Horizon 2020 Work Programme for Research & Innovation 2018-2020

ICT for Health, Well-being and Active & Healthy Ageing

Brussels, 8 December 2017

eHealth, Wellbeing and Ageing
DG CONNECT, European Commission
CALL – Digital transformation in Health and Care

• Better access to healthcare and sustainability of health and care systems
• To empower the participation of citizens and facilitate the transformation of health and care services to more digitised, person-centred and community-based care models
• eHealth and mHealth
• ICT for Active and Healthy Ageing

IMPACT: to maximise the potential of the digital economy in the health and care sectors

POLICY DRIVERS:

Connected Digital Single Market
European Cloud Initiative
European Free Flow of Data initiative
Silver Economy initiative
CALL – Digital transformation in Health and Care

**ICT for Health, Well-being and Active & Healthy Ageing**

- **DTH-03-2018**: Adaptive smart working and living environments supporting active and healthy ageing
- **DTH-07-2018**: Exploiting the full potential of in-silico medicine research for personalised diagnostics and therapies in cloud-based environments
- **DTH-08-2018**: Prototyping a European interoperable Electronic Health Record (EHR) exchange
- **SC1-HCC-01-2018** Supporting investment in smart living environments for ageing well through certification
- **SC1-HCC-03-2018** Support for the large scale uptake of open service platforms in the Active and Healthy Ageing domain
- **SC1-HCC-05-2018** Support to a Digital Health and Care Innovation initiative in the context of Digital Single Market strategy
- **SC1-HCC-04-2018** Digital health and care services – support for strategy and (early) adoption
- **DTH-10-2019-2020**: Digital health and care services
**Challenge:**

- Demographic change and ageing create new challenges for age-friendly living and working environments such as a shrinking workforce and more workers with functional impairments, chronic conditions and care duties.

- Digital solutions can support older individuals in being and staying actively involved in professional life for longer by designing fit for purpose working environments and by enabling flexible management of jobs.
**Scope:**

- Develop and validate digitally enabled adaptive services and solutions leading to smart working and living environments for older adults;
- Support older adults to remain actively involved in professional life, helping them to sustain and renew their work and personal life related skills and support independent active and healthy lifestyles while taking into account reduced capabilities due to age-related health risks and conditions;
- Unobtrusive and addressing the needs of employees in specific and various sectors and workplaces;
- Build on active user engagement and aimed at realistic and verifiable benefits for flexible and sustainable job longevity measures;
- Validation should take place in real settings (at workplaces and at home as required);
- Inclusion of the necessary stakeholders to validate all relevant issues;
- Attention theft and impeding physical activity by ICT should be avoided.
Impact:

Proposals should present methodologies and metrics as appropriate for measuring progress with significance towards the expected impact in:

- Independent living, and quality of life of older persons compared to current state of the art, enabling older persons to stay actively involved in work life for longer or return to work after severe disease;
- Enhanced health and safety working conditions and quality of life of older persons at work compared to the current situation, enabling older persons to be able to contribute at an appropriate level for a longer period of time;
- Evidence of user-centred design and innovation, new intuitive ways of human-computer interaction, and user acceptance;
- Potential cost-effectiveness due to enhanced self-care, life-style, age-friendly and skills conducive work environments and socio-economic benefits;
- Competitive advantage for European industry through flexible and sustainable work arrangements for an ageing workforce;
- Leadership in ICT.
**Submission Deadline and Budget:**
- Submission Deadline: 24 April 2018
- Research and Innovation Action
- Budget: 25M € (expected contribution 4-6M € per proposal)

**Link to Participant Portal:**
Challenge:

- Progress in Computer Modelling & Simulation for Disease Management: validation and trust.

