}
and John R. Beard, MBBS, PhD⁵

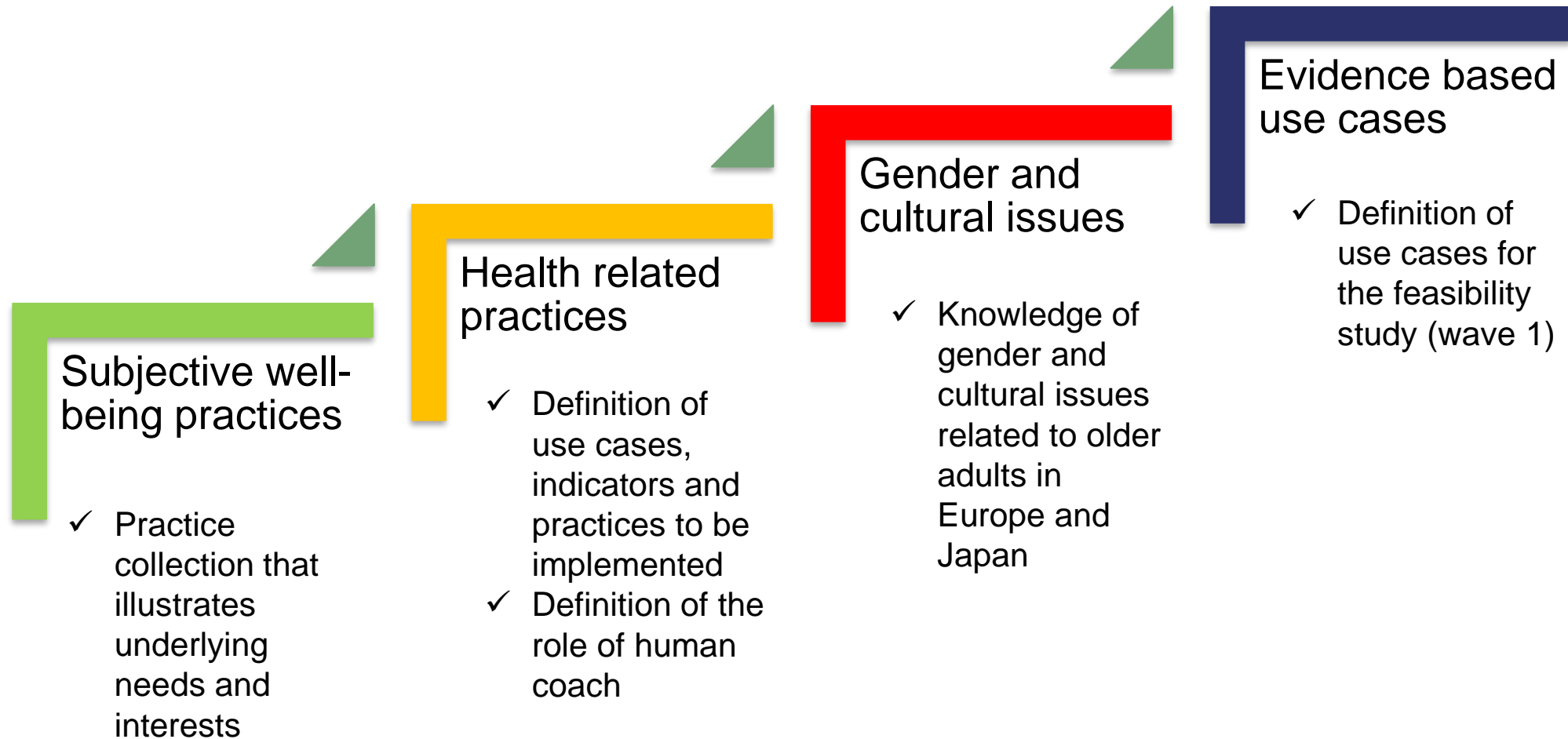


Project – Overview



- Identify which everyday practices increase the intrinsic capacity and subjective wellbeing of older adults and how policies can support these objectives
- Set up and design usage scenarios that proactively address intrinsic capacity and subjective wellbeing of older adults in the aforementioned topics by incorporating technology

Activities for end-users' involvement



Everyday practices of older adults that increase subjective well-being



- In this task we focus on the **positive affects of everyday practices** in the life of older adults. A good **understanding of underlying needs and interests** based on existing practices, allows us to design pleasurable experiences with a virtual coach.
- We approach subjective wellbeing through **need and goal satisfaction** theories, as well as a practice-oriented perspective
- Practice-oriented approaches can help to bridge the gap between abstract experiential design objectives and specific products and interactions. Thus, we interviewed 18 older adults (11 female, 7 male) from France, Italy, Germany and Japan about their successful everyday practices – not with the intention to replicate these experiences with a virtual coach, but to **understand the experiential qualities that evoke positive affect**.

Relatedness

Security

Physicalness

Stimulation

Competence

Autonomy

Popularity

Meaning

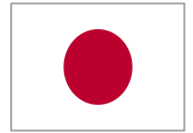
Positive practices to support subjective well-being



- Reminisce by looking at old photos and videos that remind them of their past
- Participate in family life by having a shared breakfast with cake on Saturdays
- Attain self-knowledge and reflect on the personal life story by talking with others
- Attend church services regularly to socialize with community members
- Have a morning routine, such as listening to the radio or reading the newspaper
- Volunteer in a non-governmental organisation where their skills can be applied
- Tend the garden and harvest the rewards of their own work or even share it with others
- Visit the cemetery to remember or even talk to deceased loved ones
- Go on cycling tours with an e-bike



Implications for e-VITA

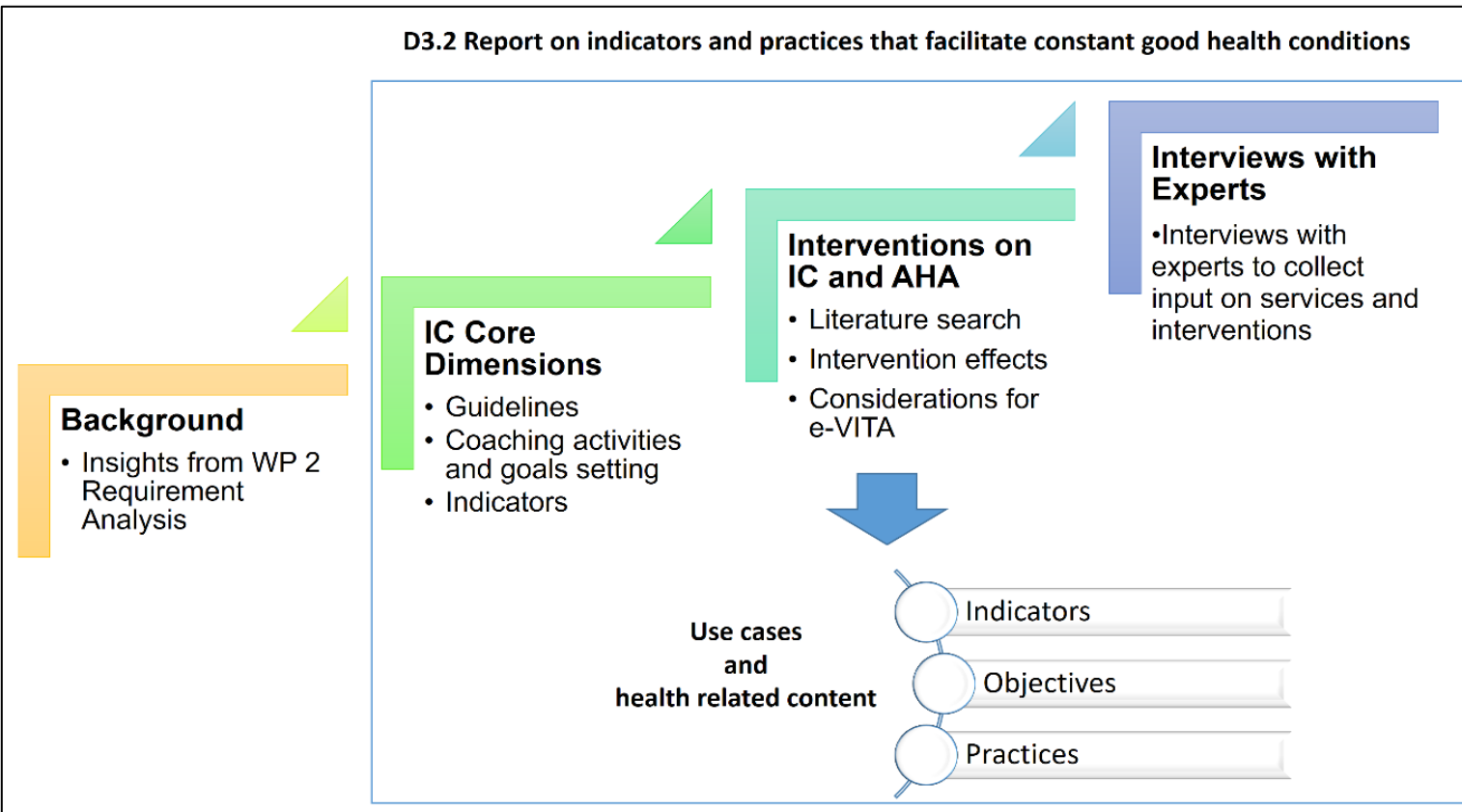


- A vast number of practices around staying connected with friends, family and the local community, emphasize the **importance of interpersonal relationships and relatedness**.
- **Pleasurable experiences that promote personal fulfilment** and improve quality of life, such as acting, singing or participating in other communities of practice are a notable source of wellbeing
- Practices around physicalness show that exercises must not only maintain bodily health but also be **fun to engage in**, for example by being embedded in social experiences.
- Practices around **meaning-making**, suggest that purpose can be found through introspection and self-knowledge. A virtual coach might for example create positive experiences by inviting reflection through an interactive diary.
- With increasing age, topics such as **legacy, coping with loss** or staying emotionally connected with deceased loved ones could also be a topic addressed by the virtual coach.

Indicators and practices to facilitate constant good health conditions for older adults



D3.2 Report on indicators and practices that facilitate constant good health conditions



Step I: deep analysis of the results from WP2 to incorporate the clinical-geriatric perspective.

Step II: Analysis of the IC framework, guidelines and the partners.

Step III: a systematic review to understand the impact of intervention like the e-Vita

Step IV: A consultation with relevant international experts to consolidate the evidence

Step V: Investigation on the role of the Human Coach, as mediator of the system use and well-being

Step VI: Definition of Use Cases and Decision trees for each core dimension

Systematic review of the interventions that have include IC



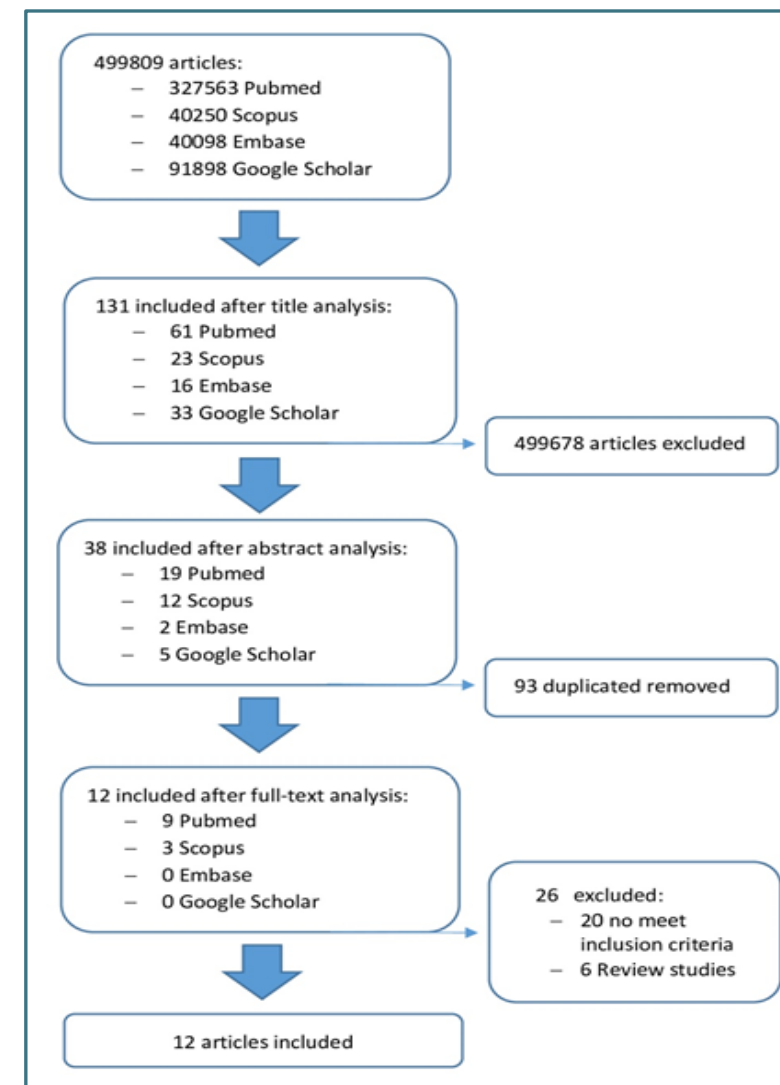
Method: Systematic Review using PRISMA on 4 databases

The inclusion criteria are as follows:

- (1) randomized controlled trials, quasi-experimental studies, or prospective or retrospective cohort studies, pre-post study with or without control groups;
- (2) testing of a multi-domain intervention to prevent frailty and improving healthy habits in people aged ≥ 65 years;
- (3) classification in terms of (pre) frailty status according to an operationalized definition.