- Access to high quality Big Data & High Performance Computing, shared data, infrastructures and services in open cloud-based environments. Environment for increasing collaboration.
Scope:

- Development and validation of new software tools & devices for diagnosis or treatment based on computer modelling and simulation.
- Enable decision making in complex situations & more precise and personalized disease management in non-communicable diseases.
- Computer-based decision making can apply to the choice of drugs, devices or other biomedical products, procedures, interventions, in vitro and in vivo diagnostics methods and tools, or combined diagnostics and treatments.
- Usage of shared infrastructure and e-infrastructure.
- Linking where possible with the European initiatives that manage databases relevant for personal health as well as with Centres of Excellences for computing applications in the area of biomedicine and bio-molecular research as appropriate.
- Build on and contribute to reusable data & computer models.
**Impact:**

The proposal should provide appropriate indicators to measure its progress and specific impact in the following areas:

- Better translation of Big & Multi-disciplinary Data into predictors for personalised decision making.
- New digitised trusted diagnostic tools, treatments and clinical workflows and improved disease management.
- Links between European research infrastructure projects & networks operating in related domains and contribution to the emergence of a European Data Infrastructure.
- Impact on improving data quality, the interoperability and standards.
Submission Deadline and Budget:
• Submission Deadline: 24 April 2018
• Research and Innovation Action
• Budget: 35M € (expected contribution 10-15M € per proposal)

Link to Participant Portal:
Challenge:

- Large amounts of valuable health data are generated and collected during and between citizens' medical examinations across Europe.
- However, opportunities to reuse these data for research and better healthcare are often missed because health data continue to be confined in data silos, often not matching semantic standards, quality needs and safe data exchange techniques.
- Effort must be invested in standardisation and harmonisation, privacy and security and communication to allow citizen/patient empowerment, advance medical science and improve health for everyone.
**Scope:**

- Developing and testing an extensible, secure and interoperable platform in compliance with the General Data Protection Regulation and the Network and Information Systems directive
- Development of a European prototype implementation with embedded security
- Prototype should be:
  (i) citizen-centered implementation of a platform that can be integrated in a federated platform structure, easy-to-use and secure, constantly accessible and portable within any other Member States of the EU;
  (ii) a data-driven platform to help the scientific community to benefit from user generated data (health, care, and health-related) going beyond the currently established level of implementation.
- Providing a harmonised/standardised and interoperable platform with demonstrated relevant functionalities at the different user levels including, but not limited to:
  - Ingest appropriate and relevant data and information sets in real time or in batch mode, including multilingual text and binary data;
  - Expandable to new fields and datasets, extensible so as to be able to integrate subsequent types of data;
  - Ensure the translations, mappings of source information towards the clinical/database models while using appropriate standards and semantic services;
  - Ensure scalability and performance of the services, such as in a cloud-based platform;
  - [...] see full text of the WP.
Scope (continued):

• Large scale testing and validation in a set of use cases with demonstrated relevance for citizens' health and with involvement of citizens, hospitals, medical doctors, pharmacies and health professionals across Europe.

• Health authorities should be involved in the relevant parts of the proposed work.

• Prototype focus:
  • Citizens' health data generated by the citizens themselves, healthcare professionals or sourced from relevant healthcare organisations.
  • Include relevant components to enable further medical purposes and health research.
  • extensible so as to be able to integrate subsequent types of data such as quantified-self data or Omics data.

• Consortium should cover a wide range of relevant stakeholders with multi-disciplinary expertise in technology, health and care, legal aspects, interoperability and user engagement.

• The design of the prototype should be user driven as to ensure the early buy-in of final users (from citizens to healthcare professionals and scientists). Demonstrate tested and validated functionality in exchange of realistic and fit for the purpose EHR datasets exchange.
**Impact:**

The proposal should provide appropriate indicators to measure its progress and specific impact in the following areas:

- Interoperable and secure electronic health data use across Europe for citizens and for promoting health,
- Improved health services and health conditions, enhanced quality and safety;
- Improved efficiency in terms of health economics such as on timeliness of intervention or measures taken, preventive actions/recommendations;
- Extended healthcare continuum across borders, actors and confinements;
- Improved collection and re-use of data and information sets for citizens' health and related research;
- Open, extensible and harmonisation-based EHR solution for app developers;
- Easy and safe for citizens to donate their health data for research;
- Contribution to the creation of the digital single market providing a scalable, extensible interoperable platform;
- Support integration with services under the Connecting Europe Facility.
Submission Deadline and Budget:
• Submission Deadline: 24 April 2018
• Research and Innovation Action
• Budget: 30M € (expected contribution 6-10M € per proposal)