A multi-domain intervention is any intervention that includes at least two different domains, including exercise therapy, nutritional intervention, hormone, cognitive or psychosocial interventions (Danison et al., 2015) – **we search for three domains of IC**

Research strategy: Combination thereof: olde*, elde*, intrinsic capacit*, functional ability* / functional status / functional trajectory*, healthy aging / successful aging, pre-frail, virtual agent, coaching, self-management, multi-domain intervention, robotic*



My-AHA Study



Multicentre, multicultural, randomised control study, monitored with the My Active and Healthy Aging platform, to reduce conversion from a prefrail status to overt frailty and preventing decline in quality of life.

Sample: 101 prefrail older subjects compared with 100 prefrail controls, receiving general health advice.

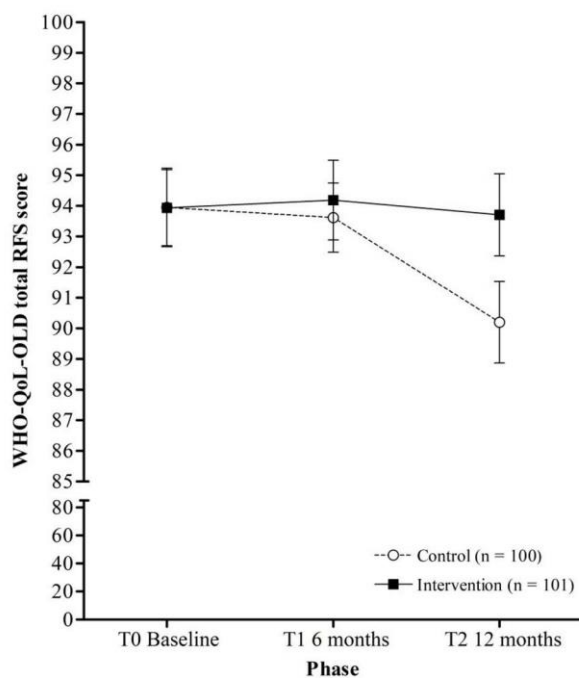


Figure 1. Group differences in World Health Organisation Quality of Life-Old module (WHOQOL-OLD) total Raw Facet Score (RFS) across RCT phases (mean ± SEM).

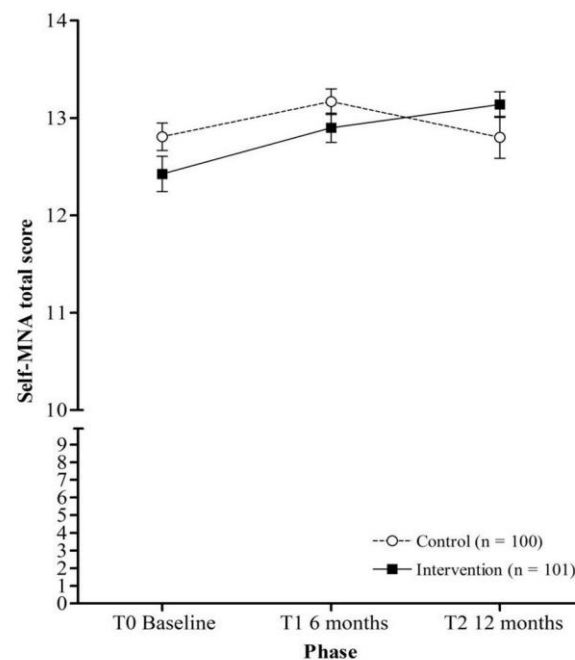


Figure 3. Group differences in self-MNA nutrition score across RCT phases (mean ± SEM).

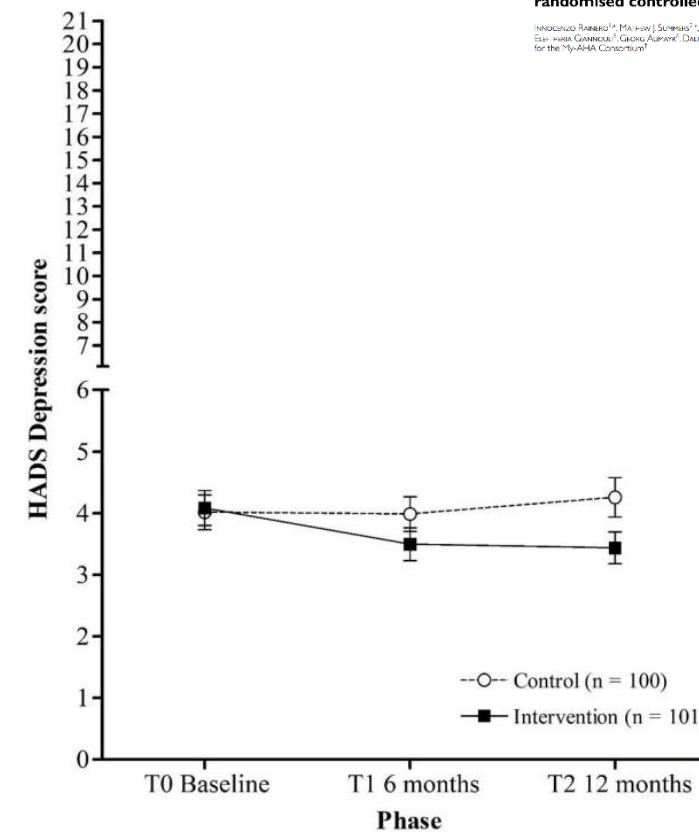


Figure 2. Group differences in HADS-Depression score across RCT phases (mean ± SEM).

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 Submitted electronically 22 January 2021

RESEARCH PAPER

The My Active and Healthy Aging ICT platform prevents quality of life decline in older adults: a randomised controlled study

INDONESIA: Roberio^{1*}, Marlow², Sumarto³, Mochlis⁴, Munir⁵, Marco Bazzani⁶,
 Edo Woro Gunung⁷, Gede Gunan⁸, Datta Baki⁹, Paolo Piccirilli¹⁰, Alessandro E. Vekari¹¹,
 for the My-AHA Consortium¹²

The perspective of the experts: Interviews

Method: semi-structured individual interviews with geriatricians/clinical experts in the field of IC and AHA were conducted in *Italy, France, Germany and Japan*.

- The sample: 20 geriatricians/clinical experts.
- The analysis: interviews were analyzed using the framework analysis method. MAXQDA software package for qualitative research was used.



Clinical expert perspective.

information about which everyday practices can increase and sustain intrinsic capacity

Technology enhancement.

A list of everyday practices to enhance intrinsic capacity to be rated on a 5-point Likert scale.

IC during COVID-19.

identification of which technologies were found useful to support the functional ability and quality of life during the Covid-19

E-VITA Scenarios.

Revision of the E-VITA Scenarios.

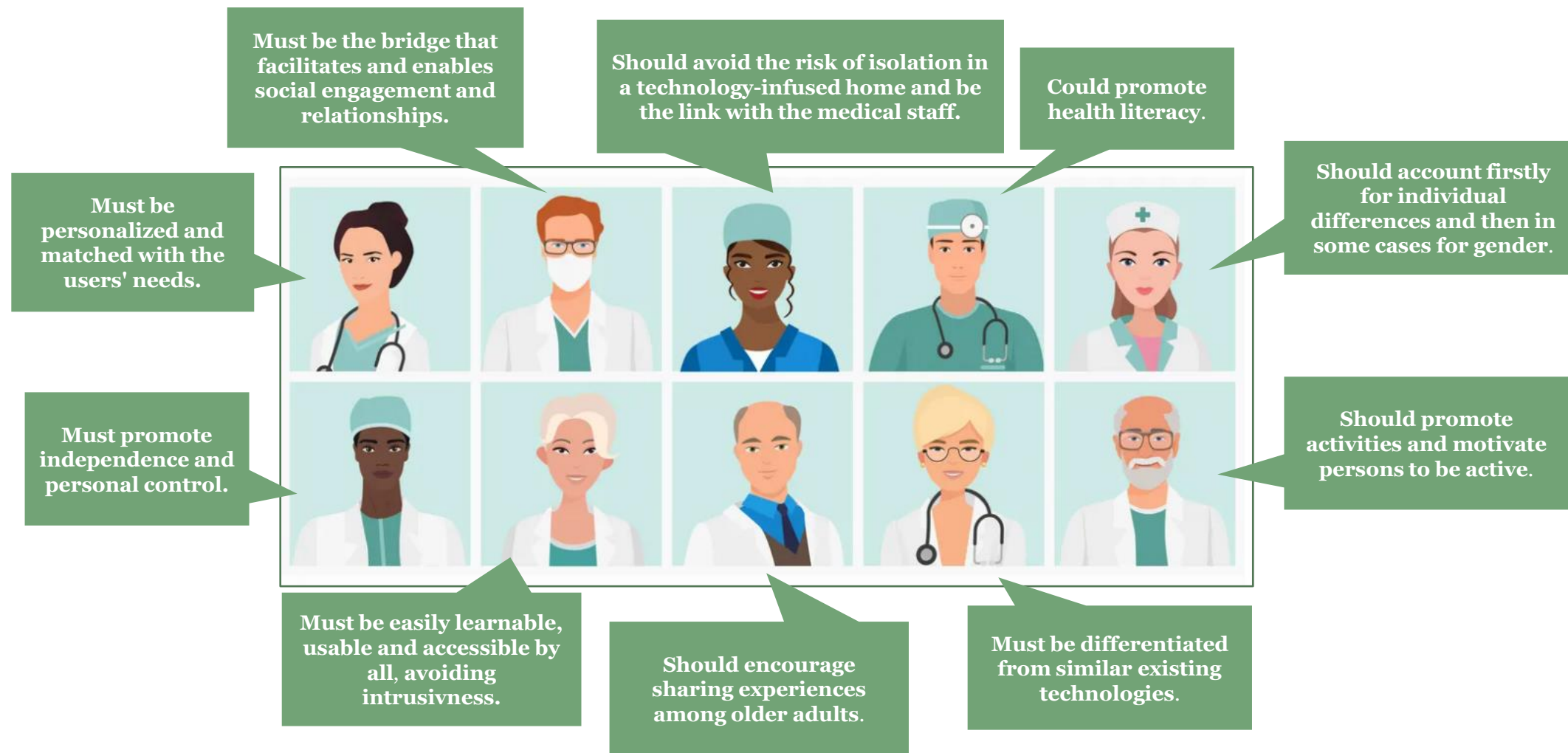
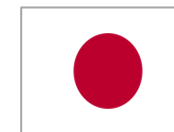
Gender issue.

gender differences in planning interventions to support intrinsic capacity

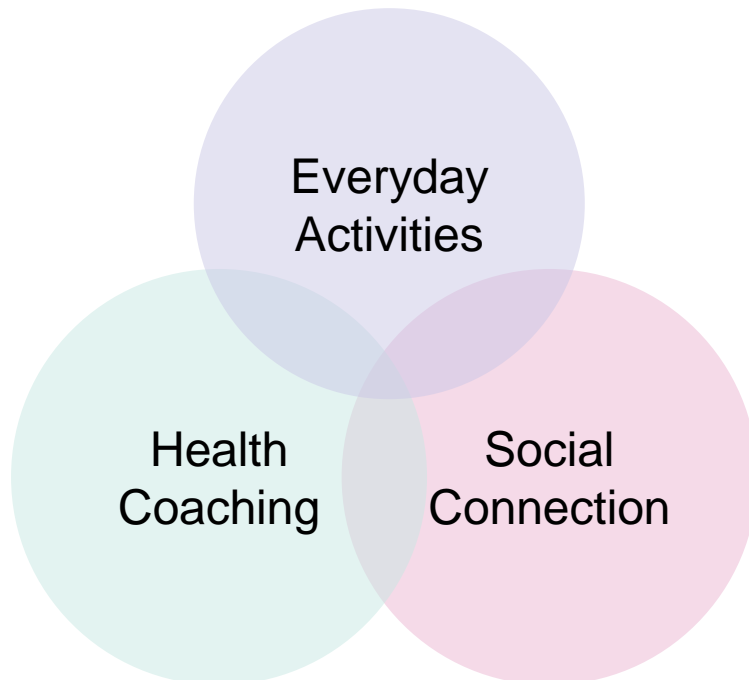
Aspects of IC.

to gather the positive and/or the negative aspects of the Intrinsic Capacity Framework.

The perspective of experts: Interviews



Design inclusive scenarios



- **Everyday Activities** comprise ludic interactions, (quasi-)social conversations and spiritual experiences with the virtual coach.
- **Health Coaching** includes physical and cognitive training, nutritional advice and psychosocial support
- **Social Connectedness** focuses on shared experiences as part of a social group (e.g., local community, friends, family)

Design inclusive scenarios



- Domain: Health Coaching
 - Subdomain: Physical Health
 - Use-Case: Let's Do Physical Activity
 - Subdomain: Cognitive Health
 - Use-Case: Cognitive Training
 - Subdomain: Psychological Health
 - Use-Case: Diary
 - Subdomain: Nutrition
 - Use-Case: Welcoming

- Activities could **be embedded into social and daily life**. From pushing a lawn mower, to taking a dance class, to walking or biking to the store – these types of activities and more count.
- **Multicomponent Physical Activity**; Aerobic and Muscle-strengthening activities
- **Interactive Cognitive Training**; Memory, Thinking, Reflection (e.g., true/false questions)
- **Psychological Health**: Diary; Reflective conversation to stir up self-reflection
- **Nutrition**: Chatbot sends general information about healthy nutrition, and animates them to try out new recipes