Link to Participant Portal:
Challenge:

• Building stock in Europe today not fit to support a shift from institutional care to the home-based independent living model for the ageing population;
• Making homes age-friendly should include upgrading existing ICT infrastructure to support digital services for independent living and connected and integrated care including telehealth and telecare, as well as solutions supporting health status and healthy lifestyle (e.g. sensor based physiological measurements, mHealth apps, telepresence, robotics supported living);
• Need to stimulate the emergence of "age-friendly home" conversions for independent living and remote health monitoring, by providing a sound basis for safe investment decisions for procurers, public authorities, industry and citizens;
• Investment (both public and private) barriers: unclear RoI; defining elements of sustainable age-friendly living environments, choice of measures;
• Aim: European reference framework for age-friendly housing;
• Build on the ongoing work in the emerging stakeholder-driven Reference Framework for Age-Friendly Housing and the smart living environments for ageing well as demonstrated in the Large-Scale Pilot on Internet of Things.
Scope:

- Consolidate knowledge from related projects and initiatives;
- Develop the scheme and agree with relevant stakeholders - relevant R&I projects, national initiatives - and others - national schemes, procurers, civil society representatives... on adoption;
- Overview of relevant standards and existing certification / labelling schemes;
- Development and validation of a full concept of a European certification scheme;
- Quality and risk management concept for sustainability and further development;
- Support Leadership in IoT, particularly in the field of smart living environments.
Impact:

The proposal should provide appropriate indicators to measure its progress and specific impact in the following areas:

• Agreement on scheme for European certification;
• Adequate basis for investment decisions in smart living environments for ageing well (both private and public) based on expected returns;
• Proof of increased investment into building stock fit for the longevity challenge.
Submission Deadline and Budget:

• Submission Deadline: 24 April 2018
• Coordination and Support Action
• Budget: 1M € (expected contribution up to 1M € per proposal)

Link to Participant Portal:
**Challenge:**

- Citizens in ageing populations wish to stay in their homes for as long as possible. They're at risk of age related impairments such as poor health, cognitive impairment, frailty and social exclusion;
- Increasing global interest in cooperation on research and innovation addressing this issue with digital solutions and services;
- Necessary to identify the future areas for international cooperation which have the highest potential as well as support the identification and networking of the potential funding organisations which can promote future cooperation;
- In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged, in particular with the US, Canada, Japan, South Korea and China.
**Scope:**

- Develop and deliver a roadmap for international cooperation with key relevant research and innovation areas in digital solutions and services for active and healthy ageing.
- Selection of topics and potential funding schemes.
- Based on a clear methodology taking also into account the European added value and relevant existing and emerging initiatives which can form the basis for such a cooperation.
- Relevant stakeholders are engaged during the process through regional and international workshops and a set of communication and dissemination actions.
Impact:

The proposal should provide appropriate indicators to measure its progress and specific impact in the following areas:

• Increased awareness of relevant research and innovation initiatives by European and International stakeholders;

• Increased international cooperation in research and innovation on ICT for active and healthy ageing through a roadmap of priority areas and potential funding schemes;

• Increased networking of European and international stakeholders interested in international cooperation in the field;

• Improve competitiveness of European industry by opening up international open innovation possibilities and gaining access to future markets.
Additional Eligibility Criteria:

• Proposals shall include at least one participant from the country or region targeted by the action which can demonstrate the necessary knowledge and can help mobilise the relevant international funding bodies.

• The work should also support the ongoing G7 work on innovation and demographic change.

Submission Deadline and Budget:

• Submission Deadline: 24 April 2018

• Coordination and Support Action

• Budget: 2M € (expected contribution up to 2M € per proposal)

Link to Participant Portal:

Challenge:

- DSM Review identified three priorities on digital transformation of health and care (DTHC): citizens' access to their data; data infrastructure; interaction between citizens and healthcare providers for better health management.

- Aligning the efforts of many relevant players across Europe, namely their efforts on research and innovation as well as efforts on deployment, political coordination and stakeholder awareness and mobilisation.