Design of the inclusive scenarios



- Domain: Everyday Activities

- Subdomain: Daily Support and Companionship

- Subdomain: Spirituality

- Subdomain: Interaction and Performance

- Domain: Social Connectedness

- Subdomain: Local Communities

- Subdomain: Family Life

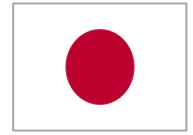
- Subdomain: Peers and Friends

- Domain: Monitoring

- Subdomain: Safety

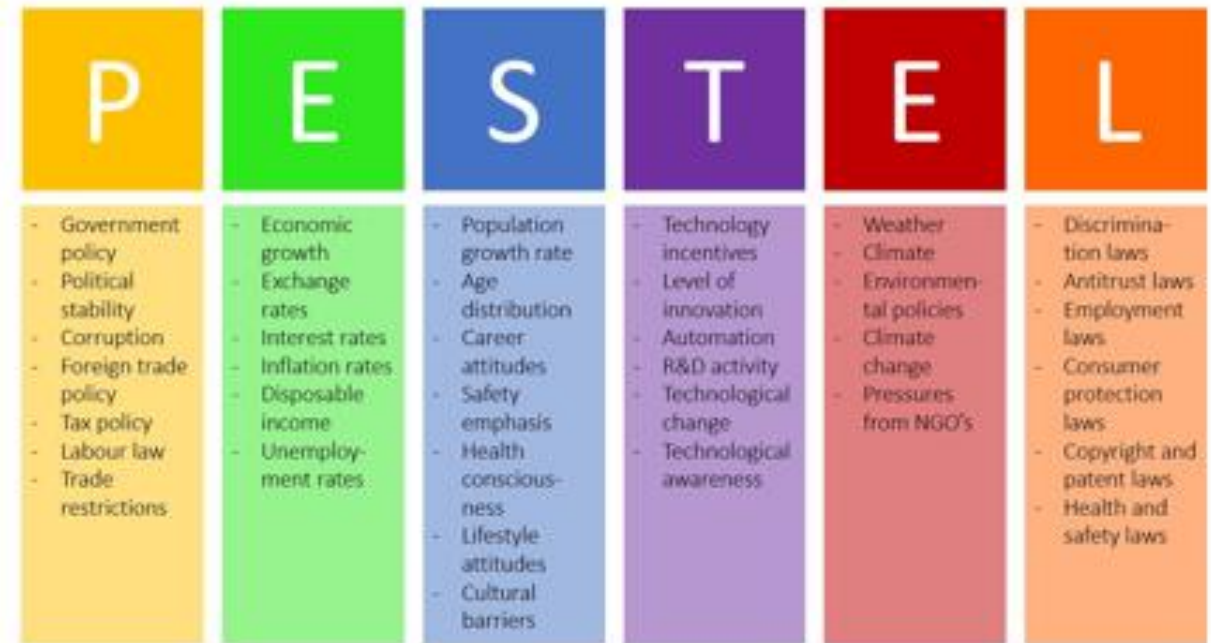
- Spirituality can be a source of comfort, safety and meaning. While **religious affiliation differs** between individuals and cultures, the virtual coach's ability to draw on many **interpretative texts** could offer meaningful messages for all.
- Engaging in **ludic activities** can be a pleasurable activity on its own and convey zest for life
- A **sense of social belonging** can have positive impact on motivation to do other activities (e.g., group activities) or even push people through friendly competition or team spirit
- The virtual coach should focus on enabling **shared activities** with family members, community members or friends and peers.

Socio-economic framework

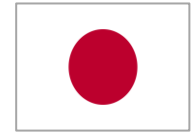


- In order to explore the field of secondary stakeholders in regard to e-VITA we developed a semi-structured interview guideline based on the PESTEL framework and then translated it into the languages of the countries doing the interviews.
- The interviews were conducted in two different steps and timing:
 - _ Wave 1, during March/April 2021
 - _ Wave 2, between August and November 2021

PESTEL Framework: **P**olitical, **E**conomic, **S**ociological, **T**echnological, **E**nvironmental, and **L**egal



Methods of Stakeholder Interviews



Wave 1



- What are the unmet needs of older people your organization is working with, that could be satisfied with such a coach like e-vita?
- What features/functionality should the e-vita coach have? (from the point of view of your organization)
- How could such a coach fit in the ongoing activities of your organization? (e.g. lifestyle support; monitoring health; mobility; social activities, general support, etc.)
- What are barriers to the adoption of a technical solution like e-vita? (ethical; data security; legal; practical: like access to internet, affinity to technology, fears towards technology)
- Which possibilities of funding/reimbursement do you see for such a system? What value do you see in such a system? What could be the willingness to pay?
- What social role would you give the coach? (Is it more like a friend or a doctor or ... ?)
- What would be the benefit of such a system for you or your organization? How should it be shaped in order to benefit you or your organization?
- What are your key messages to support the coach/intervention? (from each stakeholder 3, if possible)

Wave 2



- Are you aware of any mainstreaming ageing policies in your country?
- Are you aware of The UN healthy decade of healthy ageing? Do you know any country that is implementing that shift towards healthy ageing politically?
- Which social policies are available in your country, to support AHA?
- Can you describe which should be the target of e-Vita, in your opinion?
- Which are the social resources that can support the introduction of e-Vita in the daily life of older people, their family and professional carers?
- Which is the social representation of technology, especially AI and virtual agents, in your country? Do you see any difficulty in use, acceptance...?
- Are there any strategies to support health/e-health and digital literacy, that can be useful to include and mentioned in the e-Vita project?
- Which incentives do you think are available in your country to support technology for AHA like e-VITA?
- How would you describe the level of innovation of your country, in terms of trends on innovative technology for AHA and public-private investments?
- Which are the major barriers to the adoption of system like e-Vita, on the stakeholders' point of view?
- Who can be the key actors and the driver to support the system diffusion?
- At educational level, do you think there are enough resources in your country, to support the appropriation of technological skills by the more disadvantaged users or citizens willing to learn (e.g. life-long learning)?
- About insurances and reimbursement schemes, which are the opportunities for system like e-Vita, to be introduced in the public/private services? And in the private market?
- Which are the more relevant ethical barriers you see, behind the adoption of AI-based system for AHA? And robotics and virtual agents?

Fig. the Stakeholder Interviews for Europeans

[Questionnaire]

Question	Answer
Please choose one from the following five that is closest to your area of expertise: Political, Economic, Social, Technological, Environmental, Legal	

[Questionnaire based on PESTEL Framework]
* Please answer as many of the following questions as possible, focusing on your area of expertise. Items that are difficult to answer may be left blank.

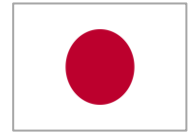
Factors	Topics	#	Questions	Answers
Political	Demography Government regulation and deregulation Political action committees Level of government subsidies ...	P	Can we use already available data on this topics?	
		P1	Are you aware of any mainstreaming ageing policies in your country?	
		P2.1	Are you aware of The UN healthy decade of healthy ageing?	
		P2.2	Do you know any country that is implementing that shift towards healthy ageing politically?	
		P3.1	In your experience with measures for the aging of society, have you ever been aware of the relationship between the relevant policies of other countries and Japan's policies?	
		P3.2	Do you have any experience in handling personal information in particular? If so, please let us know.	
Economic	Growth rate Interest rate Exchange rate Availability of credit Level of disposable income Propensity of people to spend	E	Can we use already available data on this topics?	
		E1	How much would you estimate the unit cost of e-VITA's services to be?	
		E2	Please let us know if you have any comparable costs for providing similar services.	
Social		S1	Which social policies are available in your country, to support AHA?	
		S2	Can you describe which should be the target of e-Vita, in your opinion?	
		S3	Which are the social resources that can support the introduction of e-Vita in the daily life of older people, their family and professional carers?	
		S4.1	Which is the social representation of technology, especially AI and virtual agents, in your country?	
		S4.2	Do you see any difficulty in use, acceptance...?	
		S5	Are there any strategies to support health/e-health and digital literacy, that can be useful to include and mentioned in the e-Vita project?	
		S6	Please tell us about any difficulties or innovations you had in the past when introducing similar ICT devices.	
		S7	Please let us know if there are any matters that we should pay special attention to when providing e-VITA services in Corona-Michin.	
Technological	Technology incentives Automation R&D activity Technological change Access to new technology Level of innovation Technological awareness Internet infrastructure Communication infrastructure Life cycle of technology	T1	Which incentives do you think are available in your country to support technology for AHA like e-VITA?	
		T2	How would you describe the level of innovation of your country, in terms of trends on innovative technology for AHA and public-private investments?	
		T3	Which are the major barriers to the adoption of system like e-Vita, on the stakeholders' point of view?	
		T4	Who can be the key actors and the driver to support the system diffusion?	
		T5	At educational level, do you think there are enough resources in your country, to support the appropriation of technological skills by the more disadvantaged users or citizens willing to learn (e.g. life-long learning)?	
		T6	Please let us know if there are any areas that we should focus on regarding the superiority of e-VITA's services.	
Environmental		E	Please let us know if there are any issues that we should keep in mind from the perspective of SDGs and Society 5.0.	
Legal	Health and safety laws Education laws Consumer protection laws Data protection laws	L1.1	About insurances and reimbursement schemes, which are the opportunities for system like e-Vita, to be introduced in the public/private services?	
		L1.2	And in the private market?	
		L2.1	Which are the more relevant ethical barriers you see, behind the adoption of AI-based system for AHA?	
		L2.2	And robotics and virtual agents?	
		L3.1	Have you ever been aware of international and domestic laws and their relationships in your experiences related to aging and other measures?	
		L3.2	Please let us know if there are any concerns that we should be aware of, especially regarding the handling of personal information, etc.	
		L4	There is a possibility of cross-border exchange of data between Japan and the EU. Please let us know if you have any experience or knowledge about cross-border data exchange and movement.	

That's all for now. Thank you very much for your cooperation.
There is a possibility that we may ask for further details based on the results of this survey.

Fig. the self-written questionnaire for Japanese

In Japan, all items were conducted as a self-written questionnaire in Wave 2 because of the COVID-19 pandemic.

Results of Stakeholder Interviews



Germany:

- Data security is integral to the usage of a coaching system like the e-ViTA.
- Financial aspects: it is unclear who would pay the money for the e-ViTA coaching system.
- The usability seems crucial for the success of the project, the system needs to be intuitive and easy to use, in order to become something that has a permanent place in the households of the end-users.

France:

- There were two elements namely isolation/loneliness and prevention messages as the needs that older people may face.
- The coach should offer functionalities to stimulate connections with others and local communities.

Italy:

- The role of e-Vita as coach in health/medical domain, represented as a “consultant”, “facilitator” and advanced tool for the “development of telemedicine and digital health management (i.e. eHealth)”.
- Above the social role immediately perceived as health coach or as a doctor, is the identification of its informal role.
- The older adult can also see it as a “friendly figure”, even in a possible perspective of attachment, or quasi-affection.

Japan:

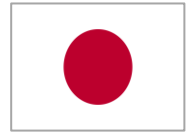
- IT literacy of an end-user and staff participating in care for older adults is the main point whether this system will be useful or not.
- Their skill is more less of than we imagined beforehand.
- It is necessary building the infrastructure in Japan at first because Wi-Fi, G5 or G6 are not available in all end-user's home yet.

Europe:

- Ageing strategies and tools exist, but mainstreaming ageing across policies is not yet happening at the EU level.
- The European Union developed and made available funding schemes, monitoring tools, encourages exchange of good practices for active and healthy ageing, but because social and health policies are out of the remit of its competences, only EU Member States are able to legislate or provide support for a system such as e-VITA.

Conclusion:

- The stakeholders have highlighted the problem of the partial broadband coverage in various geographical areas as a major barrier to the technology adoption, especially for people that lives in rural areas, far from a town or city, that often do not make good use of all public services.



Thank you for your attention!

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Standardization of data and systems: addressing security and privacy of cross border data