- Already existing European coordinated action, supported through various frameworks such as EIP on AHA, eHealth Network and eHealth stakeholders group.
Scope:

- Support to deliver third DTHC DSM priority - a user-centred integrated care - by supporting and extrapolating the lessons particularly impactful, successful and replicable from practical experiences across Europe.
  - Focus in large scale deployment of digital solutions for chronic diseases and integrated care and patient-centred care.
- Collaboration platforms on key aspects of the three DTHC priorities of the DSM, by identify relevant stakeholders and initiatives across Europe and engage them to collaborate in three areas:
  - Citizens' access and management of data relevant to their health and wellbeing
  - Aggregated demand for infrastructure capacity to handle health data by researchers, developers of products and services and other players involved in the secondary use of data
  - Interaction between citizens and healthcare providers
- DTHC Vision of EU coordination and support beyond 2020
**Impact:**

The proposal should provide appropriate indicators to measure its progress and specific impact in the following areas:

- Effective support to and engagement of stakeholders active on the third DTHC priority of the DSM, resulting in tangible impact from the beginning of the action and sustainably throughout its duration.

- Functional collaboration platforms on key aspects of the three DTHC priorities of the DSM and instrumental contribution to the implementation of EU policy on DTHC in the context of the DSM.

- Actionable strategic vision for EU policy on DTHC beyond 2020, including appropriate mobilisation of EU instruments.
Submission Deadline and Budget:
• Submission Deadline: 24 April 2018
• Coordination and Support Action
• Budget: 4M € (expected contribution up to 4M € per proposal)

Link to Participant Portal:
Challenge

• Health and care service providers and users increasingly facing complex decisions when exploring and investing in new health and care solutions.

• need to support cross-border cooperation

• balance innovation risks with improved outcomes and related unmet needs

• need for implementing high quality policies, strategies and practises in a concerted manner

• for more confidence in addressing key areas of interventions

• need to facilitate an appropriate dialogue with the supply side and academic stakeholders
SC1-HCC-04-2018 Digital health and care services – support for strategy and (early) adoption

**Scope**

- Create **favourable framework conditions** for cross-border Communities of Practice (CoP)

- **Assist the health & care research and innovation ecosystems in taking investment decisions** on future procurement of research and innovation and, eventually, on (large scale) deployment of eHealth systems and new care delivery models.

- **Improve the maturity of the new products** emerging from Europe’s leading Health ICT SMEs

- **Support for management of risk and diverging expectations** in innovation chain

- **consumer health** interlinked with institutional health and care

- **findings in earlier co-ordination and support actions** for procurers as listed in WP
Scope
Parallel activities

(1) Framework for thematic Communities of Practice in digital health and care services

(3) Prepare at least one PCP

Key Areas of Interventions

(2) support sustainable adoption

Market consultation

Open
Open/closed

Innovation support in Horizon 2020

Diversity and maturity of KPAs

*) yellow areas only
**Expected Impact**

- **Concerted approach** and solutions to the challenges faced by the health and care ecosystems as perceived by **service providers and users** in EU

- Well **addressed unmet needs**, reduced fragmentation

- **Evidences of support** and collaboration with consortia developing unmet needs for innovation procurement and **implementation aspects beyond the innovation procurement** procedures

- **Concrete preparation of a cross-border PCP** for at least one shared common procurement need
SC1-HCC-04-2018 Digital health and care services – support for strategy and (early) adoption

Deadline, Budgets, Thresholds

• Submission Deadline: 24 Apr 2018

• Total Call Budgets:
  • CSA
    • 3 million € (EC contribution: maximum 100% of the total eligible costs)

• Cumulative threshold: 10 (3/3/3)
SC1-DTH-10-2019 Digital health and care services (PCP)

Challenge

• pressure on governments to provide cost-effective health and care systems by improving utilisation of healthcare and health outcomes

• network, lead and facilitate health systems research, innovation and digitisation in view of addressing key areas of interventions in health and care services including health promotion and disease prevention.
**Scope**

- Support the health and care service provider to procure industrial R&D services
- Testing and implementation of digital services and communication concepts that can facilitate the transition to integrated care models across health and social services
- **Key areas** that could be addressed: patient empowerment, self-management, patient safety, patient involvement, chronic disease management, diagnosing, hospital and home care logistics, skills and independent living
- Country-specific cross-institutional set-ups
- Includes decentralised procurement environments and collaboration across institutions
SC1-DTH-10-2019 Digital health and care services (PCP)

Scope, cont...