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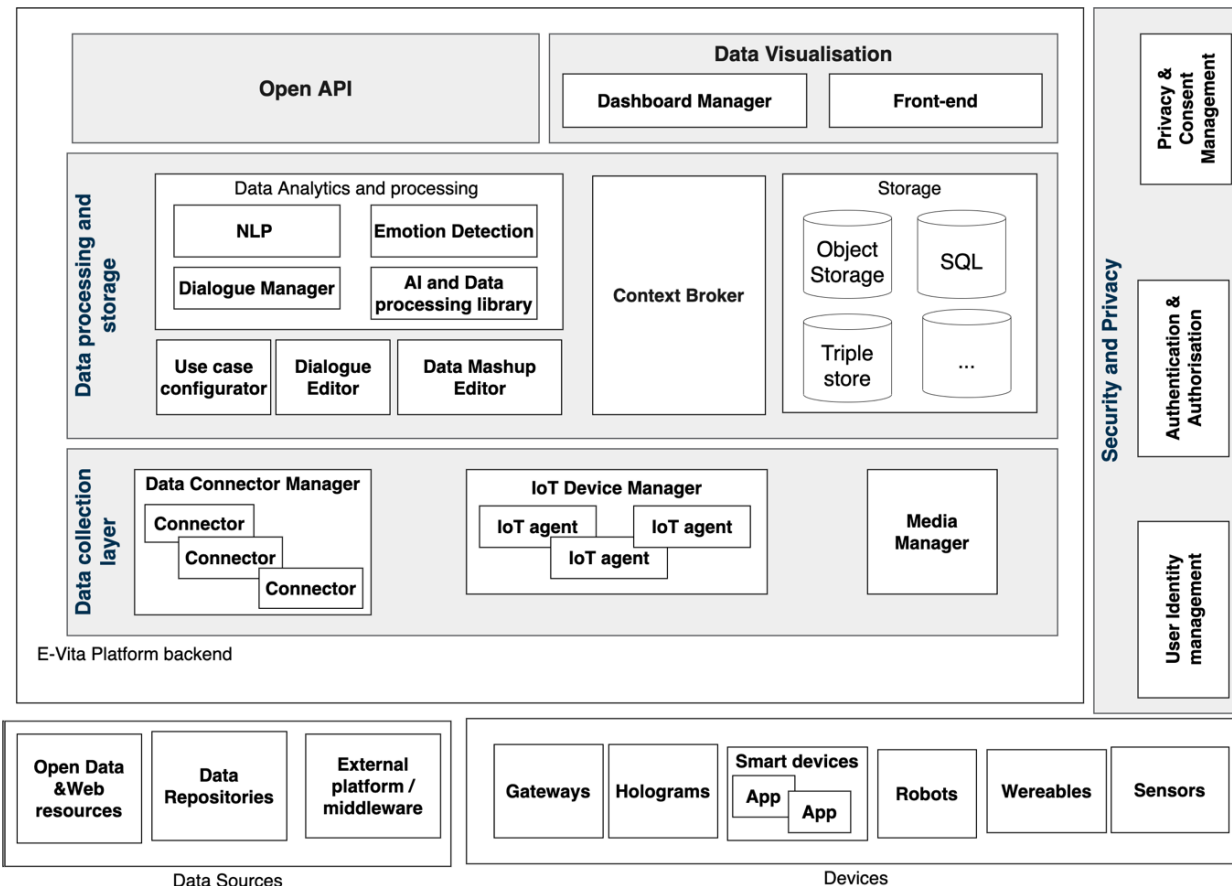


Department of Industrial Engineering and Mathematical Sciences (DIISM)

Measurement Group: the research aim is to study and develop measurement system to realize services with the particular focus on Smart Cities and Living Environment, taking into account the USER at the center of the environment.

3 full professors, 2 associate professors, 1 assistant professors, 8 post-docs, 8 Ph. D students, 1 technician, 9 FP7 projects, 11 H2020 projects, 4 AAL projects, 2 HE projects and several national and regional projects

e-VITA High level architecture



- **Devices and Data Sources:** data sources and devices that provide/receive data to the main e-VITA platform.
- **Data Collection Layer:** responsible for collecting data from devices, services and external systems. The modules of this layer must be able to manage heterogeneous data sources with multiple protocols and data formats and harmonize them to feed the processing layer.
- **Data Processing and Storage:** it contains all the modules necessary for context data management, processing and storage, ensuring data interoperability.
- **Data Visualization:** responsible for the creation and management of reusable visual dashboards starting from the data previously collected by the other components.
- **Security and Privacy:** it provides security and privacy features such as identity management and authentication, authorization, (pseudo)anonymization and consent management features for accessing data and services.

User Related Devices

Aim to sense physiological parameters of the user

- **Smart Ring**
(HR, HRV, Temp, Activity, sleep,..)



- **Smartwatch**
(HR, HRV, Activity,..)



- **Smart Pillow**
(sleep)



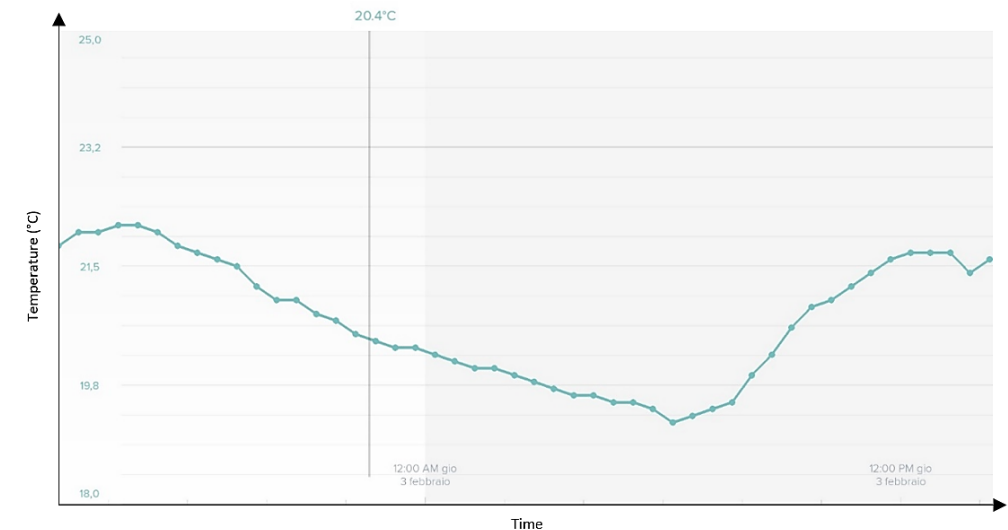
- **NEU XB-01**
(brain activity)



Environmental Devices

- Smart Indoor Air Quality Monitor system
 - Temperature
 - Humidity
 - CO₂ level
 - Sound level

- The **comfort** and **health** of the residents depends on the indoor environment: a smart indoor air quality monitor can help by providing advice on what to adjust to ensure comfort and well-being at home to live in a healthy environment.

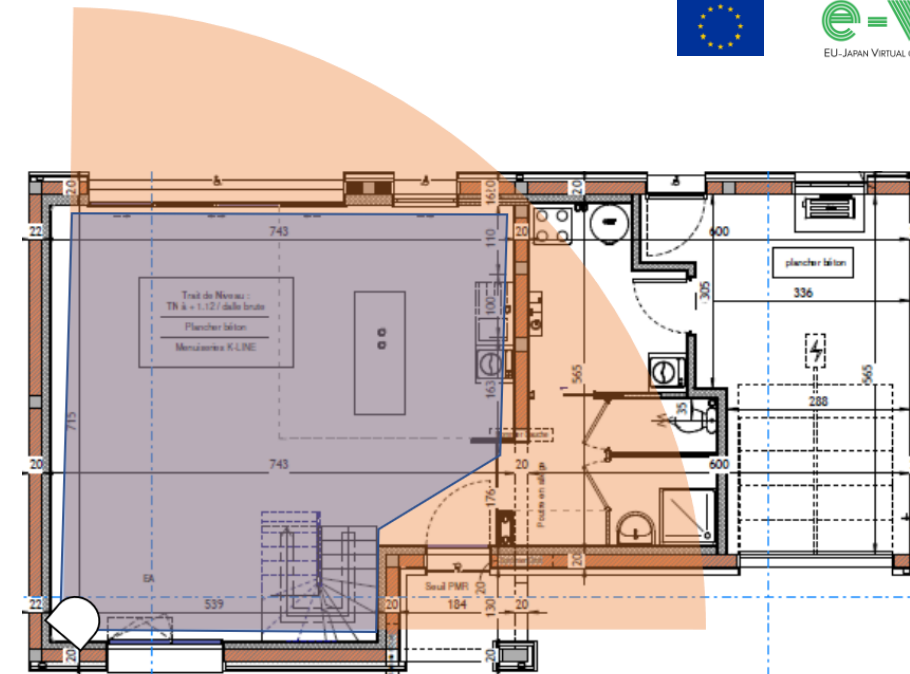


Home-Based Devices

- Wireless motion detector - Delta Dore DMB TYXAL+



- Opening magnetic sensor – Delta Dore DO TYXAL+



Orange: Doppler effect sensor range
Blue: Infrared passive sensor range

Detect the presence of a moving person in a room providing information on the **occupancy** of rooms and the **movement** of occupants. This information can be of interest as a complement to the wearable sensors, especially when they are forgotten or under load. In this case, it is possible to use motion sensors to infer **user activity**.

Coaching Devices

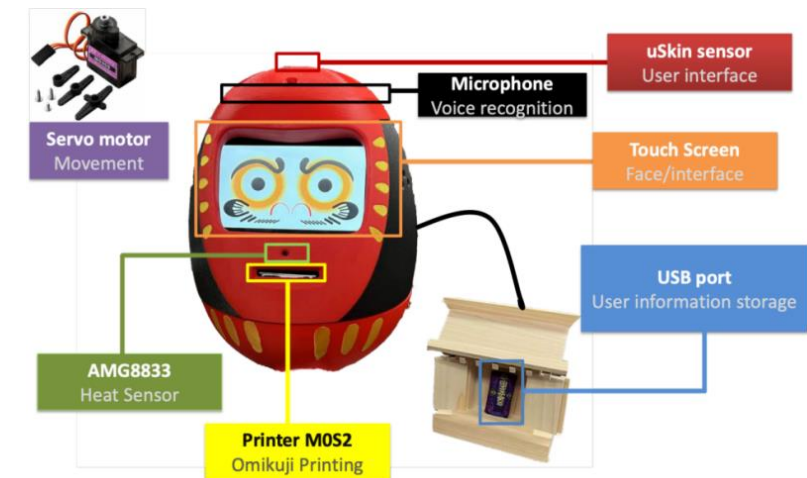
➤ NAO



➤ Gatebox



➤ DarumaTO-3





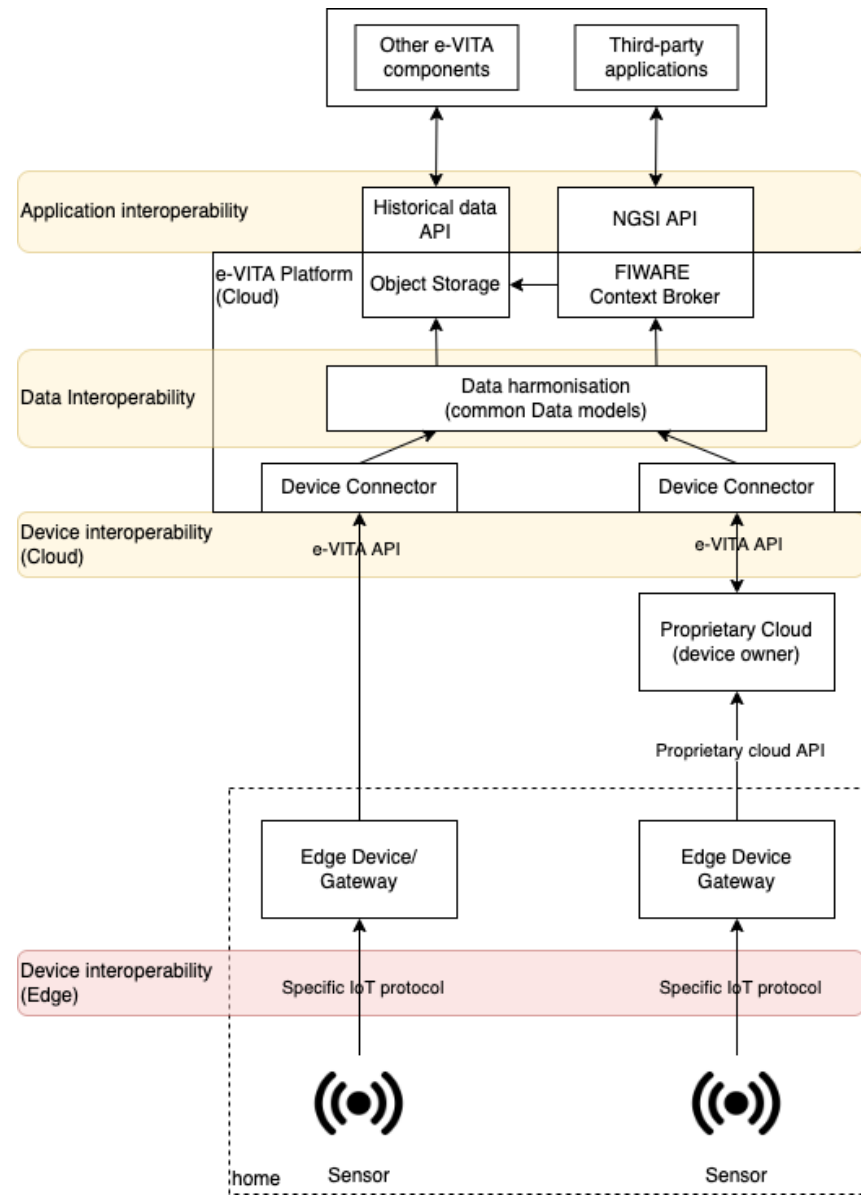
Interoperability

Interoperability is the ability of devices that conform to a common specification standard to communicate and provide services.

e-VITA interoperability has been organised in three main levels:

- Interoperability related to devices and their interconnection
 - Relevant protocols/standards/frameworks: ROS/Micro ROS, MQTT, Ultralight 2.0, LoRaWAN, LightWeight M2M, OPC UA, WebRTC, xAAL
- Interoperability related to data formats and semantics
 - Data formats: JSON/JSON-LD, YAML
 - Standards/models to ensure semantic interoperability: NGSI/NGSI-LD, RDF, SAREF, HL7 FHIR, SSN
- Interoperability related to application and security
 - Open API
 - NGSI/NGSI-LD
 - Security and privacy protocols/standards/frameworks : OAuth2, OpendID Connect, SAML, XACML, ISO/IEC 27701

Interoperability





Thank you for the attention
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