• Driven by clearly identified user needs
• Demonstrate strong commitment of end-users
• As applicable contribute to the use of interoperable solutions
• Compliance with ethical standards and privacy protection
• Include robust time-lines, a well-structured work-plan, compliance with procedures
• Implications for training
SC1-DTH-10-2019 Digital health and care services (PCP)

**Expected Impact**

- **Evidences in Key Performance Areas** i.e., quality in health and care, sustainability of the delivery system and economic value
- Improved **user and market engagement**
- **Strengthened procurement community**
- **Evidence of benefits of disruptive technologies**
- Increased opportunities for solution uptake across **wider international procurement markets by aiming at interoperable solutions**
- Evidence of a healthy innovation ecosystem
SC1-DTH-10-2019 Digital health and care services (PCP)

Deadline, Budgets, Thresholds

• Submission **Deadline: 14 Nov 2018**

• Total Call Budgets:
  
  • 22 million € (EC contribution: maximum *90% of the total eligible costs*)
  
  • proposals requesting a contribution from the EU of around **€5-6M would allow this specific challenge to be addressed appropriately**. Nonetheless, this does not preclude submission and selection of proposals **requesting other amounts**.

  • Proposals of this topic should follow the specific requirements for pre-commercial procurement (PCP) supported by Horizon 2020 grants as set out in Annex E of the WP

  • Cumulative threshold: 10 (3/3/3)

* Note! Deadline 2018 albeit allocated from 2019 budget.
CALL – Trusted digital solutions and Cybersecurity in Health and Care

- Multidisciplinary technologies and solutions in health and care with a focus on cybersecurity
- Secure and user-driven ICT-based solutions in early risk detection and interventions
- Aggregation of a variety of new and existing data sources

FOCUS AREAS
- Digitising and transforming European industry and services
- Boosting the effectiveness of the Security Union

POLICY DRIVERS:
- Connected Digital Single Market
- Big Data in healthcare
- European Data Protection Regulation
CALL – Trusted digital solutions and Cybersecurity in Health and Care

**ICT for Health, Well-being and Active & Healthy Ageing**

- **SU-TDS-02-2018**: Toolkit for assessing and reducing cyber risks in hospitals and care centres to protect privacy/data/infrastructures

- **SU-TDS-03-2018**: Raising awareness and developing training schemes on cybersecurity in hospitals

- **DT-TDS-01-2019**: Smart and healthy living at home
Challenge:

• Digital technologies offer new opportunities to transform healthcare systems and delivery. ICT infrastructures and data have become critical for the functioning of the hospitals and care systems.

• However, due to increasing connectivity, the exposure to risks of cyber-crime is constantly increasing.

• Cyberattacks are a potential danger to the safety of patients and to the privacy of sensitive health data.
**Scope:**

- Development and implementation of innovative methods, tools, guidelines or best practices
- Addressing the need for cybersecurity in hospitals including remote care and homecare settings, such as:
  - identification/authentication systems within hospitals taking into account cross-border requirements and usability;
  - assessing risks and vulnerabilities of hospitals w.r.t cyberattacks;
  - innovative cybersecurity measures;
  - addressing cybersecurity in the whole lifecycle of a medical device including hardware with embedded software, e.g. pacemakers;
- Proposals under this topic may be subject to security scrutiny if they could potentially lead to security-sensitive results that should be classified.
Impact:

The proposal should provide appropriate indicators to measure its progress and specific impact in the following areas:

- Improved security of Health and Care services, data and infrastructures;
- Less risk of data privacy breaches caused by cyberattacks;
- Increased patient trust and safety.
Submission Deadline and Budget:

• Submission Deadline: 24 April 2018
• Research and Innovation Action
• Budget: 35M € (expected contribution 3-5M € per proposal)

Link to Participant Portal:
Challenge:

• ICT infrastructures & data have become critical for the functioning of the hospitals and care systems.
• Due to increasing connectivity, the exposure to risks of cyber-crime is constantly increasing.
• Cyberattacks are a potential danger to the safety of patients and privacy of sensitive health data.
• Some cybersecurity threats are caused by human errors or ignorance.
Scope:

• Awareness raising of staff working in healthcare settings on security and data privacy is important to reduce cybersecurity vulnerabilities and exposure.

• Training of IT staff working in healthcare settings is of high priority in order to enforce the knowledge on information security processes and data protection procedures.

• This may include proactive managerial and technological strategies to reduce vulnerabilities e.g. best practices to minimize the potential for becoming a victim of phishing and ransomware or strategies to respond to attacks.

• Appropriate training on the permitted use of patient health data/information according to the requirements of relevant data protection law(s) is also a priority.

• Proposals under this topic may be subject to security scrutiny if they could potentially lead to security-sensitive results that should be classified.
**Impact:**

The proposal should provide appropriate indicators to measure its progress and specific impact in the following areas:

- Less human errors causing cybersecurity threats;
- Less risk of data privacy breaches;
- Reduced cybersecurity vulnerability of Health and Care services, data and infrastructures;
- Increased patient trust and safety.
Submission Deadline and Budget:

• Submission Deadline: 24 April 2018
• Coordination and Support Action
• Budget: 1M € (expected contribution up to 1M € per proposal)

Link to Participant Portal:
Challenge:

- Citizens at greater risk of cognitive impairment, frailty and multiple chronic health conditions with considerable negative consequences for their independence, quality of life and for the sustainability of health and care systems;

- Foster large-scale deployment of trusted IoT based integrated digital solutions which will bring improved quality of life to citizens while demonstrating significant efficiency gains in health and care delivery across Europe.
Scope:

• Pilots to build on open platforms, standardised ontologies, APIs and results from IoT-based smart living environments, service robotics and smart wearable & portable systems;
• Go beyond current state of the art in terms of scale, the capabilities for personalisation, adaptation, and user acceptance;
• Providing evidence of benefits through demand and supply side cooperation in large scale pilots, with at least four pilot sites in four countries;
• Clear methodology and impact indicators required for return of investment, sufficient users to achieve significance in impact analysis, where possible using the MAFEIP methodology;
• Focus on Interoperability, integration with other application domains, data models, trust and security.
Scope (continued):

One of two Areas can be addressed:

1. Intelligent and personalised solutions for sustaining and extending healthy and independent living support to older individuals at risk of temporary or permanently reduced functionality and capabilities

OR

2. Personalised early risk detection and intervention
   Innovative solutions for prevention and treatments based on early risk detection for people facing increased health and social risks
Impact:

- Emergence of European-led platforms for smart and healthy and independent living at home;
- Increased competitiveness of the European ICT industry in the domain, through enhanced interoperability, best practices for viable business and financing models and scalable markets;
- Demonstrate links and build synergies with Member States' and regional initiatives in this area;
- Improved and evidence-based efficiency of health and care systems with demonstrated added-value of underlying technologies;
- Improved quality of life and health status for involved users and carers, with demonstrated added-value of underlying technologies;
- User accepted, validated innovative solutions addressing accessibility, privacy, security, vulnerability, liability, and trust in connected data spaces.
Submission deadline and budget:

• Submission Deadline: 14 November 2018
• Innovation Action
• Budget: 60M € (expected contribution up to 15-20M € per proposal)

Link to Participant Portal:


European Innovation Partnership on Active and Healthy Ageing (EIP on AHA): [https://ec.europa.eu/eip/ageing/home_en](https://ec.europa.eu/eip/ageing/home_en)


H2020 Some relevant links


Large-Scale Pilot Iot: Activating Innovative IoT Smart living environments for ageing well


H2020 Some relevant links

- **Horizon2020 web site**
  http://ec.europa.eu/programmes/horizon2020

- **Participants portal**
  http://ec.europa.eu/research/participants/portal

- **H2020 Helpdesk**, including FAQ
  http://ec.europa.eu/research/index.cfm?pg=enquiries

- **H2020 SC1 Work Programme**
Questions?

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

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